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Motivation Strategies, Teaching Styles, and Instructional Challenges in Grade 6 Mathematics Education

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ABSTRACT

Effective mathematics instruction relies on teachers' ability to inspire learners, employ suitable teaching methods, and manage classroom challenges. This research explored the motivation strategies, teaching styles, and instructional challenges reported by Grade 6 Mathematics teachers. A descriptive quantitative design involved 20 Grade 6 Mathematics teachers from Bambang I District, Nueva Vizcaya, Philippines. Data were collected through a structured questionnaire covering respondents' profiles, motivation strategies, teaching styles, and instructional issues. Frequency counts and percentages described respondents' profiles, while weighted means and rankings determined strategy and teaching-style use and the seriousness of instructional challenges. Results indicated that teachers generally concurred with using the identified motivation strategies, with an average weighted mean of 3.95. Presenting a challenge ranked first, followed by indicating the usefulness of a topic and using recreational mathematics. Teachers also generally agreed with the identified teaching styles, with an average weighted mean of 3.62. Teaching by example and modeling how to think and behave ranked highest, followed by providing feedback and establishing learning goals, expectations, and rules. Instructional problems were rated slightly serious overall, with an average weighted mean of 2.22. Limited community participation in mathematics activities was the most serious challenge, followed by limited school support for mathematics program activities. The findings suggest that engaging strategies and supportive teaching practices are important features of mathematics instruction, while stronger school and community support is needed to address identified challenges. The results may guide instructional improvement and school-based support initiatives.

Keywords: *classroom engagement; elementary education; pedagogical approaches; teacher development; teacher perceptions*

INTRODUCTION

Mathematics is fundamental in elementary education because it underpins critical thinking, problem-solving, and daily decision-making, which are essential for learners' academic and life success. Effective instruction helps pupils grasp abstract concepts, supporting comprehension, long-term retention, and application. Engaging mathematics learning fosters active participation, curiosity, and sustained interest, helping overcome math anxiety and disinterest (Putra et al., 2026; Verdeflor et al., 2024). Motivation encourages pupils to fully engage in learning activities. Intrinsic motivation, such as curiosity and personal interest, drives exploration of mathematical ideas, while extrinsic motivation, including praise, rewards, and recognition, reinforces continued engagement. Given pupils' diverse interests and learning needs, varied motivational strategies are crucial (Neema & Ibrahim, 2026; Radišić & Baucal, 2024). Teachers use challenging problems, mathematical patterns, and real-life applications to stimulate interest and participation. These student-centered approaches enhance motivation, engagement, and better learning outcomes (Evans & Martin, 2023; Stieha et al., 2024). Thus, diverse instructional practices are

essential for successful elementary mathematics learning.

Teaching styles are important for effectively delivering mathematical concepts. They shape how students engage with and understand the subject. Some core instructional methods include teacher modeling, where the teacher shows how to solve problems; structured guidance, which helps students understand through scaffolding; timely feedback that lets students know how they're doing; group discussions that encourage collaborative learning; and independent learning that promotes autonomy and self-regulation. It is crucial to balance teacher-directed instruction with opportunities for students to participate. In this way, learners receive clear explanations and actively build their knowledge, which boosts motivation and leads to a deeper understanding (Nissim et al., 2026; Uría-Valle et al., 2026). However, there are several challenges that can make teaching math effectively a bit tricky. These include limited access to instructional materials, insufficient support from schools, low community involvement, and inadequate teacher professional development. Such issues can limit the use of diverse teaching styles and motivation strategies, which might lead to reduced student engagement and achievement. It is important to identify the challenges teachers perceive using tools such as questionnaires, as this helps guide targeted interventions to improve teaching practices and resource allocation based on actual needs (Nissim et al., 2026; Radzi & Mahmud, 2025).

In the Bambang I District of Nueva Vizcaya, we examined how Grade 6 mathematics teachers motivated their students, the teaching styles they used, and the challenges they faced. This study is important because while there is a lot of general research out there, there is not much that is specific to this area. By focusing on local needs, we can help improve teaching methods and provide better support at the school level. The goal here is to describe the strategies these teachers used to motivate their students, the teaching styles they preferred, and the hurdles they encountered in teaching math effectively. The findings will hopefully guide both teachers and school administrators in enhancing math learning outcomes.

