

Bridging the learning gaps through post-assessment academic coaching strategies in low-performing pupils

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Keywords

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Abstract

Persistent learning gaps in primary mathematics remain a major challenge in post-pandemic basic education, particularly among pupils who fail to attain expected competency levels despite regular classroom instruction. This study examined the effectiveness of post-assessment academic coaching strategies in improving the Mathematics performance of low-performing Grade 5 pupils in a Philippine public elementary school. Using a quasi-experimental pre-test–post-test non-equivalent group design, 24 pupils identified as low-performing based on a researcher-made Mathematics pre-assessment were assigned to three intervention groups: drill, practice exercises, and remedial sessions; group work and group drills; and individual practice exercises. Data were analyzed using mean scores, paired-sample t-tests, ANCOVA, and post-hoc pairwise comparisons. Results showed that all three coaching strategies produced statistically significant improvements in pupils' Mathematics performance from pre-test to post-test. The overall mean increased from 70.08 to 77.58, indicating a measurable reduction in learning gaps. Among the three interventions, the drill, practice exercises, and remedial coaching strategy produced the highest adjusted post-test mean and demonstrated the strongest comparative effect, while individual practice exercises showed moderate effectiveness and group-based drills yielded more limited gains. The findings suggest that assessment-informed, structured, and feedback-oriented coaching can serve as a practical intervention for improving foundational numeracy among low-performing learners. The study contributes to classroom-based evidence on remedial mathematics instruction by demonstrating how diagnostic assessment can be translated into targeted instructional support. However, given the small sample size and single-school setting, further studies with larger samples, longitudinal designs, and multi-site implementation are recommended.

Citation

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I. INTRODUCTION

Education is essential to the development of individuals and societies alike as it allows individuals to reach their full potential. Despite many efforts to improve education across the world, many students are still struggling with their education and exhibiting

learning gaps. These learning gaps can pose challenges for students in their education, potentially leading to struggles in their education, a lack of self-esteem, and even potentially lead to them dropping out of school altogether.

Out of all the students in the world, learning poverty remains a significant problem. According to UNESCO (2023), over 70% of children in low and middle-income countries are struggling to read and understand a simple story by the end of primary education. The World Bank (2022) explains this issue as “learning poverty” which is the inability of a child to learn basic skills in reading and math despite years of attending school. Some of the causes of this problem include the inability of the curriculum to be changed, overcrowded classrooms, and the lack of academic support given to students who struggle with the education that is provided in their classrooms.

The same problem exists within the Philippines. According to the results of the 2018 PISA tests, Filipino students ranked last in the nation for reading and near last in mathematics and science compared to other countries participating in the study (OECD, 2019). Additionally, reports from the Department of Education (DepEd) of the Philippines indicate that over 70% of students in Grade 6 demonstrated an “beginning” level of knowledge in their education subjects during the 2022 National Achievement Tests (DepEd, 2022).

A variety of studies into the education of Filipino students have shown that many of these issues are the result of a lack of quality education for these students. Authors Albert, Santos, and Vizmanos (2019) indicated that many Filipino students were unable to learn necessary skills in how many education years, which created challenges for them in their education. Furthermore, another study by Javier and Albelda (2021) discovered that most public schools within the Philippines do not offer academic support and coaching for students who struggle with their education subjects.

The challenges of the Philippines’ education system have been worsened by the COVID-19 pandemic. The shift towards remote learning for students has led to a lack of interaction between the teachers and students, leading to challenges for teachers to manage each student’s education. Furthermore, according to a study completed by UNICEF Philippines (2021), the shift in learning methods for students during the pandemic had a significant negative impact on students who struggle with their education.

Furthermore, within Dangdangla Elementary School, many teachers have recognized that there are significant learning challenges with many of the students within their schools. These students struggle to understand the lessons that are taught to them. Additionally, the summative assessments that are provided to students are not used in any way to inform the teachers of the academic challenges of their students. Students who struggle with their education are often advanced in their education levels without receiving the academic support that they require to succeed.

Learning gaps are the differences between the knowledge that students are expected to learn compared to the knowledge that they understand from the education that is given to them (Conley, 2014). These learning gaps can be recognized through summative assessments. However, there is a lack of follow-up education for these students who struggle with their education. As noted by Tomlinson (2017), there needs to be differentiation within education systems between the students in the classrooms. However, without implementing interventions following education assessments, such differentiation cannot be achieved by teachers.

An innovative concept to address these issues is the implementation of academic coaching methods after education assessments. Academic coaching is a method of educating students according to their individual challenges to allow them to overcome those challenges. According to Gallimore and Tharp (2004), coaching students according to their individual learning challenges allows for an increase in the metacognitive skills and the independence of the students to learn the knowledge that they require of themselves. This coaching method is effective when applied after education assessments to provide teachers with a method of providing education to these students as per their assessed results.

The research that conducted on this topic investigated how the use of academic coaching for students after their education assessments can enhance the educational performance of students who struggle with their education. By discovering the specific skills that students struggle with and coaching them accordingly, their educational performance can be enhanced for them.

The result of this research has a significant impact upon elementary education in the Philippines. Furthermore, teachers have methods to enhance their students’ educational performance through the use of academic coaching. Thus, this study aimed to provide solutions to the challenges of the education system for the Philippines and to ensure that all students are provided with the support that they require to overcome their educational challenges.

Theoretical Framework of the Study

The following are the educational theories that utilized in this study to justify the use of post-assessment academic coaching strategies for low-performing pupils in enhancing their Mathematics performance.

Assessment for Learning (AfL) is the theory that utilized to justify the use of post-assessment academic coaching strategies for low-performing pupils. AfL is the use of assessment results to improve the teaching and learning process of students. Black and Wiliam (1998) state that assessment can be used effectively in the classroom when teachers use the results of the assessments to guide the teaching and implementing appropriate interventions. The pre-test results of the pupils will help identify the gaps in their knowledge of mathematics concepts. Based on these results, the academic coaching strategies will be developed to help the pupils master these concepts.

Tomlinson’s Differentiated Instruction Theory allows for instruction to be tailored to the students according to their levels of knowledge or performance in a subject area (Tomlinson, 2017). Based on the results of the pre-test, different coaching strategies utilized to address the knowledge gaps of each pupil. This strategy ensured that the strategies used with low-performing pupils are tailored to their level of understanding of the mathematics concepts.

Skinner’s Behaviorism Theory suggests that learning a skill is strengthened through the repetition of the skill or activity in which the pupil is learning (Skinner, 1953). The drill and practice exercises that utilized with pupils provided the repetitions necessary for pupils to learn the skills and concepts required of them in grade five Mathematics curriculum.

Vygotsky’s Social Constructivism Theory suggests that learning is a process of interacting and collaborating with others to learn new concepts (Vygotsky, 1978). By utilizing group work and drills within the academic coaching strategies, pupils benefited from this theory as they learn together with their classmates. Through collaborating and working together, pupils abled to learn the concepts required of them in grade five Mathematics curriculum.

Bloom’s Mastery Learning Theory suggests that learners can achieve mastery of a skill through providing them with the appropriate amount of time, teaching, feedback, and learning opportunities (Bloom, 1968). By utilizing individual practice exercises in the post-assessment academic coaching strategies, pupils given the opportunities to master the mathematics concepts according to their own understanding and learning abilities.

