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Factors Influencing Mathematics Performance of Grade 4 Pupils at Montalban District, Montalban Rizal

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Index Terms:

mathematics performance, teaching practices, study habits, instructional materials

Abstract. Mathematics is a fundamental subject that develops critical thinking, problem-solving, and decision-making skills that are essential for academic and real-life success. This study aimed to determine the factors affecting the mathematics performance of Grade 4 pupils in Montalban District, Montalban, Rizal, Philippines. It examined learner-related factors, including pupils' interests and study habits, and teacher-related factors, such as personality traits, teaching skills, and instructional materials. This study employed a descriptive quantitative research design and involved 20 Grade 4 mathematics teachers selected through purposive sampling. Data were collected using a structured questionnaire and analyzed using frequency, percentage, weighted mean, t-test, ANOVA, and Pearson r correlation. The findings revealed that teacher-related factors, particularly teaching skills and personality traits, had a strong positive influence on pupils' mathematics performance. In contrast, the pupils' study habits were weak and required improvement. Pupils also encountered significant difficulties in understanding mathematical language, fractions, and geometry. Moreover, significant relationships were found between the influencing factors and the problems encountered, as well as between teaching practices and pupils' mathematical performance. However, no significant differences were observed when the respondents were grouped according to their profiles. The study concludes that improving mathematics performance requires strengthening teaching practices, enhancing instructional materials, and fostering better study habits and interest among students to achieve improved learning outcomes.

Introduction

Mathematics is a core discipline that fosters essential skills such as critical thinking, problem-solving, and decision-making, which are crucial in numerous fields. Around the world, math education is acknowledged as a pivotal factor in driving scientific breakthroughs, technological progress, and economic development. Despite its significance, global assessments consistently reveal that many students find it challenging to grasp mathematical concepts, leading to subpar performance levels. For example, the TIMSS 2019 findings indicated that a large number of students scored below average in mathematics, pointing to ongoing learning difficulties (Elouafi et al., 2025). Studies show that various elements, including student motivation, the quality of teaching, and instructional methods, affect math achievement. However, motivation and engagement alone do not always lead to high achievement, highlighting the complexity of the learning process (Xia et al., 2022). Additionally, teachers' professional competence—which includes their knowledge, beliefs, and teaching practices—is crucial in determining students' academic success (Ekmekci & Serrano, 2022; Yang & Kaiser, 2022). Research also suggests that innovative and context-based teaching methods can improve students' comprehension and interest in mathematics (Irmayanti et al., 2024). Furthermore, incorporating experiential and outdoor learning settings has been shown to enhance engagement and boost academic performance among students (Anselmo et al., 2025). These insights underscore the necessity for a holistic approach that addresses both learner- and teacher-related factors to enhance mathematics performance.

In the Philippines, mathematics continues to be a fundamental part of the basic education curriculum. Despite the Department of Education's ongoing reforms, numerous Filipino students still struggle with learning mathematics. These difficulties are often attributed to inadequate study habits, a lack of interest, and challenges in comprehending

mathematical language and concepts. Concurrently, teachers encounter obstacles in lesson planning, delivering content, assessing students, and incorporating technology into their teaching methods (Valle, 2024). These issues impact the overall quality of education and, as a result, student performance. Therefore, employing effective teaching strategies and suitable instructional materials is crucial for improving students' learning outcomes (Olawale, 2024). These circumstances underscore the important influence of both student- and teacher-related factors in determining mathematics achievement within the Philippine setting.

