



EFFECTIVENESS OF METACOGNITIVE STRATEGIES ON LEARNERS PERFORMANCE IN MATHEMATICS 5

THELIA MARIE S. CANUTO

Teacher I

Western Leyte College
Master of Arts in Education
Major Elementary Education
theliamariec@gmail.com

ABSTRACT

This study aimed to determine Effectiveness of Metacognitive Strategies on Learners Performance in Mathematics 5. The findings of the study served as a basis of a proposed Intervention plan. This study employed a quasi-experimental research design to determine the effectiveness of metacognitive strategies on the performance of Grade 5 learners in mathematics. The design involved two groups of participants: the experimental group, which was taught using metacognitive strategies such as planning, monitoring, and evaluating their problem-solving processes, and the control group, which received instruction through traditional teaching methods. Both groups were administered a pre-test to assess their initial mathematical performance and a post-test after the intervention period to measure learning gains. The difference between pre-test and post-test scores was analyzed using appropriate statistical tools to determine the impact of the metacognitive intervention. This design was appropriate because it allowed the researcher to establish a cause-and-effect relationship between the use of metacognitive strategies and learners' academic performance while controlling for other influencing factors. Through this approach, the study aimed to provide

Editorial Team

Editor-in-Chief: Alvin B. Punongbayan

Associate Editor: Andro M. Bautista

Managing Editor: Raymart O. Basco

Web Editor: Nikko C. Panotes

Manuscript Editors / Reviewers:

Chin Wen Cong, Christopher DC. Francisco, Camille P. Alicaway, Pinky Jane A. Perez,
Mary Jane B. Custodio, Irene H. Andino, Mark-Jhon R. Prestoza, Ma. Rhoda E. Panganiban, Rjay C. Calaguas,
Mario A. Cudiamat, Jesson L. Hero, Albert Bulawat, Cris T. Zita, Allan M. Manaloto, Jerico N. Mendoza



empirical evidence on how reflective learning practices improved students' understanding, problem-solving ability, and confidence in mathematics. The Test of Difference Between the Pre-test and Post-test Scores of Learners focusing on comprehension skills. It compares learners' performance before and after the implementation of the instructional strategy, highlighting whether the intervention had a measurable impact on their comprehension abilities. The table summarizes the outcomes, the statistical decision, and the interpretation of results regarding the effectiveness of the applied teaching approach. As reflected in the data, learners initially demonstrated a relatively low level of comprehension skills prior to the intervention. After the implementation of the instructional strategy, learners showed substantial improvement in their performance. The increase in performance indicates that the teaching approach had a significant and positive effect, enhancing learners' ability to understand, process, and apply information effectively. The decision to reject the null hypothesis confirms that there is a statistically significant difference between pre-test and post-test performance. This signifies that the intervention successfully improved comprehension skills, and the observed improvement is reliable and not due to chance. The findings demonstrate that structured teaching strategies can effectively support learners in developing stronger comprehension abilities. The results imply that the instructional intervention positively influenced learners' academic performance. The significant improvement in post-test performance suggests that learners gained deeper understanding and mastery of the subject matter. The intervention helped strengthen critical thinking, problem-solving, and reading comprehension, providing learners with the tools to approach

Editorial Team

Editor-in-Chief: Alvin B. Punongbayan

Associate Editor: Andro M. Bautista

Managing Editor: Raymart O. Basco

Web Editor: Nikko C. Panotes

Manuscript Editors / Reviewers:

Chin Wen Cong, Christopher DC. Francisco, Camille P. Alicaway, Pinky Jane A. Perez,
Mary Jane B. Custodio, Irene H. Andino, Mark-Jhon R. Prestoza, Ma. Rhoda E. Panganiban, Rjay C. Calaguas,
Mario A. Cudiamat, Jesson L. Hero, Albert Bulawat, Cris T. Zita, Allan M. Manaloto, Jerico N. Mendoza



tasks more strategically and confidently. This study aligns with previous research emphasizing the importance of targeted instructional strategies to enhance learner outcomes. Specifically, the intervention plan aims to achieve three objectives: first, to improve learners' comprehension skills through structured and strategic teaching approaches; second, to develop learners' ability to monitor and evaluate their own understanding when processing information; and third, to assess the effectiveness of the intervention by observing measurable improvements in learners' performance. These objectives collectively ensure that the teaching strategies applied address learners' needs, enhance learning outcomes, and promote long-term academic growth.

Keywords: *Effectiveness, metacognitive Strategies, Performance, Grade 5 Mathematics*

INTRODUCTION

Mathematics is one of the most fundamental subjects in the curriculum, yet it remains a source of anxiety and difficulty for many learners, especially those in elementary levels. The ability to solve mathematical problems does not rely solely on memorizing formulas or following fixed steps, but also on the learner's awareness of their own thought processes while solving problems. This awareness—known as metacognition—is the foundation of metacognitive strategies, which involve planning, monitoring, and evaluating one's learning. The study titled "Effectiveness of Metacognitive Strategies on Learners' Performance in Mathematics 5" aims to explore how these strategies can help Grade 5 learners become more

Editorial Team

Editor-in-Chief: Alvin B. Punongbayan

Associate Editor: Andro M. Bautista

Managing Editor: Raymart O. Basco

Web Editor: Nikko C. Panotes

Manuscript Editors / Reviewers:

Chin Wen Cong, Christopher DC. Francisco, Camille P. Alicaway, Pinky Jane A. Perez,
Mary Jane B. Custodio, Irene H. Andino, Mark-Jhon R. Prestoza, Ma. Rhoda E. Panganiban, Rjay C. Calaguas,
Mario A. Cudiamat, Jesson L. Hero, Albert Bulawat, Cris T. Zita, Allan M. Manaloto, Jerico N. Mendoza



conscious of their thinking, develop problem-solving skills, and build confidence in handling mathematical tasks. By encouraging learners to think about how they learn, teachers can guide them to understand not just what to do, but why each step in a problem is necessary.