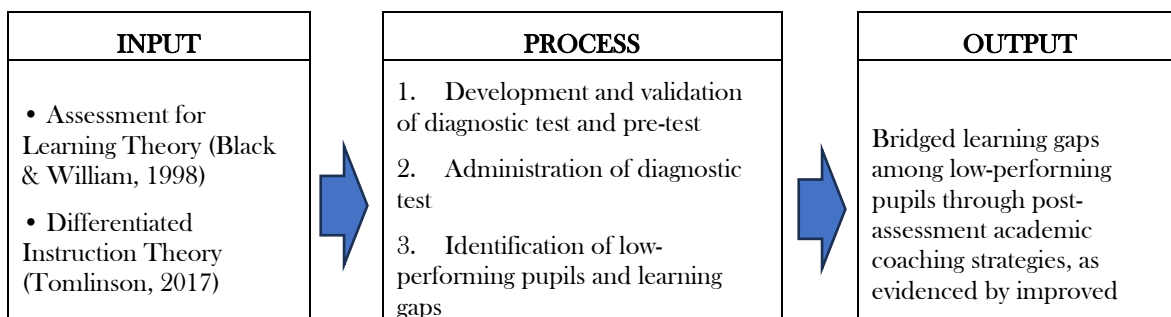
In the use of these theories, the justification for post-assessment academic coaching allowed the identified learning gaps of low-performing pupils to be bridged, thus improving their performance in the Mathematics subject area.

Conceptual Framework

This study adopts the Input-Process-Output (I-P-O) Model, which presents the logical sequence of variables involved in examining how post-assessment academic coaching strategies can bridge learning gaps and improve the Mathematics performance of low-performing pupils. The I-P-O model explains how the inputs of the study are systematically processed through academic interventions to achieve the desired learning outcomes.

The inputs of the study include the theories and concepts that support the research, namely Assessment for Learning Theory (Black & Wiliam, 1998), Differentiated Instruction Theory (Tomlinson, 2017), Behaviorism Theory (Skinner, 1953), Social Constructivism Theory (Vygotsky, 1978), and Mastery Learning Theory (Bloom, 1968). These theories provide the foundation for implementing post-assessment academic coaching strategies that address pupils’ learning gaps in Mathematics. Other inputs include the Grade 5 Mathematics Quarter 1 Most Essential Learning Competencies (MELCs), the pupils’ pre-test results, which served as assessment evidence, instructional materials, and the academic coaching strategies implemented in the study.

The process begins with the administration of a diagnostic test to identify low-performing pupils and determine learning gaps, followed by a pre-test to establish baseline performance. Based on the assessment results, post-assessment academic coaching strategies were implemented, namely: (a) Drill, Practice Exercises, and Remedial Sessions, (b) Group Work / Group Drills, and (c) Individual Practice Exercises. Coaching sessions were conducted using learning materials aligned with the Quarter 1 competencies. Pupils’ progress was monitored throughout the intervention through guided practice, scaffolding, formative assessment, and feedback. After the coaching period, a post-test was administered to measure pupils’ Mathematics performance after the intervention. The gathered data were organized and analyzed using mean, paired sample t-test, and ANCOVA.



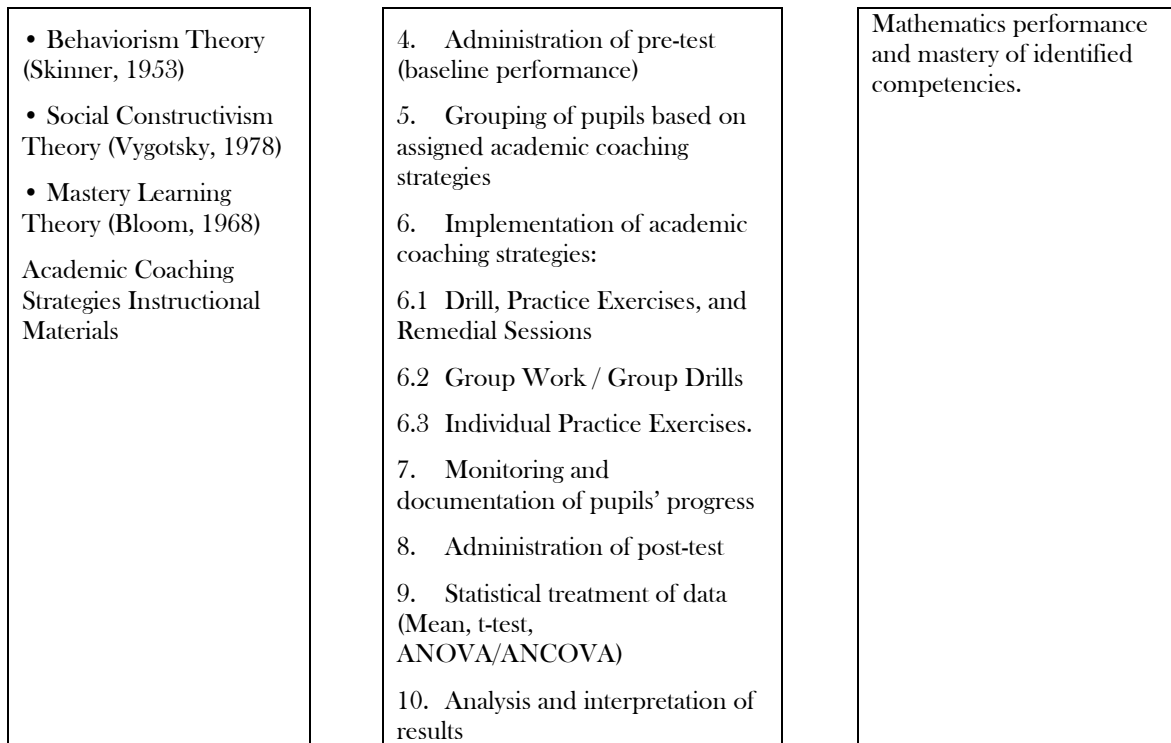


Figure 1. The Research Paradigm

The expected output of the study is the bridging of learning gaps among low-performing pupils through post-assessment academic coaching strategies. This is evidenced by improved Mathematics performance, higher post-test scores, positive gain scores, and increased mastery of identified competencies. Furthermore, the study also aims to determine whether there is a significant difference in the performance of the pupils before and after the application of the coaching strategies within each group of pupils, as well as whether there is a significant difference in the effectiveness of the three coaching strategies in improving the Mathematics performance of the taught pupils. Through the I-P-O model, the study intends to show that the assessment and differentiation based coaching strategies, informed by established learning theories, can help to bridge the learning gap of pupils with low areas of mathematical performance.

Statement of the Problem

This study aims to determine the effectiveness of three post-assessment academic coaching strategies in improving the Mathematics performance of low-performing pupils.

Specifically, the study seeks to answer the following questions:

1. What is the level of Mathematics performance of all the pupils before the implementation of each coaching strategy?
2. What is the level of Mathematics performance of low-performing pupils after the implementation of each coaching strategy?
3. Is there a significant difference between the mathematics pre-test and post-test performance of the pupils exposed to the three academic coaching strategies?
4. Is there a significant difference between and among the three academic coaching strategies in improving Mathematics performance?

Hypotheses

The following hypotheses were tested in this study at the 0.05 level of significance.

1. There is a significant difference between the pre-test and post-test Mathematics performance of the pupils exposed to the three academic coaching strategies.
2. There is a significant difference among the three academic coaching strategies in improving the Mathematics performance of the pupils.