RESEARCH QUESTIONS

This study aimed to examine the motivation strategies, teaching styles, and instructional challenges in Grade 6 mathematics instruction in the Bambang I District, Philippines. Specifically, it sought to answer the following questions:

1. What is the profile of the Grade 6 Mathematics teacher-respondents in terms of age, gender, civil status, position, educational attainment, performance rating, teaching experience, and in-service training?
2. What motivation strategies do Grade 6 mathematics teachers employ in their classroom instruction?
3. What teaching styles do Grade 6 Mathematics teachers utilize when delivering mathematics instruction?
4. What instructional challenges do Grade 6 Mathematics teachers encounter when teaching Mathematics?

METHODOLOGY

Research Design

This study employed a descriptive quantitative research design to examine the motivation strategies, teaching styles, and instructional challenges experienced by Grade 6 Mathematics teachers in the Bambang I District, Philippines. The descriptive approach was used to determine the strategies commonly employed by teachers to motivate pupils, the teaching styles practiced in mathematics instruction, and the problems encountered in the delivery of lessons. Through the use of a survey questionnaire, the study gathered numerical data that were analyzed to describe the prevailing instructional practices and challenges among the teacher-respondents. This design was appropriate because the study focused on describing existing teaching practices and experiences without manipulating instructional conditions or introducing an intervention.

Respondents of the Study

The respondents of the study consisted of 20 Grade 6 Mathematics teachers from Bambang I District, Philippines. These teachers were selected because they were directly involved in teaching Mathematics at the Grade 6 level and were therefore considered appropriate sources of information regarding the motivational strategies, teaching styles, and instructional challenges encountered in classroom instruction. The respondents'

profiles, including age, gender, civil status, position, educational attainment, performance rating, teaching experience, and in-service training, were also gathered to provide a descriptive overview of the participants.
If all 20 Grade 6 Mathematics teachers in the district participated, the sampling technique may be identified as total enumeration sampling technique.

Research Instrument

The study utilized a structured survey questionnaire as the primary instrument for gathering data. The questionnaire was organized into sections covering the profile of teacher-respondents, motivation strategies employed in Grade 6 Mathematics instruction, teaching styles utilized in classroom teaching, and instructional problems encountered by the teachers. The section on motivation strategies included practices such as presenting challenges, identifying the usefulness of mathematical topics, utilizing recreational mathematics, discovering mathematical patterns, and encouraging pupil participation. The teaching styles section covered teacher modeling, feedback provision, setting learning goals and expectations, demonstrating procedures, facilitating group discussions, and promoting independent learning. Meanwhile, the section on instructional challenges examined concerns related to instructional materials, school support, community participation, and school-facilitated mathematics training. Responses were quantified using the rating scale provided in the questionnaire and interpreted through the corresponding qualitative descriptions.

Data-Gathering Procedure

The data-gathering process involved the preparation and administration of the survey questionnaire to Grade 6 Mathematics teacher respondents in the Bambang I District. Prior to the administration of the instrument, the researcher sought the necessary permission from the appropriate educational authorities and school heads to conduct the study. After securing approval, the questionnaire was distributed to the identified respondents, with appropriate instructions regarding the purpose of the study and the manner of answering the survey. The respondents were given sufficient time to complete the questionnaire, after which the accomplished instruments were collected, checked, and organized for data analysis. The collected responses were subsequently tabulated and processed to determine the prevailing motivation strategies, teaching styles, and instructional challenges in Grade 6 Mathematics instruction.

Statistical Treatment of Data

The data gathered from the survey questionnaire were analyzed using descriptive statistical techniques. Frequency counts and percentages were used to describe the demographic and professional profiles of the teacher respondents. Weighted means were employed to determine the extent to which motivation strategies and teaching styles were utilized, as well as the perceived seriousness of the instructional problems encountered by teachers. Ranking was also applied to identify the most and least commonly utilized motivation strategies and teaching styles, as well as the most and least serious instructional challenges. The resulting weighted means were interpreted using the qualitative descriptions corresponding to the rating scale employed in the survey instrument.

