

AN INTEGRATIVE READING COMPREHENSION APPROACH AND MATHEMATICAL PROBLEM-SOLVING APPROACH TO ENHANCE STUDENTS' PERFORMANCE OF GRADE 7

MARA JEAN BATAANON JORDAN

plusmj49@gmail.com

Mathematics Teacher, Binahaan Integrated School, Pagbilao 4302 Quezon, Philippines

EVELYN ARRIOLA SUNICO

evelynsunico@gmail.com

Associate Professor IV, Laguna State Polytechnic University, Santa Cruz 4009 Laguna, Philippines

Abstract

This descriptive method of study aimed to determine the level of integrative reading comprehension approach and mathematical problem-solving approach of three heterogeneous sections who were chosen purposively in Grade 7 of Binahaan Integrated School, Pagbilao II District, Division of Quezon.

It sought to determine the student's level of integrative reading comprehension approach in terms of literal, interpretative, and critical comprehension, as well as the student's level of mathematical problem-solving approach in terms of understanding, strategizing and implementing. This study also determined the level of student's performance in reading comprehension skills and problem-solving skills in terms of test and its relationship. It also identified the relationship between integrative reading comprehension approach and students' performance in reading comprehension, as well as the relationship between the mathematical problem-solving approach and students' performance in mathematical problem-solving.

Based on the data presented, analyzed, and interpreted, it revealed that Grade 7 students have high level of integrative reading comprehension approach in terms of literal, interpretative and critical comprehension. In addition, the level of mathematical problem-solving approach in terms of understanding, strategizing and implementing among Grade 7 students is also high. The findings also revealed that Grade 7 students are in proficient level in Reading Comprehension Skills and Mathematical Problem-Solving Skills in terms of Test. The findings revealed that the null hypotheses were rejected which claims that there is no relationship between those variables. Thus, there is a significant relationship between the students' performance in reading comprehension skills and students' performance in mathematical problem-solving skills. Moreover, there is a significant relationship between the integrative reading comprehension approach and students' performance in terms of reading comprehension skills and between the Mathematical Problem-Solving Approach and Students' Performance in terms of Problem-Solving Skills.

This study recommends that teachers must to develop integrated Math and English intervention material to help the left - behind learners and maximize the teachers' potential in making more effective learning materials.

Keywords: Mathematical Problem-Solving Approach, Integrative Reading Comprehension, Enhancement, Students' Performance

1. Main Text

Introduction

The ability to solve problems is a basic life skill and is essential to understand technical subjects. Problem-solving is a subset of critical thinking and employs the same strategies. It is the process of reasoning to solutions using more than a simple application of previously learned procedures (Keller, 2017).

Being able to effectively improve comprehensive ability in mathematics is important for a child's success in school. The comprehension skill, on the other hand, plays a vital role in developing the problem-solving skills of students. One cannot answer a certain word problem unless he or she fully grasps the concepts and understands the given situation. Thus, when one student tries to solve a certain problem, they also at the same time exercise their reading comprehension skills. It emphasized that reading comprehension and problem-solving skills always go together. Comprehension ability must be developed by the students in order to

understand and apply factual information that is relevant, clear, and comprehensive which can give alternative meanings or solutions to any given problem.

Reading comprehension skills and problem-solving skills appear to be linked, such that lower reading comprehension skills tends to translate into poorer mathematics performance. This not only points to the role of literacy skills in learning other content areas, but it also has important implications for constructing, selecting, and teaching mathematical word problems. Although reading comprehension skills in mathematics may necessitate more skills and practice to master, the mathematical learning derived from reading mathematics far outweighs the burden it places on teachers and students. This paper explores the vital role of purposeful reading in the solving mathematical word problems to promote successful integration of reading comprehension in mathematics.

Background of the Study

In the past years, the Philippines has been continuously experiencing a decrease of students' performance in mathematics. Local, national and international surveys showed the deteriorating ranks of Filipino students in mathematics and even in other areas. As a result of this, the Philippines is challenged to step up in educating its people in mathematics to be competitive since many in the business community have complained about the country's state of education. Indeed, in global competitiveness indices, the Philippines have been rated poorly in terms of the quality of basic education, quality of mathematics education, a low collaboration between industry and the academe, and low in innovation (Luz, 2012). The Department of Education (DepEd) singled out low reading comprehension as a primary factor for the failure of public-school students in mathematics that threatens global competitiveness. Reading problems attributed as the main culprit for the poor performance of some students in the National Achievement Test (Quijano, 2015). Thus, reading cannot be taken for granted if mathematics performance needs to be enhanced. Reading particularly in the early years of schooling paves a way to achievement in other content areas like mathematics.