Mathematics often becomes difficult for learners when they are not taught how to reflect on their errors or evaluate their solutions. Many students tend to focus on getting the right answer rather than understanding the process behind it. Metacognitive strategies can bridge this gap by helping students plan their approach, check their progress, and assess their outcomes. For instance, before solving a word problem, learners can ask themselves what the problem is asking, what information is given, and what strategies might work best. While solving, they can monitor whether their steps make sense, and after solving, they can check if their answers are reasonable. By developing these habits, learners gain independence, persistence, and logical reasoning—all of which contribute to improved mathematical performance.

According to Desoete and de Craene (2019), students who regularly use metacognitive strategies tend to perform better in mathematical problem-solving tasks than those who rely only on rote learning. Their study found that explicit instruction in metacognitive regulation—such as goal setting, self-questioning, and error analysis—led to higher problem-solving accuracy and greater confidence among upper primary learners.

From the researcher’s standpoint, metacognitive strategies represent an effective and practical approach to addressing learners’ difficulties in mathematics. Teachers can implement these strategies by incorporating guided reflection, self-assessment checklists, and think-

Editorial Team

Editor-in-Chief: Alvin B. Punongbayan

Associate Editor: Andro M. Bautista

Managing Editor: Raymart O. Basco

Web Editor: Nikko C. Panotes

Manuscript Editors / Reviewers:

Chin Wen Cong, Christopher DC. Francisco, Camille P. Alicaway, Pinky Jane A. Perez,
Mary Jane B. Custodio, Irene H. Andino, Mark-Jhon R. Prestoza, Ma. Rhoda E. Panganiban, Rjay C. Calaguas,
Mario A. Cudiamat, Jesson L. Hero, Albert Bulawat, Cris T. Zita, Allan M. Manaloto, Jerico N. Mendoza



aloud problem-solving activities into their lessons. Such methods encourage learners to analyze their mistakes and make necessary adjustments, promoting a deeper understanding of mathematical procedures. By empowering learners to take responsibility for their learning, teachers also cultivate self-regulated and independent thinkers. When applied consistently, these strategies not only enhance academic performance but also transform the classroom into a more interactive and reflective learning environment where students are motivated to learn from both success and failure.

However, challenges still exist in the teaching and learning of mathematics. Many Grade 5 students continue to struggle with basic operations, have difficulty recalling steps in solving fractions, and often mix up formulas in geometry and measurement. For example, some learners incorrectly divide fractions or fail to simplify their answers because they are not confident in the process. These common problems show that learners tend to focus on procedure without understanding the reasoning behind it. Teachers, on the other hand, sometimes face time constraints and heavy workloads, making it hard to provide individualized feedback or encourage reflection during lessons. Such limitations hinder the full implementation of metacognitive instruction. Recognizing these problems strengthens the need for this study, as it aims to introduce practical classroom techniques that address learners' thinking processes and improve their mathematical performance.

This study on The Effect of Metacognitive Strategies on Learners' Performance in Mathematics 5 is worth pursuing because it seeks to address one of the most persistent challenges in education—students' difficulty in understanding and applying mathematical

Editorial Team

Editor-in-Chief: Alvin B. Punongbayan

Associate Editor: Andro M. Bautista

Managing Editor: Raymart O. Basco

Web Editor: Nikko C. Panotes

Manuscript Editors / Reviewers:

Chin Wen Cong, Christopher DC. Francisco, Camille P. Alicaway, Pinky Jane A. Perez,
Mary Jane B. Custodio, Irene H. Andino, Mark-Jhon R. Prestoza, Ma. Rhoda E. Panganiban, Rjay C. Calaguas,
Mario A. Cudiamat, Jesson L. Hero, Albert Bulawat, Cris T. Zita, Allan M. Manaloto, Jerico N. Mendoza



concepts. By integrating metacognitive strategies into instruction, learners can develop the ability to plan their solutions, monitor their progress, and evaluate their understanding. These strategies not only improve problem-solving performance but also enhance confidence, perseverance, and a positive attitude toward mathematics. The outcomes of this research will provide valuable insights for teachers, curriculum developers, and educational leaders in designing teaching approaches that nurture reflective, independent, and competent learners. Ultimately, the study aims to help young learners see mathematics not as a subject to fear, but as a powerful tool for thinking, reasoning, and making sense of the world around them. This study aimed to determine Effectiveness of Metacognitive Strategies on Learners Performance in Mathematics 5. The findings of the study served as a basis of a proposed Intervention plan.

Specifically, this study sought to answer the following questions.

