TEACHERS' MOTIVATIONAL STRATEGIES: PREDICTORS OF LEARNERS' ATTITUDE AND PERFORMANCE IN MATHEMATICS

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ABSTRACT

The goal of this study was look into teachers' motivational strategies as predictors of attitudes and performance in mathematics. The respondents were 30 teachers and 150 pupils from public elementary schools of Sub-office of Pila. Researcher–made survey questionnaires were used in data collection. The study ran from January to April 2023.

Results showed that majority of the teachers were 40-49 years old, married, with less than 10 years of experience, and have masteral units. The extent of motivational strategies were very high in terms of remediation, direct instruction, solving problems, giving homework, personality traits, and teaching styles but only high in terms of use of multimedia and gadgets. Students were also found to have very high level of interest in mathematics and very high level of study habits. Moreover, the students' performance inmathematics were very satisfactory.

The study concluded that there was no significant differences in the teachers' extent of motivational strategies regardless of age, civil status, and length of service, educational attainment, and position/rank. Likewise, there was no significant correlation between teacher's extent of motivational strategies and students' attitude and performance in mathematics.

The researcher recommended that the provision of additional support to teachers, constant use various motivational strategies, sustenance of students' interest in mathematics and their effective study habits, and the conduct of investigation on interest

and study habits using other data collection methods such as observations and document reviews.

Keywords:

Attitudes, motivation, performance, predictors, strategies

INTRODUCTION

Mathematics is an indispensable subject that plays a crucial role in students' daily lives. It is not only a subject taught in school, but also a skill that students need to solve problems, make decisions, and conduct calculations in everyday living. The development of critical thinking and problem-solving abilities is essential for students' future academic and professional success. Understanding fractions, percentages, and ratios, for instance, can help students make informed decisions regarding money management and budgeting. In addition, mathematical skills are indispensable in disciplines like science, technology, engineering, and finance.

Studies have also shown a correlation between mathematics and cognitive and academic success. Students who flourish in mathematics typically have higher cognitiveabilities, superior academic performance, and greater long-term success. In addition,mathematical aptitude is a strong indicator of professional success in disciplines such asscience, technology, engineering, and finance. (Casey, et al., 2018 and Wai et al., 2019).Mathematics education is a vital component of contemporary education systems, but it is widely acknowledged that there are significant issues with how it is taught andlearned in many parts of the globe. A lack of student engagement, inadequate teacher

training, and an emphasis on rote memorization rather than conceptual comprehension are among the most prevalent problems. Not only do these issues result in poor academic performance, but they also hinder students' ability to apply mathematics effectively in their daily lives and prospective careers (Li and Schoenfeld, 2019).

Students' dearth of motivation is an additional significant concern in mathematics education. Many students view mathematics as a difficult and esoteric subject, and they may find it difficult to see its practical application. This can result in a decline in academicperformance and a loss of interest in learning. In addition, some students may experiencemath anxiety, which can be a significant barrier to learning and result in a negative attitude toward the subject. Teachers can address these issues by integrating real-world examples and practical applications into mathematics instruction. In addition, they can provide students with opportunities to collaborate, use technology to enhance learning, and receive positive reinforcement to increase their confidence and motivation. In addition, it is essential to offer assistance and resources to students who struggle with arithmetic anxiety (Aguilar, 2021).

It is essential to conduct research on student motivation in order to comprehend the factors that influence student engagement and academic performance. These studies can provide valuable insights into the strategies and interventions that can be utilized to increase student motivation, learning outcomes, and well-being. Educators and policymakers can develop evidence-based policies and practices that promote student success by identifying the motivators of students. In addition, studies on student motivation can help identify disparities in access to educational opportunities and support

for students from various backgrounds, thereby ensuring that all students have an equal opportunity to achieve success.

This study sought to test the relationship between teachers' motivational strategies and the attitudes and performance in mathematics of public elementary school pupils in Pila Sub-Office.

Specifically, the study addressed following questions:

1. What is the status of the respondents profile relative to:
    1.1 age;
    1.2 civil status;
    1.3 length of teaching experience;
    1.4 highest educational qualification;
    1.5 present position/rank?
2. What is the level of teacher's motivational strategies with regards to:
    2.1 remediation/tutorial
    2.2 direct instruction,
    2.3 use of multi-media and gadgets,
    2.4 solving problems,
    2.5 giving home works,
    2.6 personality traits, and
    2.7 teaching styles?
3. What is the level of learners' attitude towards mathematics with regards to:
    3.1 Interest and

3.2 study habits?

4. What is the level of learners' performance in mathematics in terms of:

4.1 first quarter grade, and

4.2 second quarter grade?

5. Does the level of teachers' motivational strategies based on their profile?

6. Does the level of the level of teacher's motivational strategies significantlycorrelate with learners' attitude towards mathematics?

7. Does the level of teacher's motivational strategies significantly correlate withthe learners' performance in mathematics?

REVIEW OF RELATED LITERATURE AND STUDIES

Presented in this chapter are literature and studies that would be of great help in the pursuit of this undertaking. These helped the researcher to have a better understanding and a wider perspective on this research.

Related Literature

In this part of the chapter, the researcher presents review of articles published focusing the variables studied. It begins with the dependent variables i.e., learners' attitude and performance going to the teachers' motivational strategies. Articles have been synthesized for the consumption of the users of this work.

Three sources were found emphasizing the importance of interest in mathematics for various reasons. Tapia et al. (2018) suggested that interest in mathematics is strongly linked to academic achievement in the subject. The National Mathematics Advisory Panel(2018) identified interest as one of the key factors in developing strong mathematical

proficiency, emphasizing that it can lead to deeper understanding and mastery of mathematical concepts. Also, Gutierrez (2017) argued that fostering interest in mathematics is crucial for promoting equity and diversity in the field, particularly for students from underrepresented groups who are more likely to develop an interest in math when they see its relevance to their own lives and experiences. Overall, the three highlighted the importance of cultivating interest in mathematics for academic success, deeper understanding and mastery of the subject, and creating a more inclusive and diverse mathematical community.

Good study habits are important for success in learning mathematics. Specifically, students who regularly review class materials, do homework, manage their time effectively, take notes, study in a quiet environment, and use study guides tend to performbetter in mathematics. Teachers and parents can help students develop these habits by emphasizing their importance and providing resources and support. Ultimately, cultivating good study habits can lead to improved mathematical achievement and overall academic success (Anwar et al., 2021; Adeniji & Fatokum, 2021; and Ducusin & Ducusin, 2022).

Concerning performance and grades, sources underscored that one of the most common reasons for measuring performance through grades is that it provides a standardized method of evaluation that is easily understood by both students and educators. According to the American Psychological Association (2017), grades can serve as a "powerful motivator" for students to engage in learning and help teachers to identify areas where students may need additional support. Furthermore, grades can provide students with a sense of accomplishment and help to foster a growth mindset. In a study conducted by the University of Toronto (2018), researchers found that students

who received higher grades reported greater motivation to learn and a greater belief in their own abilities.

However, some educators argue that grades can be an inaccurate measure of student performance and can lead to a focus on memorization and test-taking skills rather than deeper learning. In an article published in the Harvard Graduate School of Education's "Usable Knowledge" newsletter, Mehta (2017) argued that grades can create a "culture of compliance" rather than a culture of learning. The importance of measuring performance through grades can be a contentious issue. While grades can provide a standardized method of evaluation and serve as a motivator for students, they can also be an inaccurate measure of student performance and may not always align with a student's actual abilities.

According to EPA (2022), remediation is the process of correcting or improving something that is deficient or defective. It can refer to various contexts, including the removal of pollutants from soil or water, correction of errors in software programs, or rehabilitation of struggling students.

Remediation is important because it can prevent harm to the environment, human health, or society, improve performance and outcomes, and reduce costs. For example, in the case of contaminated soil or water, remediation can prevent the spread of diseases and reduce the risk of long-term health effects. Remediation of faulty equipment or infrastructure can also improve efficiency and reduce costs (Kapp and O'Hara, 2018 andUniversity of Arizona, n.d.).

