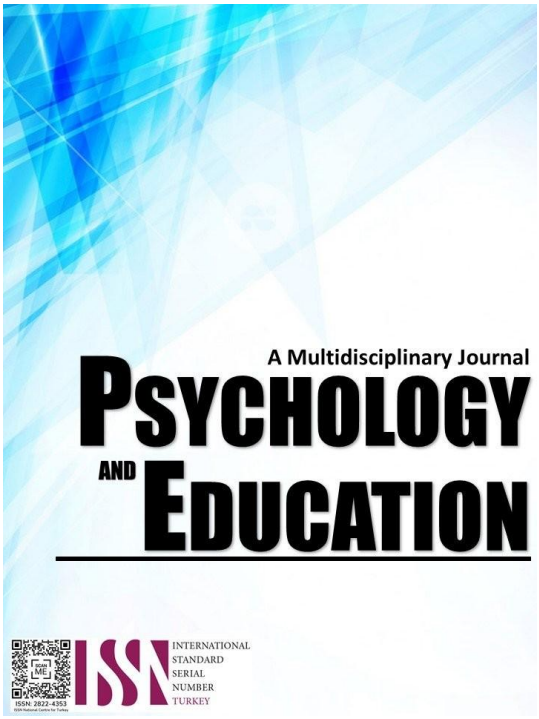
EDUCATIONAL EFFECTIVENESS OF MATHEMATICS TEACHERS IN THE SCHOOLS DIVISION OF MARINDUQUE: INPUTS FOR A PROPOSED INTERVENTION



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Research Article

Educational Effectiveness of Mathematics Teachers in the Schools Division of Marinduque: Inputs for a Proposed Intervention

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Abstract

This study explored the educational effectiveness of Mathematics teachers in public secondary schools within the Department of Education, Division of Marinduque, and examined the significant differences among the job - related challenges, teacher job performance, and learners' academic achievement based on the professional profiles of Mathematics teachers. The study revealed a significant gap in the challenges faced by Mathematics teachers, particularly in addressing students' weak foundational knowledge in mathematics and developing their higher-order thinking skills. This gap in foundational knowledge prevented students from advancing to more complex mathematical concepts and developing essential cognitive abilities. The study also found significant differences in teachers' job performance and students' academic achievement based on teacher profiles. Teachers with fewer than five years of service and those with higher academic qualifications demonstrated better performance, likely due to increased motivation and instructional effectiveness. This led to the rejection of the null hypothesis for teacher performance. Similarly, students taught by teachers with fewer than five years of service, as well as those with 16–20 years of experience, performed better, resulting in the rejection of the null hypothesis for student achievement. The study highlighted the need to address the gap in students' foundational knowledge and their ability to develop higher-order thinking skills. It recommended targeted interventions to support teachers in overcoming these challenges and improving both teaching effectiveness and student performance.

Keywords: *educational effectiveness, mathematics teachers, job-related challenges, teacher performance, academic achievement*

Introduction

Mathematics teachers are vital in the teaching–learning process, as they strongly shape students' comprehension of the subject and foster their interest in it. Developing critical thinking, problem-solving abilities, and a positive attitude toward mathematics were among their primary duties in addition to teaching mathematical knowledge. Effective mathematics teaching requires teachers to be well-versed in pedagogical strategies that cater to varied learning needs and styles. Students felt motivated to take chances, investigate mathematical ideas, and relate what they were learning to practical applications by the stimulating learning atmosphere they established. To improve conceptual understanding, this required the use of a variety of teaching strategies, including inquiry-based learning, collaborative learning, and the use of tangible materials.

There has been a change in the global educational landscape toward student-centered learning, which emphasizes the value of classroom discussion and active participation. Rather than limiting students to memorizing procedures, mathematics teachers were encouraged to facilitate discussions that promoted a deeper understanding of concepts. In the Philippines, this shift was evident as educators were increasingly urged to adopt innovative teaching strategies that nurtured students' interest and critical thinking skills.

Mathematics education in the Philippines has consistently adapted to address the demands of an ever-changing world. The importance of data analysis and technological advancements has made mathematics more relevant than ever across industries. The National Learning Camp (NLC), established by the Department of Education (DepEd) through DepEd Order No. 014, s. 2013, aims to strengthen student learning outcomes while simultaneously enhancing teacher capacity. The department's commitment to addressing the learning loss exacerbated by the pandemic included the National Learning Recovery Program, of which the NLC program was a vital initiative. This program was introduced as a response to the consistently low performance of students in International Large-Scale Assessments (ILSAs), such as the Southeast Asia Primary Learning Metrics (SEA-PLM) and the Programme for International Student Assessment (PISA), as well as in the National Achievement Test (NAT). These assessments underscored a pressing learning crisis that required immediate intervention (Palaubsanon, 2024).

Teachers play a vital role in ensuring that students not only understand mathematical concepts but also develop an appreciation for the subject, which greatly enhances their analytical and problem-solving skills. With the dedication of committed educators, the Philippines can nurture students who are well-rounded, values-driven, equipped with 21st-century skills, and prepared to contribute meaningfully to the nation's development. To address the gaps in the current K–12 educational system, the Department of Education introduced the MATATAG Curriculum, which emphasizes values education (Good Manners and Right Conduct), alongside strengthening foundational skills in language, reading, and mathematics. The Department of Education introduced the MATATAG Curriculum to address the deficiencies of the current K–12 educational system. It aims to ease the academic burden on both teachers and students while strengthening foundational skills to improve learning outcomes. Aligned with the Good Manners and Right Conduct (GMRC) and Values Education Act, the curriculum places emphasis on values education, as well as language, reading, and mathematics

proficiency. Teachers employ varied strategies and approaches to deliver these competencies effectively.

To ensure success and efficiency in the classroom, teachers gave careful thought to developing lesson plans that were both effective and well-structured. Effective teaching requires careful consideration of several factors, including the classroom environment, students' abilities and aptitudes, and their level of interest in the subject. Teachers adopted strategies suited to the diverse skills of their learners. Active student participation in class discussions was viewed as crucial to the learning process, making motivation and engagement key priorities. According to Spencer (2018), effective classroom management fosters an optimal learning environment that empowers students to excel academically and reach their full potential.

To assess student learning, teachers dedicated time to preparing quarterly evaluations. They ensured that all required competencies for the quarter were addressed in the exams and worked to close any identified knowledge gaps. At the end of the year, teachers reviewed the quarterly reports to identify which mathematical skills had been least mastered, allowing them to ensure that every topic was adequately taught and reinforced.

Despite the Department of Education's initiatives to strengthen mathematics proficiency and teachers' careful preparation for the teaching–learning process, students in the Philippines continued to show significant learning gaps, reflected in persistently low exam scores. Research indicates that Filipino students consistently perform poorly in both national and international assessments, highlighting deficiencies in core skills such as reading comprehension and basic mathematics. According to the 2022 Programme for International Student Assessment (PISA) results, the Philippines recorded average scores of 356 in science (third from the bottom), 356 in mathematics, and 347 in reading (sixth from the bottom). National Achievement Test (NAT) results in recent years mirror this international performance. In 2018, Grade 6 students posted the lowest national mean percentage score in NAT history at 37.44, a sharp decline from 70.88 in 2015, dropping to 42.03 in 2016 and 39.95 in 2017. For Grade 10, scores fell from 53.77 in 2014 to 44.08 in 2017, with only a slight increase to 44.59 in 2018. The most recent NAT results placed both grade levels under the "low mastery" category (Inquirer.net).

A pressing issue that has significantly affected the Philippine educational system and student outcomes is the declining quality of teachers. Recent studies have identified weak teacher education programs as a major contributing factor. According to a United Nations International Children's Emergency Fund (UNICEF) policy brief, teacher candidates must complete a four-year degree program and pass the Board Licensure Exam to teach in public schools. However, pre-service training often leaves them inadequately prepared to handle real classroom challenges. The brief emphasized the need for continuous professional development to strengthen teachers' subject-matter expertise and instructional skills. Research published in Frontiers (2024) also evaluated the quality of graduates from Philippine Teacher Education Institutions (TEIs). While licensure exam performance showed improvement between 2017 and 2019, many graduates were still found to lack the essential competencies for effective teaching. The study further highlighted that socioeconomic status and educational background significantly influence teaching performance.

Based on the above scenarios, the researcher's study aimed to explore the educational effectiveness of Mathematics teachers in terms of job – related challenges, job performance, and learners' academic achievement in public secondary schools within the Department of Education, Division of Marinduque, and assessed the significant differences in educational effectiveness based on the professional profiles of the teachers. The findings of this study will help shape proposed interventions and contribute to the improvement and advancement of the educational system.

Research Questions

This study explored the educational effectiveness in terms of teachers' job – related challenges, teachers' job performance, and learners' academic achievement in public secondary schools within the Department of Education, Division of Marinduque. Specifically, it aimed to answer the following questions:

1. What is the professional profile of the respondents in terms of:
    1.1. length of service;
    1.2. teaching position;
    1.3. area of specialization;
    1.4. academic qualification; and
    1.5. number of training and seminars attended?
2. How do the educational effectives of mathematic teachers in public secondary schools in the division of Marinduque be described in terms of:
    2.1 teachers job-related challenges
        2.1.1 personal-related challenges;
        2.1.2 teaching preparation and instructional delivery-related challenges;
        2.1.3 assessing student learning - related challenges;
        2.1.4 peer-related challenges;
        2.1.5 classroom management-related challenges; and
        2.1.6 intervention-related challenges?
    2.2 teachers' job performance and

2.3 learners' academic achievements in Mathematics?

3. Is there a significant difference in teachers' job - related challenges, teachers' job performance, and learners' mathematics achievements when the respondents are grouped according to profile variables?
4. What interventions can be proposed based on the findings of the study?

Methodology

Research Design

The research design of this study employed a mixed-methods approach, integrating both quantitative and qualitative data to provide a holistic view of the challenges of Junior High school teachers handling Mathematics subjects. The quantitative aspect focused on measuring specific variables, such as: (a) the professional profile of the respondents; (b) level of challenges encountered by the respondents; (c) job - performance of mathematics teachers, and academic achievements of learners in mathematics, and (d) significant difference in teachers' job - related challenges, teachers' performance and learners' mathematics achievements when the respondents are grouped according to profile variables. Survey questionnaires were employed to investigate the job – related challenges of mathematics teachers and to evaluate the significant differences based on the teachers' professional profiles. The collected data were subjected to statistical analysis to determine trends and significant differences, thereby providing insights into the teachers' professional profiles and challenges faced by mathematics teachers.

Alongside the quantitative measures, the qualitative component of the research design involved collecting in-depth information through interviews and focus group discussions with mathematics teachers. This qualitative data provided deeper insights into the challenges faced by the respondents. Overall, the mixed descriptive research design not only addressed the specific research questions of the study but also served as the basis for proposing an intervention for mathematics teachers and learners. The findings further informed educational stakeholders of necessary adjustments to optimize learning recovery efforts and address the existing learning gaps in mathematics."

Participants

The population of this study consisted of selected Junior High School Mathematics teachers from the Schools Division of Marinduque. To ensure representativeness, the researcher employed a stratified random sampling technique. Stratified sampling involves dividing the population into subgroups, or strata, based on characteristics relevant to the study and then selecting samples from each group (Bluman, 2012). For this study, the nine districts of the division served as the strata. Out of the total 154 teachers who handling Mathematics subject in the Junior High School in the division of Marinduque, 111 were chosen as respondents using Slovin's formula. Stratified random sampling ensured that the sample reflected the composition of the entire population, thereby reducing bias and strengthening the validity and reliability of the findings (GCU, 2023). The respondents of the study were Junior High School teachers handling Mathematics subjects.

Instrument

The study utilized the following instruments:

To collect the necessary data, the researcher utilized a research-made survey questionnaire as the primary instrument. This questionnaire was subjected to validation by experts and knowledgeable sources to ensure its reliability and accuracy. In addition to the survey, the researcher conducted interviews and focus group discussions with mathematics teachers to obtain in-depth qualitative information. These qualitative inputs uncovered the challenges encountered by the respondents and, when integrated with the survey data, enhanced the trustworthiness and dependability of the findings. The survey questionnaire consisted of two main parts: Part I: Profile of the Respondents focused on gathering demographic information such as length of service, teaching position, area of specialization, academic qualification, and training or seminars attended; Part II: Job – Related Challenges of teachers was designed to elicit data on the specific challenges faced by junior high school mathematics teachers; Part III: Teachers' Job Performance and Learners' Academic Achievement.

Responses regarding the level of agreement on the identified challenges were analyzed and presented with descriptive interpretations to facilitate clarity and ease of understanding. This approach ensured that the findings were not only statistically sound but also meaningful and accessible to both educators and stakeholders.