II. METHODOLOGY

This chapter explained the methods and procedures followed in the study. It presented the research design, the process of selecting participants, the instruments used, the steps in data gathering, and the statistical techniques applied in analyzing the results.

In addition, this chapter described how the academic coaching strategies were implemented and how the pupils' Mathematics performance was measured before and after the intervention. The purpose of this chapter was to provide a clear and organized explanation of the methodology used in determining the effectiveness of the three coaching strategies in improving pupils' Mathematics achievement.

Research Design

This study utilized a quasi-experimental research design employing a pre-test and post-test approach to determine the effectiveness of post-assessment academic coaching strategies in improving the Mathematics performance of low-performing pupils. Quasi-experimental research was appropriate for this study since the participants were grouped based on existing classroom conditions and were not randomly assigned.

The study involved three groups of pupils (Groups A, B, and C), each exposed to a different academic coaching strategy after the pre-test. Specifically, Group A underwent Drills, Practice Exercises, and Remedial Sessions, Group B received Group Work and Group Drills, and Group C was provided with Individual Practice Exercises. The pre-test served as the initial benchmark for pupils' Mathematics performance before the interventions, while the post-test measured pupils' performance after exposure to the coaching strategies.

In order to determine whether there was a significant improvement in the performance of the pupils in each group, a t-test was performed on the pre- and post-test scores of each group. Moreover, an Analysis of Covariance (ANCOVA) would be used to determine whether there was a significant difference among the three groups. This research design would allow the study to determine the effectiveness of each coaching strategy and the comparative effectiveness of each strategy in bridging the learning gaps of pupils in the subject of Mathematics.

Population and Locale of the Study

This study was conducted at Dangdangla Elementary School, a public school under the Schools Division of Abra. The school catered to learners with varying levels of academic performance, including those who faced significant challenges in mastering key Mathematics competencies.

The research focused on Grade 5 pupils, with one section comprising 24 students. A researcher-made pre-test in Mathematics was administered to determine the pupils' current level of proficiency in the four fundamental operations. Pupils who scored below 75% were identified as low-performing and included as participants in the study.

These identified pupils were then divided into three equal groups, with each group receiving a specific academic coaching strategy targeting different competencies such as Reading, Writing, and Representing Whole Numbers; Comparing, Ordering, and Rounding Whole Numbers; and Estimation and Problem Solving on Whole Numbers.

Table 1. The Respondents

Respondents	Academic Coaching Strategy	Assigned Competency	No. of Pupils
Group A	Drill, Practice Exercises, and Remedial	-Reads and writes whole numbers up to millions -Identifies the place value and value of a digit in a number -Writes whole numbers in expanded form	8
Group B	Group Work / Group Drills	-Compares whole numbers using $>$, $<$, $=$ -Arranges whole numbers in increasing and decreasing order	8

		-Rounds off whole numbers to the nearest specified place value	
Group C	Individual Practice Exercises	-Solves routine problems involving addition and subtraction of whole numbers -Solves routine and non-routine problems involving multiplication of whole numbers -Solves multi-step word problems involving division of whole numbers	8

Data Gathering Instrument

The main research tool in this study was a Mathematics test developed by the researcher to assess the performance of low-performing pupils before and after the implementation of academic coaching strategies. The test that was used as both the pre-test and post-test covered the following important skills regarding whole numbers: skills related to the Most Essential Learning Competencies (MELCs) for Grade 5.

The skills that were specifically measured by the test included the following: skills related to reading, writing, and representing whole numbers; skills related to comparing, ordering, and rounding whole numbers; skills related to estimation; and skills related to problem solving with whole numbers. The test was constructed in a way that measured students’ knowledge of each of these skills.

There were 20 items on the test, and they gradually increased in difficulty to determine the mastery of these skills by the pupils. The pre-test was administered prior to the implementation of the coaching strategies to determine the baseline knowledge of the pupils of these mathematical skills, and the post-test was administered after implementation of the coaching strategies to determine the improvement of the pupils’ skills with these topics.

Data Gathering Procedure

Here is the step-by-step procedure for conducting the study:

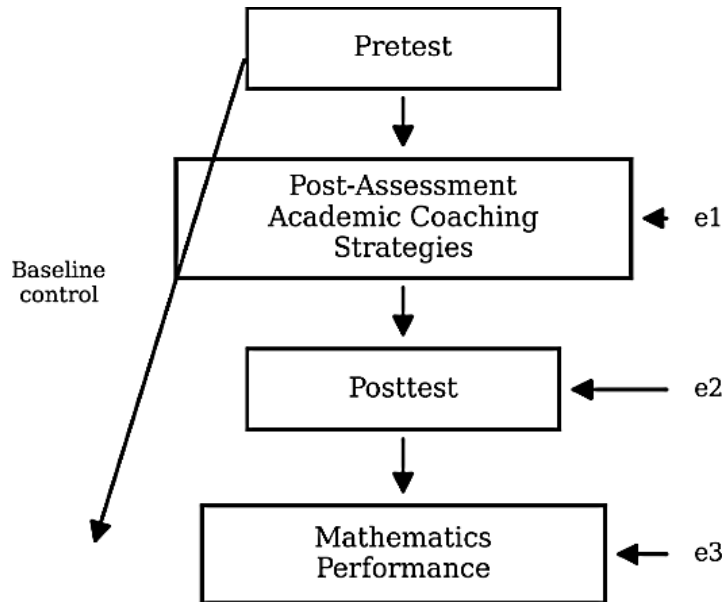


Figure 2. Flow Chart of the Data Gathering Procedure

The process for conducting the study was systematic in nature while ensuring that ethical standards were adhered to throughout the study. Permission was obtained from the Schools Division Office, the school head, and all other authorities in the school coordination with the Grade 5 teacher was also established. An orientation was conducted for the pupils and their parents prior to the start of the study, and informed consent from the parents and assent from the pupils were obtained. This ensured that the pupils volunteered to participate in the study, that their responses would remain confidential, and that they could withdraw from the study at any time.

A diagnostic test was administered to the pupils to determine which pupils were experiencing difficulties in their mathematics subjects. No harm was to be done to the pupils as a result of the administration of this test. Based on the results of this test, pupils were selected to participate in the study in a fair and non-discriminatory manner. A pre-test was administered to each pupil to determine their level of mathematics knowledge prior to the intervention. The data from this pre-test was also treated confidentially and was to be used for research purposes only.

Each group of pupils was formed based on the strategies that would be employed to teach the pupils within each group. This ensured fairness in the teaching of the concepts to each pupil. Each of the three interventions (drill, practice exercises and remedial sessions, group work and group drills, and individual practice exercises) were provided to each group of pupils over a specific period of time under similar learning conditions. During this intervention, the researcher monitored the pupils' knowledge of the mathematics concepts while ensuring that no stress or pressure was placed upon the pupils.

Validation of the Instrument

The test was validated by three professionals: a Master Teacher, a school administrator, and the research coordinator. These three individuals were to determine whether the questions on the test were aligned with the curriculum being taught to pupils in Grade 5, and whether the questions were generally suitable for pupils of that age.

The Content Validity Index (CVI) was calculated to determine whether the test was valid. A score of 0.80 or higher was required to indicate that the test was valid and could be used in the research study.

A pilot test was administered to Grade 6 pupils within the same school who were not to participate in the research study. These pupils had already learned the subjects that were to be taught within the intervention. The scores from the pilot test were analyzed using the KR-20 (Kuder-Richardson Formula 20) statistic, which is used for analyzing questions that have yes-or-no responses as answers. A score of 0.70 or higher for the KR-20 value would indicate that the test was reliable for the study being conducted.