Van Garderen and Whittaker (2016) provided an overview of Direct Instruction (DI), a teaching approach that is characterized by highly structured and teacher-directed

lessons that emphasize explicit instruction of skills and concepts. They provided a detailed description of the key components of DI, such as carefully sequenced instruction, frequent teacher feedback, and active student participation.

The authors also reviewed the empirical evidence supporting the use of DI, drawing on a range of studies that have demonstrated its effectiveness in improving student academic achievement, particularly for students with learning difficulties or those who are at risk of academic failure. They discussed the importance of fidelity of implementation in achieving positive outcomes with DI and emphasized the need for ongoing professional development to support teachers in implementing the approach effectively.

Additionally, the use of multimedia and gadgets can greatly enhance the teaching and learning of math in several ways. Sengupta-Irving & Cooper (2015). explained that many students are visual learners, and multimedia such as videos, animations, and diagrams can help them understand math concepts more easily. Gadgets such as interactive whiteboards and tablets can also provide visual aids and make the learning process more engaging.

Hohenwarter Preiner (2017) further explained that multimedia and gadgets can facilitate interactive learning, allowing students to actively participate in the learning process. For example, students can use digital manipulatives to explore math concepts, or they can collaborate on projects using online tools. According to Beatty & Gerace (2019), multimedia and gadgets can also help teachers personalize the learning

experience for each student. For example, teachers can use adaptive software that adjusts to the student's level of understanding and provides targeted feedback.

There are many articles that emphasized the importance of problem-solving as a teaching strategy. According to Hmelo-Silver (2014), problem-solving activities require students to use critical thinking skills to identify and analyze problems, evaluate possible solutions, and choose the best course of action. This approach helps students develop analytical skills that they can apply to other areas of their lives. Also, when students are actively engaged in solving problems, they are more likely to remember what they have learned. By using problem-solving activities in the classroom, teachers can help studentsdevelop a deeper understanding of concepts and improve their retention of information.

Kwon and Kim (2017) added that problem-solving activities often require students to work in groups to find solutions. This approach helps students develop collaboration skills and learn to work effectively with others. Also, when students successfully solve problems on their own or as part of a team, they feel a sense of accomplishment that can boost their self-confidence. This can lead to greater motivation and engagement in their learning.

Zohar & Dori (2013) further argued that it prepares students for the real world explaining that problem-solving is a key skill that is highly valued in many professions. By using problem-solving activities in the classroom, teachers can help prepare students for the real world and develop skills that will be valuable throughout their lives.

Related Studies

Studies have also been reviewed to help clarify the concepts included in this investigation. Similar to the review of literature, the materials here are arranged from the

dependent variables going to the independent variables. These studies were also used in crafting the research instrument.

Sultana and Siddique (2017) investigated the impact of parental and teacher involvement on students' interest in mathematics. The authors conducted a survey of 400 high school students and found that both parental and teacher support positively affected students' interest in mathematics. They suggest that parents can encourage their childrenby creating a supportive home environment, discussing the importance of mathematics, and involving their children in real-world math applications. Similarly, teachers can increase students' interest in mathematics by providing engaging and relevant lessons, creating a positive classroom environment, and offering extra help when needed. The authors conclude that parental and teacher support are crucial in fostering students' interest in mathematics, and they recommend increased collaboration between parents and teachers to enhance students' motivation and engagement in math.

Sharma and Wadhwa (2019) investigated the impact of real-world applications on students' interest in mathematics. The authors conducted a study with 100 high school students where they provided them with real-world applications of mathematics and analyzed the students' interest in mathematics before and after the intervention. The findings showed that the use of real-world applications of mathematics had a significant positive effect on students' interest in mathematics. The authors concluded that incorporating real-world applications in mathematics education can enhance students' interest in the subject and provide a meaningful context for learning. They suggested that teachers should use such applications in their teaching to create a more engaging and motivating learning experience for students.

Awang et al. (2016) investigated the various factors that affect students' interest in mathematics. The authors conducted a survey among 300 high school students and analyzed the responses using descriptive statistics. The findings showed that several factors influenced students' interest in mathematics, including gender, previous achievement in mathematics, teaching methods, and parental involvement. The study found that male students had higher interest in mathematics than female students and that previous achievement in mathematics was positively correlated with interest. The study also revealed that students' interest in mathematics was influenced by the teaching methods used by their teachers and the support they received from their parents. The authors concluded that these factors should be taken into consideration when designing math curriculums and that teachers and parents should work together to enhance students' interest in mathematics.

Kan et al. (2018) aimed to investigate the relationship between mathematics achievement and study habits of secondary school students in Turkey. The researchers collected data from a sample of students and analyzed the results using statistical techniques. The study found that there was a positive correlation between good study habits and higher mathematics achievement among the participants. Specifically, students who reported studying regularly, organizing their study materials, and seeking help from teachers when needed had higher achievement scores in mathematics. The study concluded that developing good study habits is crucial for academic success in mathematics among secondary school students.

Adams and Umbarger (2017) investigated the study habits and attitudes of college mathematics students in the United States. The researchers collected data from a sample

of students and analyzed the results using statistical methods. The study found that students who reported practicing regularly, seeking help when needed, and using resources such as textbooks and online materials had better academic performance in mathematics. Additionally, the study found that students who reported positive attitudes towards mathematics, such as enjoying the subject and believing in their ability to succeed, had better academic performance in mathematics. The study concluded that developing good study habits and positive attitudes towards mathematics are important factors for academic success among college mathematics students.

Ankrah and Boadi (2015) examined the mathematics achievement and study habits of secondary school students in Ghana. The researchers collected data from a sample of students and analyzed the results using statistical techniques. The study found that students who reported better study habits, such as regularly reviewing mathematics concepts, doing homework regularly, and seeking help from teachers when needed, had higher mathematics achievement than those who did not report good study habits. Additionally, the study found that students who reported positive attitudes towards mathematics, such as enjoying the subject and believing in their ability to succeed, had better academic performance in mathematics. The study concluded that developing good study habits and positive attitudes towards mathematics are crucial for academic successamong secondary school students in Ghana.

Bailey et al. (2016) examined the correlation between grades and mathematics achievement in high school students, using data from the National Education Longitudinal Study. The study found that there was a strong positive relationship between grades and mathematics achievement, which was consistent across different genders and ethnic

groups. The researchers concluded that grades can be a reliable indicator of mathematical proficiency in high school students.

Arroyo et al., (2017) aimed to investigate the predictive value of grades in mathematics courses for subsequent mathematics achievement and persistence in college, using data from a large, public university. The study found that grades in mathematics courses were strong predictors of both subsequent mathematics achievement and persistence in college, even after controlling for other factors such as standardized test scores and high school GPA. The researchers concluded that grades in mathematics courses can serve as reliable predictors of future academic success andpersistence in college.

Suurtamm & Seifert (2015) reviewed existing research on the use of grades as performance indicators in mathematics education and discussed the potential benefits and drawbacks of this approach. The article argued that while grades can provide valuable feedback to both students and teachers, they can also be influenced by factors such as teacher bias and student motivation, and may not always accurately reflect mathematical understanding. The authors concluded that while grades can be a useful performance indicator, they should be used in conjunction with other assessment methods in order to gain a more comprehensive understanding of students' mathematicalabilities.

Concerning remediation and tutorial, Alkandari and Al-Obaidi (2019) examined the impact of remedial mathematics on student motivation in a Kuwaiti university. The researchers found that remedial mathematics had a positive impact on students'

motivation, as it increased their confidence, willingness to engage in mathematical activities, and academic achievement.

Liu and Maher (2018) also explored the effects of a remedial mathematics program on the motivation and achievement of low-performing high school students in the United States. The researchers found that the program increased students' motivation, as it provided them with a supportive and challenging learning environment, and helped thembuild their self-efficacy.