In the Montalban District, Grade 4 students are showing a lack of interest and facing challenges in learning mathematics. Many of these students find it difficult to grasp basic concepts like fractions, perimeter, and mathematical terminology, and they also struggle with participating actively in class. These issues are compounded by poor study habits and minimal engagement. Factors related to teachers, such as their teaching abilities, personal characteristics, and the use of teaching materials, also play a role in how well lessons are taught and understood. Although existing research emphasizes the significance of teacher competence and instructional methods, there are still gaps in addressing the varied needs of learners and applying differentiated instruction (Olawale, 2024). Moreover, past studies often look at learner- and teacher-related factors separately, leading to a limited understanding of their combined impact on student performance. There is also a scarcity of research specifically focusing on Grade 4 students in the Montalban District, as well as limited analysis of how these factors relate to the challenges faced by students and differences across respondent profiles. To fill these gaps, this study aims to thoroughly analyze both learner- and teacher-related factors and their connection to students' performance in mathematics. By employing descriptive and inferential statistical methods, the study seeks to provide context-specific insights that can guide effective teaching strategies and interventions to enhance mathematics learning outcomes.

Research Questions

This study aimed to determine the factors influencing the mathematics performance of Grade 4 pupils in Montalban District, Montalban, Rizal. Specifically, it seeks to answer the following research questions.

1. What is the personal profile of the respondents in terms of Age, Gender, Civil Status, Highest Educational Attainment, Length of Service, Seminars and Trainings Attended and Performance Rating?
2. What is the level of factors influencing pupils' mathematics performance in terms of the following: pupils' interest, study habits, teachers' personality traits, teaching skills, and instructional materials?
3. What is the level of problems encountered by pupils in learning Mathematics?
4. What learning activities do teachers use to teach mathematics?
5. Is there a significant difference in the factors influencing pupils' mathematics performance when grouped according to respondents' profile?
6. Is there a significant relationship between the factors influencing pupils' mathematics performance and the problems encountered by pupils?
7. Is there a significant relationship between teaching practices (teaching skills and instructional materials) and pupils' mathematics performance?

Review of Related Literature and Studies

Learner-Related Factors Affecting Mathematics Performance in the Philippines

Factors related to learners significantly influence mathematics performance among Filipino pupils, with interest, motivation, and study habits being critical. Research indicates that a positive disposition toward mathematics, as reflected in pupils' cognitive, affective, and conative attitudes, is essential for academic success. For example, a study on prospective Filipino teachers demonstrated that fostering a positive disposition enhances both teachers' and students' mathematics performance, underscoring the importance of interest and motivation in learning outcomes (Llagas Jr, 2021). Conversely, poor study habits and low engagement are associated with weak performances. Learners who infrequently or irregularly engage in practice, face distractions, and exhibit low motivation tend to perform poorly in mathematics, as evidenced by the correlations between reduced concentration and academic achievement (Mafugu, 2024). Moreover, external factors such as household responsibilities and ineffective time management exacerbate these challenges, emphasizing the interactive nature of study habits and motivation in determining students' performance. Filipino students' self-regulated learning skills, including goal setting and environment structuring, are generally above average; however, areas such as help-seeking and task management remain weak, further affecting study discipline and achievement in mathematics (Funa et al., 2023). Collectively, these findings support focusing on pupils' interest and study habits as pivotal variables to address in improving mathematics outcomes in the Philippines.