1. What is the performance of the Grade 5 pupils in Mathematics before the integration of Metacognitive Strategies?
2. What is the performance of the Grade 5 pupils in Mathematics after the integration of Metacognitive Strategies?
3. Is there a significant difference on the performance of the Grade 5 pupils in Mathematics before and after the integration of Metacognitive Strategies?
4. What improvement plan can be proposed based on the findings of the study?

Editorial Team

Editor-in-Chief: Alvin B. Punongbayan

Associate Editor: Andro M. Bautista

Managing Editor: Raymart O. Basco

Web Editor: Nikko C. Panotes

Manuscript Editors / Reviewers:

Chin Wen Cong, Christopher DC. Francisco, Camille P. Alicaway, Pinky Jane A. Perez,
Mary Jane B. Custodio, Irene H. Andino, Mark-Jhon R. Prestoza, Ma. Rhoda E. Panganiban, Rjay C. Calaguas,
Mario A. Cudiamat, Jesson L. Hero, Albert Bulawat, Cris T. Zita, Allan M. Manaloto, Jerico N. Mendoza



Statement of Null Hypotheses

Ho1.: There is no significant difference on the pretest and posttest performance of the Grade 5 pupils in Mathematics before and after the integration of Metacognitive Strategies.

METHODOLOGY

Design. This study employed a quasi-experimental research design to determine the effectiveness of metacognitive strategies on the performance of Grade 5 learners in mathematics. The design involved two groups of participants: the experimental group, which was taught using metacognitive strategies such as planning, monitoring, and evaluating their problem-solving processes, and the control group, which received instruction through traditional teaching methods. Both groups were administered a pre-test to assess their initial mathematical performance and a post-test after the intervention period to measure learning gains. The difference between pre-test and post-test scores was analyzed using appropriate statistical tools to determine the impact of the metacognitive intervention. This design was appropriate because it allowed the researcher to establish a cause-and-effect relationship between the use of metacognitive strategies and learners' academic performance while controlling for other influencing factors. Through this approach, the study aimed to provide empirical evidence on how reflective learning practices improved students' understanding, problem-solving ability, and confidence in mathematics.

Editorial Team

Editor-in-Chief: Alvin B. Punongbayan

Associate Editor: Andro M. Bautista

Managing Editor: Raymart O. Basco

Web Editor: Nikko C. Panotes

Manuscript Editors / Reviewers:

Chin Wen Cong, Christopher DC. Francisco, Camille P. Alicaway, Pinky Jane A. Perez,
Mary Jane B. Custodio, Irene H. Andino, Mark-Jhon R. Prestoza, Ma. Rhoda E. Panganiban, Rjay C. Calaguas,
Mario A. Cudiamat, Jesson L. Hero, Albert Bulawat, Cris T. Zita, Allan M. Manaloto, Jerico N. Mendoza



The main local of the study was in San Isidro and Biasong Elementary School in the Schools Division of Cebu Province. The respondents of the study were the Grade 5 students from San Isidro and Biasong Elementary School.

The main instruments used in this study were a researcher-made Mathematics Achievement Test. The Mathematics Achievement Test consisted of 20 to 25 problem-solving items aligned with the Grade 5 Mathematics curriculum, specifically focusing on topics such as fractions, decimals, ratios, and word problems. This test served as both a pre-test and post-test to measure learners' performance before and after the intervention. It assessed not only computational skills but also analytical reasoning and problem-solving ability. The results from these instruments served as the primary data for analyzing the effectiveness of metacognitive strategies in enhancing learners' mathematics performance.

Sampling. The research respondents of the study were the grade 5 pupils in San Isidro and Biasong Elementary School. There were 15 Males and 9 Females for a total of 24 learners that were being identified and the primary means of reach is during the actual conduct of the study as well as during the gathering of data in the school where the study was conducted. Another way of contacting them are through cell phones.

Research Procedure. The researcher formulated the following procedures as a guide in gathering the data:

The researcher sought permission from the Schools Division Superintendent as well as from the Public School District Supervisor (PSDS) to conduct the research study in the school.

Editorial Team

Editor-in-Chief: Alvin B. Punongbayan

Associate Editor: Andro M. Bautista

Managing Editor: Raymart O. Basco

Web Editor: Nikko C. Panotes

Manuscript Editors / Reviewers:

Chin Wen Cong, Christopher DC. Francisco, Camille P. Alicaway, Pinky Jane A. Perez,
Mary Jane B. Custodio, Irene H. Andino, Mark-Jhon R. Prestoza, Ma. Rhoda E. Panganiban, Rjay C. Calaguas,
Mario A. Cudiamat, Jesson L. Hero, Albert Bulawat, Cris T. Zita, Allan M. Manaloto, Jerico N. Mendoza



The researcher then conducted an orientation for the teachers who administered the test. The research instrument was administered to the identified respondents. The researcher integrated the necessary instructional materials to deliver the Most Essential Learning Competencies, such as the Self-Learning Modules, Learners' Activity Sheets, and video lessons from the DepEd Commons learning resource section at the school, district, or division level.

After conducting the pre-test, the researcher immediately started the four-week intervention by providing video lessons focused on Mathematics subjects based on the Most Essential Learning Competencies for the Grade 5 pupils. The post-test followed the intervention period. The results were then gathered, tabulated, and subjected to appropriate statistical treatment to determine whether the hypothesis would be rejected at the established level of significance.

Ethical Issues. The right to conduct the study was strictly adhered through the approval of the principal. Orientation of the respondents both their subject teachers.