Naseem and Nadeem (2017) investigated the impact of a computer-based remedial mathematics program on students' motivation and achievement in a Pakistani university. The researchers found that the program had a positive impact on students' motivation, as it provided them with immediate feedback, a personalized learning experience, and an interactive platform for learning. The program also improved students'academic achievement in mathematics.

Concerning direct instructions, Armas and Calderón (2017) investigated the effects of Direct Instruction in mathematics on English learners. The researchers conducted a meta-analysis of several studies and found that Direct Instruction had a positive impact on the math achievement of English learners. Moreover, they found that the effect size was larger when Direct Instruction was implemented for a longer period and when it was combined with other instructional approaches. The authors concluded that Direct Instruction is an effective approach for improving math achievement among English learners.

Moreover, Kidd et al. (2016) conducted a meta-analysis to examine the effects of Direct Instruction on math achievement. The study synthesized the results of several

studies and found that Direct Instruction had a moderate to strong positive effect on math achievement. The authors also found that student engagement and teacher fidelity mediated the relationship between Direct Instruction and math achievement. Moreover, they found that the effect size was larger for studies with longer durations of intervention and with students from lower socioeconomic backgrounds. The authors concluded that Direct Instruction is an effective approach for improving math achievement and that it is important to consider the conditions under which it is implemented.

Zhang et al. (2019) conducted a meta-analysis to investigate the effects of Direct Instruction in mathematics. The study synthesized the results of several group experimental studies and found that Direct Instruction had a positive effect on math achievement. The authors also found that the effect size was larger for studies with longer durations of intervention, studies that used Direct Instruction as the primary teaching approach, and studies that used Direct Instruction with elementary school students. Additionally, they found that Direct Instruction had a positive effect on students' attitudes toward math. The authors concluded that Direct Instruction is an effective approach for improving math achievement and that it is important to consider the characteristics of thestudents and the context in which Direct Instruction is implemented.

Concerning the use of multimedia and gadgets, Ahmad and Hussain (2021) explored the impact of multimedia-based instruction on mathematics achievement among secondary school students. The study used a quasi-experimental design, and the sample included 120 students who were divided into two groups: the experimental group and the control group. The experimental group received multimedia-based instruction, while the control group received traditional instruction. The study found that the students in the

experimental group performed significantly better than those in the control group in terms of mathematics achievement. The study also found that multimedia-based instruction positively affected the students' attitudes towards mathematics. The findings suggest that incorporating multimedia into mathematics instruction can be an effective strategy for improving mathematics achievement and fostering positive attitudes towards the subject among secondary school students.

Yang and Wu (2020) examined the effectiveness of integrating mobile devices in mathematics teaching and learning through a meta-analysis of previous research studies. The study analyzed 28 studies that investigated the use of mobile devices in mathematics education, and the total sample size was 4,283 participants. The results of the meta- analysis showed that integrating mobile devices in mathematics teaching and learning had a positive effect on students' mathematics achievement, problem-solving skills, motivation, and attitudes towards mathematics. The effect size of the intervention was found to be moderate, indicating a meaningful impact on students' learning outcomes. The study also found that the effectiveness of mobile devices in mathematics education was influenced by factors such as instructional design, student characteristics, and the type of mobile devices used. In conclusion, the study suggests that integrating mobile devices in mathematics teaching and learning can be an effective strategy for improvingstudents' learning outcomes and engagement with the subject.

Prabowo and Suryadi (2020) investigated the effectiveness of educational video in mathematics learning for senior high school students. The study employed a quasi- experimental design, with a sample size of 60 students who were randomly assigned to either an experimental group or a control group. The experimental group received

mathematics instruction through educational videos, while the control group received traditional instruction. The study found that the experimental group performed significantly better than the control group in terms of mathematics achievement. The use of educational videos also positively affected students' motivation and interest in learning mathematics. Furthermore, the study revealed that educational videos were particularly effective in improving students' understanding of abstract concepts and problem-solving skills. The study suggests that incorporating educational videos into mathematics instruction can be an effective way to enhance students' learning outcomes and engagement with the subject.

Concerning the using of problem solving, Ramirez (2017) investigated the impact of problem-solving teaching strategies on students' math performance. The results indicated that students who received problem-solving instruction performed significantly better on math assessments than those who did not. Also, Arogundade and Akinloye (2019 focused on the impact of problem-solving on mathematics teaching and learning. The authors found that problem-solving instruction enhanced students' ability to understand and solve math problems, improved their critical thinking skills, and increasedtheir motivation to learn mathematics.

Michael and Adeniyi, (2019) examined the relationship between problem-solving and creativity in mathematics. The results indicated that problem-solving activities enhanced students' creativity and innovation skills, which are important for success in STEM fields. The authors recommended that problem-solving be incorporated into mathematics instruction as a tool for developing students' creativity.

Moving forward, several studies have investigated the effectiveness of homework and assignments in mathematics education. Crawford (2016) found that homework significantly predicted math achievement in elementary school students, particularly for those who struggle with math. Jackson (2018) similarly found that high school students who completed more homework assignments achieved higher math scores. Dong and Thompson (2018) evaluated the effectiveness of online homework in supplementing traditional classroom instruction in math and found that online homework significantly improved students' math performance and engagement. Together, these studies suggest that homework and assignments, including online homework, can be effective tools for improving math achievement in students at different grade levels.

Furthermore, researchers have conducted several studies examining the relationship between teachers' personality traits and their mathematics teaching. One study conducted in Turkey found that agreeableness and conscientiousness were positively correlated with math teaching efficacy beliefs among 215 Turkish math teachers (Olkun & Köksal, 2019). A meta-analysis of 23 studies conducted by Sun and Zheng (2019) found that teachers' conscientiousness was positively related to students' math achievement, while teachers' neuroticism and openness were negatively related to students' math achievement. Finally, a study of 159 secondary math teachers in the United States found that extraversion and agreeableness were positively related to math teaching self-efficacy, while neuroticism was negatively related to math teaching self-efficacy (Gerth, 2018). Overall, these studies suggest that teachers' personality traits may have an impact on their mathematics teaching and students' math achievement.

Finally, three research articles investigates the impact of different teaching styles on students' math achievement and attitudes towards math. Overall, these studies suggested that the teaching style can have a significant effect on students' learning outcomes and attitudes towards math.

Alghamdi (2015) found that the cooperative teaching style led to higher math achievement scores and more positive attitudes towards math compared to the lecture and problem-solving styles. This suggested that group work and collaboration can enhance students' math learning experience and motivation to learn math.

Another study by Hanif (2016) compared traditional teaching methods with modern teaching methods, including active learning, flipped classroom, and project-based learning. The results showed that students in the modern teaching methods group had significantly higher math achievement scores than those in the traditional teaching methods group. This suggested that innovative teaching approaches that involve active engagement and student-centered learning can improve students' math learning outcomes.

Lastly, Azizi (2016) investigated the effect of constructivist teaching on students' math achievement and problem-solving ability. The results showed that students in the constructivist teaching group had significantly higher math achievement scores and better problem-solving ability compared to those in the traditional teaching group. This suggests that constructivist teaching, which emphasizes student inquiry and discovery, can enhance students' math learning and problem-solving skills.

In summary, the studies suggested that different teaching styles can have a significant impact on students' math learning outcomes and attitudes towards math.

Innovative teaching approaches that involve active engagement, student-cantered learning, and collaboration can improve students' math achievement and motivation to learn math.

METHODOLOGY

This chapter provides a comprehensive description of the research design and methods utilized by the author during this investigation. It thoroughly describes each component in order to demonstrate how each contributed to the achievement of the primary objective.

Research Design

The research design plays a vital role in the execution of this study because it serves as the blueprint for answering the specific research questions outlined in the first chapter of this thesis. This study utilized descriptive research methodology to investigate the teachers' profile and motivational strategies, and their learners' attitude and performance in mathematics. According to previous researchers, it is the optimal strategy for achieving the objectives of the investigation.