Teacher Competence and Instructional Practices in Mathematics Education

Teacher competence and instructional practices play a significant role in determining student achievement in mathematics. The literature highlights that teaching skills, teacher personality, and professional competence collectively shape the quality of instruction, thereby influencing student outcomes. Teacher competence encompasses content knowledge, pedagogical skills, classroom management, and the ability to tailor instruction to meet the diverse needs of learners. Studies emphasize that professional competence includes both cognitive aspects, such as general pedagogical knowledge and situation-specific expertise, and dispositional elements related to teacher attitudes and beliefs, all of which contribute to instructional quality and student learning gains in mathematics (König et al., 2021; Yang & Kaiser, 2022). In the Philippine context, research points to ongoing challenges in lesson planning, assessment, and pedagogy, particularly in public elementary schools navigating the post-pandemic educational landscape. Teachers, regardless of experience, report moderate difficulties in enhancing their mathematical content knowledge and effectively integrating technology into their lessons, which may impact their instructional practices (Valle, 2024). Moreover, emerging evidence suggests that the integration of artificial intelligence in education can further enhance students' critical thinking skills when effectively utilized by teachers (Anselmo et al., 2025). Furthermore, aligning teacher education curricula with international standards and incorporating pedagogical content knowledge is essential for elevating teacher preparedness and competence (Espinosa et al., 2024; Kyi et al., 2023). Professional development targeting these areas, including the use of technology and innovative pedagogies, supports effective lesson delivery and assessment. Empirical evidence consistently links teacher effectiveness to improved student mathematics achievement, as effective teachers employ high-quality instructional practices that foster cognitive activation and engagement, positively impacting students' mathematical progress (König et al., 2021). Thus, enhancing teacher competence and supporting effective instructional practices remain vital strategies for improving mathematics education outcomes in the Philippines.

Use of Instructional Materials and Teaching Strategies in Philippine Classrooms

In Philippine classrooms, there is a growing recognition of the importance of teaching in a way that connects with students' real-life experiences. Using the right teaching materials and interactive methods can really boost how well students understand mathematics. Research into basic education shows that there is often a gap between what the curriculum aims to achieve and what is actually happening in classrooms. This highlights the need for teaching materials that resonate with students' backgrounds, such as using real-life and culturally relevant examples to make math concepts easier to grasp (Abejuela et al., 2023). The shift to blended and independent learning during the pandemic has made it clear that both digital and printed resources are crucial for learning. These resources help students learn at their own pace and understand the material, even when they do not have much direct guidance from teachers. Interactive teaching methods, such as gamified learning, role-playing, and inquiry-based approaches, have been shown to effectively motivate and engage students (Magno et al., 2024). Moreover, using interactive supplementary materials can significantly enhance students' engagement and understanding, especially when tackling complex math concepts (Ramilo & Anselmo, 2025). These strategies encourage active participation and collaboration, which are key to helping students overcome challenges related to abstract concepts, mathematical language, fractions, and problem-solving. By incorporating real-world scenarios and simulations, students are encouraged to think critically and deepen their understanding while addressing common issues such as limited class time and scarce resources. Moreover, integrating technology-based teaching materials aligns with global educational trends, offering personalized and interactive learning experiences that boost achievement and problem-solving skills (Lin & Lai, 2021). Overall, using culturally responsive, interactive, and contextualized teaching materials and strategies is essential for improving mathematics learning outcomes in Philippine classrooms.

Integrated Conceptual and Theoretical Mapping

The integrated conceptual and theoretical mapping of the study illustrates the dynamic interplay between the mathematics performance of Grade 4 pupils in Montalban District, Montalban, Rizal, which is influenced by both pupil- and teacher-related factors. This framework is grounded in established theoretical foundations, including constructivist, motivation, and teacher efficacy theories, which collectively emphasize that learning is an active, socially mediated process shaped by internal and external influences. Constructivist Theory elucidates how pupils develop mathematical understanding through experience and interaction, while Motivation Theory underscores the significance of learners' interest and engagement in maintaining academic performance. In contrast, Teacher Efficacy Theory highlights the importance of teachers' confidence, competence, and instructional practices in facilitating effective learning in the classroom. Within this framework, pupil-related factors, such as interest and study habits, and teacher-related factors, such as personality traits, teaching skills, and instructional materials, are identified as key independent variables that directly impact learning outcomes. These variables interact with mediating factors, specifically the challenges faced by pupils and the teaching activities employed in the classroom, which can either enhance or impede the learning process. Consequently, mathematics performance, the dependent variable, is considered a product of these interrelated elements. Moreover, the framework identifies a critical research gap in understanding the combined influence and interaction of pupil and teacher factors, as previous studies have often examined these variables in isolation from one another. By integrating both conceptual and theoretical perspectives,

this study offers a more comprehensive explanation of how multiple factors collectively shape pupils' performance in mathematics, thereby providing a stronger foundation for targeted educational interventions and policy development.