Treatment of Data. The responses to the Pre-test and Post-Test were tabulated using the Microsoft Excel. Descriptive statistical tool was used in analyzing the data.

A. Mean Percentage Scores (MPS) based on Assessment Cards

The Mean Percentage Score (MPS). This method was used to determine the Pretest and Posttest scores of the Grade 5 pupils in Mathematics subject.

B. t-test for Mean Difference

Editorial Team

Editor-in-Chief: Alvin B. Punongbayan

Associate Editor: Andro M. Bautista

Managing Editor: Raymart O. Basco

Web Editor: Nikko C. Panotes

Manuscript Editors / Reviewers:

Chin Wen Cong, Christopher DC. Francisco, Camille P. Alicaway, Pinky Jane A. Perez,
Mary Jane B. Custodio, Irene H. Andino, Mark-Jhon R. Prestoza, Ma. Rhoda E. Panganiban, Rjay C. Calaguas,
Mario A. Cudiamat, Jesson L. Hero, Albert Bulawat, Cris T. Zita, Allan M. Manaloto, Jerico N. Mendoza



t-test for mean difference. This method was used to calculate the significant difference between the pre-test and posttest in Mathematics.

RESULTS AND DISCUSSION

TABLE I

PRE-TEST PERFORMANCE OF LEARNERS

Score Range	Description	Frequency	%
36–40	Very Good	0	0.00%
26–35	Good	14	58.33%
16–25	Fair	8	33.33%
0–15	Poor	2	8.33%
Total		24	100%

Weighted Mean: 18.50 – Fair

MPS: 46.25%

This table presents the Pre-Test Performance of Learners, showing the distribution of scores, frequency, percentage, weighted mean, and mean percentage score (MPS) of the respondents prior to the implementation of the intervention. The table categorizes learners' performance into four descriptive levels: Very Good, Good, Fair, and Poor. It provides a clear overview of the learners' initial level of mathematical competence before the application of metacognitive strategies in instruction.

Editorial Team

Editor-in-Chief: Alvin B. Punongbayan

Associate Editor: Andro M. Bautista

Managing Editor: Raymart O. Basco

Web Editor: Nikko C. Panotes

Manuscript Editors / Reviewers:

Chin Wen Cong, Christopher DC. Francisco, Camille P. Alicaway, Pinky Jane A. Perez,
Mary Jane B. Custodio, Irene H. Andino, Mark-Jhon R. Prestoza, Ma. Rhoda E. Panganiban, Rjay C. Calaguas,
Mario A. Cudiamat, Jesson L. Hero, Albert Bulawat, Cris T. Zita, Allan M. Manaloto, Jerico N. Mendoza



The results reveal that none of the learners achieved a Very Good rating, representing 0.00% of the total respondents. The majority of the learners, 14 out of 24 or 58.33%, obtained scores within the Good range. Meanwhile, 8 learners or 33.33% fell under the Fair category, and 2 learners or 8.33% were classified under the Poor category. This distribution indicates that while more than half of the learners demonstrated satisfactory foundational knowledge, a considerable proportion still performed at only a fair level, and a small number showed weak mastery of the competencies assessed in the pre-test.

Moreover, the computed weighted mean of 18.50 was interpreted as Fair, with a Mean Percentage Score (MPS) of 46.25%. Although a majority of learners were in the Good category, the overall average remained within the Fair level, suggesting that the learners' general performance prior to the intervention was moderate and below the expected mastery level. The presence of learners in the Fair and Poor categories further emphasizes the need for instructional enhancement to strengthen mathematical understanding and problem-solving skills.

The overall findings show that 0.00% of learners were in the Very Good category, 58.33% were in the Good category, 33.33% were in the Fair category, and 8.33% were in the Poor category, with a weighted mean of 18.50 interpreted as Fair and an MPS of 46.25%. The result implies that learners had not yet achieved a high level of mastery in the targeted mathematical competencies prior to the intervention and that there was significant room for improvement. The overall average rating of 18.50 (Fair) implies that structured and enhanced instructional strategies were necessary to elevate learners' performance to a higher proficiency

Editorial Team

Editor-in-Chief: Alvin B. Punongbayan

Associate Editor: Andro M. Bautista

Managing Editor: Raymart O. Basco

Web Editor: Nikko C. Panotes

Manuscript Editors / Reviewers:

Chin Wen Cong, Christopher DC. Francisco, Camille P. Alicaway, Pinky Jane A. Perez,
Mary Jane B. Custodio, Irene H. Andino, Mark-Jhon R. Prestoza, Ma. Rhoda E. Panganiban, Rjay C. Calaguas,
Mario A. Cudiamat, Jesson L. Hero, Albert Bulawat, Cris T. Zita, Allan M. Manaloto, Jerico N. Mendoza



level.

Table 2

POST-TEST PERFORMANCE OF LEARNERS

Score Range	Description	Frequency	%
36–40	Very Good	6	25.00%
26–35	Good	16	66.67%
16–25	Fair	2	8.33%
0–15	Poor	0	0.00%
Total		24	100%

Weighted Mean: 32.88 – Good

MPS: 82.19%

This table presents the POST-TEST PERFORMANCE OF LEARNERS in terms of score range, descriptive rating, frequency, percentage distribution, weighted mean, and Mean Percentage Score (MPS). The data summarize the achievement levels of 24 learners who took the post-test, categorizing their performance from Poor to Very Good. The table also provides the computed weighted mean of 32.88, interpreted as “Good,” and an MPS of 82.19%, which serves as an overall indicator of learners’ mastery after the intervention or instructional period.