Descriptive research is a technique for describing the characteristics of the studied variables. This descriptive research focused primarily on characterizing the profile and level of motivational strategies among teachers as well as learners' attitude and performance, without concentrating on "why" these phenomena occur. In addition, it describes their relationship (Aggarwal and Ranganathan, 2019).The first is that the researchers consider the statistical correlation to be causal. In this instance, the researcher hypothesizes that the variability of the level of teachers' motivational strategies

may be dependent on their profile. Also the learners' attitude and performance in mathematics may be correlated with the level of teachers' motivational strategies. Examining the relationship between stress management and instructional performance does not require any experiment thus, correlation research was chosen.

Respondents of the Study

This study involved a total of 30 teachers and 150 pupils from 12 public elementaryschools in Pila Sub-Office, Division of Laguna.

Name of Section	Number of Teachers	Number of Pupils
Pila Central	6	30
Masico ES	2	10
Pansol ES	2	10
Concepcion-Mojon ES	2	10
San Antonio ES	2	10
San Miguel ES	2	10
Tubuan ES	2	10
Pook ES	2	10
Aplaya ES	2	10
Labuin ES	2	10
Linga ES	3	15
Pinagbayanan ES	3	15
Total	**30**	**150**

Simple random sampling technique was employed in determining the participants or respondents of the study. In a simple random sample, every teacher and pupil of the public 12 school had an equal chance of being selected. The sampling frame included the whole population. In conducting this type of sampling, the researcher used online random name generators.

Research Procedure

In carrying out the objectives of this study, the researcher followed the followingsteps shown in Figure 2.

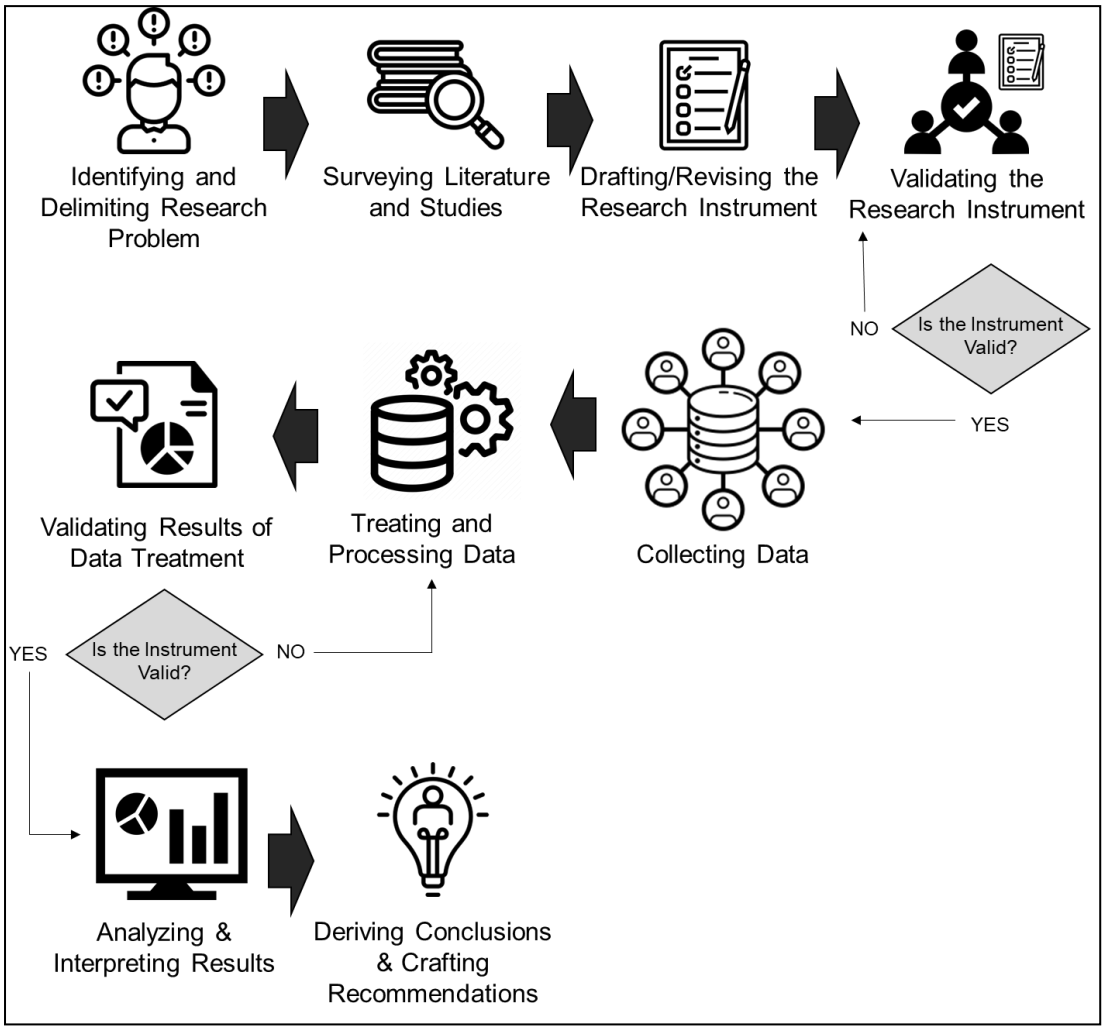

Figure 2. The Research Procedure of the Study

The study commenced with identifying and delimiting the research problem. Once the problem was approved, the researcher prepared a survey or literature which were used in drafting the research instrument. The draft of research instrument was submitted for validation to the panel of examiner of CTE-GSAR and two master teachers

of mathematics from a neighboring sub-office. The comments and suggestions of the validators were considered in preparing the final version of the survey-questionnaire.

Copies of the research instrument were prepared and distributed to teachers and students who have been randomly sampled from 12 public elementary schools. After completing the data bank, the matrix was submitted to the external statistician for treatment. The results were then validated by the internal statistician. Upon approval of the internal statistician, the researcher immediately proceeded to the writing of analysis and interpretation. Deriving conclusions and crafting recommendations concluded the study.

Research Instrument

In gathering data needed to answer the research questions, a validated survey questionnaire was used. The instrument was subjected to the expert validation of the panel of examiners from CTE-GSAR and two master teachers of mathematics from a neighboring sub-office. The validation took three weeks to complete including the revisions and re-validation.

The survey-questionnaire was composed only of three major parts. Parts 1 and 2 were intended for teachers. Part 1 aimed at describing the profile of the teachers while Part 1 focused on the level of their use of motivational strategies. Part 3, on the other hand, was prepared for the students. This part focuses on three sub-parts i.e., the attitude and the performance of the students in mathematics. For each teacher, there were five learners who accomplished Part 3 individually and independently. These learners were randomly chose.

Statistical Treatment of Data

To answer each specific research question, the researcher utilized the most suitable statistical instrument. The panel of examiners, specifically the internal statistician, duly approved these instruments. Additionally, an external statistician administered the test using a licensed version of SPSS.

Statement of the Problem	Statistical Tool
1. What is the status of the respondents' profile relative to age, civil status, and length of teaching experience, highest educational qualification, and present position/rank?	Using percentages in this research is a way to show the importance of each category or group like age, civil status and etc. It is used to analyze the data and provide a clearer description of the results of a study.
2. What is the level of teacher's motivational strategies with regards to remediation/tutorial, direct instruction, use of multi-media and gadgets, solving problems, giving home works, personality traits, and teaching styles?	The mean is used in this research to represent the average in the level of teacher's motivational strategies with regards to remediation/tutorial, direct instruction, use of multi- media and gadgets, solving problems, giving home works, personality traits, and teaching styles. Standard deviation is also used and important measure of spread or dispersion. It tells us how far, on average the results are from themean.
3. What is the level of learners' attitude towards mathematics with regards to interest and study habits?	
4. What is the level of learners' performance in mathematics in terms of first quarter grade and second quarter grade?	
5. Does the level of teachers' motivational strategies significantly vary based on their profile?	The Pearson correlation coefficient is used to answer the level of teachers motivational to the following variables, their profile, learners' attitude towards mathematics, and learner's performance in mathematics. It is used to evaluate the performance of a model by measuring the strength of the linear relationship between
6. Does the level of teacher's motivational strategies significantly correlate with learners' attitude towards mathematics?	
7. Does the level of teacher's motivational strategies significantly	

correlate with learners' performancein mathematics?	the predicted values and the actual values.