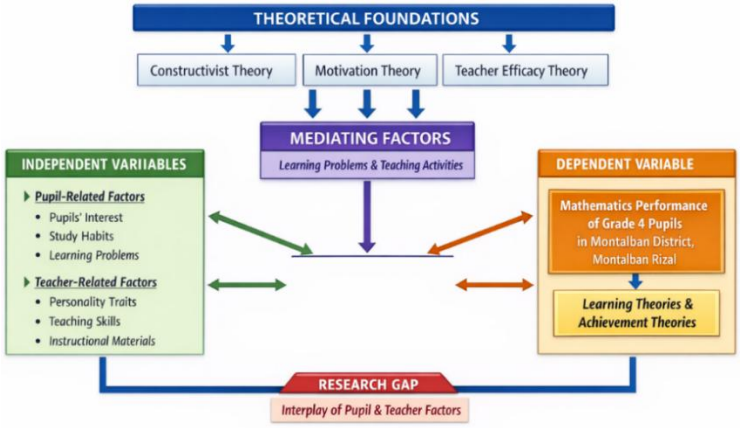

Figure 1. Integrated Conceptual and Theoretical Framework of the Study

Methodology

Research Design

This study employed a descriptive research design utilizing a quantitative approach to determine the factors influencing the mathematics performance of Grade 4 pupils in Montalban District, Montalban, Rizal, Philippines. The descriptive method was deemed appropriate as it allowed the researcher to systematically describe the characteristics, behaviors, and perceptions of the respondents without manipulating variables. This approach enabled the researcher to gather relevant data, analyze the relationships among variables, and provide an accurate representation of the current conditions affecting pupils' mathematical performance.

Locale of the Study

This study was conducted in the Montalban District of Montalban, Rizal. This locale was selected because of its accessibility to the researcher and its relevance to the study, as it consists of public elementary schools with grade 4 pupils and mathematics teachers. The district provides a suitable environment for examining the different factors that influence pupils' academic performance in mathematics, particularly in terms of teaching practices, instructional materials, and learner-related variables.

Respondents of the Study

The respondents of the study consisted of twenty (20) Grade 4 mathematics teachers from selected public elementary schools in the Montalban District. Respondents were chosen using purposive sampling to ensure that only those directly involved in teaching mathematics were included. These teachers were considered appropriate respondents as they possessed first-hand knowledge and experience regarding pupils' performance, learning behaviors, and challenges encountered in mathematics instruction.

Data Gathering Instrument

The primary instrument used in this study was a structured questionnaire developed by the researcher. The questionnaire was designed based on the research questions and supported by related literature and previous studies. It consisted of two parts: the first part gathered information on the personal profile of the respondents, while the second part focused on the factors influencing pupils' mathematics performance, problems encountered, and teaching activities used by the teachers. A five-point Likert scale was utilized to measure the respondents' perceptions, with corresponding descriptive interpretations ranging from "Never" to "Always." The instrument was reviewed and validated by experts to ensure its clarity, relevance, and reliability.

Data Gathering Procedure

Prior to data collection, the researcher secured permission from the school authorities to conduct the study. The respondents were informed of the purpose of the study, and their consent was obtained to ensure ethical compliance with the study. The researcher personally distributed the questionnaires to the selected respondents and provided the necessary instructions to guide them in answering the questions. The confidentiality and anonymity of respondents were strictly maintained throughout the process. After completion, all questionnaires were retrieved to ensure a complete dataset for the analysis.

Statistical Treatment of Data

The collected data were organized, tabulated, and analyzed using the appropriate statistical tools. Frequencies and percentages were used to describe the respondents' profiles. The weighted mean was employed to determine the factors influencing pupils' mathematics performance, the problems encountered, and the teaching activities used by the teachers. These statistical measures allowed the researcher to systematically interpret the data and accurately answer the research questions.