To obtain the necessary data, the researcher utilized existing records, specifically learners' academic performance as reflected in periodical test results and teachers' job performance as measured by their Individual Performance Commitment and Review Form (IPCRF).

Procedure

The following steps were undertaken to gather the necessary data for the study:

Seeking Approval to Conduct the Study: First, the researcher sought permission from the Dean of the Marinduque State University (MarSU) Graduate School to conduct the study. Upon receiving approval, the researcher then secured authorization from the Schools

Division Superintendent, Public Schools District Supervisors, and School Heads to administer the study in the selected schools.

Questionnaire Validation: Prior to data collection, the survey questionnaire and self-structured interview guide were subjected to content validation by four experts: (1) the research adviser, (2) a research expert, (3) a statistician, and (4) a language critic. These validators provided comments and suggestions that were incorporated to enhance the trustworthiness and dependability of the instrument. A pilot test was then conducted with teachers who were not part of the study to identify and address potential issues, thereby refining the questionnaire before its administration to the selected respondents. Reliability testing further confirmed that the questionnaire was highly suitable for gathering the required data.

Administration and Retrieval of Questionnaires: After the validation of the questionnaires and the approval from the institution to conduct the study, the survey questionnaire—either in printed form or e-copy—was distributed to the selected respondents personally or virtually. To obtain reliable data on the challenges faced by mathematics teachers, the researcher employed both survey questionnaires and semi-structured interviews. The interviews required direct interaction between the researcher and the participants, and a video recorder was utilized to capture and document the details of the discussions accurately.

Collation, Organization, and Analysis of Data: The researcher retrieved the records and survey questionnaires, then sorted and tallied the collected data. The data were subjected to statistical treatment with the assistance of a statistician. Specifically, frequency counts and percentages were used to describe the profile of the respondents, while weighted mean and standard deviation were employed to determine the level of challenges encountered by mathematics teachers. Analysis of variance (ANOVA) and correlation analysis were applied to examine the relationships between teachers' experiences, job performance, and learners' academic achievement. The researcher then interpreted and analyzed the results, presenting them in both textual and tabular form, aligned with the sub-problems and hypotheses of the study.

Crafting of the Institutional Research Development Plan: Based on the analysis of the results and the identification of key challenges faced by mathematics teachers, the researcher formulated a proposed intervention plan aimed at enhancing teaching practices, addressing instructional difficulties, and improving students' academic performance in mathematics.

Data Analysis

Responses to the survey questionnaire were statistically analyzed using SPSS to ensure precise and accurate interpretation of the results. The analysis involved both descriptive and inferential statistical methods to explore the job-related challenges faced by Mathematics teachers, their performance, and the academic achievement of learners.

The following statistical treatments were employed:

Frequency and Percentage were used to indicate the proportion of respondents across different variables and to determine the distribution relevant to Sub-Problem 1. Weighted Mean aggregates a set of scores by assigning different weights to individual values (Bluman, 2012). It was applied to analyze Sub-Problem 2, providing a comprehensive measure of respondents' ratings. A five-point Likert Scale was used to interpret respondents' perceptions and levels of agreement, serving as the standard for classifying and clarifying the data. Standard Deviation provides valuable insights into how consistent or varied the experiences of mathematics teachers are when it comes to challenges. By applying standard deviation, it identifies which challenges are widespread and need more attention, assesses the level of agreement among teachers, and gains a deeper understanding of how teachers perceive their difficulties.

Non-parametric tests were statistical techniques applied to data that did not meet the assumptions required for parametric tests, particularly the assumption of normality. These tests were especially useful when the data were ordinal, the sample size was small, or the data did not follow a normal distribution. In this study, non-parametric tests were employed to determine whether there were significant differences between groups. A significance level of $\alpha = 0.05$ was set. If the p-value obtained from the test was below 0.05, the null hypothesis was rejected, indicating a significant difference between the groups. If the p-value exceeded 0.05, the null hypothesis was not rejected, suggesting no significant difference.

Ethical Considerations

The researcher adhered to strict ethical standards to ensure the protection, confidentiality, and well-being of all participants. Informed consent was obtained from each participant before data collection, with the participants fully informed about the study's purpose, procedures, and any potential risks. They were made aware that participation was voluntary, and they had the right to withdraw from the study at any time without facing any consequences. A consent form was provided, which outlined these details, and participants were required to sign the form to confirm their understanding and willingness to participate.

Confidentiality was a priority throughout the study. The identities of the participants were kept anonymous, and no personal identifying information was collected. Responses from the survey questionnaires and interviews were treated with strict confidentiality. Data was stored securely and was accessible only to the researcher. Additionally, all responses were aggregated to ensure that no individual could be identified in any reports or findings. Participants were assured that they had the right to withdraw from the study at any time without facing any penalty or negative consequences. They were informed that such a decision would not affect their job performance or their relationship with the researcher. Efforts were made to minimize any potential harm or discomfort, as the study focused on professional

challenges that were unlikely to cause emotional or psychological distress. Nevertheless, participants were given the option to withdraw if they felt uncomfortable at any point, and support resources were available if needed. Lastly, the researcher followed ethical practices to safeguard the rights and welfare of the participants. All aspects of the study, including informed consent, confidentiality, the right to withdraw, and the use of data, were handled in a manner that respected the participants' autonomy and dignity.

Results and Discussion

This section presents, analyzes, and discusses the study's findings, with data summarized in tables.

Professional Profile of the Respondents

The respondents' professional profiles were summarized using descriptive statistics to evaluate their potential influence on learners' academic performance. Of the 154 Junior High School Mathematics teachers in the Schools Division of Marinduque, 111 participated. The table below presents the professional profile by length of service, teaching position, area of specialization, academic qualification, and number of training and seminars attended.

Table 1. *Professional Profile of Junior High School Mathematics Teachers in the Schools Division of Marinduque*

Profile	*Frequency*	*Percentage*
Length of Service		
31 and above	9	8.1
26 – 30 years	1	0.9
21 – 25 years	5	4.5
16 – 20 years	7	6.3
11 – 15 years	18	16.2
6 – 10 years	56	50.5
Less than 5 years	15	13.5
Total	111	100
Teaching Position		
Master Teacher I	4	3.6
Teacher III	43	38.7
Teacher II	23	20.7
Teacher I	41	36.9
Total	111	100
Area of Specialization		
Mathematics	108	97.3
Science	3	2.7
Total	111	100
Academic Qualification		
Doctorate Degree	1	0.9
Doctorate Degree with units	5	4.5
Master's Degree	11	9.9
Master's Degree with units	71	64.0
Bachelor's Degree	23	20.7
Total	111	100
Number of Training and Seminars Attended		
31 and above	2	1.8
26 – 30	2	1.8
21 – 25	2	1.8
16 – 20	9	8.1
11 – 15	9	8.1
6 – 10	26	23.4
0 – 5	61	55.0
Total	111	100

Table 1 shows the demographic and professional profiles of 111 Mathematics teachers, offering valuable insight into their backgrounds and experience. In terms of years of service, the majority of respondents (50.5%) have been teaching for 6 to 10 years, indicating a relatively young workforce with moderate experience. This suggests that many educators are still in the formative stages of their careers and are actively refining their pedagogical skills. A smaller proportion (0.9%) has served for 26-30 years or longer, representing a seasoned group whose extensive experience may contribute significantly to institutional memory and mentoring. As Enu et al. (2015) note, experienced educators often possess refined classroom management strategies and instructional techniques that positively impact student learning. However, it is important to emphasize that longevity alone does not guarantee effectiveness; the ability to adapt to evolving educational standards remains essential. Unal (2012) further argues that experienced teachers often exhibit better control and effectiveness in classroom management compared to their novice counterparts, reinforcing the idea that years of service contribute to

enhanced handling of classroom challenges.

Regarding teaching positions, the largest proportion of respondents holds the rank of Teacher III (38.7%), closely followed by Teacher I (36.9%). This distribution reflects a balance between entry-level and more advanced roles, suggesting ample opportunities for peer mentoring and professional collaboration. Such diversity in rank fosters a dynamic teaching environment where knowledge transfer between novice and experienced educators can thrive. Zhao et al. (2019) highlight that teachers in higher positions often have enhanced access to instructional resources and leadership opportunities, which can further elevate teaching quality. However, disparities in role expectations and support systems may influence student outcomes if not addressed equitably. Catan (2019) also notes that teachers in leadership positions may face additional administrative burdens, which could detract from their primary focus on teaching.

In terms of area of specialization, an overwhelming majority (97.3%) of respondents specialize in mathematics, with only 2.7% specializing in science. This concentration aligns with the study's focus and highlights the respondents' commitment to their discipline. According to Becker and Park (2011), subject-specific expertise allows teachers to deliver more coherent and contextually relevant instruction, minimizing the likelihood of conceptual gaps in student understanding. A solid foundation in mathematics is particularly essential for developing analytical thinking and problem-solving skills among learners. Tawil (2024) further emphasizes that specialized mathematics training enhances teachers' instructional capacity in both content and pedagogy.

The data on academic qualifications reveal a strong level of educational attainment. The majority of respondents (64.0%) hold a Master's Degree with units, indicating a collective commitment to professional growth and instructional excellence. However, only 0.9% have completed a Doctorate Degree, suggesting that while graduate-level education is common, the pursuit of terminal degrees is less frequent. Leonard and Okpala (2021) argue that teachers with advanced degrees are better equipped to navigate complex curricular demands and implement innovative teaching strategies. Likewise, Krimbill (2022) confirms that teachers with advanced degrees contribute to enhanced student success by leveraging specialized knowledge for effective teaching. Panganti et al. (2025) found that advanced qualifications improve classroom management and assessments, with experience further boosting effectiveness. Lee (2020) supports these findings, showing that advanced degrees improve subject knowledge and teaching strategies, ultimately leading to better student performance. These studies underscore the importance of investing in teacher qualifications to improve educational outcomes.

Finally, the profile of training and seminar attendance reveals that a majority (55.0%) have participated in 0-5 professional development activities. While this indicates some engagement with continuing education, it also highlights the need for more frequent and accessible training opportunities. Expanding professional development initiatives can help teachers stay current with emerging pedagogical trends and integrate evidence-based practices into their classrooms. Cabrera (2018) suggests that teachers who regularly engage in training and seminars are better prepared to address challenges in instructional delivery and assessment. This aligns with the findings of Dicdiquin et al. (2023), who reported that professional development programs for mathematics teachers in the Philippines enhanced teachers' knowledge and confidence in teaching mathematics, thereby improving their instructional practices. Moreover, the demographic profile of the respondents underscores the interaction between experience, teaching position, specialization, academic qualifications, and professional development in shaping the effectiveness of mathematics educators. Strengthening these dimensions through targeted support and capacity-building initiatives can lead to improved instructional practices and enhanced student outcomes in mathematics education.

Job - Related Challenges of Mathematics Teachers in Junior High School

This part presents the challenges faced by Junior High School mathematics teachers in the Schools Division of Marinduque across six domains: personal, teaching preparation and instructional delivery, assessment of student learning, peer relations, classroom management, and interventions.

Personal-Related Challenges

Table 2. *Extent of Personal-Related Challenges among Junior High School Mathematics Teachers in the Schools Division of Marinduque*

Indicators / *Personal-related challenges*	*Mean*	*SD*	*Verbal Interpretation*
1. I find it challenging to balance teaching responsibilities with personal obligations.	3.20	1.09	Average Challenge
2. I often struggle to allocate sufficient time for lesson preparation and grading.	3.02	1.06	Average Challenge
3. My teaching responsibilities frequently interfere with my personal life.	2.86	1.06	Average Challenge
4. I feel overwhelmed by the demands of both work and home responsibilities.	3.10	0.98	Average Challenge
5. I often experience stress due to high expectations from students, parents, or administrators.	3.10	1.14	Average Challenge
6. I struggle to keep up with new trends and methodologies in Mathematics education.	3.06	1.00	Average Challenge
7. My health is negatively impacted by the pressures of teaching Mathematics.	2.59	1.01	Low Challenge
8. I struggle to find or access resources that enhance my teaching of Mathematics.	2.79	1.00	Average Challenge
9. I find it difficult to adjust to sudden changes in teaching policies or curricula.	2.95	1.07	Average Challenge
10. I struggle to adapt my teaching strategies to accommodate diverse learners in Mathematics.	3.07	1.09	Average Challenge
Mean	2.97	1.05	Average Challenge

Legend: 5 (4.20–5.00) – Very High Challenge; 4 (3.40–4.19) – High Challenge; 3 (2.60–3.39) – Average Challenge; 2 (1.80–2.59) – Low Challenge; 1 (1.00–1.79) – Very Low Challenge.