RESULT AND DISCUSSION

Table 1. Level of Teachers' Motivational Strategies with regards to Remediation

Statements	M	SD	Remarks
I make my self-prepared before doing remediation/tutorial	4.73	.52	Very Highly Manifested
I observed attentively for the *pupils'* performance to find their weaknessesthat need to improve.	4.73	.45	Very Highly Manifested
I give them personal touch to see their progress.	4.53	.57	Very Highly Manifested
I give a remedial/tutor for struggling pupils in order to help them to improve their basic skills inmathematics.	4.57	.57	Very Highly Manifested
I give remediation to them with all my and be responsible teacher all the time.	4.63	.56	Very Highly Manifested
Overall Mean:	4.64		
Overall Standard Deviation:	.48		
Verbal Interpretation:	Very High		

Table 1 shows the extent of motivational strategies used by teachers in terms of remediation.

Based on the data collected, all five statements were highly manifested by the teachers. Particularly highest in mean was preparing themselves before the conduct of any remediation or tutorial session (M=4.73, SD=0.52) and observing closely for students' weakness that requires improvement (M=4.73, SD=0.45). There was also a very close mean for being responsible teachers when giving remediation (M=4.63, SD=0.55). The two lowest means were recorded for remediating instructions for struggling learners

(M=4.57, SD=0.57) and giving personal touch to see progress (M=4.53, SD=0.57). Nevertheless both were still very highly manifested.

Overall, it was found that teachers have very high extent motivational strategies interms of remediation (M=4.64, SD=0.48). Such results implied the dedication of teachersin extending their help beyond their regular teaching sessions in order to reach students who have difficulties in math. However, a slight improvement is needed in all variables particularly in tracking progress and having personal touch for struggling learners. Similar to the world of business, when teachers make teaching and learning more personal, the can establish better rapport and remove fear in the hearts of their students. This will allowmore learning to happen (Panhans, 2022).

Level of Teachers' Motivational Strategies with regards to Direct Instruction

Table 2 focuses on the teachers' extent of motivational strategies in terms of direct instruction.

Based on the results, all five statements were also very highly manifested among the teachers. The highest mean was particularly recorded for preparing instructions that match the tasks (M=4.67, SD=0.55). Very close to this mean was the mean computed for giving activities that consider the learners' diversity (M=4.63, SD=0.49). Teachers also very highly manifested their use of project-based learning (M=4.43, SD=0.63) and allowing learners to make their own solutions (M=4.67, SD=0.57). The lowest mean was recorded for allowing learners to debate on new concepts that may be employed in their subject matters (M=4.37, SD=0.67). Nevertheless it was still interpreted as very highly manifested.

Table 2. Level of Teachers' Motivational Strategies with regards to Direct

Instruction

Statements	M	SD	Remarks
I see to it that I prepare instruction that match to the task.	4.67	.55	Very Highly Manifested
I give different activities for diversity of learners.	4.63	.49	Very Highly Manifested
I provide them a project based-learning to enhance their skills	4.43	.63	Very Highly Manifested
I allow them to make their own solution to improve their communication skills in mathematics.	4.47	.57	Very Highly Manifested
I allow them to debate to look new concept that can employ to the subject matter.	4.37	.67	Very Highly Manifested
Overall Mean:	4.51		
Overall Standard Deviation	.50		
Verbal Interpretation:	Very High		

Overall, teachers were found to have very high extent of motivational strategies in terms of direct instruction. The responses implied that the teachers promote higher order thinking skills (HOTS) through their use of problem-solving. Also it was observed that teachers teach problem solving through direct instructions showing instructions first strategy.

According to Mosley (2023), instruction-first strategy is an instructional design that follows the named sequence. Students first receive subject education. The next step is for pupils to apply or solve problems related to the current subject. This conventional method is based on the idea that direct education should alert students to the salient aspects of the problems they will be solving if they lack prior knowledge of the subject. By providing students with this information before asking them to solve novel problems, the strain on their working memory should be reduced.

Level of Teachers' Motivational Strategies with regards to Use of Multimedia andGadgets

Table 3. Level of Teachers' Motivational Strategies with regards to Use of Multimedia and Gadgets

Statements	M	SD	Remarks
I prepared my lesson through multi-media process.	4.33	.71	Very Highly Manifested
I give some activities and assignmentthat need computer or gadget to explore more ideas.	4.00	.83	Highly Manifested
I taught my pupils to use gadgets/multi-media to improve their presentation in the subject matter.	3.83	.95	Highly Manifested
Use of multi-media/gadget is a part ofmy lesson to motivate them.	4.40	.62	Very Highly Manifested
I use it to create a holistic 21st Century Learners.	4.36	.62	Very Highly Manifested
Overall Mean:	4.19		
Overall Standard Deviation:	.66		
Verbal Interpretation:	High		

Table 3 describes the use multimedia and gadgets as motivational strategies of teachers in teaching mathematics.

Results showed that three of the statements were very highly manifested while two were highly manifested. The highest mean was recorded for the use of multimedia in motivating learners (M=4.40, SD=0.62) and in creating holistic 21st century learners (M=4.37, SD=0.61). Teachers also use multimedia in preparing their lessons (M-4.33, SD=0.71).

On the other hand, it was observed that teachers give activities and assignment that require multimedia and gadgets (M=4.00, SD=0.83) and teaching pupils to use them during their own presentations (M=3.83, SD=0.95) were only highly manifested. Nevertheless, the overall mean of 4.19 was indicative of the high extent of multimedia and gadgets as motivational strategies of teachers in teaching mathematics.

Results implied that teachers exhaust multimedia and gadget in all aspects of their teaching. Starting from preparation, their presentation, and students' activities, teachers promote the use of multimedia and gadget. However, the slight difference from the perfect mean could only suggest the need to make multimedia and gadget more available and accessible not only to teachers but to students as well. As what Child Hope Foundation (2021) argued that not every individual teacher nor student has open access to these technologies.

Level of Teachers' Motivational Strategies with regards to Solving Problems

Table 4 presents the extent of motivational strategies used by teachers in terms of solving problems.

Based on the results, all five statements were very highly manifested by the teachers. In particular, evaluating potential solutions carefully and thoroughly against a predefined standard (M=4.40, SD=0.77) recorded the highest mean. It was further observed that three statements recorded similar means but with different SDs. These imply that teachers very highly manifested the sequential implementation plan (4.37, SD=0.67), preparation for future problems (4.37, SD=0.87), and use of different perspectives in generating solutions (M=3.37, SD=0.85). It was also very highly manifested that teachers avoid asking the wrong question and take care to define each problem carefully before trying to solve it (M=4.30, SD=0.84).

Table 4. Level of Teachers' Motivational Strategies with regards to Solving Problems

Statements	M	SD	Remarks
I develop an implementation plan with the sequence of events necessary for completion.	4.38	.67	Very Highly Manifested

After a solution has been implemented, I immediately look for ways to improve the idea and avoid future problems	4.38	.67	Very Highly Manifested
To avoid asking the wrong question, I take care to define each problem carefully before trying to solve it.	4.30	.83	Very Highly Manifested
I strive to look at problems from different perspectives and generate multiple solutions.	4.37	.85	Very Highly Manifested
I evaluate potential solutions carefully and thoroughlyagainst a predefined standard.	4.40	.77	Very Highly Manifested
Overall Mean:	4.36		
Overall Standard Deviation:	.71		
Verbal Interpretation:	Very High		

Overall, the mean of 4.36 was indicative of the teacher's very high extent of motivational strategies used by teachers in terms of solving problems. This means that teachers model before their students the way by which problems must be dealt. According to the University of Waterloo (2021), problem solving can be difficult and sometimes tedious. Thus, teachers are expected to show students by example how to be patient andpersistent and how to follow a structured method.