As reflected in the table, the majority of learners performed at a satisfactory to high level. Six learners, or 25.00%, obtained scores ranging from 36–40, described as “Very Good.”

Editorial Team

Editor-in-Chief: Alvin B. Punongbayan

Associate Editor: Andro M. Bautista

Managing Editor: Raymart O. Basco

Web Editor: Nikko C. Panotes

Manuscript Editors / Reviewers:

Chin Wen Cong, Christopher DC. Francisco, Camille P. Alicaway, Pinky Jane A. Perez,
Mary Jane B. Custodio, Irene H. Andino, Mark-Jhon R. Prestoza, Ma. Rhoda E. Panganiban, Rjay C. Calaguas,
Mario A. Cudiamat, Jesson L. Hero, Albert Bulawat, Cris T. Zita, Allan M. Manaloto, Jerico N. Mendoza



Meanwhile, 16 learners, comprising the largest proportion at 66.67%, scored within 26–35, interpreted as “Good.” Only two learners, or 8.33%, fell under the “Fair” category with scores between 16–25. Notably, no learner (0.00%) obtained a score within the 0–15 range, which corresponds to “Poor.” These results indicate that nearly all learners achieved at least a fair level of performance, with a dominant concentration in the Good category.

The computed weighted mean of 32.88 further supports the descriptive findings, as it falls within the “Good” performance bracket. Additionally, the Mean Percentage Score (MPS) of 82.19% indicates that learners, on average, correctly answered more than four-fifths of the test items. The absence of learners in the Poor category and the high percentage of learners in the Good and Very Good categories collectively demonstrate a strong post-test outcome, suggesting that the majority of learners attained a substantial level of mastery of the content.

The results imply that the instructional strategies or interventions implemented prior to the post-test were effective in enhancing learners’ academic performance. With 66.67% of learners rated Good and 25.00% rated Very Good, alongside an overall weighted mean of 32.88 (Good) and an MPS of 82.19%, the result implies that learners developed a solid understanding of the subject matter. The minimal percentage of learners in the Fair category (8.33%) and the absence of Poor ratings further imply that the teaching approach successfully supported most learners in achieving the desired learning competencies. Overall, the average rating of 32.88 (Good) indicates a generally high level of post-test performance among the learners.

Editorial Team

Editor-in-Chief: Alvin B. Punongbayan

Associate Editor: Andro M. Bautista

Managing Editor: Raymart O. Basco

Web Editor: Nikko C. Panotes

Manuscript Editors / Reviewers:

Chin Wen Cong, Christopher DC. Francisco, Camille P. Alicaway, Pinky Jane A. Perez,
Mary Jane B. Custodio, Irene H. Andino, Mark-Jhon R. Prestoza, Ma. Rhoda E. Panganiban, Rjay C. Calaguas,
Mario A. Cudiamat, Jesson L. Hero, Albert Bulawat, Cris T. Zita, Allan M. Manaloto, Jerico N. Mendoza



TABLE 3

TEST OF DIFFERENCE BETWEEN THE PRE-TEST AND POST-TEST SCORES OF LEARNERS

Aspects	Test Scores (Mean)	Computed t	Critical t	Decision	Interpretation
Pre vs Post (Comprehension Skills)	Pre = 18.50 Post = 32.88	13.19	2.06	Reject Ho	Significant Difference (Post-test Improved)

This table presents the Test of Difference Between the Pre-test and Post-test Scores of Learners focusing on comprehension skills. It shows the mean scores of learners in the pre-test and post-test, along with the computed t-value, critical t-value, decision, and interpretation of results. Specifically, the table compares the pre-test mean score of 18.50 and the post-test mean score of 32.88, with a computed t-value of 13.19 and a critical t-value of 2.06, leading to the rejection of the null hypothesis and concluding a significant difference between the two test results.

As reflected in the data, learners obtained a mean score of 18.50 in the pre-test, indicating a relatively low level of comprehension skills prior to the intervention. After the implementation of the instructional strategy or treatment, the post-test mean significantly increased to 32.88. The large increase in mean scores demonstrates a substantial improvement in learners' comprehension performance. The computed t-value of 13.19 is

Editorial Team

Editor-in-Chief: Alvin B. Punongbayan

Associate Editor: Andro M. Bautista

Managing Editor: Raymart O. Basco

Web Editor: Nikko C. Panotes

Manuscript Editors / Reviewers:

Chin Wen Cong, Christopher DC. Francisco, Camille P. Alicaway, Pinky Jane A. Perez, Mary Jane B. Custodio, Irene H. Andino, Mark-Jhon R. Prestoza, Ma. Rhoda E. Panganiban, Rjay C. Calaguas, Mario A. Cudiamat, Jesson L. Hero, Albert Bulawat, Cris T. Zita, Allan M. Manaloto, Jerico N. Mendoza



notably higher than the critical t-value of 2.06, indicating that the observed difference between pre-test and post-test scores is not due to chance.