FINDINGS

Table 1. Profile of the Grade 6 Mathematics Teacher-Respondents

Profile variable	Category	Frequency (f)	Percentage (%)
Age	20–25 years	2	10%
	26–30 years	5	25%
	31–35 years	7	35%
	36–40 years	2	10%
	41–45 years	3	15%
	46 years and above	1	5%
Gender	Male	6	30%
	Female	14	70%
Civil status	Single	6	30%
	Married	13	65%
	Widow	1	5%
Position	Teacher I	6	30%

	Teacher II	1	5%
	Teacher III	12	60%
	Master Teacher I	1	5%
Educational attainment	BEEd	3	15%
	MAEd units	5	25%
	MAEd	11	55%
	PhD	1	5%
Performance rating	Outstanding	13	65%
	Very Satisfactory	6	30%
	Satisfactory	1	5%
Teaching experience	1–5 years	3	15%
	6–10 years	3	15%
	11–15 years	7	35%
	16–20 years	4	20%
	21 years and above	3	15%
In-service training	School/District	20	100%
	Division	20	100%
	Regional	18	90%
	National	16	80%
	International	1	5%

Table 1 provides an overview of the demographic and professional profiles of the 20 Grade 6 mathematics teacher-participants. In terms of age, the largest group was within the 31–35 age bracket (35%), followed by those aged 26–30 (25%), suggesting that most respondents were in their early to middle stages of teaching. Regarding sex, the majority were female (70%), while 30% were male. Concerning civil status, most respondents were married (65%), followed by single (30%) and widowed (5%) respondents. With respect to position, most respondents were Teacher III (60%), indicating that most respondents held teaching positions associated with accumulated professional experience. In terms of educational attainment, more than half had completed a Master of Arts in Education (55%), while 25% had earned master's units, 15% held a Bachelor of Elementary Education degree, and 5% had completed a PhD. Regarding performance ratings, 65% were rated outstanding, 30% Very Satisfactory, and 5% satisfactory. Additionally, the largest proportion of respondents had 11–15 years of teaching experience (35%), followed by those with 16–20 years of experience (20%). In terms of in-service training, all respondents had attended school/district and division-level training, while 90% had participated in regional training, 80% in national training, and only 5% in international training. Overall, the profile suggests that the respondents generally had considerable teaching experience, relevant educational qualifications, and exposure to professional development activities, providing a useful background for understanding their reported motivation strategies, teaching styles, and instructional challenges in Grade 6 Mathematics...

Table 2. Motivation Strategies Used in Grade 6 Mathematics Instruction

Motivation strategies	Weighted Mean	Qualitative Description	Rank
Call the attention of the pupils	3.99	Agree	5
Show a sequential achievement	3.76	Agree	6
Discovering a pattern	4.02	Agree	4
Present a challenge	4.44	Strongly Agree	1
Entice the class with a “Gee-Whiz” mathematical result	3.70	Agree	7
Indicate the usefulness of a topic	4.20	Strongly Agree*	2
Use recreational Mathematics	4.16	Agree	3
Tell a pertinent story	3.32	Agree	9
Get students actively involved in justifying mathematical curiosities	3.56	Agree	8
Average Weighted Mean	3.95	Agree	—

In Grade 6 math classes, different motivation strategies work with varying levels of success, as shown

by their weighted means and rankings. The top strategy, "Present a challenge," scored a weighted mean of 4.44 and is widely seen as the most motivating. It emphasizes the importance of engaging students with problem-solving tasks that encourage critical thinking and persistence. Next up, "Indicate the usefulness of a topic" scored 4.20, which shows how linking math to real-world situations can boost student interest and motivation, which matches findings that making lessons relevant to real life keeps students engaged (Heinle et al., 2022). Coming in third, "Recreational Mathematics" scored 4.16, which supports the idea of adding fun and games to lessons, which can make learning more enjoyable and motivating (Zabala-Vargas et al., 2022). Other strategies, such as "Discovering a pattern" (4.02) and "Call the attention of the pupils" (3.99), are great for encouraging active thinking and focus, which are key for keeping students motivated in math (Kikas et al., 2024). "Show a sequential achievement" (3.76) provides a step-by-step approach that helps students manage their learning and stick with it (Granello et al., 2025). On the lower end, strategies like "Tell a pertinent story" (3.32) and "Get students actively involved in justifying mathematical curiosities" (3.56) are still seen as motivational but might need to be combined with other strategies to really make an impact (Mutlu et al., 2026). Overall, these findings highlight that using a mix of varied, relevant, and engaging strategies can create an effective motivational framework for teaching Grade 6 math.