Table 2 shows the personal-related challenges faced by Junior High School Mathematics teachers in the Schools Division of Marinduque. With an overall mean score of 2.97 (SD = 1.05), the respondents report these challenges as an "Average Challenge." This suggests that while the difficulties are not overwhelming, they are common enough to warrant attention. The moderate standard deviation (SD = 1.05) reflects the variation in how these challenges are perceived by different teachers, indicating that some experience more difficulty than others, though the overall trend points to an average level of challenge. Turino et al. (2024) highlighted that the dual demands of academic and family responsibilities often lead to stress and burnout, which aligns with the challenges reported by teachers in this study regarding the balance between work and personal life. Among these personal-related challenges, balancing teaching responsibilities with personal obligations was rated the highest, with a mean score of 3.20 (SD = 1.09). This result underscores the strain that many teachers feel in managing both professional and personal responsibilities. The SD value of 1.09 suggests considerable variability in how this challenge is experienced—while some teachers find it particularly challenging, others experience it less intensely. Turino et al. (2024) noted that such difficulties can contribute to emotional and physical stress, leading to burnout, which in turn can impact teaching effectiveness and overall well-being. Similarly, Cevikbas et al. (2024) discussed how the overwhelming demands of both work and home responsibilities contribute to mental health concerns and job dissatisfaction among teachers.

Additional challenges related to time management were also rated as Average Challenges. For instance, struggling to allocate sufficient time for lesson preparation and grading (M = 3.02, SD = 1.06) and feeling overwhelmed by work and home responsibilities (M = 3.10, SD = 0.98) reflect the time constraints teachers face. The variability in these challenges is indicated by the standard deviations, showing that while most teachers report them as average challenges, there is noticeable variation in individual experiences. Jagiello et al. (2024) emphasized that managing multiple demands is a frequent source of stress for educators, contributing to feelings of inadequacy and frustration, which were also observed in the findings of this study.

Another challenge, related to stress from high expectations imposed by students, parents, and administrators, was rated at M = 3.10 (SD = 1.14). This suggests that many teachers feel significant stress due to the pressure of meeting the expectations of multiple stakeholders. The SD value of 1.14 indicates that the stress level varies widely among teachers, with some feeling substantial pressure, while others may experience less strain. This finding is consistent with Camangyan (2023), who argued that unrealistic expectations placed on teachers can result in heightened stress. Furthermore, Jagiello et al. (2024) found that excessive expectations, combined with limited resources, significantly contribute to teachers' feelings of burnout.

In terms of adapting to new trends and methodologies in Mathematics education (M = 3.06, SD = 1.00) and accommodating diverse learners (M = 3.07, SD = 1.09), teachers also rated these as Average Challenges. The variability indicated by the SD values suggests that while most teachers find it difficult to keep up with new teaching practices or adapt their strategies, the degree of difficulty varies. Some teachers may find adaptation easier, while others face more pronounced challenges. Cevikbas et al. (2024) highlighted that keeping pace with new teaching methods and differentiating instruction for diverse learners is a challenge for many educators. Similarly, Prediger and Buró (2024) noted that adapting to evolving pedagogical strategies can be overwhelming, especially for teachers with less experience or support.

Interestingly, the lowest-rated challenge was health concerns related to teaching pressures (M = 2.59, SD = 1.01), which falls under the Low Challenge category. While some teachers recognize the negative impact of work-related stress on their health, this issue was not widely regarded as a major challenge. The SD value of 1.01 suggests moderate variability in how teachers perceive the impact of teaching pressures on their health. Some teachers report significant health concerns due to stress, while others do not perceive any major effects. This finding contrasts with Jimenez (2021), who identified a stronger link between stress and health outcomes among teachers, suggesting that the physical and emotional toll of teaching can lead to chronic health problems.

Lastly, the challenge of adjusting to sudden changes in teaching policies or curricula was rated at M = 2.95 (SD = 1.07), which falls under the Average Challenge category. The SD value indicates variability in how teachers perceive this challenge. Some find it easier to adjust to policy changes, while others experience more difficulty. This finding aligns with Bongco and De Guzman (2022), who discussed the difficulties teachers face when adapting to frequent changes in educational policies. They argued that continuous changes in curricula and teaching methods create confusion and frustration among educators, ultimately hindering their ability to provide consistent and effective instruction.

Overall, the mean score of 2.97 (SD = 1.05) indicates that Junior High School Mathematics teachers in Marinduque experience these personal-related challenges at an average level. While the challenges are not overwhelming, they are common enough to require attention. Teachers face difficulties in managing work-life balance, dealing with high expectations, and adapting to evolving teaching practices. The variability in how these challenges are experienced highlights the importance of addressing them with targeted interventions. Schools and educational institutions can support teachers by offering strategies for managing workload, providing professional development opportunities, and promoting work-life balance. By addressing these challenges, schools can create a more supportive environment that helps teachers thrive both personally and professionally.

The findings are supported, as mentioned by teacher A during the interview, "Balancing my teaching duties with family responsibilities is really tough. I need to budget my time and make a schedule. Sometimes I feel overcommitted trying to meet school expectations while also managing things at home. The pressure can be overwhelming, especially when new teaching methods are introduced, like

integrating Khan Academy as part of teaching – learning process, and I have to adjust quickly."

Teacher B shared, "Keeping up with the latest trends and adapting my lessons to different student needs has been challenging. Like now, the implementation of the MATATAG curriculum, there are changes in some contents, which means another adjustment for the lesson plan and visual aids. It requires a lot of extra effort and time, but I know it is important for student learning. Still, the constant changes in curriculum policies make it harder to stay focused and confident."

Teacher B added a contrasting perspective regarding health: "Although the job is stressful, I do not feel it has seriously affected my health. I have maximum teaching loads, and some paperwork is done at home, but I think I've learned ways to cope and manage stress better than I used to."

Teaching Preparation and Instructional Delivery - Related Challenges

Table 3. *Extent of Teaching Preparation and Instructional Delivery - Related Challenges among Junior High School Mathematics Teachers in the Schools Division of Marinduque*

Indicators	*Mean*	*SD*	*Verbal Interpretation*
Teaching preparation and Instructional delivery - related challenges			
1. I struggle to prepare lesson plans that align with the curriculum standards.	2.64	1.09	Average Challenge
2. I find it difficult to stay updated on new mathematical concepts and topics.	2.71	0.91	Average Challenge
3. I find it difficult to deliver mathematical concepts in a class with a poor foundation in Mathematics.	4.01	1.11	High Challenge
4. I struggle to develop the higher-order thinking skills of the students.	3.70	0.96	High Challenge
5. I sometimes feel unprepared to address advanced topics in Mathematics.	2.75	0.88	Average Challenge
6. I face difficulties in preparing teaching materials that cater to diverse learning styles.	3.02	0.95	Average Challenge
7. I struggle to find adequate resources to develop effective instructional materials.	2.79	0.88	Average Challenge
8. I face challenges in incorporating technology into my lesson plans.	2.95	1.03	Average Challenge
9. I find it challenging to maintain student engagement during Mathematics lessons.	3.16	1.01	Average Challenge
10. I struggle to use diverse teaching strategies to make lessons interactive and interesting.	3.11	0.92	Average Challenge
11. I struggle to simplify complex mathematical ideas for students with limited prior knowledge.	3.45	1.09	High Challenge
12. I struggle to manage disruptions that hinder effective instructional delivery.	2.95	0.93	Average Challenge
13. I face difficulties in adapting my instructional strategies for students with different learning needs.	3.05	0.99	Average Challenge
14. I struggle to provide equal attention to both advanced and struggling learners in mathematics.	3.07	0.93	Average Challenge
15. I struggle to monitor and track individual student progress effectively.	2.85	0.97	Average Challenge
Mean	3.08	0.972	Average Challenge

Legend: 5 (4.20–5.00) – Very High Challenge; 4 (3.40–4.19) – High Challenge; 3 (2.60–3.39) – Average Challenge; 2 (1.80–2.59) – Low Challenge; 1 (1.00–1.79) – Very Low Challenge.

Table 3 outlines the teaching preparation and instructional delivery challenges faced by Junior High School Mathematics teachers in the Schools Division of Marinduque. The mean score of 3.08 (SD = 0.97) indicates that these challenges are perceived as average in intensity. While teachers commonly encounter these challenges, the degree to which they affect individual educators varies. The standard deviation of 0.97 further underscores this variability, showing that some teachers experience these difficulties more acutely than others. This variation highlights the importance of providing differentiated support and tailored interventions based on the specific needs of each teacher. Smith et al. (2020) stress the significance of addressing such variations to ensure effective teaching practices across diverse educational environments.

The most significant challenges reported by teachers include delivering mathematical concepts to students with weak foundational knowledge (M = 4.01, SD = 1.11) and developing students' higher-order thinking skills (M = 3.70, SD = 0.96). Both challenges fall within the "High Challenge" category, indicating that these issues are widespread concerns among educators. The high mean scores suggest that many teachers face these challenges to a considerable degree. The SD values provide further insight: the larger SD (1.11) for delivering concepts to students with weak foundations suggests significant variation in how teachers experience this difficulty. Zambales (2022) points out that students lacking basic skills often struggle to grasp more advanced mathematical concepts, highlighting the need for remedial instruction. Meanwhile, the SD of 0.96 for developing higher-order thinking skills reflects moderate variability, indicating that, while many teachers face this challenge, some may find it easier to implement strategies that foster analytical thinking. The National Institute of Education (2021) advocates for tailored pedagogical interventions to address such learning gaps effectively.

In contrast, challenges such as preparing lesson plans that align with curriculum standards (M = 2.64, SD = 1.09) and staying updated on new mathematical concepts (M = 2.71, SD = 0.91) received lower mean scores, placing them in the "Average Challenge" range. Although these concerns are important, they appear to be less universally experienced. The SD values indicate that the challenges related to curriculum alignment and staying updated on new concepts vary widely among teachers. Education World (n.d.) emphasizes that effective curriculum alignment requires a deep understanding of curricular goals, which can differ based on teachers' experience and training. Johnson et al. (2021) similarly highlight the importance of providing teachers with professional development opportunities to enhance their skills in aligning lessons with curriculum standards.

Other challenges, such as preparing teaching materials for diverse learning styles (M = 3.02, SD = 0.95), incorporating technology into lesson plans (M = 2.95, SD = 1.03), and maintaining student engagement (M = 3.16, SD = 1.01), also fall within the "Average

Challenge" range. These results suggest that while teachers encounter these challenges, the intensity with which they experience them depends on factors such as individual classroom contexts, available resources, and institutional support. The moderate SD values reflect the variability in how teachers address these issues. CAST (2021) provides frameworks for differentiated instruction and Universal Design for Learning, but their successful implementation requires sustained teacher training and institutional support, which may explain the range of responses. Meutstege (2023) notes that differentiated instruction, which involves adapting teaching methods to meet students' diverse needs, can be difficult to execute without targeted professional development. Borg et al. (2022) further emphasize that integrating technology into lessons, while challenging, can be addressed effectively through professional development and resource allocation, thereby easing the burden on teachers and enhancing instructional quality.

Overall, the average challenge mean score of 3.08 (SD = 0.97) reflects the range of teaching preparation and instructional delivery difficulties faced by Junior High School Mathematics teachers in Marinduque. While some challenges—particularly those related to foundational knowledge and developing higher-order thinking skills—are more pronounced, others fall within the "Average Challenge" category. The SD values highlight the need for individualized support, suggesting that while some teachers are significantly affected by certain challenges, others experience them to a lesser extent. To address these challenges, targeted interventions, professional development programs, and robust support systems are crucial to improving teachers' ability to deliver effective Mathematics instruction and foster student success. Ventista and Brown (2023) found that ongoing professional development, including continuous training and collaboration, leads to improved teaching practices and enhanced student outcomes.

The following insights, derived from participant interviews, represent the qualitative findings that supplement the quantitative data of this research, as mentioned by a Junior High School Mathematics teacher during the interview, “One of the biggest challenges I face is teaching students with a weak foundation in math. Even the four fundamental operations—addition, subtraction, multiplication, and division—are difficult for them to answer, particularly multiplication and division, even among Grade 10 students. It is challenging to ensure they understand the basic concepts before moving on to more complex topics, and this affects their overall progress.” This insight supports the quantitative data indicating a high challenge in delivering mathematical concepts to students with poor foundations.

Teacher C shared, “Helping students develop higher-order thinking skills is a real struggle. When I give word problems, many learners skip answering them because they cannot comprehend the problem. From my observation, if students have not mastered basic math, they cannot solve higher or more difficult questions.” This reflects the study’s finding on the significant difficulty in fostering analytical thinking in students. Regarding preparation, teacher A noted, “Preparing lesson plans that fully align with curriculum standards is manageable, but staying updated with new math topics and incorporating technology into lessons can be challenging, especially without sufficient training or resources.” This comment aligns with the moderate ratings on lesson planning, curricular updates, and use of technology found in the data.