The decision to reject the null hypothesis (H_0) confirms that there is a statistically significant difference between the pre-test and post-test scores. The interpretation explicitly states "Significant Difference (Post-test Improved)," which means that the intervention or teaching approach applied during the study effectively enhanced learners' comprehension skills. The wide gap between the computed t-value (13.19) and the critical t-value (2.06) further strengthens the statistical evidence that the improvement from a mean of 18.50 to 32.88 is meaningful and reliable.

The results imply that the instructional intervention had a strong positive effect on learners' comprehension skills. With the pre-test mean of 18.50 and the post-test mean increasing to 32.88, alongside a computed t-value of 13.19 exceeding the critical value of 2.06, and the decision to Reject H_0 indicating a significant difference, the result implies that the teaching strategy effectively improved learners' academic performance. The overall average rating in the post-test (32.88) reflects a marked advancement compared to the pre-test performance, suggesting that learners gained deeper understanding and mastery of the subject matter after the intervention.

Editorial Team

Editor-in-Chief: Alvin B. Punongbayan

Associate Editor: Andro M. Bautista

Managing Editor: Raymart O. Basco

Web Editor: Nikko C. Panotes

Manuscript Editors / Reviewers:

Chin Wen Cong, Christopher DC. Francisco, Camille P. Alicaway, Pinky Jane A. Perez,
Mary Jane B. Custodio, Irene H. Andino, Mark-Jhon R. Prestoza, Ma. Rhoda E. Panganiban, Rjay C. Calaguas,
Mario A. Cudiamat, Jesson L. Hero, Albert Bulawat, Cris T. Zita, Allan M. Manaloto, Jerico N. Mendoza



CONCLUSION

Based on the results of this study, the metacognitive strategies significantly enhanced learners' comprehension skills, demonstrating that strategic and structured teaching approaches effectively improve understanding, critical thinking, and problem-solving abilities. The findings indicate that learners were able to develop greater confidence in processing and analyzing information, suggesting that the applied strategies successfully addressed their learning needs and promoted meaningful academic growth.

RECOMMENDATION

The Teacher should continue implementing strategic and structured instructional approaches, such as guided reading, metacognitive strategies, and formative assessments, to further enhance learners' comprehension skills and critical thinking abilities.

The Learners should actively engage in classroom activities, apply metacognitive and problem-solving strategies during learning, and consistently practice reading and comprehension exercises to strengthen their academic performance.

The School Heads should support teachers by providing professional development opportunities, instructional resources, and a collaborative environment that encourages innovative teaching strategies to improve learner outcomes.

The Public Schools District Supervisor should monitor the implementation of instructional strategies, provide guidance and training for teachers, and ensure programs that enhance learners' comprehension skills are effectively executed across the district.

Editorial Team

Editor-in-Chief: Alvin B. Punongbayan

Associate Editor: Andro M. Bautista

Managing Editor: Raymart O. Basco

Web Editor: Nikko C. Panotes

Manuscript Editors / Reviewers:

Chin Wen Cong, Christopher DC. Francisco, Camille P. Alicaway, Pinky Jane A. Perez,
Mary Jane B. Custodio, Irene H. Andino, Mark-Jhon R. Prestoza, Ma. Rhoda E. Panganiban, Rjay C. Calaguas,
Mario A. Cudiamat, Jesson L. Hero, Albert Bulawat, Cris T. Zita, Allan M. Manaloto, Jerico N. Mendoza

INSTABRIGHT e-GAZETTE

ISSN: 2704-3010

Volume VII, Issue III

March 2026

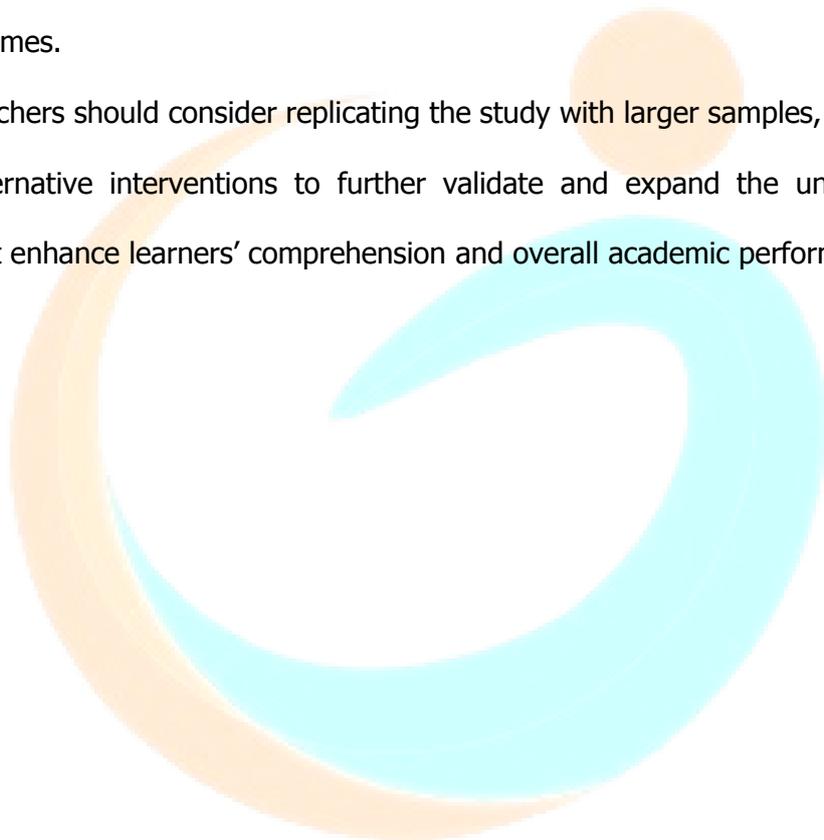
Available online at <https://www.instabrightgazette.com>



The Parents should actively participate in their child’s learning by monitoring reading habits, encouraging home-based exercises, and providing support to reinforce comprehension skills developed in school.