Table 3. Teaching Styles Used in Grade 6 Mathematics Instruction

Teaching styles	Weighted Mean	Qualitative Description	Rank
Possesses knowledge and expertise that pupils need	3.60	Agree	7
Displays detailed knowledge and challenges pupils to enhance competence	2.81	Somewhat Agree	12
Transmits information and ensures pupils are well-prepared	2.96	Somewhat Agree	11
Sets standards and expectations that develop learning discipline	3.53	Agree	8
Provides feedback and establishes learning goals, expectations, and rules	4.24	Strongly Agree	2
Emphasizes correct, acceptable, and standard ways of doing things	3.34	Agree	9
Teaches by example and models how to think and behave	4.38	Strongly Agree	1
Demonstrates procedures for pupils to observe and emulate	3.89	Agree	3
Shows pupils how to use principles and concepts	3.75	Agree	6
Guides pupils through questions, options, and alternatives	3.31	Agree	10
Develops pupils' capacity for independent responsibility	3.78	Agree	5
Uses small-group discussions to develop critical thinking	3.87	Agree	4
Average Weighted Mean	3.62	Agree	—

The idea that teachers need to have the knowledge and expertise their students require is well agreed upon, scoring 3.60 (Geng et al., 2024). However, when it comes to teachers showing detailed knowledge and pushing students to improve their skills, the score drops to 2.81, indicating that challenging students is not as emphasized (Geng et al., 2024). The notion of teachers simply passing on information and ensuring that students are prepared scored 2.96, which suggests a lesser preference for straightforward teaching methods (Mutlu et al., 2026). Setting standards and expectations to build learning discipline is also important, with a score of 3.53 (Gradini et al., 2025). The highest scores were for providing feedback and setting learning goals, expectations, and rules (4.24), as well as teaching by example and showing how to think and behave (4.38), highlighting the importance of feedback and modeling (Rahma et al., 2026). Demonstrating procedures for students to observe and copy scored 3.89, and using small-group discussions to boost critical thinking got a 3.87, both supporting the value of observation and collaboration (Ajid et al., 2025; Sutama et al., 2022). Encouraging students to take responsibility independently (3.78) and showing how to apply principles and concepts (3.75) reflect the focus on

autonomy and clear understanding (Aydoğan, 2026; Mutlu et al., 2026). Emphasizing correct and standard methods (3.34) and guiding students through questions and options (3.31) highlight the importance of standards and guided inquiry (Gradini et al., 2025; Mutlu et al., 2026). Overall, these findings suggest that effective Grade 6 math teaching involves a mix of expertise, modeling, feedback, and active student participation to encourage critical thinking, discipline, and independence (Ajid et al., 2025; Gradini et al., 2025).

Table 4. Problems Encountered in Grade 6 Mathematics Instruction

Problems encountered	Weighted Mean	Qualitative Description	Rank
Inadequate supply of Mathematics textbooks	1.53	Not Serious	5
Inadequate materials for Mathematics activities	1.91	Slightly Serious	3
Limited school support for Mathematics program activities	2.41	Slightly Serious	2
Limited community participation in Mathematics activities	3.34	Serious	1
Infrequent school-facilitated Mathematics training	1.89	Slightly Serious	4
Average Weighted Mean	2.22	Slightly Serious	—

Grade 6 mathematics instruction faces several challenges. "Limited community participation in Mathematics activities" was the most serious problem (weighted mean 3.34), highlighting the need for collaboration among schools, families, and communities to support learning(Polydoros et al., 2026). "Limited school support for Mathematics program activities" ranked second (2.41), reflecting institutional constraints such as insufficient administrative backing or resources. Institutional support is essential for addressing diverse learners' needs, especially given learning losses(Mutlu et al., 2026). Less serious challenges include "Inadequate materials for Mathematics activities" (1.91) and "Infrequent school-facilitated Mathematics training" (1.89). Scarce materials can restrict active learning(Hwang et al., 2025), while professional development is crucial to equip teachers with evolving pedagogical skills(Wang et al., 2026). "Inadequate supply of Mathematics textbooks" was ranked least serious (1.53), suggesting reliance on alternative teaching methods, although textbooks remain valuable for curriculum coherence(Hwang et al., 2025).