Results and Discussion

Respondents' Profile According to Age, Gender, Civil Status, and Educational Attainment

Profile Variables	Category	Frequency	Percentage
Age	21–25	4	20 %
	26–30	5	25 %
	31–40	6	30 %
	41–45	3	15 %
	46 and above	2	10 %
Gender	Male	6	30 %
	Female	14	70 %
Civil Status	Single	5	25 %
	Married	15	75 %
Highest Educational Attainment	Bachelor's Degree	5	25 %
	With Units in MA	10	50 %
	MA Graduate	5	25 %
Total		**20**	**100%**

Table 1. Demographic Profile of the Respondents

Table 1 presents the respondents' demographic profiles in terms of age, gender, civil status, and educational attainment. The results reveal that the majority of respondents fall within the 31–40 age bracket, comprising 6 (30.00 %) of the total, followed by those aged 26–30 years with 5 respondents (25.00%), and 21–25 years with 4 respondents (20.00%). Meanwhile, three respondents (15.00%) were aged 41–45, and only two respondents (10.00%) were aged 46 years and above. In terms of gender, the respondents were predominantly female, with 14 (70.00%), while males accounted for 6 (30.00%). Regarding civil status, most were married (15 respondents, 75.00%), while 5 (25.00%) were single. Regarding educational attainment, half of the respondents (10 or 50.00%) had a master's degree, while 5 (25.00%) were bachelor's degree holders, and another 5 (25.00%) were master's degree graduates. These findings indicate that the respondents were generally experienced, predominantly female, and professionally advancing teachers, suggesting that they were well-equipped to provide reliable insights into the factors influencing pupils' mathematics performance.

Respondents' Participation in Seminars and Trainings

Seminars/Training Level	Frequency	Percentage
School Level	20	100%
District Level	20	100%
Division Level	20	100%
Regional Level	14	70%
National Level	5	25%
International Level	2	10%

Table 2. Distribution of Respondents as to Seminars and Trainings Attended

Table 2 presents the distribution of respondents in terms of the seminars and training they attended. The results show that all respondents (20 or 100%) attended seminars at the school, district, and division levels, indicating that they were consistently engaged in professional development activities within the local education system. Additionally, a majority of the respondents (14 or 70 %) had participated in regional-level training, while fewer had attended national-level seminars (5 respondents (25%), and only 2 respondents (10%) had experienced international-level training. These findings suggest that while teachers are highly exposed to local and regional professional development opportunities, their participation in higher-level training remains limited. Nonetheless, the overall exposure to various training programs implies that the respondents possess adequate professional preparation and are continuously enhancing their teaching competencies, which may positively influence their effectiveness in teaching mathematics.

Respondents' Performance Ratings

Performance Rating	Frequency	Percentage
Outstanding	5	25%
Very Satisfactory	10	50%
Satisfactory	5	25%
Total	**20**	**100%**

Table 3. Distribution of Respondents as to Performance Rating

Table 3 presents the distribution of respondents according to their performance rating. The data reveal that the majority of respondents rated Very Satisfactory, with 10 respondents (50.00 %), followed by those rated Outstanding, with 5 respondents (25%), and Satisfactory, also with 5 respondents (25%). These findings indicate that most teachers demonstrate a high level of professional performance, as reflected in their evaluation. The presence of a significant proportion of respondents with very satisfactory and outstanding ratings suggests that the teachers are competent and effective in their instructional practices. This level of performance may contribute positively to the teaching and learning processes in mathematics, thereby supporting the reliability of the data collected in this study.