The Researcher should document the effectiveness of instructional interventions and share best practices with other educators to promote evidence-based strategies that improve learning outcomes.

Future Researchers should consider replicating the study with larger samples, different grade levels, or alternative interventions to further validate and expand the understanding of strategies that enhance learners’ comprehension and overall academic performance.



Editorial Team

Editor-in-Chief: Alvin B. Punongbayan

Associate Editor: Andro M. Bautista

Managing Editor: Raymart O. Basco

Web Editor: Nikko C. Panotes

Manuscript Editors / Reviewers:

Chin Wen Cong, Christopher DC. Francisco, Camille P. Alicaway, Pinky Jane A. Perez,
Mary Jane B. Custodio, Irene H. Andino, Mark-Jhon R. Prestoza, Ma. Rhoda E. Panganiban, Rjay C. Calaguas,
Mario A. Cudiamat, Jesson L. Hero, Albert Bulawat, Cris T. Zita, Allan M. Manaloto, Jerico N. Mendoza



ACKNOWLEDGEMENT

First and foremost, I would like to praise and thank God Almighty for His endless grace, for granting me knowledge and opportunities to pursue my graduate studies.

I take this opportunity to express my sincere and heartfelt gratitude to the people who have been instruments in the successful completion of this thesis.

I wish to express my sincere appreciation to Dr. Sabina B. Con-ui, Dean of the Graduate School, for her encouragement and the immense knowledge she shared throughout the completion of this study.

I would like to express my heartfelt gratitude to my research adviser, Dr. Annabelle A. Wenceslao, for her invaluable guidance, patience, and expertise throughout the conduct of this research. I am deeply thankful for her mentorship, which greatly contributed to my academic and personal growth.

I would also like to thank the members of the thesis committee: Dr. Bryant C. Acar, Chairman, and Dr. Jasmine B. Misa and Dr. Elvin H. Wenceslao, members, for their insightful suggestions, time, and expertise. Their thoughtful critiques and recommendations significantly improved the quality of this study.

My heartfelt gratitude is also extended to the Grade 5 pupils of Biasong Elementary School for their active participation and cooperation in answering the pretest and posttest. Their

Editorial Team

Editor-in-Chief: Alvin B. Punongbayan

Associate Editor: Andro M. Bautista

Managing Editor: Raymart O. Basco

Web Editor: Nikko C. Panotes

Manuscript Editors / Reviewers:

Chin Wen Cong, Christopher DC. Francisco, Camille P. Alicaway, Pinky Jane A. Perez,
Mary Jane B. Custodio, Irene H. Andino, Mark-Jhon R. Prestoza, Ma. Rhoda E. Panganiban, Rjay C. Calaguas,
Mario A. Cudiamat, Jesson L. Hero, Albert Bulawat, Cris T. Zita, Allan M. Manaloto, Jerico N. Mendoza

INSTABRIGHT e-GAZETTE

ISSN: 2704-3010

Volume VII, Issue III

March 2026

Available online at <https://www.instabrightgazette.com>



willingness to take part and their positive responses made this study meaningful and successful.

I would also like to extend my sincere thanks to my friends Erra, Novelyza, Elain, and Christa. Your words of motivation, shared laughter, and unwavering belief in me helped me overcome challenges and made this process more bearable and memorable.

Last but not least, I will forever be thankful to my family. To my Mama Weweng and Papa Titing, who supported me all the way, especially through financial support. This study would not have been possible without their sacrifices. To my sisters, Lorraine and Lavinia, who helped me with errands to complete this study. Their constant encouragement and moral support throughout this journey meant so much to me.

Editorial Team

Editor-in-Chief: Alvin B. Punongbayan

Associate Editor: Andro M. Bautista

Managing Editor: Raymart O. Basco

Web Editor: Nikko C. Panotes

Manuscript Editors / Reviewers:

Chin Wen Cong, Christopher DC. Francisco, Camille P. Alicaway, Pinky Jane A. Perez,
Mary Jane B. Custodio, Irene H. Andino, Mark-Jhon R. Prestoza, Ma. Rhoda E. Panganiban, Rjay C. Calaguas,
Mario A. Cudiamat, Jesson L. Hero, Albert Bulawat, Cris T. Zita, Allan M. Manaloto, Jerico N. Mendoza



REFERENCES

Abdelshiheed, A., Chen, Y., & Torres, R. (2023). Targeted metacognitive skill training improves logic and problem-solving performance. arXiv. <https://arxiv.org/abs/2303.12223>

Cahayasti, D. S., & Indrasari, A. (2018). The correlation between metacognitive strategies and mathematics achievement among elementary students. Atlantis Press. <https://www.atlantispress.com/proceedings/uipsur-17/25899620>