Moreover, in the implementation of K-12 program, problem solving is one of the focal skills in Mathematics that students must possess. Therefore, it is important that students must be able to comprehend and understand concepts in solving problems. As National Council of Teachers for Mathematics (NCTM) released its Principles & Standards for School Mathematics during year 2000 stated that problem-solving is the heart of any solid mathematics curriculum. However, results of National Achievement Test S.Y. 2012 for secondary students showed a poor performance in Mathematics with a mean percentage score of 46.37% which was less than the 75% minimum requirement of the Department of Education (de Dios, 2013). Moreover, even the Trends in International Mathematics and Science Study (TIMSS) Advanced Mathematics category, Philippines ranked the lowest among the countries who participated. These results implied that the Philippines has not met the standards set by the NCTM such as ability to make sense of problems and persevere in solving them and to reason abstractly

. The Department of Education do its best to addressed this low performance in mathematics education. This time of pandemic where there is no conduct of face – to – face classes, self-learning printed modules are provided nationwide to help learners cope up with the new learning modalities. However, least – mastered competencies and left – behind learners still exists because they did not master reading comprehension skills form the previous years and they find it difficult to understand the lessons in self-learning module.

Thus, in the foresaid concepts, the researcher motivated to conduct a

study on an integrative reading comprehension approach and mathematical problem-solving approach to enhance students' performance of Grade 7.

Theoretical Framework

Learning mathematics is an important part of preparing students for the future success in their career goals towards increasingly competitive society. The core curriculum standards in mathematics specifies that problem-solving skills are an essential part of a students' mathematical understanding and has incorporated a problem-solving process strand into the requirements of what a student should know and be able to do, as cited by Nivera (2014). According to the Learning Standard for Mathematics from the article of Harangus (2019), integrating problem-solving skills into the curriculum is necessary to produce students who will have mathematical knowledge, an understanding of mathematical concepts, and be able to apply mathematics in the solution of problems.

This study is primarily based on the George Polya's principle on problem-solving which was cited by Polat (2013). According to him, there are four principles in solving a certain problem. First principle is to understand the problem. It refers to understanding the words used in the statement to be able to know the given information and determine what is sought or asked. The student may also restate the problem in his own words. Second is to devise a plan. These are strategies and techniques to solve problems. Some strategies common are "Guess & Check, make a list, eliminating possibilities, looking for a pattern, drawing a picture, using a model, Working Backwards and using a formula". It could also be selection of numbers as well as operations to make a clear representation of the problem. Third, carry out a plan wherein the plan must be properly used. Lastly, look back by implementing and examining the solution obtained or do a checking process by substituting the result to the original equation or formula (How to Solve it by George).

Most of the students from the past years up to present struggled to accomplish problem solving in mathematics. Zheng (2019) elaborated that a problem is defined as any mathematical inquiry where the person needs find the answer by choosing the right order of operations. In answering a certain problem, every student should investigate its "mathematical situation", with their own priorities for further inquiry

of the problem by using critical thinking skills, creative thinking skills, decision making, conceptualizing, and information processing from the teachers that teach students how to think.

In line with this, this study is anchored by the Mathematical Problem-Solving Theory which is also known as Schoenfeld Theory, an effective solution to any mathematical problem is based on the learner's problem-solving skills. Learners should also focus on the procedural solution that may lead in understanding problems in mathematics to become an expert in problem solving.

In addition, learners should also decide the strategies and techniques such as working backwards, drawing figures or step-by-step procedure in problem solving to limit the solution. In relation with this, teachers encouraged to teach problem solving in a method made by students through their own techniques that uses a flexible methods, stimulated guessing, and use of unusual strategies. Moreover, the approaches in solving mathematical problems are supported by the theory of George Polya in his Problem-Solving Theory. It often helps to examine and solve a simpler similar or related problem and then use different strategies such as intelligent guessing and testing, working backwards and finding a pattern to solve problems. Using these strategies does not mean getting an exact answer but doing consistently which lead students to an acceptable solution that will be helpful when investigating a totally unfamiliar problem. Furthermore, problem-solver readers manipulate relationships between the facts and ideas offered by an author based on a weighted value system in the design of expressed language to synthesize themes and draw conclusions. Readers attempt to understand written text using the same problem-solving skills required to solve mathematical problems. Reading comprehension skills and problem-solving skills appear to be linked, such that lower reading comprehension skills tends to translate into poorer mathematics performance. Performance on solving math word problems was strongly related to performance in reading comprehension according to Tuohimaa (2018). That's why it is important to explore the vital role of integrative reading in solving mathematical word problems to promote successful integration of reading comprehension skills and problem-solving skills in mathematics.

This paper explores the vital role of purposeful reading in the solving mathematical word problems to promote successful integration of reading comprehension in mathematics.

Statement of the Problem

This research aims to determine the relationship between the integrative reading comprehension skills and mathematical problem-solving skills among the Grade 7 respondents in Binahaan Integrated School, Pagbilao, Quezon S.Y. 2021 – 2022. Specifically, it seeks to answer the following questions:

1. What is the level of integrative reading comprehension approach in terms of:
 - 1.1 Literal Comprehension;
 - 1.2 Interpretative Comprehension;
 - 1.3 Critical Comprehension?
2. What is the level of mathematical problem-solving approach in terms of:
 - 2.1 Understanding;
 - 2.2 Strategizing;
 - 2.3 Implementing?
3. What is the level of student's performance in Reading Comprehension Skills in terms of test?
4. What is the level of student's performance in Problem Solving Skills in terms of test?
5. Is there a Significant Relationship between the Students' Performance in Integrative Reading Comprehension Skills and Students' Performance in Mathematical Problem-Solving Skills?
6. Is there a significant relationship between the Integrative Reading Comprehension Approach and Students' Performance in Integrative Reading Comprehension Skills?
7. Is there a significant relationship between the mathematical problem-solving approach and students' performance Mathematical Problem-Solving Skills?