When the use of this strategy succeeds, it can be expected that using effectiveproblem-solving techniques will help children avoid conflicts in a school setting and intheir day to day lives. It can also strengthen children beginning empathy skills. It can helpchildren learn more positive attributions about other persons' intentions (Mandal, 2019). **Level of Teachers' Motivational Strategies with regards to Giving Homework**

Table 5. Level of Teachers' Motivational Strategies with regards to Giving Homework

Statements	M	SD	Remarks
1. I give it to reinforce learning andfacilitate mastery of specific skills.	4.43	.63	Very Highly Manifested
2. I give it for advance study for future lesson	4.30	.60	Very Highly Manifested
3. I give it to help my pupils to obtain the maximum benefits when the new materials is covered in class.	4.43	.63	Very Highly Manifested
4. I give it to established communication between parents and the children.	4.40	.56	Very Highly Manifested
5. I give it to inform parents about whatis going on in school.	4.37	.56	Very Highly Manifested
Overall Mean:	4.39		
Overall Standard Deviation:	.54		
Verbal Interpretation:	Very High		

Table 5 presents the teachers' extent of motivational strategies in terms of giving homework.

Based on the results, all five statements were very highly manifested. Particularly highest in mean were the use of homework to reinforce skill mastery (M=4.43, SD=0.63) and to help students benefit from new materials used in class (M=4.43, SD=0.63). Moreover, teachers use homework in establishing communication with parents and children (M=4.40, SD-0.56) including giving information to parents about school happenings (M=4.37, SD=0.56). Lowest mean was recorded for using homework as advanced study (M=4.30, SD=0.60).

Overall, the mean of 4.38 showed that the teachers have very high extent of motivational strategies in terms of giving homework. Results implied that the culture of homework was still alive in the locale and it was still viewed as an effective tool for the furtherance of learning.

According to Anglia (2021), homework is important because it develops core skills in young children that will serve them throughout school and working life. Improved grades, discipline, time management, using resources and improving communication areall vital life skills that will open the door to unique opportunities and help children find success in their careers. Doing regular homework should be considered as an investmentin child's future.

Level of Teachers' Motivational Strategies with regards to Personality Traits

Table 6 describes the extent of teachers' motivational strategies in terms of personality traits.

Results showed that all five statements were very highly manifested by the teachers. The highest mean was particularly observed with having good relationship with pupils (M=4.77, SD=0.43). Next highest means were recorded for showing smartness, confidence and firmness in making decision (M=4.73, SD=0.45) and being open to suggestion and opinion (M=4.73, SD=0.45). The use proper discipline without being lenient was also very high manifested (M=4.70, SD=0.53). Lowest was the mean for posing an appealing personality with good sense of humor (M=4.67, SD=0.48) but was still very highly manifested.

Table 6. Level of Teachers' Motivational Strategies with regards to Personality Traits

Statements	M	SD	Remarks
I have a good relationship with my pupils.	4.77	.43	Very Highly Manifested
I shows smartness, confidence and firmness in making decision.	4.73	.45	Very Highly Manifested
Impose proper discipline and is not lenient in following the prescribes rules.	4.70	.53	Very Highly Manifested

I have appealing personality with good sense of humor.	4.67	.47	Very Highly Manifested
I am open to suggestion and opinion.	4.73	.45	Very Highly Manifested
Overall Mean:	4.72		
SD:	.47		
Verbal Interpretation:	Very High		

The overall mean of 4.72 was indicative of the teachers' very high extent of teachers' motivational strategies in terms of personality traits. This means that while teachers are making a friendly atmosphere, they do not compromise discipline. It implied the practice of positive discipline in the schools. Positive Discipline is a method where teachers clearly communicate what behaviors are appropriate, which ones are inappropriate, and what the rewards for good behavior and the consequences for bad behavior are (Positive Discipline Association, 2021).

Level of Teachers' Motivational Strategies with regards to Teaching StylesTable 7.

Level of Teachers' Motivational Strategies with regards to

Teaching Styles

Statements	**M**	**SD**	**Remarks**
1. I explain the objectives of the lesson clearly at the start of the period.	4.60	.56	Very Highly Manifested
2. I have the mastery of the subject ofthe matter.	4.67	.48	Very Highly Manifested
3. I organized in presenting subject matter by systematically to follow the course outline.	4.70	.47	Very Highly Manifested
4. I am updated with present trends (k-12) relevant to subject matter.	4.73	.45	Very Highly Manifested
5. I use various strategies, teaching aids/devices and techniques in presenting the lesson.	4.70	.47	Very Highly Manifested
Overall Mean:	4.68		
Overall Standard Deviation:	.46		

Verbal Interpretation:	Very High

Table 7 focuses on the extent of teaching styles as motivational strategies employed by the teachers.

Results showed that all five statements were very high manifested by the teachers. Particularly highest was their knowledge on the present trends (k-12) relevant to subject matter (M=4.73, SD=0.45). Teachers also very highly manifested organized presentationof their subjects and use of a variety of strategies, aids, and techniques with similar means of 4.70 and standard deviations of 0.67. Lowest was the practice of explaining the objectives of the lesson clearly at the start of the period (M=4.60, SD=0.56) but was still very highly manifested. When displayed to students, learning objectives set student expectations, guide their learning processes, and help them focus their study time for theupcoming assessments (Weill Cornell Medicine, 2021).

Learners' Attitude towards Mathematics

This study also sought to describe the attitude of students towards mathematics. It was described based on their interest and study habits. Results are presented using means and standard deviations.

Level of Learners' Attitude towards Mathematics with regards to Interest

Table 8 presents the attitude of students towards mathematics in terms of their interest in the subject.

Based on the students' responses, all five statements were highly true. It was particularly highly true that they listen carefully to the teacher's discussion and teaching (M=4.84, SD=0.43). Students also indicated that it was highly true that they cooperate

with each other (M=4.75, SD=0.64). The practice of checking computations before submitting (M=4.67, SD=0.61) was likewise highly true among the students. The bottom two were excitement (M=4.54, SD=0.61) and enjoyment (M=4.45, SD=0.61) but they were still highly true.

Overall, students showed very high level of interest in mathematics (M=4.65, SD=0.34). This means that the actions which students take during their math classes are manifestations of their interest in the subject.

Table 8. Level of Learners' Attitude towards Mathematics with regards to Interest

Statements	M	SD	Remarks
I am always excited to study duringour math period.	4.54	.61	Highly True
. I enjoy solving math problems.	4.45	.61	Highly True
I will cooperate with my group matesin group work.	4.75	.644	Highly True
I listen carefully to the teacher's discussion and teaching	4.84	.43	Highly True
I make sure my computation is correctby checking before submitting.	4.67	.61	Highly True
Overall Mean:	4.65		
Overall Standard Deviation:	.34		
Verbal Interpretation:	Very High		

. These findings are different from the claims of Azmidar et al. (2017) showing a number of previous researchers indicating students' low interest in mathematics because most of them have perceived that mathematics is very difficult, boring, not very practical, and have many abstract theorems that were very hard to understand. Another cause is

the teaching and learning process used, which is mechanistic without considering students' needs. Learning is more known as the process of transferring the knowledge tothe students.

Level of Learners' Attitude towards Mathematics as to Study Habits

Table 9 shows the interest of students in mathematics based on their study habits.Results showed that all five statements were also highly true about the students. Particularly highest in mean was their practice of studying harder in math (M=4.72,SD=0.51) and prioritizing math homeworks before other works (M=4.67, SD=0.54).Students also indicated that it was highly true that they were regularly work on theirassignments (M=4.59, SD=0.69). Lowest in means were asking help from others (M=4.31, SD=0.81) and using multimedia in studying new lessons (M=4.27, SD=0.87).