Gurat, M. G., & Medula Jr., R. A. (2016). Metacognitive strategy knowledge use and mathematical problem-solving performance of pre-service teachers. American Journal of Educational Research, 4(7), 551–563. <https://doi.org/10.12691/education-4-7-3>

Icamina, C. J. (2023). Strategic learning and metacognitive skills in mathematics of Bachelor of Industrial Technology students in Capiz. Neliti. <https://media.neliti.com/media/publications/582118-strategic-learning-and-metacognitive-ski-17a1bcc0.pdf>

Lai, F., Zhu, X., Chen, Q., & Li, Y. (2015). The relation between mathematics anxiety and metacognition in children with and without mathematical difficulties. Frontiers in Psychology, 6, 1628. <https://doi.org/10.3389/fpsyg.2015.01628>

Martinez, R., Rakickiene, R., & Petratis, L. (2025). Students' use of metacognitive strategies and motivational beliefs in learning mathematics. IATED Digital Library. <https://library.iated.org/view/RAKICKIENE2025PRE>

Editorial Team

Editor-in-Chief: Alvin B. Punongbayan

Associate Editor: Andro M. Bautista

Managing Editor: Raymart O. Basco

Web Editor: Nikko C. Panotes

Manuscript Editors / Reviewers:

Chin Wen Cong, Christopher DC. Francisco, Camille P. Alicaway, Pinky Jane A. Perez, Mary Jane B. Custodio, Irene H. Andino, Mark-Jhon R. Prestoza, Ma. Rhoda E. Panganiban, Rjay C. Calaguas, Mario A. Cudiamat, Jesson L. Hero, Albert Bulawat, Cris T. Zita, Allan M. Manaloto, Jerico N. Mendoza



Pratama, F. A., Lestari, D., & Jailani, J. (2023). Metacognitive skills in mathematics problem solving among junior high school students. *Journal of Didactical Mathematics*. <https://ojs.unm.ac.id/JDM/article/view/8537>

Reyes, M. J., & Reyes, E. L. (2024). A case-study model for teaching metacognition in solving mathematical word problems. *International Journal of Current Science*. <https://journal.formosapublisher.org/index.php/ijcs/article/view/11591>

Sercenia, J., & Prudente, M. S. (2023). The effectiveness of metacognitive-based pedagogical interventions in mathematics: A meta-analysis. *International Journal of Instruction*, 16(4), 633–650. https://www.e-iji.net/dosyalar/iji_2023_4_32.pdf

Tabuyo, K. M. (2024). Metacognition and problem-solving performance among Filipino pre-service teachers. *Pegegog*. <https://www.pegegog.net/index.php/pegegog/article/view/2827>

Tsampouris, G., & Sampedro Requena, B. E. (2022). Metacognitive strategies and logical–mathematical thinking in students with ADHD. *Mathematics*, 10(11), 1810. <https://doi.org/10.3390/math10111810>

Özsoy, G. (2017). The effects of metacognitive strategy training on mathematical problem solving achievement. *Journal of Education and Learning*, 6(3), 87–97. <https://files.eric.ed.gov/fulltext/EJ1156332.pdf>

(2017). The effect of metacognitive strategies on the mathematics achievement of Grade 9 students at Aplaya National High School, Misamis Oriental. *Zenodo*. <https://zenodo.org/record/3951851>

Editorial Team

Editor-in-Chief: Alvin B. Punongbayan

Associate Editor: Andro M. Bautista

Managing Editor: Raymart O. Basco

Web Editor: Nikko C. Panotes

Manuscript Editors / Reviewers:

Chin Wen Cong, Christopher DC. Francisco, Camille P. Alicaway, Pinky Jane A. Perez, Mary Jane B. Custodio, Irene H. Andino, Mark-Jhon R. Prestoza, Ma. Rhoda E. Panganiban, Rjay C. Calaguas, Mario A. Cudiamat, Jesson L. Hero, Albert Bulawat, Cris T. Zita, Allan M. Manaloto, Jerico N. Mendoza



AUTHOR'S PROFILE



THELIA MARIE S. CANUTO

The author was born on April 23, 2000, in Ormoc City, Leyte, Philippines. She earned her Bachelor's Degree in Elementary Education from Visayas State University–Main Campus with flying colors. Inspired by her passion for teaching, she pursued a Master of Arts in Education major in Elementary Education at Western Leyte College of Ormoc City.

She is currently a Teacher I in the Department of Education and serves as a Grade V teacher at Biasong Elementary School, Biasong, Pilar, Cebu, Philippines. She believes that children have the ability to create meaningful things and become purposeful individuals, but they need guidance and support to do so. Thus, in her four-cornered kingdom—the classroom—she does not simply reign; she facilitates learning and teaches her students with dedication and passion.

Editorial Team

Editor-in-Chief: Alvin B. Punongbayan

Associate Editor: Andro M. Bautista

Managing Editor: Raymart O. Basco

Web Editor: Nikko C. Panotes

Manuscript Editors / Reviewers:

Chin Wen Cong, Christopher DC. Francisco, Camille P. Alicaway, Pinky Jane A. Perez,
Mary Jane B. Custodio, Irene H. Andino, Mark-Jhon R. Prestoza, Ma. Rhoda E. Panganiban, Rjay C. Calaguas,
Mario A. Cudiamat, Jesson L. Hero, Albert Bulawat, Cris T. Zita, Allan M. Manaloto, Jerico N. Mendoza