Statistical Treatment of the Data

The data collected during this study were analyzed using appropriate statistical tools to determine the effectiveness of the three coaching strategies used on the pupils' Mathematics performance.

1. Mean. The mean was used to describe the level of pupils' performance in the pretest and posttest to determine their performance using the given ratings.
2. Paired Sample t-test. A paired sample t-test was used to determine the significant difference in the performance of the groups before and after the implementation of the coaching strategies.
3. Analysis of Covariance (ANCOVA). Analysis of covariance was used to determine the significant difference in the performance of the groups based on the different coaching strategies used.
4. Post Hoc Test (Pairwise Comparison). The post hoc test was used to determine the significant difference between the groups that exhibited a significant ANCOVA test.

All the statistical tools used in this research study had a significance value of 0.05.

RESULT AND DISCUSSION

The following is a presentation, analysis, and interpretation of the data that was collected regarding the Mathematics performance of each of the low-performing pupils both before and after the implementation of the various coaching strategies.

The performance of the pupils before and after the implementation of the coaching strategies will be presented in this section. Furthermore, there will also be provided analyses of the mean gains and significance of the performance of each of the pupils both prior to and after the implementation of each of the coaching strategies. Finally, the findings will be discussed in relation to the research questions posed for this research study, as well as in relation to the results of the t-test and ANCOVA tests performed to determine the effectiveness of each of the coaching strategies.

Problem 1. What is the level of Mathematics performance of all the pupils before the implementation of each coaching strategy?

Before implementing each of the coaching strategies, it is important to determine the level of Mathematics performance that each of the pupils had prior to the implementation of those strategies. As such, Table 1a presents the performance of each pupil prior to the implementation of the Drill, Practice Exercises, and Remedial Coaching Strategy.

Table 1a presents the pre-test performance of pupils in Mathematics prior to the implementation of the Drill, Practice Exercises, and Remedial Coaching Strategy. The performance of each pupil prior to the implementation of the coaching strategy indicated that the pupils generally had low levels of performance in their subject prior to the implementation of the coaching strategy.

Table 1a. Level of Mathematics Performance Before the Implementation of the Drill, Practice Exercise and Remedial Coaching Strategy

Coaching Strategy	Learner	Pretest Performance	Descriptive Rating
Drill, Practice Exercises, and Remedial	A	72.00	Did Not Meet Expectations
	B	73.00	Did Not Meet Expectations
	C	71.00	Did Not Meet Expectations
	D	72.00	Did Not Meet Expectations
	E	73.00	Did Not Meet Expectations
	F	72.00	Did Not Meet Expectations
	G	71.00	Did Not Meet Expectations
	H	72.00	Did Not Meet Expectations
	Overall	72.00	Did Not Meet Expectations

Scales:

Mean Ranges	Description Rating
90 - 100	Outstanding (O)
85 - 89	Very Satisfactory (VS)
80 - 84	Satisfactory (S)
75 - 79	Fairly Satisfactory (FS)
Below 75	Did Not Meet Expectations (DNME)

The pupils obtained scores ranging from 71.00 to 73.00 with an average of 72.00, which indicates the pupils did not meet the expectations. The pupils also displayed poor performance in reading and writing whole numbers up to millions. Furthermore, the pupils also exhibited poor performance in identifying the place value and value of digits as well as expressing numbers in expanded form.

The results of the study indicate that the learners lack an adequate understanding of the topics discussed. Based on the research findings, it is evident that the pupils have similar levels of competency in these topics prior to the intervention. Therefore, it can be said that these pupils have yet to develop the skills or competency required in these topics, hence the need for drill and practice to be implemented into their mathematics curriculum.

Based on the research findings, it is evident that the learners have an insufficient understanding and skills in the topics that were identified. These topics include the ability to read and write whole numbers up to millions, identifying the place value and value of digits, as well as being able to express numbers in expanded form. This indicates a gap in the learners' knowledge in these topics, hence the need to implement appropriate interventions to address such gaps in their education.

Given these findings, it becomes necessary to implement the coaching strategy to address the learning gaps that exist in these pupils' mathematical competencies. Before the implementation of the group work and group drill coaching strategy, it is important to determine the level of performance of these pupils in Mathematics. This will help to establish a baseline knowledge from which the impact of the intervention can be measured. In this regard, Table 1b presents the pretest performance of the learners under the Group Work and Group Drill Coaching Strategy, along with their corresponding descriptive ratings based on the given scale.

Table 1b. Level of Mathematics Performance Before the Implementation of the Group Work and Group Drill Coaching Strategy

Coaching Strategy	Learner	Pretest Performance	Descriptive Rating
Group Work / Group Drills	I	71.00	Did not meet expectations
	J	72.00	Did not meet expectations

K	71.00	Did not meet expectations
L	70.00	Did not meet expectations
M	72.00	Did not meet expectations
N	71.00	Did not meet expectations
O	72.00	Did not meet expectations
P	71.00	Did not meet expectations
Overall	71.25	Did not meet expectations

Scales:

<u>Mean Ranges</u>	<u>Description Rating</u>
90 - 100	Outstanding (O)
85 - 89	Very Satisfactory (VS)
80 - 84	Satisfactory (S)
75 - 79	Fairly Satisfactory (FS)
Below 75	Did Not Meet Expectations (DNME)

Table 1b presents the level of the Mathematics performance of the pupils based on their scores in the pre-test that was conducted before the implementation of the Group Work and Group Drill Coaching Strategy. The results of this pre-test indicated that pupils generally have low academic performance in Mathematics subject area before the implementation of the Coaching Strategy.

The pupils recorded test scores ranging from 70.00 to 72.00 before the implementation of the Coaching Strategy, which equated to an average score of 71.25, which indicates that the pupils as a whole *Did Not Meet Expectations* in the test’s competencies. The competencies included the ability to compare whole numbers using symbols (>, <, =), arranging whole numbers in either increasing or decreasing order, and rounding whole numbers to a specified place value.

The pupils had difficulties meeting the requirements of the test in comparing numbers using symbols, arranging numbers in specific order, and rounding numbers to a specific place value. Such abilities require analytical thinking skills, which the pupils did not have an established competency in before implementing the Coaching Strategy.

Based on the results of this pre-test, the learners in each of the subject areas generally Did Not Meet Expectations. Thus, implementing coaching strategies into these subject areas would enable the pupils to better learn the material and increase their overall mathematics performance.

Therefore, as a result of this pre-test, the pupils exhibited a level of mathematics competency below that which was expected of them before the implementation of the Group Work and Group Drill Coaching Strategy. Thus, the Coaching Strategy would be beneficial in addressing these deficiencies in their mathematics competencies and, ultimately, improving their academic performance in the subject area.

Prior to the implementation of the Individual Practice Exercises Coaching Strategy, it is first necessary to determine the level of academic performance of each of the learners in their subject area of Mathematics. As a means of determining their level of competency prior to implementation of the Coaching Strategy, Table 1c presents the performance of each of the learners in their pre-test for Individual Practice Exercises Coaching Strategy, as well as the descriptions for each of those ratings.