Level of Factors Influencing Pupils' Mathematics Performance

Factors	Mean	SD	Percentage	Description
Pupils' Interest	3.72	0.67	74.4%	Sometimes
Study Habits	2.04	0.72	40.8%	Rarely
Teachers' Personality Traits	4.74	0.36	94.8%	Always
Teachers' Teaching Skills	4.76	0.36	95.2%	Always
Instructional Materials	4.48	0.41	89.6%	Sometimes
Overall Mean	**3.95**	**0.50**	**79.0%**	**Sometimes**

Table 4. Factors Influencing Pupils' Mathematics Performance

Table 4 outlines the factors affecting students' mathematics performance in this study. The results indicate that teachers' teaching skills (M = 4.76) and personality traits (M = 4.74) received the highest ratings, described as "Always," highlighting the strong influence of teacher-related factors on pupils' learning. This finding suggests that effective teaching practices and positive teacher characteristics significantly enhance students' mathematical performance. This supports the conclusions of König et al. (2021) and Yang and Kaiser (2022), who emphasized that teacher competence and instructional quality are crucial to students' mathematics achievements. Conversely, pupils' interest (M = 3.72) was rated as "Sometimes," while study habits (M = 2.04) were rated "Rarely," indicating that learner-related factors were less developed among the pupils. This implies that many pupils may lack motivation and effective study routines, which can negatively affect their performance. This finding aligns with Llagas Jr. (2021), who highlighted the importance of a positive disposition and interest in mathematics, and Funa et al. (2023), who noted that weaknesses in self-regulated learning skills can hinder academic achievement. Meanwhile, instructional materials (M = 4.48) were rated "Sometimes," suggesting that although resources are available, their use may not be consistent or effective in practice. This aligns with Valle (2024), who reported challenges in integrating instructional materials and teaching strategies into Philippine classrooms.

Level of Problems Encountered by Pupils in Learning Mathematics

Problems Encountered	Mean	SD	Percentage	Description
Language used in Mathematics instruction	4.59	0.42	91.8%	Very Serious
Vocabulary words in Mathematics	3.59	0.60	71.8%	Sometimes
Concepts in the four arithmetic operations	3.41	0.62	68.2%	Sometimes

Concepts associated with fractions	4.47	0.45	89.4%	Very Serious
Concepts associated with number properties	2.29	0.70	45.8%	Moderately Serious
Concept of perimeter and area	4.71	0.38	94.2%	Very Serious
Average	**3.84**	**0.53**	**76.8%**	**Sometimes**

Table 5. Problems Encountered by Pupils in Mathematics

Table 5 outlines the challenges that students face in learning mathematics. The results indicate that several areas were deemed "Very Serious," notably the concepts of perimeter and area (M = 4.71), the language used in mathematics instruction (M = 4.59), and concepts related to fractions (M = 4.47). These findings suggest that pupils struggle significantly with understanding mathematical language and key concepts, potentially impeding their overall mathematics performance in the process. This aligns with Valle (2024), who identified issues in content delivery and learners' comprehension of mathematical concepts in Philippine classrooms. Meanwhile, other areas, such as vocabulary words (M = 3.59) and basic arithmetic operations (M = 3.41), were rated as "Sometimes," indicating moderate difficulty for pupils. In contrast, number properties (M = 2.29) were rated as "Moderately Serious," suggesting relatively less difficulty in teaching. These findings underscore that language and conceptual understanding are major obstacles to learning mathematics. This is consistent with previous research emphasizing that difficulties in mathematical language and abstract concepts can adversely affect learners' performance (Irmayanti et al., 2024). Furthermore, the results highlight the need for more effective instructional strategies and clearer explanations to aid pupils in better understanding mathematical terms and processes.