Table 9. Level of Learners' Attitude towards Mathematics as to StudyHabits

Statements	M	SD	Remarks
I do my homework before any work.	4.67	.54	Highly True
I ask my older siblings or parents for help especially during difficult assignments.	4.31	.81	Highly True
I study harder so that my math quarter marks are higher.	4.72	.51	Highly True
I do assignments regularly	4.60	.69	Highly True
I use multi-media to research our topicor homework in preparation for a new lesson.	4.27	.87	Highly True
Overall Mean:	4.51		
Overall Standard Deviation:	.44		
Verbal Interpretation:	Very High		

Overall, the mean of 4.51 and SD of 0.44 were indicating that students have veryhigh and positive study habits in mathematics. This means that they exert time and

resourced in making sure that they improve in the subject. Considering the all highly trueanswers to the statements, it can be inferred that students were hooked by their teachers to engage in their mathematics subjects. According to the University of Saskatchewan (2021), good study habits can increase confidence, competence, and self-esteem; and reduce It may be inferred that students may be able to cut down on the numbers of hours spend studying, leaving more time for other things in their lives.

Performance in Mathematics

Another variable that this study looked into was the level of student's performance in mathematics. Using their quarterly grades, the researcher calculated for the mean and standard deviations.

Learners' Performance in Mathematics based on Quarterly Grades

Table 10. Learners' Performance in Mathematics based on Quarterly Grades

Quarter	M	SD	Remarks
First Quarter	87.10	3.67	Very Satisfactory
Second Quarter	88.37	4.60	Very Satisfactory

Table 10 describes the performance of students in their mathematics subject based on quarterly grades.

Results showed that the mean grade of students during the first quarter was 87.11 with SD= 3.67. During the second quarter, there was a slight increase in the mean grade with 88.37 and SD=4.60. Results implied that students' performance in both quarter were very satisfactory. However, the performance during the second quarter were more widely

scattered than those of the first quarter. This means, that there might be students whoimproved but slightly lower than the growth in others' grades.

Significant Difference in Teacher's Extent of Motivational Strategies based on Age.

In order to make more meaning out of the data collected, the researcher also tested the difference in the teachers' extent of motivational strategies. The discriminatory factors used were the aspects of profile of the teachers.

Table 11. Significant Difference in Teacher's Extent of Motivational Strategies based on Age.

Motivational Strategies	F	p	Analysis
Remediation/tutorial,	1.55	.22	Not Significant
Direct instruction,	1.81	.156	Not Significant
Use of multi-media and gadgets,	1.94	.14	Not Significant
Solving problems,	1.94	.46	Not Significant
Giving home works,	2.26	.09	Not Significant
Personality Traits	1.73	.18	Not Significant
Teaching Styles	1.61	.20	Not Significant

Table 11 shows the significant difference in the teachers' extent of motivational strategies based on age.

It was interesting to note that none of the teachers differed in their extent of motivation strategies based on age. The differences in the means of i.e., remediation/tutorial (F=1.55, p=0.22), direct instruction (F=1.81, p=0.16), use of multi- media and gadgets (F=1.94, p=0.14), solving problems (F=0.94, p=0.46), giving home works (F=2.26, p=0.09), personality traits (F=1.73, p=0.18), and teaching styles (F=1.61, p=0.20) based on age were very small to be considered significant. This led to the decision of retaining the null hypothesis.

Results implied that age was not a significant indicator of the teachers' extent of use motivational strategies. This means that regardless of age, teachers have very high extent of use of the different motivational strategies. Young or old, teachers exhibited their skills in motivating learners.

Significant Difference in Teacher's Extent of Motivational Strategies based on Civil Status

Table 12. Significant Difference in Teacher's Extent of MotivationalStrategies based on Civil Status

Motivational Strategies	F	p	Analysis
Remediation/tutorial,	.915	.45	Not Significant
Direct instruction,	1.35	.28	Not Significant
Use of multi-media and gadgets,	1.65	.20	Not Significant
Solving problems,	2.55	.08	Not Significant
Giving home works,	3.36	.03	Significant
Personality Traits	1.22	.32	Not Significant
Teaching Styles	1.08	.38	Not Significant

Table 12 shows the significant difference in the teachers' extent of motivational strategies based on civil status.

It was interesting to note that teacher's extent of motivation strategies based on civil status. The differences in the f-value of i.e., remediation/tutorial (F=0.92, p=0.45), direct instruction (F=1.35, p=0.28), use of multi-media and gadgets (F=1.65, p=0.20),

solving problems (F=2.55, p=0.78), personality traits (F=1.22, p=0.32), and teaching styles (F=1.08, p=0.38) based on age were very small to be considered significant. While the giving homework showed significant different (F=3.36, p=034).

Results implied that civil status was not a significant indicator of the teachers' extent of use motivational strategies. This means that regardless of their civil status, teachers have very high extent motivational strategies. Single, married, and others. Teachers exhibited their skills in motivating learners.

Significant Difference in Teacher's Extent of Motivational Strategies based on Length of Service

Table 13. Significant Difference in Teacher's Extent of MotivationalStrategies based on Length of Service

Motivational Strategies	F	P	Analysis
Remediation/tutorial,	1.12	.36	Not Significant
Direct instruction,	1.11	.36	Not Significant
Use of multi-media and gadgets,	.26	.85	Not Significant
Solving problems,	.42	.74	Not Significant
Giving home works,	.21	.89	Not Significant
Personality Traits	1.30	.30	Not Significant
Teaching Styles	1.05	.39	Not Significant

Table 13 shows the significant difference in the teachers' extent of motivational strategies based on length of service.

It was interesting to note that none of the teachers differed in their extent of motivation strategies based on length of service. The differences in the means of i.e., remediation/tutorial (F=1.14, p=0.35), direct instruction (F=1.11, p=0.36), use of multi- media and gadgets (F=0.264, p=0.85), solving problems (F=0.42, p=0.74), giving home

works (F=0.21, p=0.89), personality traits (F=1.30, p=0.30), and teaching styles (F=1.05, p=0.39) based on length of service were very small to be considered significant.

Results implied that length of service was not a significant indicator of the teachers' extent of use motivational strategies. This means that regardless of length of service, teachers have very high extent of motivational strategies. Old and new, teachers exhibited their skills in motivating learners.

Significant Difference in Teacher's Extent of Motivational Strategies based on Educational Attainment

Table 14 shows the significant difference in the teachers' extent of motivational strategies based on educational attainment.

Table 14. Significant Difference in Teacher's Extent of Motivational Strategies based on Educational Attainment

Motivational Strategies	F	p	Analysis
Remediation/tutorial,	.35	.79	Not Significant
Direct instruction,	.05	.99	Not Significant
Use of multi-media and gadgets,	.71	.55	Not Significant
Solving problems,	.43	.73	Not Significant
Giving home works,	.23	.88	Not Significant
Personality Traits	.15	.93	Not Significant
Teaching Styles	.26	.85	Not Significant

It was interesting to note that none of the teachers differed in their extent of motivation strategies based on educational attainment. The differences in the means of i.e., remediation/tutorial (F=0.35, p=0.79), direct instruction (F=0.46, p=0.99), use of multi-

media and gadgets (F=0.71, p=0.55), solving problems (F=0.43, p=0.73), giving home works (F=0.23, p=0.88), personality traits (F=0.15, p=0.93), and teaching styles (F=0.259, p=0.85) based on educational attainment were very small to be considered significant. This led to the decision of retaining the null hypothesis.

Results implied that educational attainment was not a significant indicator of the teachers' extent of use motivational strategies. This means that regardless of length of service, teachers have very high extent of motivational strategies.

Significant Difference in Teacher's Extent of Motivational Strategies based on Position / Rank

Table 15 shows the significant difference in the teachers' extent of motivational strategies based on position / rank.

It was interesting to note that none of the teachers differed in their extent of motivation strategies based on position / rank. The differences in the means of i.e., remediation/tutorial (F=0.93, p=0.44), direct instruction (F=0.91, p=0.45), use of multi- media and gadgets (F=0.61, p=0.62), solving problems (F=0.27, p=0.85), giving home works (F=0.46, p=0.72), personality traits (F=0.93, p=0.44), and teaching styles (F=0.54, p=0.66) based on position / rank were very small to be considered significant. This led tothe decision of retaining the null hypothesis.