Table 1c. Level of Mathematics Performance Before the Implementation of the Individual Practice Exercises Coaching Strategy

Coaching Strategy	Learner	Pretest Performance	Descriptive Rating
Individual Practice Exercises	Q	67.00	Did not meet expectations
	R	66.00	Did not meet expectations
	S	67.00	Did not meet expectations

T	68.00	Did not meet expectations
U	67.00	Did not meet expectations
V	68.00	Did not meet expectations
W	66.00	Did not meet expectations
X	67.00	Did not meet expectations
Overall	67.00	Did not meet expectations

Scales:

<u>Mean Ranges</u>	<u>Description Rating</u>
90 - 100	Outstanding (O)
85 - 89	Very Satisfactory (VS)
80 - 84	Satisfactory (S)
75 - 79	Fairly Satisfactory (FS)
Below 75	Did Not Meet Expectations (DNME)

Table 1c presents the level of Mathematics performance of the pupils based on their scores in the Mathematics pre-test. The results of the pre-test indicate that pupils exhibited low academic performance in the subject area of Mathematics prior to the implementation of the strategy.

The pupils obtained scores within the range of 66.00 to 68.00 in the pre-test, indicating that their mean score is 67.00 which is the descriptive rating of the pupils' did not meet expectations in the competency area of Mathematics as coached by the instructors. The pupils indicated a low level of performance in competencies related to solving whole number problems independently.

The pupils exhibited difficulties in applying the mathematical concepts that were taught to them independently of the other pupils within the classroom. The pupils all exhibited similar levels of skills in relation to the Mathematics competencies that were assigned to be mastered during this period.

The descriptive rating of the pupils' performance in relation to the competency area of Mathematics as coached by the teachers indicates that the pupils did not meet the expectations of the required level of proficiency in Mathematics prior to implementing the coaching strategies. The pupils' mean score of 67.00 falls within the range of "Below 75" which indicates that the pupils have not mastered the Mathematics competencies that were required of pupils of their level.

The implication of these results is that the Mathematical skills of the pupils were below the expectations for pupils of their level prior to the implementation of the individual practice exercises.

Following the presentation of the performance of each group of pupils on the competencies prior to the implementation of the coaching strategies, it is important to provide a summary of the overall performance of the pupils in relation to Mathematics prior to the implementation of the different coaching strategies. Table 1d presents a summary of the mean and descriptive ratings of pupils in Group A, Group B and Group C prior to the implementation of the coaching strategies for Mathematics.

Table 1d. Summary on the Level of Mathematics Performance Before the Implementation of the Coaching Strategies

Group	Academic Coaching Strategy	Mean Rating	Descriptive Rating
Group A	Drill, Practice Exercises, and Remedial	72.00	Did not Meet Expectations
Group B	Group Work / Group Drills	71.25	Did not Meet Expectations
Group C	Individual Practice Exercises	67.00	Did not Meet Expectations
	Overall	70.08	Did not Meet Expectations

Scales:

<u>Mean Ranges</u>	<u>Description Rating</u>
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90 - 100	Outstanding (O)
85 - 89	Very Satisfactory (VS)
80 - 84	Satisfactory (S)
75 - 79	Fairly Satisfactory (FS)
Below 75	Did Not Meet Expectations (DNME)

Table 1d presents a summary of the level of Mathematics performance of the pupils before the implementation of the different academic coaching strategies. The pupils’ performance levels prior to the implementation of the coaching strategies were all categorized as “Did Not Meet Expectations”.

Group A, which was coached using the Drill, Practice Exercises, and Remedial Coaching Strategy, had the highest mean score of 72.00. Group B, which was coached using the Group Work/Group Drills Strategy, had a mean score of 71.25. Lastly, Group C, which was coached using the Individual Practice Exercises Strategy, had the lowest mean score of 67.00. Thus, all three groups’ performance levels were categorized as “Did Not Meet Expectations”.

The performance level of all groups before the implementation of the coaching strategies was categorized as “*Did Not Meet Expectations*”. The mean performance scores for each group, as well as the overall mean score for all pupils, were below 75. Thus, these pupils had not mastered the competencies required for their grade level in Mathematics prior to the coaching intervention.

The overall mean score of 70.08 confirms the level of Mathematics performance of these pupils before the implementation of the coaching strategies. Thus, these pupils’ performance level was below the expected proficiency level before the implementation of the coaching strategies. Such findings reveal the learning gaps of these pupils in the subject area, necessitating the implementation of appropriate interventions to improve their performance in Mathematics.

Problem 2: What is the level of Mathematics performance of low-performing pupils after the implementation of each coaching strategy?

After the implementation of the Drill, Practice Exercises, and Remedial Coaching Strategy, the performance of the pupils in Mathematics had to be assessed to determine if the coaching intervention had any effect on the mathematics learning of those pupils. Table 2a presents the test performance of the pupils who were coached using this strategy, as well as the descriptive ratings of their performance based on the established rating scale for Mathematics performance.

Table 2a presents the level of Mathematics performance of low-performing pupils after the implementation of the Drill, Practice Exercises, and Remedial Coaching Strategy. The table indicates a marked improvement in the academic performance of the pupils following the implementation of the strategy.

Table 2a. Level of Mathematics Performance After the Implementation of the Drill, Practice Exercises, and Remedial Coaching Strategy

Coaching Strategy	Learner	Pretest Performance	Descriptive Rating
Drill, Practice Exercises, and Remedial	A	81.00	Satisfactory
	B	78.00	Fairly satisfactory
	C	81.00	Satisfactory
	D	84.00	Satisfactory
	E	81.00	Satisfactory
	F	84.00	Satisfactory
	G	78.00	Fairly satisfactory
	H	81.00	Satisfactory
	Overall	81.00	Satisfactory

Scales:

<u>Mean Ranges</u>	<u>Description Rating</u>
--------------------	---------------------------

90 - 100	Outstanding (O)
85 - 89	Very Satisfactory (VS)
80 - 84	Satisfactory (S)
75 - 79	Fairly Satisfactory (FS)
Below 75	Did Not Meet Expectations (DNME)

The pupils scored between 78.00 and 84.00 in Mathematics, with an overall mean of 81.00, which represents Satisfactory performance. The majority of pupils earned a Satisfactory rating, with a few earning a Fairly Satisfactory classification.

The Satisfactory rating indicates that the learners performed as expected within their Mathematics curriculum. The mean score of 81.00 indicates that the learners mastered the concepts being taught within their Mathematics curriculum.

All pupils, including B and G, earned a Satisfactory classification in their Mathematics test. This indicates an improvement in the pupils' performance in comparison to their performance on the pre-test, and indicates that the pupils have gained the competencies required for their Mathematics course.

The findings of this study indicate that the Drill, Practice Exercises, and Remedial Coaching Strategy was effective in enhancing the mathematical performance of the learners that initially had poor mathematical skills.

The findings presented in this study indicate that after implementing the drill, practice, and remedial coaching strategy, the performance of the pupils in mathematics improved. The fact that the mean score increased and the descriptive rating changed from the "Did Not Meet Expectations" to the "Satisfactory" classification indicates that the learners gained an improved understanding and skills in the area of mathematics.

Following the implementation of the Group Work / Group Drills Coaching Strategy, it is essential to evaluate learners' Mathematics performance to determine the intervention's effectiveness. This assessment provides insight into changes in learners' performance after applying the strategy. In this regard, Table 2b presents the posttest performance of learners under the Group Work/Group Drills Coaching Strategy, along with their corresponding descriptive ratings based on the established scale.