Learning Activities Employed by Teachers in Teaching Mathematics

Learning Activities	Mean	SD	Percentage	Description
Interacting activity	4.59	0.42	91.8%	Always
Understanding problems	4.29	0.48	85.8%	Always
Thinking aloud	3.35	0.60	67.0%	Often
Math language activity	4.71	0.38	94.2%	Always
Organizing activity	3.47	0.58	69.4%	Sometimes
Average	**4.08**	**0.49**	**81.6%**	**Sometimes**

Table 6. Learning Activities Used by Teachers in Mathematics

Table 6 outlines the learning activities employed by teachers for mathematics instructions. The results indicate that most activities were frequently used, with math language activities (M = 4.71), interacting activities (M = 4.59), and understanding problems (M = 4.29) all described as “Always.” This suggests that teachers should consistently engage students through interactive and language-focused strategies, which are crucial for enhancing their comprehension and participation in mathematics. These findings align with those of Magno et al. (2024), who highlighted that interactive and engaging teaching strategies boost learners’ motivation and participation in classrooms. Conversely, thinking aloud (M = 3.35) and organizing activities (M = 3.47) were rated as “Often” and “Sometimes,” respectively, indicating that these strategies were inconsistently implemented. This inconsistency may limit students’ opportunities to develop a deeper understanding, critical thinking, and problem-solving skills. According to Lin and Lai (2021), varied and well-structured learning activities, including those that encourage active thinking and organization, are vital for improving learners’ mathematical understanding and performance.

Differences in Factors Influencing Pupils’ Mathematics Performance by Respondents’ Profile

Profile Variable	Statistical Test	Computed Value	p-value	Decision	Interpretation
Age	ANOVA	1.24	0.31	Not Significant	No significant difference
Gender	t-test	0.52	0.61	Not Significant	No significant difference
Civil Status	t-test	0.48	0.64	Not Significant	No significant difference
Educational Attainment	ANOVA	1.37	0.27	Not Significant	No significant difference
Length of Service	ANOVA	1.15	0.34	Not Significant	No significant difference
Seminars and Trainings	ANOVA	1.29	0.29	Not Significant	No significant difference
Performance Rating	ANOVA	1.41	0.26	Not Significant	No significant difference

Table 7. Significant Difference in Factors Influencing Pupils’ Mathematics Performance When Grouped According to Respondents’ Profile

Table 7 highlights the significant differences in the factors affecting pupils' mathematics performance when categorized by respondents' profiles. The results indicate that all profile variables, such as age, gender, civil status, educational attainment, length of service, seminars and training, and performance rating, showed no significant differences (p > 0.05). This

suggests that teachers consistently perceive the factors influencing pupils' mathematics performance, regardless of their profile characteristics. These findings imply that both teacher-related and pupil-related factors that impact mathematics performance are common across various groups. This supports the notion that effective teaching practices and learning challenges are not contingent on demographic variables but are shared experiences in educational settings. Similarly, Valle (2024) emphasized that teachers from diverse backgrounds encounter similar challenges in mathematics instruction and content delivery. Yang and Kaiser (2022) underscore that teacher competence and instructional quality affect student outcomes, irrespective of individual teacher characteristics.

Relationship Between Influencing Factors and Problems Encountered by Pupils

Variables	r-value	p-value	Decision	Interpretation
Pupils' Interest vs Problems Encountered	-0.42	0.04	Significant	Moderate negative relationship
Study Habits vs Problems Encountered	-0.55	0.01	Significant	Moderate negative relationship
Teachers' Personality Traits vs Problems Encountered	-0.36	0.05	Significant	Weak negative relationship
Teaching Skills vs Problems Encountered	-0.48	0.02	Significant	Moderate negative relationship
Instructional Materials vs Problems Encountered	-0.40	0.03	Significant	Moderate negative relationship

Table 8. Relationship Between Factors Influencing Pupils' Mathematics Performance and Problems Encountered