CONCLUSION

The results indicated that Grade 6 mathematics teachers in the Bambang I district typically used a range of motivational techniques to boost students' engagement and interest in learning mathematics. Among these techniques, posing challenges was the most frequently employed method, followed by highlighting the relevance of mathematical topics and incorporating recreational mathematics. Regarding teaching methods, the highest ratings were given to teaching by example and demonstrating thinking and behavior, with providing feedback and setting learning objectives, expectations, and rules coming next. These results suggest that teachers understand the significance of engaging students through meaningful challenges, practical applications, teacher demonstrations, and constructive feedback. Nonetheless, the study also pointed out instructional challenges, notably the lack of community involvement in mathematics activities, which was seen as the most significant issue, followed by insufficient school support for mathematics program activities. In summary, the study concludes that successful Grade 6 mathematics instruction necessitates a blend of effective motivational strategies, diverse teaching methods, and adequate institutional and community backing. Therefore, enhancing collaboration among teachers, school leaders, and the community is crucial to overcoming instructional challenges and enhancing the quality of mathematics education.

RECOMMENDATIONS

According to the findings, it is recommended that Grade 6 mathematics teachers consistently incorporate challenging math activities, practical applications, and recreational math into their lessons to maintain students' interest and engagement. Additionally, teachers should enhance the use of teacher demonstrations, provide

constructive feedback, and set clear learning objectives to foster students' comprehension, confidence, and self-directed learning. School administrators are advised to offer more robust institutional support for math instruction by ensuring the availability of suitable teaching materials and organizing relevant professional development opportunities to improve teachers' instructional skills. Moreover, schools should enhance partnerships with parents and community stakeholders by engaging in collaborative math activities, educational programs, and community-based projects, especially since limited community involvement was identified as a significant instructional challenge. Finally, education stakeholders are encouraged to create and implement school-based programs that support collaboration, offer meaningful math learning experiences, and promote the ongoing enhancement of teaching practices among Grade 6 mathematics teachers.

LIMITATIONS OF THE STUDY

This study involved only 20 Grade 6 Mathematics teachers from Bambang I District in Nueva Vizcaya, Philippines, which means that the results might not accurately reflect the experiences and teaching methods of Mathematics teachers in different districts or educational environments. The study depended on self-reported data collected via a structured survey questionnaire, potentially affected by the respondents' personal views, experiences, and interpretations of the survey questions. Additionally, the descriptive quantitative research design aimed to identify existing motivation strategies, teaching styles, and instructional challenges without directly observing classroom activities or assessing students' actual performance in mathematics. As a result, the findings offer a general view of the teachers' reported experiences and practices but do not establish causal links or determine the direct impact of these teaching methods on students' learning outcomes. These limitations should be considered when interpreting and applying the results to other educational settings.

FUTURE RESEARCH DIRECTIONS

Subsequent research could broaden the scope of this study by incorporating a greater number of Grade 6 mathematics teachers from various districts, municipalities, and provinces. This would offer a more comprehensive insight into motivation strategies, teaching styles, and instructional challenges in elementary mathematics education. Researchers might also adopt mixed-methods research designs, integrating quantitative data with interviews, classroom observations, and teachers' real instructional experiences. Further studies could investigate how teachers' motivational strategies and teaching styles relate to students' academic performance, classroom engagement, and attitudes towards mathematics. Moreover, future research might assess the impact of school-based intervention programs, professional development activities, and community engagement initiatives on the instructional challenges highlighted in this study. These investigations could yield additional empirical evidence to develop more adaptive instructional practices and enhance mathematics education at the elementary level.

ETHICS STATEMENT

The research adhered to ethical standards when involving human participants. Grade 6 mathematics teachers participated voluntarily, with the study's purpose clarified prior to distributing the survey questionnaire. Respondents provided informed consent, and their involvement, answers, and personal details were kept confidential. The data gathered were exclusively for academic and research use, ensuring that no individual respondent's identity was revealed in the findings. Necessary approvals from relevant educational authorities and school administrators were obtained before the study commenced.

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AI DISCLOSURE STATEMENT

The author used AI tools to assist in improving the grammar and language of this manuscript. The author has reviewed and revised the content and takes full responsibility for the accuracy and integrity of the published work.