Table 2b. Level of Mathematics Performance After the Implementation of the Group Work / Group Drills Coaching Strategy

Coaching Strategy	Learner	Pretest Performance	Descriptive Rating
Group Work / Group Drills	I	78.00	Fairly satisfactory
	J	75.00	Fairly satisfactory
	K	78.00	Fairly satisfactory
	L	75.00	Fairly satisfactory
	M	75.00	Fairly satisfactory
	N	75.00	Fairly satisfactory
	O	78.00	Fairly satisfactory
	P	78.00	Fairly satisfactory
	Overall	76.50	Fairly Satisfactory

Scales:

Mean Ranges	Description Rating
90 - 100	Outstanding (O)
85 - 89	Very Satisfactory (VS)
80 - 84	Satisfactory (S)
75 - 79	Fairly Satisfactory (FS)
Below 75	Did Not Meet Expectations (DNME)

Table 2b presents the level of Mathematics performance of low-performing pupils after the implementation of the Group Work and Group Drills Coaching Strategy. The results indicate an improvement in pupils’ performance compared to their pre-test results, although the level of achievement remained moderate.

As reflected in the data, the pupils obtained scores ranging from 75.00 to 78.00, with an overall mean of 76.50, corresponding to the descriptive rating of Fairly Satisfactory. Notably, all pupils were assigned the same descriptive rating, indicating consistency in their performance after the intervention.

The descriptor “*Fairly Satisfactory*” indicates that the learners’ performance in Mathematics has both improved as a result of the use of the coaching strategy, but has not yet reached the expected level of proficiency in the subject area. The overall mean score of 76.50 falls within the range of 75-79.

The findings suggest that the group-based coaching strategy contributed to an increase in pupils’ mathematical performance. However, the results also imply that while improvements were observed, the level of mastery did not yet reach a satisfactory level. This indicates the need to further reinforce and enhance instructional strategies to achieve higher learning outcomes in Mathematics.

After implementing the Individual Practice Exercises Coaching Strategy, it is important to assess learners’ Mathematics performance to determine the intervention's effect. This evaluation provides evidence of any changes in learners’ achievement following the strategy's application. In this context, Table 2c presents the posttest performance of the learners under the Individual Practice Exercises Coaching Strategy, along with their corresponding descriptive ratings based on the established scale.

Table 2c presents the level of Mathematics performance of low-performing pupils after the implementation of the Individual Practice Exercises Coaching Strategy. The results indicate an improvement in pupils’ academic performance compared to their pre-test scores, although the level of achievement remained varied.

Table 2c. Level of Mathematics Performance After the Implementation of the Individual Practice Exercises Coaching Strategy

Coaching Strategy	Learner	Pretest Performance	Descriptive Rating
Individual Practice Exercises	Q	75.00	Fairly satisfactory
	R	78.00	Fairly satisfactory
	S	73.00	Did not meet expectations
	T	75.00	Fairly satisfactory
	U	78.00	Fairly satisfactory
	V	75.00	Fairly satisfactory
	W	73.00	Did not meet expectations
	X	75.00	Fairly satisfactory
Overall		75.25	Fairly Satisfactory

Scales:

<u>Mean Ranges</u>	<u>Description Rating</u>
90 - 100	Outstanding (O)
85 - 89	Very Satisfactory (VS)
80 - 84	Satisfactory (S)
75 - 79	Fairly Satisfactory (FS)
Below 75	Did Not Meet Expectations (DNME)

As indicated in the table above, the pupils obtained scores ranging from 73.00 to 78.00 with an average of 75.25, which falls within the range for Fairly Satisfactory results. The majority of the pupils received a classification of “Fairly Satisfactory”; however, there were a few pupils who earned a classification of “Did Not Meet Expectations”.

The rating of “Fairly Satisfactory” indicates that while the learners exhibited an improvement in their Mathematics course performance after the implementation of the coaching strategy, their scores were still not meeting the expected level of performance. Scores of 75.25 indicate that the learners have some understanding and skills in the topics that were taught within the course.

These results show that while the learners experienced an improvement in their Mathematics course performance, there were still a few who did not meet the expectations

for that course. Thus, while the implementation of the Individual Practice Exercises coaching strategy led to an overall improvement in the pupils’ performance in their Mathematics course, there are still some learning gaps among that group of pupils.

After presenting the posttest performance of each group, it is necessary to provide a summary of the learners’ overall Mathematics performance following the implementation of the different academic coaching strategies. This allows for a clearer comparison of the outcomes across the groups. In this regard, Table 2d presents the summary of the mean ratings and descriptive ratings of Groups A, B, and C after the implementation of the coaching strategies.

Table 2d. Summary on the Level of Mathematics Performance After the Implementation of the Coaching Strategies

Group	Academic Coaching Strategy	Mean Rating	Descriptive Rating
Group A	Drill, Practice Exercises, and Remedial	81.00	Satisfactory
Group B	Group Work / Group Drills	76.50	Fairly Satisfactory
Group C	Individual Practice Exercises	75.25	Fairly Satisfactory
	Overall	77.58	Fairly Satisfactory

Scales:

<u>Mean Ranges</u>	<u>Description Rating</u>
90 - 100	Outstanding (O)
85 - 89	Very Satisfactory (VS)
80 - 84	Satisfactory (S)
75 - 79	Fairly Satisfactory (FS)
Below 75	Did Not Meet Expectations (DNME)

Table 2d presents the summary of the level of Mathematics performance of low-performing pupils after the implementation of the different academic coaching strategies. The results indicate that all groups improved their performance following the interventions.

Among the groups, Group A, which used the Drill, Practice Exercises, and Remedial Coaching Strategy, obtained the highest mean score of 81.00, indicating Satisfactory performance. This was followed by Group B under the Group Work/Group

Drills Strategy with a mean score of 76.50, and Group C, which employed the Individual Practice Exercises Strategy, with a mean score of 75.25. Both Group B and Group C were described as Fairly Satisfactory.

The overall mean score of 77.58, classified as Fairly Satisfactory, indicates a general improvement in pupils’ Mathematics performance after the implementation of the coaching strategies. The findings further suggest that among the three interventions, the Drill, Practice Exercises, and Remedial Coaching Strategy were the most effective in enhancing pupils’ performance, as evidenced by the highest mean score and improved descriptive rating.

Problem 3: Is there a significant difference between the mathematics pretest and posttest performance of the students exposed to the three academic coaching strategies?

After determining the learners’ pretest and posttest performance, it was important to find out if there was a significant difference in their Mathematics performance after using the different academic coaching strategies. This helped determine if the interventions were effective. Table 3a shows the comparison of pretest and posttest results, including the mean gains, t-values, and probability values for each coaching strategy.

Table 3a presents the significant difference between the Mathematics pretest and posttest performance of students exposed to the three academic coaching strategies. The results reveal that all groups showed an increase in their mean scores after the implementation of the interventions.

Table 3a. Significant Difference between the Mathematics Performance of Students Exposed to Academic Coaching Strategies

Coaching Strategy	Post Test Performance	Pre Test Performance	Performance Gain	t-value	t-prob
<i>Drill, Practice Exercises, and Remedial</i>	81.00	72.00	9.00	10.65	< .001
<i>Group Work / Group Drills</i>	76.50	71.25	5.25	8.47	< .001
<i>Individual Practice Exercises</i>	75.25	67.00	8.25	11.00	< .001
Overall	77.58	70.08	7.50	14.11	< .001

For Group A (Drill, Practice Exercises, and Remedial), the mean score increased from 72.00 in the pretest to 81.00 in the posttest, with a mean gain of 9.00. The computed t-value of 10.65, with a p-value of < .001, indicates a statistically significant difference between pretest and posttest performance.