Assessing Student Learning - Related Challenges

Table 4. *Extent of Assessing Student Learning - Related Challenges among Junior High School Mathematics Teachers in the Schools Division of Marinduque*

Indicators *Assessing student learning related challenges*	*Mean*	*SD*	*Verbal Interpretation*
1. I find it challenging to design assessments that align with learning objectives and curriculum standards.	2.68	0.99	Average Challenge
2. I struggle to create assessment items that effectively evaluate higher-order thinking skills.	2.86	0.90	Average Challenge
3. I face difficulties in developing assessment tools for complex mathematical concepts.	2.90	0.84	Average Challenge
4. I struggle to administer assessments that cater to the diverse learning needs of students.	2.94	0.85	Average Challenge
5. I find it challenging to score assessments objectively and consistently.	2.75	0.89	Average Challenge
6. I struggle with grading assessments promptly due to workload and time constraints.	2.95	1.12	Average Challenge
7. I find it difficult to use rubrics or scoring guides to evaluate students' performance in open-ended mathematical tasks.	2.79	0.91	Average Challenge
8. I find it challenging to provide timely and constructive feedback to students based on their assessment results.	3.01	1.00	Average Challenge
9. I struggle to communicate assessment outcomes in a way that motivates students to improve.	2.81	0.97	Average Challenge
10. I face difficulties in addressing students’ questions or concerns about their assessment results.	2.47	1.04	Low Challenge
11. I find it challenging to analyze assessment data to identify students' strengths and weaknesses.	2.55	0.99	Low Challenge
12. I struggle to use assessment results to adjust my instructional strategies.	2.67	0.94	Average Challenge
13. I face difficulties in interpreting assessment data to provide targeted interventions for struggling students.	2.67	0.97	Average Challenge
14. I find it challenging to implement alternative assessment methods such as portfolios, projects, or performance tasks.	2.76	1.02	Average Challenge
15. I face difficulties in balancing traditional and alternative assessment methods effectively.	2.78	0.89	Average Challenge
16. I find it challenging to assess individual contributions in group or collaborative activities	2.86	0.89	Average Challenge
17. I struggle to design assessments that evaluate teamwork and collaboration skills.	2.83	0.83	Average Challenge
Mean	2.781	0.95	Average Challenge

Legend: 5 (4.20–5.00) – Very High Challenge; 4 (3.40–4.19) – High Challenge; 3 (2.60–3.39) – Average Challenge; 2 (1.80–2.59) – Low Challenge; 1 (1.00–1.79) – Very Low Challenge.

Table 4 shows the challenges faced by Junior High School Mathematics teachers in assessing student learning within the Schools Division of Marinduque. The results indicate that, on the whole, teachers perceive these challenges as of average difficulty, with a mean score of 2.78 (SD = 0.95). This suggests that, while these challenges are not overwhelmingly severe, they are sufficiently prevalent to warrant attention. The standard deviation of 0.95 reflects variability in responses, indicating that the intensity of these challenges varies among teachers. This variability highlights the need for tailored support, as some teachers may be experiencing these difficulties more acutely than others. Kim and Lee (2021) emphasize the importance of recognizing such differences, noting that teachers' perceptions of challenges can vary widely based on individual contexts and teaching environments, making differentiated support essential.

The most notable challenge identified was providing timely and constructive feedback to students based on their assessment results, with a mean score of 3.01 (SD = 0.995). This highlights that feedback provision remains a significant concern for teachers, underscoring the importance of not only delivering assessments but also ensuring that students receive meaningful guidance to enhance their learning. The SD value of 0.995 indicates variability in teachers' experiences, suggesting that while some teachers struggle to provide effective feedback, others may find this task less challenging. This aligns with the National Institute for Learning Outcomes Assessment (NILOA, 2021), which emphasizes that clear communication of assessment results is crucial for motivating students to improve. Guskey (2019) further highlights the importance of timely, specific feedback in promoting student learning, as it enables students to identify areas for improvement and reinforces their progress.

Another challenge reported by teachers was the difficulty in administering assessments that cater to diverse learning needs (M = 2.94) and in developing tools for complex mathematical concepts (M = 2.90). These challenges, which fall within the "Average Challenge" range, still represent barriers to effective assessment. The SD values for these indicators (0.85 and 0.84, respectively) suggest some variability in how teachers experience these difficulties, indicating that the degree of challenge may depend on classroom contexts and available resources.

Teachers may require support in differentiating assessments and designing tools that effectively measure students' understanding of complex concepts. Chapman (2012) notes that aligning assessments with curriculum standards and evaluating higher-order thinking is a challenge for many educators. Bain (2023) also points out that designing inclusive assessments that meet the needs of diverse learners remains complex, with limited empirical evidence on effective design strategies.

In contrast, the lowest-rated challenges were addressing students' questions about assessment results (M = 2.47) and analyzing assessment data to identify students' strengths and weaknesses (M = 2.55). These indicators were categorized as "Low Challenge," suggesting that teachers find these issues less significant than others. The SD values for these challenges (1.04 and 0.99) indicate more consistency in responses, suggesting that teachers generally face fewer difficulties in addressing student queries and analyzing assessment data. Adarkwah (2021) highlights the multifaceted nature of assessment feedback, emphasizing that its effectiveness depends on timeliness, specificity, and constructive support, which can be challenging to implement.

Workload and time constraints also emerged as significant barriers. Teachers reported difficulty in scoring assessments objectively and consistently (M = 2.75, SD = 0.89) and in grading promptly due to workload (M = 2.95, SD = 1.12). These challenges, reflected in the relatively high SD values, underscore the pressures teachers face in managing their time effectively. The SD values suggest that the difficulty of meeting grading deadlines and ensuring fair, consistent assessment practices varies among teachers. Becker et al. (2017) emphasize the time constraints teachers face in grading and providing feedback, noting that excessive workloads can negatively impact the quality and timeliness of assessments, ultimately affecting both teaching and learning outcomes.

Teachers also reported challenges with rubrics or scoring guides (M = 2.79, SD = 0.91) and balancing traditional and alternative assessment methods (M = 2.78, SD = 0.89), both of which were categorized as "Average Challenge." These results reflect the tension teachers experience when administering conventional assessments, such as tests and quizzes, alongside alternative methods like portfolios, projects, or performance tasks. The SD values indicate variability in how teachers manage this balance, suggesting that some may need more support in using diverse assessment tools effectively. Brookhart (2018) highlights the importance of clear, well-aligned rubrics, noting that poorly designed rubrics can misguide student efforts or fail to measure desired learning outcomes accurately. Popham (2017) also argues for diversifying assessment practices to cater to different learning styles, but acknowledges that achieving this balance often requires additional training and support.

Lastly, teachers faced challenges in assessing individual contributions during group activities (M = 2.86, SD = 0.89) and evaluating teamwork and collaboration skills (M = 2.83, SD = 0.83), both of which were also categorized as "Average Challenge." The SD values suggest that, while most teachers report these as challenges, the degree of difficulty varies, with some teachers finding it easier to assess group work than others. Forsell et al. (2021) investigated teachers' challenges with assessing group work and found that designing fair group assessments—particularly when evaluating individual contributions—can be complex and requires clear criteria.

Overall, the Average Challenge mean score of 2.78 (SD = 0.95) indicates that Junior High School Mathematics teachers in Marinduque face a moderate level of difficulty in assessing student learning. The most significant challenges involve providing timely and constructive feedback, accommodating diverse learning needs, and developing tools for complex mathematical concepts. The variability in the SD values suggests that the impact of these challenges differs among teachers, highlighting the need for tailored

interventions. To enhance assessment practices, it is crucial to provide teachers with ongoing support in data-driven instruction, feedback strategies, and the integration of both traditional and alternative assessment methods.

The findings are supported, as mentioned by a teacher E during the interview, "Providing timely and meaningful feedback to students after assessments is very challenging. With my workload, it is difficult to give each student the attention they deserve, especially when I try to explain their mistakes constructively."

Teacher E added, "Adjusting assessments to fit diverse learners requires extra effort and creativity. Sometimes, the available assessment tools do not effectively measure the complex concepts we teach. making it tough to assess students fairly." This reflects the difficulties noted in administering assessments for varied learner needs and developing tools for complex math topics.

Teacher B, "Balancing traditional exams with alternative assessments such as projects or group work adds complexity but remains necessary to address different learning styles. The challenge lies in scoring these consistently and promptly while ensuring fairness, especially with limited time." This supports the moderate challenges reported in scoring, grading, and managing diverse assessment types.

Peer-Related Challenges

Table 5. *Extent of Peer - Related Challenges among Junior High School Mathematics Teachers in the Schools Division of Marinduque*

Indicators *Peer-related challenges*	*Mean*	*SD*	*Verbal Interpretation*
1. I find it challenging to collaborate with my peers in planning Mathematics lessons.	2.55	1.17	Low Challenge
2. I struggle to coordinate with colleagues on aligning teaching strategies and materials.	2.35	1.10	Low Challenge
3. I find it difficult to work with peers on interdisciplinary or team-teaching projects.	2.38	1.09	Low Challenge
4. I find it challenging to openly share ideas and teaching practices with my peers.	2.24	1.04	Low Challenge
5. I find it difficult to seek feedback from colleagues about my teaching practices.	2.36	0.97	Low Challenge
6. I feel that the feedback provided by my peers is not always constructive or helpful.	2.19	1.04	Low Challenge
7. I feel there is unhealthy competition among colleagues that affects our professional relationships.	2.17	1.27	Low Challenge
8. I find it challenging to collaborate due to differing perspectives on teaching methodologies.	2.41	1.17	Low Challenge
9. I feel that professional rivalry sometimes hinders teamwork among mathematics teachers.	2.27	1.27	Low Challenge
10. I face challenges in engaging with peers during professional development activities.	2.19	1.11	Low Challenge
11. I feel that there are limited opportunities to learn from my colleagues' teaching experiences.	2.33	1.24	Low Challenge
Mean	2.313	1.13	Low Challenge

Legend: 5 (4.20–5.00) – Very High Challenge; 4 (3.40–4.19) – High Challenge; 3 (2.60–3.39) – Average Challenge; 2 (1.80–2.59) – Low Challenge; 1 (1.00–1.79) – Very Low Challenge.

Table 5 shows the peer-related challenges encountered by Junior High School Mathematics teachers in the Schools Division of Marinduque. With a mean score of 2.31 (SD = 1.13), the results suggest that, overall, teachers experience these challenges as low challenge. This indicates that, while teachers face some difficulties in collaborating with peers, sharing ideas, seeking feedback, and engaging in professional development activities, these challenges are generally not severe. The SD value of 1.13 highlights variability in responses, meaning that while most teachers report minimal peer-related challenges, the intensity of these issues differs significantly among individuals. This finding is consistent with Klusmann et al. (2020), who noted that peer-related challenges are often perceived as relatively minor but can vary widely based on school culture and individual personalities.

The most prominent challenge, although rated within the Low Challenge range, was collaboration with peers in planning Mathematics lessons (M = 2.55, SD = 1.17). While not a major obstacle, some teachers find it challenging to collaborate effectively with colleagues on lesson planning. The SD of 1.17 indicates a relatively high degree of variability, with some teachers experiencing more difficulty than others in coordinating lesson plans. Johnson and Johnson (2017) highlighted that those differences in teaching strategies can sometimes hinder effective teamwork, especially when teachers have varied approaches to lesson planning. This study echoes that point, showing that some teachers struggle more with collaboration on lesson plans than others. In contrast, the lowest-rated challenge was unhealthy competition among colleagues (M = 2.17, SD = 1.27), suggesting that professional rivalry is not viewed as a major issue. However, the SD of 1.27 reveals considerable variability, with some teachers reporting experiences of unhealthy competition, while others do not. Smith and Peterson (2019) emphasized that competition in the workplace, especially in competitive teaching environments, can undermine collegiality and harm professional relationships. The variability found in this study aligns with their observation that while rivalry may not be widespread, it can negatively affect the collaborative atmosphere in schools for some individuals.

Several other peer-related challenges received similar Low Challenge ratings. For example, difficulty in working on interdisciplinary or team-teaching projects (M = 2.38, SD = 1.09) and struggling to share teaching practices with peers (M = 2.24, SD = 1.04) were perceived as relatively minor concerns. The SD values indicate variability, suggesting that while many teachers experience these challenges to a low degree, some may find collaboration or the sharing of ideas more difficult. Brown and Taylor (2021) discussed how contrasting teaching methodologies and reluctance to share practices can discourage collaboration. However, the present study suggests that these challenges are not universally felt, as evidenced by the low mean scores, which indicate minimal difficulty overall. This variability aligns with the findings of Tobin et al. (2021), who emphasized that the sharing of teaching practices is largely

dependent on school culture and individual attitudes towards collaboration.