Table 15. Significant Difference in Teacher's Extent of Motivational Strategies based on Position / Rank

Motivational Strategies	F	p	Analysis
Remediation/tutorial,	.93	.44	Not Significant
Direct instruction,	.91	.45	Not Significant
Use of multi-media and gadgets,	.61	.62	Not Significant
Solving problems,	.27	.85	Not Significant

Giving home works,	.46	.72	Not Significant
Personality Traits	.93	.44	Not Significant
Teaching Styles	.54	.66	Not Significant

Results implied that position / rank was not a significant indicator of the teachers' extent of use motivational strategies. This means that regardless of position / rank, teachers have very high extent of motivational strategies. Teachers 1, 2, and 3, and Master Teacher 1 make use of such strategies.

Significant Correlation between Levels of Teachers' Motivational Strategies and Students' Attitude

Table 16 shows the significant correlation between teacher's extent of motivational strategies and students' attitude towards mathematics.

Table 16. Significant Correlation between Levels of Teachers' Motivational Strategies and Students' Attitude

Motivation Strategy	Students' Attitude	R	Degree of Correlation	p	Analysis
Remediation/ tutorial,	Interest	0.25	Very Weak	0.19	Not Significant
	Study Habit	0.22	Very Weak	0.24	Not Significant
Direct instruction,	Interest	0.22	Very Weak	0.25	Not Significant
	Study Habit	0.15	Very Weak	0.44	Not Significant
Use of multi-media and gadgets,	Interest	0.31	Very Weak	0.10	Not Significant
	Study Habit	-0.02	Very Weak	0.94	Not Significant
Solving problems,	Interest	0.43*	Moderate	0.02	Significant
	Study Habit	0.14	Very Weak	0.48	Not Significant
Giving home works,	Interest	0.47*	Moderate	0.01	Significant
	Study Habit	0.08	Very Weak	0.69	Not Significant
Personality Traits	Interest	0.34	Very Weak	0.07	Not Significant
	Study Habit	0.24	Very Weak	0.20	Not Significant
Teaching Styles	Interest	0.40*	Moderate	0.03	Significant
	Study	0.23	Very Weak	0.21	Not Significant

Correlation Value	Description
0.00-0.25	very weak
0.026-0.50	moderate
0.51-0.75	strong
0.76-0.99	very strong
1.00	perfect

Legend:

In terms of remediation or tutorial, it was observed that interest (r=0.25, p=0.19), and study habit (r=0.22, p=0.24) was not significantly correlated. This means that regardless of the extent of teachers' use of remediation/tutorial, students still have high level of interest in mathematics. The correlation between this motivational strategy and the attitude students was very weak.

Similar observations were obtained with direct instruction, use of multimedia and gadgets, and personality traits. Results showed that regardless of teacher's use of the said strategies, the attitude of student will not significantly change. It implied the independence of the attitude from the motivational strategies mentioned.

On the other hand, it was observed that solving problems (r=0.43, p=0.02), giving home works (r=0.47, p=0.01), and teaching styles (r=0.40, p=0.03) were all significantly correlated with the students' interest in mathematics. These results showed that when teachers give more problem solving activities, home works, and use various teaching styles, students attitude towards math become more positive. The results confirmed the impact of problem-based strategies on students' interest in mathematics similar to the findings of Nizami and Mahmudi (2018).

Significant Correlation between Level of Teachers' Motivational Strategies and Students' Performance in Mathematics

Table 17 shows the significant correlation between level of teachers' motivationalstrategies and students' performance in mathematics.

In terms of remediation or tutorial, it was observed that Q1 grades (r=-0.15, p=0.44), and Q2 grades (r=-0.19, p=0.30) were not significantly correlated. This means that regardless of the extent of teachers' use of remediation/tutorial, students still have high level of performance in mathematics. The correlation between this motivational strategy and the performance of students was very weak.

Table 17. Significant Correlation between Level of Teachers' MotivationalStrategies and Students' Performance in Mathematics

Motivation Strategy	Students' Performance	R	Degree of Correlation	p	Analysis
Remediation/ tutorial,	Q1 Grades	-0.15	Very Weak	0.44	Not Significant
	Q2 Grades	-0.19	Very Weak	0.30	Not Significant
Direct instruction,	Q1 Grades	-0.12	Very Weak	0.51	Not Significant
	Q2 Grades	-0.26	Very Weak	0.17	Not Significant
Use of multi-media and gadgets,	Q1 Grades	-0.05	Very Weak	0.81	Not Significant
	Q2 Grades	-0.26	Very Weak	0.17	Not Significant
Solving problems,	Q1 Grades	0.01	Very Weak	0.97	Not Significant
	Q2 Grades	-0.21	Very Weak	0.27	Not Significant
Giving home works,	Q1 Grades	-0.11	Very Weak	0.55	Not Significant
	Q2 Grades	-0.29	Very Weak	0.12	Not Significant
Personality Traits	Q1 Grades	-0.25	Very Weak	0.18	Not Significant
	Q2 Grades	-0.28	Very Weak	0.13	Not Significant
Teaching Styles	Q1 Grades	-0.14	Very Weak	0.45	Not Significant
	Q2 Grades	-0.23	Very Weak	0.22	Not Significant

Legend:

Correlation Value	Description
0.00-0.25	very weak
0.026-0.50	moderate
0.51-0.75	strong
0.76-0.99	very strong
1.00	perfect

Similar observations were obtained with direct instruction, use of multimedia and gadgets, and personality traits. Results showed that regardless of teacher's use of the said strategies, the performance of student will not significantly change. It implied the independence of the performance from the motivational strategies mentioned.

On the other hand, it was observed that solving problems (r=0.43, p=0.02), giving home works (r=0.47, p=0.01), and teaching styles (r=0.40, p=0.03) were all significantly correlated with the students' performance in mathematics. These results showed that when teachers give more problem solving activities, home works, and use various teaching styles, students' performance increases.

However, performance based on quarterly grades were still not significantly correlated with solving problems, giving home works, and teaching styles. This means that these strategies were generally not associated with the performance of the students. It was different from what Guzman-Gurat (2018) found where she highlighted the positive impact of problem-solving strategies on the academic performance of students. The findings of the current study confirm the conclusions of Ahmed et al. (2020) that students would only benefit from teaching styles if they train themselves for it.

CONCLUSION

The hypothesis that there is no significant difference in the level of teachers' motivational strategies based on their profile is retained. There was no significant differences in the teachers' extent of motivational strategies regardless of age, civil status, and length of service, educational attainment, and position/rank. This means that regardless of the teachers' profile their extent of motivational strategies were very high. They all highly useremediation, direct instruction, solving problems, giving homework, personality traits, andteaching styles in their math classes.

The null hypothesis that there is no significant correlation between the level of teacher's motivational strategies and learners' attitude towards mathematics is retained.

There was no significant correlation between teacher's extent of motivational strategies and students' attitude towards mathematics. This means that regardless of the very high level of teachers' use of motivational strategies, it did not determine their students' level of interest and study habits in mathematics. There was a little correlation between the two groups of variables but such correlation was too little to be considered significant.

Finally, the null hypothesis that there is no significant correlation between the level of teacher's motivational strategies and learners' performance in mathematics is retained. There was no significant correlation between teacher's extent of motivational strategies and students' performance in mathematics. This means that regardless of the very high level of teachers' use of motivational strategies, it did not determine their students' level of performance. Similar to the previous conclusions, there was correlation observed between the two groups of variables but such correlation was too little to be considered significant.

RECOMMENDATIONS

Considering the findings and conclusions of this study, the researcher hereby recommends the following.

1. School heads may provide additional support to teachers in order for them to increase their use of multimedia and gadgets as motivational strategies.
2. Teachers may continue the use various motivational strategies in teaching mathematics in order to sustain students' interest in the subject.
3. Student should sustain their interest in mathematics and their effective study habits. They may also be encouraged to share their practices with other students who struggles in mathematics.

4. Future researchers may conduct investigation on interest and study habits using other data collection methods such as observations and documentreviews.

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