Similarly, Group B (Group Work / Group Drills) showed an increase in mean score from 71.25 to 76.50, with a mean gain of 5.25. The obtained t-value of 8.47 and p-value of < .001 also indicate a significant difference in the pupils' performance before and after the intervention.

For Group C (Individual Practice Exercises), the mean score improved from 67.00 to 75.25, yielding a mean gain of 8.25. The computed t-value of 11.00, with a p-value of < .001, further confirms a statistically significant improvement.

Overall, the combined mean scores increased from 70.08 in the pretest to 77.58 in the posttest, with a mean gain of 7.50. The overall t-value of 14.11 and the p-value of < .001 indicate a highly significant difference in the pupils' Mathematics performance before and after the implementation of the coaching strategies.

The findings of this study are supported by several related studies, which confirmed the effectiveness of academic interventions in improving learners' Mathematics performance. According to Bloom (1968), mastery learning through structured practice and feedback significantly enhances learners' achievement. Similarly, Hattie (2009) reported that direct instruction and practice-based strategies have a strong positive effect on student learning outcomes.

Furthermore, Slavin (2002) emphasized that cooperative learning strategies, such as group work, improve academic performance through active engagement and peer interaction. In addition, Skinner (1953) highlighted that reinforcement and repeated practice strengthen learning and skill acquisition. Moreover, Vygotsky (1978) explained that learning is enhanced through guided interaction and scaffolding, which supports learners in developing higher-level thinking skills.

These studies corroborate the present findings, which show significant improvements in pretest and posttest performance across all coaching strategies, indicating that structured, guided, and interactive learning approaches are effective in improving learners' Mathematics performance.

These results suggest that all three academic coaching strategies contributed to improved Mathematics performance among students. Thus, the null hypothesis of no significant difference between pretest and posttest performance is rejected.

Problem 4: Is there a significant difference between and among the three academic coaching strategies in improving Mathematics performance?

After determining the significant improvement within each group, it is also important to examine whether there are significant differences among the academic coaching strategies in their effectiveness in improving Mathematics performance. To achieve this, an Analysis of Covariance (ANCOVA) was employed to control the influence of pretest scores. In this regard, Table 4a presents the ANCOVA results, including the sources of variation, sum of squares, mean squares, F-values, and corresponding levels of significance.

Table 4a. ANCOVA Result on the Differences between and among Coaching Strategies and Mathematics Performance

Source of Variation	Sum of Squares	df	Mean Square	F _{Value}	Sig.
Corrected Model	146.420	3	48.807	12.29	p <.01
Intercept	16.392	1	16.392	4.13	p >.05
Pre-test (covariate)	0.087	1	0.087	0.02	p >.05
Coaching Strategy	70.008	2	35.004	8.82	p <.05
Error	79.413	20	3.971		
Total	144686.00	24			
Corrected Total	225.833	23			
R ² = .648 (Adjusted R ² = .596)			* - significant at .05 level		

Table 4a presents the results of the Analysis of Covariance (ANCOVA) on differences among the three academic coaching strategies in improving Mathematics performance, with pretest scores as a covariate.

The pretest was used to measure the pupils' performance before the coaching strategies were applied. Since some groups scored higher in the pretest than others, ANCOVA was used to control for these initial differences in performance. Thus, any differences in the posttest performances can be ascertained free from the influence of any initial disparities in the pupils' performances.

The results of the study revealed that the corrected model was statistically significant, indicating that the variables included in the model significantly explained the pupils' posttest performance. Furthermore, the coefficient of determination (R²) for the model was .648 (adjusted for the number of variables). These results indicate that 64.80% of the variance in the pupils' Mathematics performance was explained by the coaching strategies utilized in the study.

Moreover, the variable for the coaching strategy was also statistically significant (F = 8.82, p < .05). These results indicate that there were significant differences in the effectiveness of the three coaching strategies to improve the pupils' Mathematics performance. Thus, the differences in the pupils' performance on the posttest can be explained by the effectiveness of the coaching strategies applied to improve their performance in the subject area.

On the other hand, the pretest variable was not found to be statistically significant (F = 0.02, p > .05). These results indicate that the initial differences in the pupils' performance on the pretest did not have an influence on their posttest performance after the coaching strategies were applied to the pupils. Thus, the groups were found to be comparable at the start of the study.

Based on these results, the null hypothesis was rejected. The findings of the study indicate that there are indeed significant differences in the effectiveness of the three coaching strategies to improve pupils' performance in the subject area of Mathematics.

The findings of this research study are supported by other research studies that have also demonstrated the impact of various coaching and teaching strategies on pupils' Mathematics performance. For instance, Chee (2021) implemented a self-correction strategy to teach pupils Mathematics concepts. The results of the study indicated that pupils who were exposed to the self-correction strategy performed significantly better on the posttest than those who were not exposed to the strategy. Furthermore, another research study discovered that while both groups of pupils improved their performance between the pre- and posttest, the group that was exposed to the coaching strategies exhibited significantly greater gains in their performance in Mathematics (F = 13.93, p < .001).

Furthermore, another research study that investigated the impact of instructional strategies on pupils' performance in Mathematics indicated that these strategies had a significant impact on pupils' posttest performance (F = 44.36, p < .001). Other research studies that investigated the use of various instructional approaches in the subject area of Mathematics have indicated that effective acquisition of specific Mathematics strategies significantly enhance pupils' performance in the subject area. Finally, another research study that investigated the effectiveness of various coaching strategies for pupils of different ages indicated that the structured and skills-based strategies used in the Follow Through project resulted in significantly higher gains in pupils' achievement in Mathematics than other coaching strategies applied to the pupils.

These studies corroborate the present findings, which show that the ANCOVA results indicate a significant difference among coaching strategies, suggesting that the instructional strategy plays a crucial role in improving learners' Mathematics performance.

Following the ANCOVA results, it is necessary to further examine where the significant differences among the coaching strategies lie. To identify the specific groups that differ from one another, a post-hoc test using pairwise comparisons of adjusted posttest

means was conducted. In this regard, Table 4b presents the adjusted posttest mean scores for the different coaching strategies, along with their corresponding groupings based on significance levels.

Table 4b. Post-Hoc Test Pairwise Comparisons of Adjusted Post-Test Means by Coaching Strategy (ANCOVA)

Coaching Strategy	Posttest Score
<i>Drill, Practice Exercises, and Remedial</i>	81.17 ^a
<i>Group Work / Group Drills</i>	71.60 ^b
<i>Individual Practice Exercises</i>	74.98 ^{ab}

*means with the same letters are not significant

Table 4b showed the post hoc test results for comparing the adjusted post-test means of the three coaching strategies using ANCOVA. The results identified where significant differences existed among the groups.

The Drill, Practice Exercises, and Remedial strategy had the highest mean score of 81.17 and was significantly different from the other strategies. In contrast, the Group Work/Group Drills strategy had the lowest mean score of 71.60 and also differed significantly.

The Individual Practice Exercises strategy had a mean score of 74.98 and was not significantly different from the other two groups. This indicated that its effectiveness was in between. In terms of performance level, the Drill, Practice Exercises, and Remedial strategy reached the Satisfactory level. Meanwhile, both the Individual Practice Exercises and Group Work/Group Drills strategies were classified as Did Not Meet Expectations.