Teachers also reported challenges in seeking feedback from colleagues (M = 2.36, SD = 0.97) and in perceiving that peer feedback is not always constructive or helpful (M = 2.19, SD = 1.04). While feedback is a key element of professional growth, teachers in this study experienced only minimal difficulty in seeking and receiving constructive feedback. The SD values reflect variability in responses, suggesting that, while most teachers do not view peer feedback as a significant challenge, some may feel that the feedback they receive is insufficient or unhelpful. This finding contrasts with Smith and Peterson (2019), who observed that weak feedback loops often limit the effectiveness of professional development. Their research emphasized that constructive peer feedback is vital for continuous improvement, yet teachers sometimes face barriers in obtaining useful feedback—a concern echoed by a few respondents in this study. Teachers also faced some challenges in engaging with peers during professional development activities (M = 2.19, SD = 1.11), indicating that a lack of collaboration in training environments may hinder professional growth. While the mean score suggests this is not a High Challenge, the SD of 1.11 shows some variability, with a few teachers finding it more difficult to engage with peers during these activities. Smith and Peterson (2019) emphasized the importance of collaboration in professional development, arguing that such collaboration fosters a sense of community and shared responsibility. However, as this study suggests, collaboration may not always be fully realized if teachers are not actively engaging with each other during professional development sessions.

Overall, while peer-related challenges are generally perceived as Low Challenge by Junior High School Mathematics teachers in Marinduque, the variability in responses highlights the need for continued efforts to improve collaboration, feedback, and engagement among colleagues. The moderate SD values reflect differences in how teachers experience these challenges, suggesting that while most teachers find peer-related issues minimal, some still encounter difficulties. Klusmann et al. (2020) also pointed out that creating a supportive and collaborative school culture is crucial for overcoming these challenges, particularly in fostering teamwork and improving professional relationships. To address these issues, schools should focus on promoting a collaborative, supportive environment, providing platforms for idea sharing, and improving peer feedback mechanisms. By doing so, schools can strengthen professional relationships, foster teamwork, and ultimately enhance teaching practices and student outcomes.

The findings are supported, as shared by teacher F, who explained, "Working with my fellow teachers to plan our math lessons can sometimes be a little hard, but overall, we get along well and support each other." This matches the survey results showing only a small number of teachers find collaboration challenging. Teacher G pointed out, "I do not see much competition or rivalry among my colleagues. We usually try to help one another and work as a team." This supports the finding that unhealthy competition is not a big problem among most teachers. Teacher G shared, "Sometimes we have different ways of teaching, which can make it difficult to agree on certain lesson plans, but we still manage to work together." This reflects the data about occasional differences in teaching styles that can make collaboration a bit challenging.

Teacher F mentioned, "It would be good to have more opportunities to learn from one another and give feedback for improvement. Sometimes we do not have enough time for that." This shows there is room to improve peer learning and constructive feedback. Lastly, a teacher G shared, "During training sessions, we usually work well with one another, which helps us grow professionally." This aligns with the finding that most teachers have positive experiences working with peers in professional development activities.

Classroom Management- Related Challenges

Table 6. *Extent of Classroom Management - Related Challenges among Junior High School Mathematics Teachers in the Schools Division of Marinduque*

Indicators *Classroom management-related challenges*	*Mean*	*SD*	*Verbal Interpretation*
1. I find it challenging to manage disruptive behaviors in the classroom during Mathematics lessons.	2.94	1.02	Average Challenge
2. I struggle to enforce classroom rules consistently while teaching.	2.46	0.88	Low Challenge
3. I face difficulties addressing students who do not follow instructions during Mathematics activities.	2.64	0.83	Average Challenge
4. I find it challenging to maintain students' attention during mathematics lessons.	2.83	0.98	Average Challenge
5. I struggle to motivate uninterested or disengaged students to participate in class activities.	2.88	0.92	Average Challenge
6. I face difficulties in ensuring that all students stay on task during Mathematics lessons.	2.86	0.90	Average Challenge
7. I find it challenging to address the needs of students with varying abilities in the same class.	3.00	0.97	Average Challenge
8. I struggle to manage the behavior of students who require additional academic support.	3.00	0.93	Average Challenge
9. I face difficulties in providing equitable attention to high-achieving and struggling learners.	2.96	0.92	Average Challenge
10. I find it challenging to allocate sufficient time for all activities planned in a Mathematics lesson.	3.19	1.06	Average Challenge
11. I struggle to create an environment where students feel comfortable asking questions.	2.55	0.94	Low Challenge
12. I find it challenging to implement effective classroom management strategies during Mathematics lessons.	2.71	0.92	Average Challenge
13. I face difficulties in adapting classroom management techniques to suit different class dynamics.	2.78	0.90	Average Challenge
14. I find it challenging to manage student use of technology during Mathematics lessons.	2.83	1.04	Average Challenge
15. I struggle to address distractions caused by students using devices inappropriately.	2.57	0.94	Low Challenge
Mean	2.81	0.94	Average Challenge

Legend: 5 (4.20–5.00) – Very High Challenge; 4 (3.40–4.19) – High Challenge; 3 (2.60–3.39) – Average Challenge; 2 (1.80–2.59) – Low Challenge; 1 (1.00–1.79) – Very Low Challenge.

Table 6 shows the classroom management challenges faced by Junior High School Mathematics teachers. The mean score of 2.81 (SD

= 0.94) indicates that, overall, teachers perceive these challenges as of average difficulty. While classroom management issues are present, they do not pose overwhelming obstacles in teachers' day-to-day practice. The standard deviation (SD) value of 0.94 highlights variability in responses, suggesting that while many teachers face similar challenges, the intensity of these difficulties differs depending on individual classroom contexts and teaching styles. Klusmann et al. (2020) noted that classroom management challenges vary across educational settings, influenced by factors such as teacher experience and student demographics. They emphasized that a personalized approach to classroom management, tailored to these factors, is crucial for effective teaching.

The highest-rated challenge, although still within the "Average Challenge" range, was allocating sufficient time for all planned activities during a Mathematics lesson (M = 3.19, SD = 1.06). This reflects the ongoing struggle teachers face with pacing and curriculum coverage. Asare et al. (2024) observed that time management is a primary challenge for maintaining lesson quality, particularly in subjects like Mathematics that require step-by-step instruction. The relatively high SD of 1.06 further indicates that, while most teachers encounter this issue, the degree to which it affects them varies. Hattie (2020) emphasized that effective time management is critical to ensure lessons are delivered efficiently, without sacrificing content depth—an essential consideration in mathematics education.

Another challenge identified was managing students' varying abilities (M = 3.00, SD = 0.97) and providing equitable attention to both high-achieving and struggling learners (M = 2.96, SD = 0.92). These findings underscore the complexities of differentiating instruction to meet the diverse needs of students. The SD values indicate that while many teachers experience these challenges, some may encounter them more acutely than others.

Teachers also reported difficulties related to student engagement. The challenges of maintaining students' attention (M = 2.83, SD = 0.98), motivating disengaged students (M = 2.88, SD = 0.92), and ensuring all students stay on task (M = 2.86, SD = 0.90) were categorized as Average Challenge. The SD values show that while most teachers face engagement-related difficulties, the intensity of the challenge varies, with some teachers finding it harder to engage students than others. Asare et al. (2024) found that maintaining student engagement is one of the most significant challenges for mathematics teachers, particularly since students often struggle with abstract mathematical concepts.

Behavioral issues were also a contributing factor to classroom management challenges, with teachers reporting difficulties in managing disruptive behaviors (M = 2.94) and students not following instructions (M = 2.64). The lower SD values for these indicators suggest that, while these issues are concerns, they are not as prominent as other classroom management challenges. This indicates that, in general, teachers feel confident in maintaining classroom order. Johnson et al. (2021) highlighted that effective classroom management techniques can significantly reduce disruptive behaviors, and teachers with well-established routines and strategies are better equipped to handle such challenges. Their study stressed the importance of clear expectations and consistent enforcement in maintaining discipline.

In contrast, enforcing classroom rules consistently (M = 2.46) and addressing distractions caused by inappropriate use of devices (M = 2.57) were rated as Low Challenge, indicating that most teachers do not find these aspects of classroom management particularly troublesome. The SD values for these indicators (0.88 and 0.94) suggest a high degree of consistency in responses, with most teachers reporting success in maintaining rules and managing device distractions effectively. However, this finding contrasts with the increasing presence of technology in classrooms, which has introduced new challenges regarding digital distractions. Biza et al. (2020) pointed out that technology integration requires teachers to update their classroom management strategies to balance student engagement with discipline. This study's relatively low mean scores suggest that teachers in Marinduque are managing device distractions effectively despite the growing use of technology in education.

The challenge of managing student use of technology during lessons (M = 2.83, SD = 1.04) was also noted, highlighting the growing need for teachers to incorporate technology while maintaining classroom discipline. Biza et al. (2020) noted that, as technology becomes an integral part of education, teachers need to adopt new strategies to manage classroom behavior while using digital tools. Their research found that teachers who had received training in digital classroom management were better equipped to handle these challenges.

Moreover, the results suggest that classroom management challenges among Junior High School Mathematics teachers are generally perceived as Average Challenge but are diverse in nature, encompassing time management, student engagement, behavioral management, and instructional differentiation. These challenges, while not overwhelming, are widespread enough to warrant ongoing attention. Yaçı Kaaı (2022) discussed how systemic issues, such as limited lesson time and curriculum demands, contribute to classroom management struggles—an issue reflected in this study, where pacing and curriculum coverage were significant concerns. The increasing role of technology in classrooms further complicates these challenges, emphasizing the need for innovative approaches to classroom management that balance discipline, engagement, and digital integration. Biza et al. (2020) stressed that while technology integration offers numerous benefits, it also requires new classroom management strategies to maintain both discipline and student engagement.

Overall, while Junior High School Mathematics teachers generally report an Average Challenge level for classroom management (mean = 2.81, SD = 0.94), the findings reveal areas for improvement. The greatest challenges involve time management, student engagement, and differentiating instruction for diverse learners. The variability in responses, as indicated by the SD values, suggests that while most

teachers face these challenges to some extent, their intensity varies across different teaching contexts. To support more effective teaching, schools must provide professional development focused on differentiated instruction, student motivation strategies, and digital classroom management. By addressing these challenges, schools can create more positive classroom environments, enhance teaching effectiveness, and improve student learning outcomes.

The findings are supported as shared by Teacher B, "One of the main challenges I face is having enough time to complete all the topics I've prepared for each lesson. At times, I have to hurry through some parts of the lesson, and I'm concerned this may confuse my students or leave some gaps in their learning." This matches the study's finding that managing time for planned activities is a common challenge among teachers. As mentioned by Teacher C, "In my class, I have students with different skill levels. It's hard to give high-achieving students enough challenges while also providing extra help to those who struggle. Balancing my attention between all of them takes a lot of energy and planning." This reflects the challenge of managing diverse learner needs identified in the study. Teacher A also shared, "Keeping students focused during math lessons is not easy. Math can be tough, and some students lose interest or seem distracted. I try to use different teaching methods to keep them motivated, but it takes constant effort." This aligns with the moderate difficulties teachers face in sustaining attention and motivation.

As shared by Teacher H, "Usually, I can handle classroom discipline and make sure students follow rules. But when some students disrupt the class or don't listen, it slows down the lesson and makes teaching harder." This supports the finding that managing disruptive behaviors is a notable challenge, though most teachers feel confident enforcing rules. As mentioned by Teacher I, "Technology is helpful but also tricky to manage. When students use devices during class, it sometimes causes distractions. I have to monitor them closely to keep the lesson on track." This shows how integrating digital tools adds to classroom management challenges, as noted in the research.

Intervention-Related Challenges

Table 7. *Extent of Intervention - Related Challenges among Junior High School Mathematics Teachers in the Schools Division of Marinduque*

Indicators *Intervention-related challenges*	*Mean*	*SD*	*Verbal Interpretation*
1. I find it challenging to identify students who need additional support in Mathematics.	2.42	1.00	Low Challenge
2. I struggle to accurately assess the specific learning gaps of struggling students.	2.97	2.94	Average Challenge
3. I face difficulties in determining which students require remedial versus enrichment interventions.	2.34	0.94	Low Challenge
4. I find it challenging to design effective intervention plans tailored to individual student needs.	2.86	0.91	Average Challenge
5. I struggle to create intervention materials that address specific mathematical skill deficits.	2.78	1.00	Average Challenge
6. I face difficulties in allocating time to prepare individualized intervention activities.	3.31	1.04	Average Challenge
7. I find it challenging to implement intervention strategies within regular classroom instruction.	3.30	1.00	Average Challenge
8. I struggle to balance intervention activities with the need to complete the prescribed curriculum.	3.36	1.09	Average Challenge
9. I face difficulties in providing consistent and targeted interventions for struggling students.	3.27	1.05	Average Challenge
10. I find it challenging to monitor and track the progress of students receiving interventions.	3.12	1.00	Average Challenge
11. I struggle to adjust intervention strategies based on student progress or lack of improvement.	2.97	0.88	Average Challenge
12. I face difficulties in documenting and evaluating the outcomes of intervention programs.	2.98	0.87	Average Challenge
13. I find it challenging to motivate students to participate actively in intervention programs.	3.15	0.98	Average Challenge
14. I struggle to build students' confidence during intervention sessions.	2.78	0.82	Average Challenge
15. I face difficulties in addressing students' resistance or lack of interest in interventions.	3.14	0.93	Average Challenge
16. I find it challenging to access adequate resources for implementing mathematics interventions.	3.00	0.91	Average Challenge
17. I struggle to find appropriate tools or technology to support intervention activities.	3.01	0.92	Average Challenge
Mean	2.986	1.08	Average Challenge

Legend: 5 (4.20–5.00) – Very High Challenge; 4 (3.40–4.19) – High Challenge; 3 (2.60–3.39) – Average Challenge; 2 (1.80–2.59) – Low Challenge; 1 (1.00–1.79) – Very Low Challenge.