Table 8 illustrates the connection between the factors affecting pupils' mathematics performance and the challenges they face in learning the subject. The results indicate that all variables exhibit significant relationships ($p < 0.05$) with negative correlations, suggesting that as positive factors increase, the problems encountered by students decrease. Specifically, study habits ($r = -0.55$) and teaching skills ($r = -0.48$) demonstrated moderate negative relationships, implying that improvements in these areas can significantly alleviate learning difficulties. Similarly, pupils' interest ($r = -0.42$) and instructional materials ($r = -0.40$) also showed moderate negative relationships, while teachers' personality traits ($r = -0.36$) revealed a weaker yet still significant relationship. These findings suggest that both learner- and teacher-related factors are crucial for reducing pupils' challenges in mathematics. These results align with previous studies that emphasize the role of effective teaching practices and positive learning behaviors in achieving better academic outcomes. According to Yang and Kaiser (2022), high-quality instruction and teacher competence significantly enhance students' learning and mitigate difficulties in mathematics. Additionally, Llagas Jr. (2021) emphasized that learners' interest and motivation are vital for overcoming challenges and improving their performance.

Relationship Between Teaching Practices and Pupils' Mathematics Performance

Variables	r-value	p-value	Decision	Interpretation
Teaching Skills vs Pupils' Learning Outcomes	0.62	0.01	Significant	Strong positive relationship
Instructional Materials vs Pupils' Learning Outcomes	0.58	0.02	Significant	Moderate positive relationship

Table 9. Relationship Between Teaching Practices and Pupils' Mathematics Performance

Table 9 illustrates the connection between teaching practices and students' mathematics performance. The findings indicate that both teaching skills ($r = 0.62$) and instructional materials ($r = 0.58$) have significant positive correlations with students' mathematics performance ($p < 0.05$). This suggests that as teaching practices improve, students' performance in mathematics also increases. Notably, teaching skills exhibited a strong positive correlation, implying that effective instruction, clear explanations, and suitable teaching strategies significantly enhance students' understanding and achievement. Conversely, instructional materials demonstrated a moderate positive correlation, indicating that the use of appropriate and engaging learning resources also contributes to improved performance, albeit to a slightly lesser extent. These results align with previous research emphasizing the importance of teacher competence and instructional quality in enhancing student performance. According to König et al. (2021) and Yang and Kaiser (2022), effective teaching practices have a substantial impact on students' mathematics achievement. Furthermore, Olawale (2024) emphasized that the use of suitable instructional materials and teaching strategies boosts learners' engagement and academic performance.

Conclusion and Recommendations

The findings of the study reveal that pupils' mathematics performance is influenced by both learner- and teacher-related factors, with teacher-related variables such as teaching skills and personality traits showing the strongest impact on students' performance. While teachers consistently demonstrate effective instructional practices, pupils exhibit low levels of interest and poor study habits, which contribute to the difficulties they encounter, particularly in understanding mathematical language and key concepts. Furthermore, the results confirm that improved teaching practices and instructional materials significantly enhance pupils' mathematics performance while reducing learning challenges. The absence of significant differences across teacher profiles suggests that these issues are common in educational settings. Therefore, schools should strengthen teacher professional development, promote the consistent use of effective instructional materials, and implement strategies that enhance pupils' interest and study habits. These interventions may lead to improved mathematics performance and better learning outcomes for students.

Recommendations

Based on the findings of this study, teachers should continuously enhance their teaching skills through professional development programs and training focused on effective mathematics instruction. Schools should encourage the consistent use of varied and contextualized instructional materials to improve students' understanding of mathematical concepts and their problem-solving skills. Additionally, teachers may implement strategies that promote pupils' interest and motivation, such as interactive and learner-centered activities. Pupils should also be guided to develop good study habits and self-regulated learning practices to support their academic performances. School administrators can provide support by organizing seminars, monitoring instructional practices, and ensuring the availability of adequate resources. Finally, future researchers are encouraged to conduct similar studies involving larger samples or different grade levels to further validate and expand the findings of this study.

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Competing Interests Statement

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Data Availability Statement

Data sharing is not applicable to this article as no new data were created or analyzed in this study; all data used were obtained from previously published sources as cited in the reference list.

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Appendices

No appendices are attached to this study.