Overall, the findings showed that the Drill, Practice Exercises, and Remedial strategy led to higher learning outcomes, while the other two strategies showed lower performance based on the set standards.

The findings further suggested that the Drill, Practice Exercises, and Remedial

coaching strategy was significantly more effective than the Group Work/Group Drills strategy in enhancing Mathematics performance. However, the Individual Practice Exercises strategy did not show a significant difference when compared with the other two, indicating moderate effectiveness.

These findings were consistent with related studies emphasizing that structured and guided teaching approaches tend to produce better academic outcomes than less structured methods. Benjamin S. Bloom emphasized that mastery learning supported by continuous practice and feedback improves achievement. Likewise, John Hattie identified practice-based and direct instruction strategies as having strong positive effects on student learning.

Furthermore, B. F. Skinner explained that repeated practice and reinforcement strengthen learning, supporting the effectiveness of drill-based approaches. Robert E. Slavin noted that cooperative strategies like group work can enhance engagement, although their effectiveness may vary. In addition, Lev Vygotsky highlighted the importance of guidance and scaffolding in promoting deeper understanding.

Overall, these related studies supported the present results, which showed that the Drill, Practice Exercises, and Remedial strategy yielded the highest performance, indicating that structured and practice-oriented approaches were more effective in improving learners' Mathematics achievement.

CONCLUSIONS

This chapter presents the final components of the study, beginning with a summary of the major findings derived from the analysis of pupils' Mathematics performance before and after the implementation of the three academic coaching strategies. It synthesizes the key results from the statistical analyses, including pretest-posttest comparisons and differences among the strategies. The chapter also highlights the relative effectiveness of each intervention in improving pupils' mathematical performance.

Following the summary of findings, conclusions are drawn from the study's results and align with the stated research questions. These conclusions provide insights into the impact of the different academic coaching strategies on pupils' learning outcomes in Mathematics.

Finally, this chapter presents recommendations for teachers, school administrators, and future researchers. These recommendations aim to enhance instructional practices, support data-driven decision-making, and encourage further studies on the use of academic coaching strategies to improve pupils' mathematical proficiency.

Summary of Findings

This study determined the effectiveness of three academic coaching strategies—Drill, Practice Exercises, and Remedial, Group Work/Group Drills, and Individual Practice Exercises—in improving the Mathematics performance of low-performing pupils. The following are the major findings of the study:

1. On the Level of Mathematics Performance Before the Implementation of the Coaching Strategies

The results revealed that all groups had low Mathematics performance prior to the interventions. Group A obtained a mean score of 72.00, Group B 71.25, and Group C 67.00, all of which were interpreted as Did Not Meet Expectations. The overall mean score of 70.08 further confirmed that the learners' baseline performance was below the expected proficiency level.

2. On the Level of Mathematics Performance After the Implementation of the Coaching Strategies

After implementing the coaching strategies, all groups showed improvement in their Mathematics performance. Group A achieved a mean score of 81.00 (Satisfactory), while Group B and Group C obtained mean scores of 76.50 and 75.25, respectively, both interpreted as Fairly Satisfactory. The overall mean score increased to 77.58, indicating a general improvement in learners' performance.

3. On the Significant Difference Between Pretest and Posttest Performance

The results showed a statistically significant difference between the pretest and posttest performance of learners across all three coaching strategies. All computed t-values were significant at $p < .001$, indicating that the improvements in scores were not due to chance. This confirmed that the coaching strategies significantly improved learners' Mathematics performance.

4. On the Significant Difference Between and Among the Coaching Strategies

The findings of ANCOVA indicated a statistically significant difference in the coaching strategies utilized ($F = 8.816$, $p < .05$). The post-test comparisons, however, indicated that the Drill, Practice Exercises, and Remedial Coaching Strategy was significantly more effective than the Group Work / Group Drills Strategy, but that the Individual Practice Exercises Strategy did not significantly differ from the other two strategies. Thus, among the three strategies tested, the Drill, Practice Exercises, and Remedial Coaching Strategy was the most effective intervention for improving the mathematics performance of low-performing learners.

Based on the findings of this study, the following conclusions were drawn:

1. The implementation of the three coaching strategies had a significant effect in improving the mathematics performance of the low-performing learners. Prior to the implementation of these strategies, the learners generally featured low performances in mathematics subject area, as evidenced by their pre-test scores and results.
2. Following the implementation of these coaching strategies, there was a notable improvement in the mathematics performance of the low-performing learners as evidenced by their post-test scores. Furthermore, the differences between pre-test and post-test scores were statistically significant.
3. However, the effectiveness of these strategies varied among the three strategies tested. Specifically, results showed that the Drill, Practice Exercises, and Remedial Coaching Strategy was the most effective strategy for improving the mathematics performance of low-performing learners, followed by the Group Work and Group Drills strategy and the Individual Practice Exercises strategy.

Thus, overall, it can be concluded that the use of coaching strategies was an effective means of improving the mathematics performance of the low-performing learners within the classroom. Furthermore, the effectiveness of the strategies indicated that the implementation of strategies similar to the Drill, Practice Exercises, and Remedial Coaching Strategy should be incorporated into the teaching of mathematics concepts within the classroom to maximize the impact of such interventions upon these low-performing learners.

Recommendations

Based upon the conclusions drawn from this research, the following recommendations can be made regarding the future use of these coaching strategies in the classroom:

1. Implement the Drill, Practice Exercises, and Remedial Coaching Strategy into the mathematics classroom and curriculum as it emerged as the most effective strategy.
2. Continue to implement the Drills, Practice, and Remedial Coaching/Junior Tutoring and Coaching Strategies with the pupils who continue to experience difficulties with basic mathematics concepts and skills.

3. Enhance the implementation of the Group Work and Group Drills strategy by incorporating techniques that encourage all pupils to participate in the group learning and mathematics problem-solving activities.
4. Continue to incorporate Individual Practice Exercises strategy as a means of allowing each pupil to learn at their own pace and master each concept individually.
5. Provide professional development and training programs for teachers regarding the implementation of these coaching strategies to improve their effectiveness in teaching mathematics to low-performing learners.

Future researchers may wish to investigate the long-term effects and applicability of these coaching strategies to other subjects, grade levels, or groups of learners. Additionally, future research may investigate the effectiveness of simultaneously implementing several of these coaching strategies to determine if any combination of strategies leads to the best improvements in the mathematics performance of low-performing learners.

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Author Contributions

Mark Anthony A. Jaquias solely contributed to the conceptualization, methodology, data collection, formal analysis, investigation, writing, review, editing, and final approval of the manuscript.

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Ethics Approval

The study was conducted in accordance with ethical standards for educational research. Permission to conduct the study was obtained from the school administration and relevant educational authorities prior to data collection.

Informed Consent Statement

Informed consent was obtained from the parents or legal guardians of the participating pupils, and participation was voluntary.

Data Availability Statement

The data supporting the findings of this study are available from the corresponding author upon reasonable request.

Conflict of Interest

The author declares no conflict of interest regarding the publication of this article.

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Artificial Intelligence (AI) Statement

During the preparation of this manuscript, AI-assisted language tools were used to improve grammatical accuracy, clarity, and readability. The author carefully reviewed and edited the manuscript and takes full responsibility for the content and conclusions of the study.

Data Confidentiality Statement

All participant information was treated confidentially and used strictly for academic and research purposes. No identifying personal information of the pupils was disclosed in this study.

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