Table 7 shows the intervention-related challenges faced by Junior High School Mathematics teachers in the Schools Division of Marinduque. The mean score of 2.99 (SD = 1.08) indicates that, overall, these challenges are considered to be of average difficulty. While intervention-related issues are present, they are not overwhelmingly problematic for most teachers. The standard deviation (SD) of 1.08 reflects variability in the responses, suggesting that while many teachers experience similar challenges, the intensity of these difficulties varies across individuals. This variability emphasizes the need for professional development and support tailored to the unique contexts of each educator. Tobin et al. (2021) similarly found that teachers' experiences with intervention-related challenges differ significantly depending on factors such as school culture, available resources, and teacher experience, underscoring the importance of differentiated support for educators.

The greatest challenge reported by teachers was allocating time to prepare individualized intervention activities (M = 3.31, SD = 1.04). The relatively high SD suggests that some teachers face significant difficulty managing time for these activities, while others experience fewer time constraints. This finding highlights the ongoing struggle to balance intervention efforts with the demands of the curriculum, often resulting in rushed instruction or inadequate support for struggling students. EdWeek Research Center (2024) noted that the increasing demands of the curriculum often lead to time pressures, making it difficult for teachers to allocate sufficient time for planning and implementing individualized interventions. Popham (2020) further emphasized that time constraints are one of the most significant

barriers to effective intervention, particularly when teachers face large class sizes or multiple responsibilities.

Other challenges include balancing intervention activities with completing the prescribed curriculum (M = 3.36, SD = 1.09) and integrating intervention strategies within regular classroom instruction (M = 3.30, SD = 1.00). Alkhawaldeh and Khasawneh (2021) observed that balancing the delivery of the curriculum with additional support for struggling students requires careful planning and often leads to teachers feeling overwhelmed. They suggested that one solution is to integrate interventions more seamlessly into regular instruction, which can alleviate some of the pressure faced by teachers.

Identifying students in need of additional support and designing intervention plans were also reported as Average Challenges (M = 2.97 and M = 2.86, respectively). While these challenges are common, they are not universally experienced to the same degree. Some teachers find it more difficult than others to assess learning gaps and create appropriate interventions. Hattie (2020) argued that effective assessment of students' needs is foundational to intervention planning. He emphasized that teachers must be equipped with the skills and tools to identify specific learning gaps and design interventions that are both targeted and effective. Wang et al. (2021) highlighted that teachers often struggle to accurately diagnose students' needs, leading to interventions that may be too broad or not adequately tailored to individual students.

Another challenge teachers reported was crafting materials to address specific skill deficits (M = 2.78). This further underscores the complexity of differentiating instruction for students with varying needs. Alkhawaldeh and Khasawneh (2021) noted that developing materials tailored to specific learning gaps requires significant time and effort. Moreover, they found that many teachers lack access to resources designed to meet the diverse needs of their students, further complicating the process of creating effective interventions.

Teachers also reported moderate challenges in sustaining interventions, particularly in monitoring student progress (M = 3.12), adjusting strategies based on student performance (M = 2.97), and documenting outcomes (M = 2.98). These tasks require continuous assessment and effective record-keeping, but teachers often face barriers such as limited time, resources, and professional training. NexSchools (2024) emphasized the importance of ongoing assessment and strategy adaptation for the success of interventions, noting that many teachers lack the necessary support or resources to monitor progress and modify their approaches effectively. Jung et al. (2022) further stressed that proper documentation and tracking of student progress are essential for sustained intervention efforts, but time pressures and insufficient training in data management often hinder teachers.

Emotional and motivational challenges were also noted, with teachers facing average difficulties in motivating students to engage (M = 3.15) and addressing student resistance or lack of interest (M = 3.14). These challenges highlight the emotional aspect of learning, as disengaged students are less likely to benefit from interventions. Dirgantoro et al. (2019) emphasized the critical role of student motivation in the success of interventions, suggesting that teachers need strategies that not only address academic gaps but also foster motivation and engagement. Treisman (2021) discussed the emotional hurdles teachers face when working with resistant students, noting that overcoming these challenges requires strong teacher-student relationships and customized motivational strategies.

Access to resources and technology was another moderate challenge, with teachers reporting difficulties in obtaining sufficient resources (M = 3.00) and appropriate technology tools (M = 3.01) for interventions. The variability in SD values suggests that the challenge is experienced differently across schools, with schools having better access to resources facing fewer difficulties in implementing interventions. Tobin et al. (2021) noted that access to resources, including instructional materials and technology, directly impacts the success of interventions. Schools with limited resources face greater challenges in providing effective support.

Overall, the average challenge mean score of 2.99 (SD = 1.08) indicates that Junior High School Mathematics teachers face moderate challenges related to interventions. The most significant concerns are time management, student engagement, and addressing diverse learning needs. These findings emphasize the need for systemic support, including professional development in differentiated instruction, data-driven strategies, and addressing emotional barriers to student learning. By providing targeted interventions and adequate resources, schools can enhance the effectiveness of Mathematics interventions and improve student outcomes. EdWeek Research Center (2024) argued that well-structured intervention systems, supported by appropriate resources, can substantially improve the quality of education and student achievement.

The findings are supported by Teacher B, who shared: "Finding enough time to prepare intervention activities tailored to each student is really hard. With all the other lessons and tasks I have, it feels like there's not enough time to make these supports effective." This statement reflects the study's finding that time management is a challenge in designing personalized interventions while keeping up with the curriculum.

As Teacher I mentioned, "Balancing intervention work with covering the entire math curriculum is tough. Sometimes I have to rush through parts to finish what's required, which makes it difficult to give struggling students the extra help they need." This statement supports the data showing tension between remediation and pacing through the syllabus.

Teacher I also explained, "It's not easy to accurately find out where students are having trouble or to create specific intervention plans that really help. Designing materials that target these weak areas takes time and special skills." This reflects the challenge of identifying learning gaps and preparing effective individualized supports noted in the study.

Teacher B shared, "Motivating students to participate in interventions is a real challenge. Some are not interested or feel discouraged,

and it's hard to help them regain confidence in math." This highlights the emotional factors involved in intervention success, as emphasized in the findings.

Finally, Teacher, I stated, "It's difficult to get enough resources and technology to support intervention. Without the right materials or digital tools like laptops or computers, providing effective support becomes a struggle." This aligns with the reported issues concerning access to adequate instructional resources.

Level of Mathematics Teachers' Job Performance?

This part shows the job performance of Junior High School Mathematics Teachers.

Table 8. *Trends in Performance Ratings of Junior High School Mathematics Teachers in the Schools Division of Marinduque: SY 2021–2022 to SY 2023–2024*

Adjectival Rating	*Frequency*	*Percentage*
SY 2021 - 2022		
Outstanding	46	44.7
Very Satisfactory	56	54.4
Satisfactory	1	1.0
Unsatisfactory	0	0
Poor	0	0
Mean	4.371	
Description	Very Satisfactory	
SY 2022 – 2023		
Outstanding	60	55.6
Very Satisfactory	48	44.4
Satisfactory	0	0
Unsatisfactory	0	0
Poor	0	0
Mean	4.470	
Description	Very Satisfactory	
SY 2023 – 2024		
Outstanding	71	64
Very Satisfactory	40	36
Satisfactory	0	0
Unsatisfactory	0	0
Poor	0	0
Mean	4.509	
Description	Outstanding	

Legend: RPM Rating—Description: 4.500–5.000 – Outstanding; 3.500–4.499 – Very Satisfactory; 2.500–3.499 – Satisfactory; 1.500–2.499 – Unsatisfactory; 1.000–1.499 – Poor.

Table 8 shows the performance ratings of Mathematics teachers over three consecutive school years, revealing a clear trend of improvement. In the 2021–2022 school year, most teachers (54.4%) received a "Very Satisfactory" rating, while 44.7% earned an "Outstanding" rating. Only one teacher (1.0%) received a "Satisfactory" rating, and no teachers were rated "Unsatisfactory" or "Poor." The composite mean of 4.371 corresponded to a "Very Satisfactory" description.

In the 2022–2023 school year, teacher performance improved further. Over half of the teachers (55.6%) were rated "Outstanding," while the remaining 44.4% were rated "Very Satisfactory." Notably, no teachers received a rating of "Satisfactory" or below. The composite mean rose to 4.470, still within the "Very Satisfactory" range, but showing positive upward momentum.

By the 2023–2024 school year, the performance trend reached its peak, with nearly two-thirds of the teachers (64%) rated "Outstanding" and the remaining 36% rated "Very Satisfactory." Once again, no teachers received a "Satisfactory" or lower rating. The composite mean increased to 4.509, elevating the overall description to "Outstanding."

These findings demonstrate consistent improvement in teacher performance over the three years. The increasing proportion of teachers rated "Outstanding," combined with the absence of "Unsatisfactory" or "Poor" ratings, highlights the success of interventions and support mechanisms. This upward trend suggests that professional development programs, mentorship, and institutional support have contributed to enhanced instructional practices and greater teacher effectiveness.

The results align with previous research, which attributes steady improvement in teacher performance ratings to several key factors. The rising proportion of "Outstanding" ratings is consistent with Harris and Sass (2020), who found that sustained professional development and mentorship significantly improve teacher effectiveness. Their study suggested that teachers who receive consistent support and opportunities to refine their teaching practices tend to show improved performance evaluations over time. Similarly, Darling-Hammond et al. (2021) emphasized the role of continuous professional development in fostering long-term improvements in teaching quality. The improvement in teacher ratings observed in this study reflects their findings, suggesting that professional development efforts likely played a significant role in enhancing teacher performance.

The upward shift from "Very Satisfactory" to "Outstanding" ratings, as observed in this study, is also supported by Yoon et al. (2020), who found that teacher performance improves with constructive feedback and effective professional learning opportunities. Their research emphasized the importance of feedback loops and professional learning in helping teachers refine their instructional strategies, which aligns with the performance trends seen in this study.

Furthermore, the progression from a majority of "Very Satisfactory" ratings in 2021–2022 to a majority of "Outstanding" ratings by 2023–2024 reflects the positive impact of Smith and Ingersoll's (2021) research on mentorship. They found that teachers involved in mentoring programs show significant improvements in their teaching practices, which aligns with the increasing number of "Outstanding" ratings in this study. Their research suggests that institutional support, including mentoring, is crucial for enhancing teachers' performance over time.

Pianta et al. (2020) also highlighted the importance of fostering a supportive school culture that prioritizes continuous professional development and feedback. Their study found that schools providing a robust support system for teachers tend to experience higher levels of teacher effectiveness, a trend reflected in the upward performance ratings in this study.

Lastly, Treisman (2021) noted that improvements in teacher effectiveness, as indicated by higher performance ratings, directly influence student learning outcomes. As teachers refine their instructional practices, the positive impact on student achievement becomes evident. The rising performance ratings in this study, from "Very Satisfactory" to "Outstanding," suggest that such growth in teacher effectiveness has the potential to significantly enhance student achievement in Mathematics.

Overall, the three-year trend demonstrates significant and sustained improvements in Mathematics teacher performance. The shift from a majority "Very Satisfactory" rating in 2021–2022 to a majority "Outstanding" rating by 2023–2024 reflects not only individual teacher growth but also the institutional commitment to instructional quality. These findings provide compelling evidence of a capable and improving teaching force that can significantly boost student achievement in Mathematics.

Level of Learners' Academic Achievements in Mathematics?

This part shows the academic achievements of learners in Mathematics

Table 9. *Learners' Academic Achievement Based on Quarterly Mean Percentage Scores (MPS) of Examination by Grade Level—Schools Division of Marinduque, SY 2024–2025*

Grade 7	*MPS*	*Interpretation*
First Quarter	53.58	Average
Second Quarter	55.58	Average
Third Quarter	55.83	Average
Fourth Quarter	54.15	Average
Mean	54.73	Average
Grade 8		
First Quarter	56.28	Average
Second Quarter	58.52	Average
Third Quarter	59.23	Average
Fourth Quarter	59.03	Average
Mean	58.01	Average
Grade 9		
First Quarter	56.97	Average
Second Quarter	57.06	Average
Third Quarter	58.71	Average
Fourth Quarter	58.35	Average
Mean	57.77	Average
Grade 10		
First Quarter	57.43	Average
Second Quarter	59.19	Average
Third Quarter	59.31	Average
Fourth Quarter	58.75	Average
Mean	58.67	Average
General Mean	57.29	Average

Legend: Mastery/Achievement Level (MPS)—Descriptive Equivalent: 96–100% – Mastered; 86–95% – Closely Approximating Mastery; 66–85% – Moving Toward Mastery; 35–65% – Average; 15–34% – Low; 5–14% – Very Low; 0–4% – Absolutely No Mastery.

Table 9 shows the Mean Percentage Scores (MPS) of learners in Grades 7 to 10 across four quarters during the 2024–2025 school year. The results consistently fall within the "Average" mastery level (35–65%), as indicated in the legend.

Grade 7 learners began with an MPS of 53.58 in the first quarter and ended with 54.15 in the fourth quarter, yielding a mean of 54.73. Although the scores remain modest, the slight upward trend suggests gradual improvement over the year.

Grade 8 learners showed a clearer pattern of progress, with their scores rising from 56.28 in the first quarter to 59.03 in the fourth

quarter, producing a mean MPS of 58.01. This steady increase indicates that students built on their prior competencies and developed stronger skills as they progressed through the curriculum.

Grade 9 learners exhibited minor fluctuations: starting at 56.97 in the first quarter, rising to 57.06 in the second quarter, then jumping to 58.71 in the third quarter, followed by a small decline to 58.35 in the fourth. The mean of 57.77 reflects stable but gradual growth. This pattern suggests that while Grade 9 students may face mid-year challenges, they are generally able to recover and maintain their performance.

Grade 10 learners demonstrated consistent improvement, starting at 57.43 in the first quarter and reaching 58.75 by the fourth quarter. Their mean MPS of 58.67, the highest among all grade levels, suggests that senior learners benefit from accumulated knowledge and improved study habits, enabling them to perform more consistently.

The overall mean MPS of 57.29 across all grade levels confirms that learners' performance remains in the "Average" range. While this reflects adequate achievement, it also indicates the need for targeted interventions to elevate mastery levels closer to the "Moving Toward Mastery" range (66–85%).

Although learners' performance in SY 2024–2025 is still categorized as "Average," the consistent improvements across quarters suggest steady progress. Combined with the very satisfactory ratings of teachers, this indicates that a strong foundation for learning is being established. However, as Pianta et al. (2020) noted, schools need to implement additional support mechanisms, such as targeted remediation, differentiated instruction, and enrichment activities, to help students progress beyond the "Average" level. Their research underscores the importance of these interventions in addressing learning gaps and enhancing student outcomes. Similarly, Treisman (2021) argued that enrichment activities and differentiated instruction are vital for helping students move from average performance to higher mastery levels, particularly in subjects like Mathematics, where a solid foundational understanding is critical for mastering more advanced concepts. Tobin et al. (2021) also stressed the necessity of ongoing support, including strategic interventions, to bridge the gap between average and high-performing students. These findings highlight the need to expand support systems to ensure that students not only make steady progress but also reach higher mastery levels, contributing to long-term academic success.

These findings align with the consistently high ratings of Mathematics teachers, which have shown steady improvement over the past three school years. The strong performance of teachers likely plays a significant role in the upward trend in learners' MPS, reinforcing the importance of effective teaching in sustaining student engagement and achievement.

Significant Difference in Teachers' Job - Related Challenges, Teachers' Performance, and Learners' Mathematics Achievements when the Respondents are Grouped According to Profile Variables

This part presents the results of the statistical analysis conducted to examine the differences in teachers' job-related challenges, job performance, and learners' mathematics achievements, based on selected profile variables. The findings presented here will provide insights into how teachers' professional profiles intersect with their job-related challenges, teachers' job performance, and learners' academic achievements.

Significant Difference in Teachers' Job-Related Challenges Based on Teachers' Profiles

Table 10. *Statistical Table Showing the Difference in Teacher's Job - Related Challenges when the Respondents are Grouped According to Profile Variables*

	Ranks			*Test Statistics*			
Test Variable	*Grouping Variables*						
	Length of Service	*N*	*Mean Rank*	*Chi Square*	*p-value*	*Interpretation*	*Decision*
Job - Related Challenges	31 and above	9	59.94	12.317	.055	Not Significant	Do Not Reject Ho
	26 – 30 years	1	60.00				
	21 – 25 years	5	24.90				
	16 – 20 years	7	36.64				
	11 – 15 years	18	64.22				
	6 – 10 years	56	61.23				
	Less than 5 years	15	43.37				
	Total	111					
	Teaching Position			2.78	.426	Not Significant	
	Master Teacher I	4	42.75				
	Teacher III	43	52.92				
	Teacher II	23	64.76				
	Teacher I	41	55.61				
	Total	111					
	Area of Specialization			160.00	.971	Not Significant	
	Mathematics	108	55.98				
	Science	3	56.67				

Total	111				
Academic Qualification					
Doctorate Degree	1	9.00			
Doctorate Degree with units	5	40.30			
Master's Degree	11	51.73	3.840	.428	Not significant
Master's Degree with units	71	57.58			
Bachelor's Degree	23	58.63			
Total	111				
Number of Training and Seminars Attended					
31 and above	2	58.00			
26 – 30	2	40.75			
21 – 25	2	25.75			
16 – 20	9	36.39	6.535	.366	Not Significant
11 – 15	9	53.50			
6 – 10	26	58.83			
0 – 5	61	59.48			
Total	111				

Table 10 presents the differences in teachers' job-related challenges across selected profile variables using non-parametric analysis. Results indicate that none of the examined variables—length of service ($\chi^2 = 12.317$, $p = .055$), teaching position ($\chi^2 = 2.780$, $p = .426$), area of specialization ($\chi^2 = 160.000$, $p = .971$), academic qualification ($\chi^2 = 3.840$, $p = .428$), and number of trainings and seminars attended ($\chi^2 = 6.535$, $p = .366$)—showed statistically significant differences at the 0.05 level. These findings suggest that job-related challenges are experienced relatively uniformly among teachers regardless of professional tenure, rank, specialization, educational attainment, or participation in professional development activities. Although variations in mean ranks were observed, particularly across years of service and teaching positions, these differences did not reach statistical significance, implying that such challenges are systemic rather than individual or demographic in nature. This pattern highlights the pervasive character of workplace constraints in the teaching profession, likely reflecting institutional and organizational factors such as workload demands, administrative responsibilities, and resource limitations. The results underscore the need for school-wide and policy-driven interventions that address structural issues affecting teachers collectively, rather than targeted strategies based solely on demographic or professional profiles.

Although variations in mean ranks were observed, particularly across years of service and teaching positions, these differences did not reach statistical significance, implying that such challenges are systemic rather than individual or demographic in nature. This pattern highlights the pervasive character of workplace constraints in the teaching profession, likely reflecting institutional and organizational factors such as workload demands, administrative responsibilities, and resource limitations. These findings are consistent with the study by Eryilmaz et al. (2025), which suggests that, despite varying years of experience, teachers' job satisfaction and stress levels do not significantly differ. This research underscores that, although experienced teachers may have a different perspective on working conditions and stress levels, the challenges they face are not distinctly influenced by their years of service.

Additionally, Eryilmaz et al. (2025) indicate that teaching position does not significantly affect the challenges faced by teachers. Whether a teacher is a junior or senior educator, their challenges in teaching mathematics remain relatively consistent. This aligns with the finding that teaching positions do not have a substantial impact on job-related difficulties, as other factors like workload and leadership support play more significant roles in shaping their experiences.

Furthermore, Eryilmaz et al. (2025) support the finding that teachers' area of specialization does not significantly affect the challenges they experience. Regardless of whether a teacher specializes in algebra, geometry, or other areas, the job-related difficulties remain similar. This reinforces the idea that mismatches between specialization and teaching roles do not necessarily result in different stress patterns, particularly when working conditions and support systems are consistent across subjects, as seen in the study's results.

Moreover, research by Eryilmaz et al. (2025) suggests that academic qualifications do not substantially influence the challenges faced by teachers. Teachers with varying academic credentials, such as bachelor's or master's degrees, reported similar difficulties in teaching mathematics. This indicates that academic qualifications alone do not account for variations in work-related challenges, as other factors, such as professional development and working conditions, play a more significant role. This is further supported by the studies of Darling-Hammond et al. (2017) and the Learning Policy Institute (2019), which emphasize that the number of training sessions or seminars attended by teachers does not significantly affect the challenges they encounter. Professional development initiatives often fail to produce consistent improvements in teachers' practices, particularly when training lacks relevance or sustained focus. Therefore, simply attending more training or seminars is not a guaranteed solution to the challenges teachers face in their profession.

These findings collectively suggest that job-related challenges are likely influenced by broader structural issues within educational institutions rather than individual or demographic factors. Consequently, the study emphasizes the need for school-wide and policy-driven interventions that address these systemic factors rather than targeting specific teacher profiles.

Significant Difference in Teachers' Job Performance Based on Teachers' Profiles

Table 11. *Statistical Table Showing the Difference in Teachers' Job Performance when the Respondents are Grouped According to Profile Variables*

Ranks				*Test Statistics*			
Test Variable	*Grouping Variables*						
	Length of Service	*N*	*Mean Rank*	*Chi Square*	*p-value*	*Interpretation*	*Decision*
Teachers' Job Performance	31 and above	9	54.17	17.712	.007	Significant	Do Not Reject Ho
	26 – 30 years	1	29.50				
	21 – 25 years	5	62.80				
	16 – 20 years	7	45.36				
	11 – 15 years	18	44.92				
	6 – 10 years	56	54.28				
	Less than 5 years	15	81.30				
	Total	**111**					
	Teaching Position						
	Master Teacher I	4	43.38	8.849	.031	Significant	
	Teacher III	43	51.44				
	Teacher II	23	48.80				
	Teacher I	41	66.05				
	Total	111					
	Area of Specialization						
	Mathematics	108	55.19	3.344	.067	Not Significant	
	Science	3	85.00				
	Total	111					
	Academic Qualification						
	Doctorate Degree	1	29.50	10.121	.038	Significant	
	Doctorate Degree with units	5	29.50				
	Master's Degree	11	44.64				
	Master's Degree with units	71	56.68				
	Bachelor's Degree	23	65.70				
	Total	**111**					
	Number of Training and Seminars Attended						
	31 and above	2	29.50	8.858	.182	Not Significant	
	26 – 30	2	57.25				
	21 – 25	2	57.25				
	16 – 20	9	48.00				
	11 – 15	9	41.83				
	6 – 10	26	50.85				
	0 – 5	61	62.25				
	Total	111					

Table 11 presents the differences in teachers' job performance across selected profile variables using non-parametric tests. Results reveal statistically significant differences in job performance when grouped according to length of service ($\chi^2 = 17.712$, $p = .007$), teaching position ($\chi^2 = 8.849$, $p = .031$), and academic qualification ($\chi^2 = 10.121$, $p = .038$), leading to the rejection of the null hypothesis for these variables. Teachers with less than five years of service obtained the highest mean rank, suggesting stronger performance among early-career educators, possibly attributable to higher motivation, adaptability, and recent exposure to contemporary pedagogical practices.

Similarly, significant variation across teaching positions indicates that professional rank influences performance, reflecting differences in role expectations, workload distribution, and access to leadership opportunities. Academic qualification also emerged as a significant factor, underscoring the contribution of formal educational attainment to instructional competence and professional effectiveness. However, area of specialization ($\chi^2 = 3.344$, $p = .067$) and number of trainings and seminars attended ($\chi^2 = 8.858$, $p = .182$) did not yield significant differences, implying that performance is not discipline-specific and that participation in professional development alone may not directly translate into measurable performance gains without sustained institutional support and practical application.

Generally, these findings highlight that teachers' job performance is shaped primarily by experiential and structural factors rather than disciplinary background or frequency of training, emphasizing the need for differentiated career-stage support, clear role progression, and advanced academic pathways to enhance instructional quality and professional productivity.

These findings align with previous research, as Wang et al. (2016) found that experienced mathematics teachers tend to be more effective at creating a supportive and engaging learning environment for their students. As teachers gain experience, they develop

refined classroom management skills and employ diverse teaching methods to make complex concepts more accessible. Similarly, Betz et al. (2018) emphasized that experienced teachers are better at adjusting their teaching methods to meet the diverse needs of their students, which supports the significant differences observed in job performance based on length of service.

The significant variation across teaching positions, indicating that professional rank influences performance, is consistent with the findings of Chen et al. (2019), who noted that teaching positions with leadership roles, such as mentoring colleagues and participating in curriculum development, often lead to stronger teaching practices. These positions provide more opportunities for collaboration and innovation, which, in turn, enhance teaching performance. This suggests that role expectations, workload distribution, and access to leadership opportunities play a critical role in shaping teaching effectiveness, supporting the study's conclusion about teaching position.

Academic qualification also emerged as a significant factor in the study, aligning with Tatto et al. (2016), who noted that teachers with higher academic qualifications tend to perform better, as they possess a deeper understanding of educational theories, advanced pedagogical strategies, and strong problem-solving skills. This finding underscores the contribution of formal educational attainment to instructional competence and professional effectiveness.

However, area of specialization ($\chi^2 = 3.344$, $p = .067$) and number of trainings and seminars attended ($\chi^2 = 8.858$, $p = .182$) did not yield significant differences, implying that performance is not discipline-specific and that participation in professional development alone may not directly translate into measurable performance gains without sustained institutional support and practical application. This aligns with the research by Jacob and Lefgren (2016), which suggested that while area of specialization may influence teaching, it is a teacher's ability to manage a classroom and adapt teaching strategies that determines effective teaching. Thus, effective teaching is more reliant on classroom management and problem-solving skills, rather than discipline-specific knowledge.

Lastly, Kurt et al. (2017) and Darling-Hammond et al. (2017) observed that the impact of professional development programs and seminars on teaching performance is minimal unless these initiatives are directly aligned with classroom practices. Therefore, for training and seminars to be effective, they must focus on practical, classroom-based strategies that teachers can directly implement in their teaching, rather than being generic or theoretical, reinforcing the study's finding that professional development alone does not guarantee improved job performance.

These findings collectively highlight that teachers' job performance is shaped primarily by experiential and structural factors, such as years of service, teaching position, and academic qualifications, rather than discipline-specific expertise or frequency of training. This emphasizes the need for differentiated career-stage support, clear role progression, and advanced academic pathways to enhance instructional quality and professional productivity.

Significant Difference in Learners' Academic Achievement Based on Teachers' Profiles

Table 12. *Statistical Table Showing the Difference in Learners' Academic Achievement when the Teacher Respondents are Grouped According to Profile Variables*

	Ranks			*Test Statistics*			
Test Variable	*Grouping Variables*						
	Length of Service	*N*	*Mean Rank*	*Chi Square*	*p-value*	*Interpretation*	*Decision*
Teachers' Job Performance	31 and above	9	49.78	15.471	.017	Significant	Do Not Reject Ho
	26 – 30 years	1	62.00				
	21 – 25 years	5	40.00				
	16 – 20 years	7	62.00				
	11 – 15 years	18	46.39				
	6 – 10 years	56	59.05				
	Less than 5 years	15	62.00				
	Total	**111**					
	Teaching Position			38.370	<.001	Significant	
	Master Teacher I	4	5.50				
	Teacher III	43	54.33				
	Teacher II	23	59.61				
	Teacher I	41	60.66				
	Total	111					
	Area of Specialization			.370	.543	Not Significant	
	Mathematics	108	55.83				
	Science	3	62.00				
	Total	**111**					
	Academic Qualification			27.823	<.001	Significant	
	Doctorate Degree	1	62.00				
	Doctorate Degree with units	5	18.00				
	Master's Degree	11	57.00				

Master's Degree with units	71	58.04			
Bachelor's Degree	23	57.22			
Total	**111**				
Number of Training and Seminars Attended					
31 and above	2	62.00			
26 – 30	2	4.00			
21 – 25	2	62.00			
16 – 20	9	43.67	27.823	<.001	Significant
11 – 15	9	49.78			
6 – 10	26	55.65			
0 – 5	61	60.20			
Total	111				

Table 12 presents the differences in learners' academic achievement when teacher respondents are grouped according to selected profile variables. Results indicate statistically significant differences across length of service ($\chi^2 = 15.471$, $p = .017$), teaching position ($\chi^2 = 38.370$, $p < .001$), academic qualification ($\chi^2 = 27.823$, $p < .001$), and number of trainings and seminars attended ($\chi^2 = 27.823$, $p < .001$), leading to the rejection of the null hypothesis for these variables. Learners taught by teachers with fewer than five years and those with 16–20 years of service obtained higher mean ranks, suggesting that both early-career enthusiasm and mid-career instructional maturity positively influence student outcomes. Significant variation by teaching position further highlights the role of professional rank and instructional responsibilities in shaping learner achievement, although the notably low mean rank among Master Teachers may reflect their limited sample size and increased non-teaching duties. Academic qualification likewise showed a significant association with learner performance, indicating that teachers' educational background contributes meaningfully to instructional effectiveness, albeit not in a strictly linear manner. Moreover, the significant effect of training and seminar participation underscores the importance of continuous professional development in enhancing classroom practices and student learning. In contrast, the area of specialization yielded no significant difference ($\chi^2 = .370$, $p = .543$), suggesting that learner achievement is not discipline-dependent but rather influenced by teacher-related professional characteristics. Collectively, these findings emphasize that learners' academic achievement is closely linked to teachers' career stage, professional role, educational attainment, and engagement in professional development, reinforcing the need for targeted capacity-building programs and career-sensitive support mechanisms to sustain instructional quality and optimize student outcomes.

These findings align with research indicating that teacher experience is positively influenced by student achievement. Kini and Podolsky (2016) found that experienced teachers tend to be more effective in creating supportive learning environments and engaging students, which enhances students' academic performance. Similarly, Ene et. al. (2022) observed that teachers with longer years of service consistently demonstrated higher mean academic scores among their students. This suggests that accumulated experience allows teachers to develop more effective instructional practices over time, which aligns with the findings that both early-career enthusiasm and mid-career instructional maturity positively influence student outcomes.

The significant variation by teaching position further highlights the role of professional rank and instructional responsibilities in shaping learner achievement. Barcarse (2024) suggests that teachers in leadership positions, such as those responsible for mentoring colleagues or overseeing curriculum development, demonstrate stronger teaching practices, which in turn improve student performance. This is supported by the study's finding that professional rank influences teaching effectiveness. Interviews with Master Teachers, who occupy higher teaching positions, also emphasize that leadership roles allowed them to refine their teaching strategies and better motivate students, which in turn positively impacts learner achievement. In contrast, teachers in entry-level positions, although eager to improve, are still in the adjustment phase, exploring various strategies to strengthen students' foundational skills, as reflected in the interview with Teacher I, with only two years of experience.

In contrast, the area of specialization did not yield significant differences ($\chi^2 = .370$, $p = .543$), suggesting that learner achievement is not discipline-dependent but rather influenced by teacher-related professional characteristics. Research by Padillo (2021) supports this, indicating that teacher competence, instructional delivery, and classroom management are more crucial factors than subject-specific expertise. For example, a teacher with a science background, despite not specializing in mathematics, was able to teach math effectively by drawing connections between the two subjects, showing that subject expertise alone does not guarantee better academic outcomes.

Academic qualification also showed a significant association with learner performance, but not in a strictly linear manner. Johansson (2024) and Tugume (2024) found that higher academic degrees or formal qualifications do not automatically translate into better student achievement. These studies suggest that observable qualifications, such as advanced degrees, may not strongly predict student academic gains, as other factors, like teaching quality and classroom practices, play a more significant role. However, Lee (2020) pointed out that qualifications, when coupled with effective instructional strategies and continuous professional development, may improve student outcomes. This reflects the study's finding that educational background contributes meaningfully to instructional effectiveness.

Finally, the significant effect of training and seminar participation on student outcomes emphasizes the importance of continuous professional development. Ventista and Brown (2023) and Osei-Owusu (2022) found that professional development activities enhance teachers' instructional quality, which directly correlates with improved student performance. Teachers who actively engage in such

professional development gain new strategies and techniques that they can apply in the classroom, leading to better student engagement and learning outcomes. However, the study also reflects challenges faced by teachers in larger schools, where limited access to seminars and training may hinder consistent professional development. This is echoed by one teacher who shared how the limited opportunities for training made it difficult to fully develop teaching strategies, particularly in developing higher-order thinking skills in students.

These findings collectively emphasize that learners' academic achievement is closely linked to teachers' career stage, professional role, educational attainment, and engagement in professional development. This reinforces the need for targeted capacity-building programs and career-sensitive support mechanisms to sustain instructional quality and optimize student outcomes. While teacher experience, teaching position, and participation in professional development play a significant role, area of specialization and academic qualifications alone may not have as profound an impact on student performance. Therefore, educational institutions should prioritize teacher experience, leadership roles, and ongoing professional development to enhance student outcomes.

Conclusions

The study revealed a significant gap in the challenges faced by Junior High School mathematics teachers, particularly in addressing students' weak foundational knowledge in mathematics and developing their higher-order thinking skills. Teachers reported substantial difficulty in delivering mathematical concepts to students who lacked a solid foundation, which made it challenging to engage them in activities that required critical thinking, analysis, and problem-solving. This issue was especially evident when students needed to apply these higher-order cognitive skills. The gap in students' foundational knowledge was a fundamental obstacle, preventing learners from progressing to more advanced mathematical concepts and hindering the development of essential cognitive skills.

Statistical analysis revealed that job-related challenges were relatively consistent across teachers, regardless of their years of service, academic qualifications, teaching position, or participation in professional development. Although some variations were observed in the data, these differences did not reach statistical significance, indicating that the challenges faced by teachers were systemic rather than influenced by individual characteristics or professional profiles. As a result, the null hypothesis regarding the challenges faced by mathematics teachers was not rejected, suggesting that these challenges were widespread and not dependent on specific demographic or professional factors. However, the study did identify significant differences in both teachers' job performance and students' academic achievement based on teachers' profiles. Teachers with fewer than five years of service, as well as those with higher academic qualifications, showed better performance, likely due to increased motivation, adaptability, and instructional effectiveness. The null hypothesis regarding job performance differences was rejected, emphasizing the critical role of factors such as years of service and academic qualifications in influencing teacher effectiveness. Similarly, students taught by teachers with fewer than five years of service, as well as those with 16–20 years of experience, performed better. This led to the rejection of the null hypothesis for students' academic achievement, confirming that teacher profile variables significantly impacted student outcomes.

Furthermore, the study highlighted the urgent need to address the gap in students' foundational knowledge and their ability to develop higher-order thinking skills. Targeted interventions are essential to equip teachers with the tools and support needed to tackle these challenges and enhance both teaching practices and student performance. Additionally, professional development programs should be tailored to different stages of teachers' careers to ensure continuous improvement in teaching effectiveness.

In view of the fact that the majority of mathematics teachers in the Schools Division of Marinduque face significant challenges related to teaching preparation, instructional delivery, and assessing student learning, the following recommendations were drawn:

Given that many teachers have attended only a few professional development trainings, it is crucial to invest in more targeted and specialized training programs. These programs may focus on improving teachers' ability to deliver complex mathematical concepts, particularly to students with weak foundational knowledge. Professional development may also emphasize strategies for fostering higher-order thinking skills among students. The Mathematics Worktext developed in this study may be a promising intervention to address gaps in students' foundational knowledge. It may be recommended that this resource be expanded and made available to all teachers to help bridge the knowledge gap. Additionally, instructional materials that cater to diverse learners' needs may be integrated into the curriculum to ensure all students can be engaged and can grasp mathematical concepts effectively. Teachers face minimal challenges in collaborating with peers; it may be recommended that school leadership foster a culture of collaboration by providing more opportunities for teachers to engage in lesson planning and share best practices. This may help create a collaborative environment that supports professional growth and improves instructional delivery.

The study identified challenges related to balancing work and personal life, as well as time allocation for lesson preparation. School administrators may consider adjusting teacher workloads to allow more time for lesson planning, grading, and student intervention. This would help reduce stress and enable teachers to better focus on improving instructional quality. Targeted intervention programs may be implemented to address the weak foundational knowledge of students, particularly in mathematics. These programs may be tailored to meet the diverse needs of students, especially those who are struggling to grasp basic mathematical concepts. Regular progress monitoring and adaptive teaching methods are crucial for ensuring the effectiveness of these interventions. Given the improvements in teachers' job performance over time, it is essential to establish a continuous monitoring and evaluation system to track the progress of both teachers and students. This system may assess the effectiveness of professional development programs, teaching strategies, and student achievement, allowing for adjustments to be made as needed to maintain high educational standards. Building

on the identification of the gap in students' foundational knowledge, future studies may investigate the development and implementation of more comprehensive intervention frameworks that target both struggling students and teachers. This may include intervention strategies that are data-driven and personalized, focusing on closing knowledge gaps while enhancing teachers' instructional capacity.

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