Research Methodology

This chapter presents the methods and procedures which was used in the study. This includes the research design, respondents of the study, sampling techniques, research procedures, research instruments and statistical treatment of data.

Research Design

This study utilized descriptive method of research to attain the objectives put forward in this paper. This research design focuses on describing a phenomenon across a larger number of participants thereby providing the possibility of summarizing characteristics across relationships. This approach surveys a large number of individuals and applies statistical techniques to recognize overall patterns in the relations of processes.

Moreover, this study is designed to identify the relationships between the integrative reading comprehension and mathematical problem-solving skills to enhance Grade 7 students' performance in Mathematics. According to Creswell (2014), to study the relationship of two or more variables correlational research design is often used. This research design is most common in quantitative approach as it involves gathering data from larger groups.

Population and Sampling Technique

The respondents of the study were one hundred eighteen (118) students from three heterogeneous sections in Grade 7 Binahaan Integrated School, Pagbilao II District of the Division of Quezon. Out of the population, the respondents were chosen purposively since the study is focused on enhancing mathematical problem-solving skills of the students. The heterogeneous sections resorted to such selection of the subjects' willingness to cooperate in the conduct of the study. It is believed that they were the one who can give the appropriate data necessary for the interpretation of the results.

Research Procedure

This research aims to determine the level of integrative reading comprehension approach and mathematical problem-solving approach followed by identifying the relationships between the students' performance in reading comprehension skills and mathematical problem-solving skills to enhance Grade 7 students' performance in Mathematics. Data were collected following standard operating procedures.

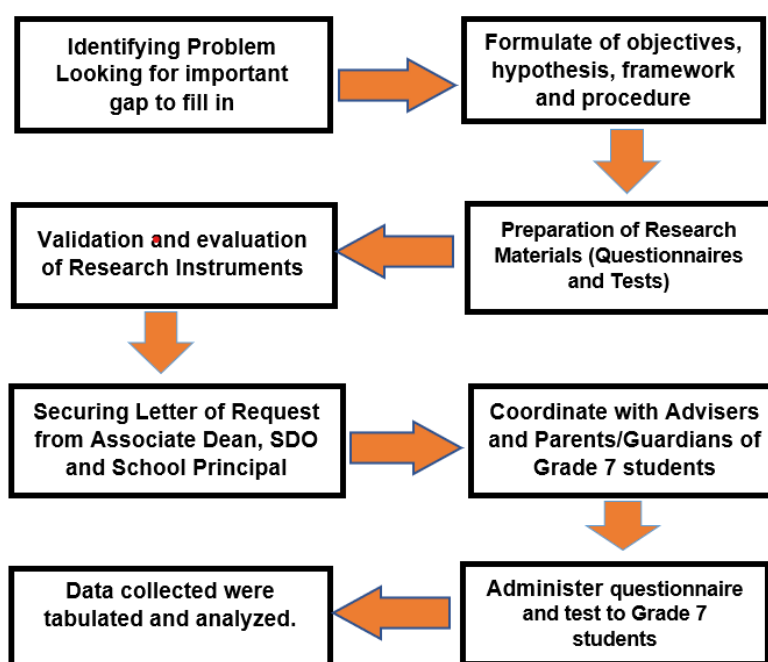


Figure 2. The Research Procedure of the Study

Research Instrument

To gather the necessary data needed for this descriptive research, these are the instruments and medium for this study: The researcher used the communication letter to be able to; ask permission from the school administration and teachers regarding the collection of data and gathering of respondents, communicate with the parents/guardians, and respondents so that there will be clarity regarding the instructions given by the researchers. Letters were sent in the form of soft copy, or in pdf, while some were in the form of physical letter, or a hard copy.

The choices that participants may choose is in the form of the Likert scale. It collects information from participants through a series of questions or statements. The researcher utilized two self-made survey form for Integrative Reading Comprehension Approach and Mathematical Problem-Solving Approach. The first survey form was focused on Integrative Reading Comprehension which was composed of 3 parts. Each part is composed of five (5) statements. Statements was focused on assessing student's level of literal comprehension, interpretative comprehension and critical comprehension. The second survey form was focused on Mathematical Problem-Solving approach which was also composed of 3 parts. The parts of this form which comprise of 5 question each are Understanding, Strategizing and Implementing. The following rating scale was used in the self-made survey-form.

Point	Scale	Descriptive Rating	Verbal Interpretation
5	4.21-5.00	<i>Always</i>	<i>Very High</i>
4	3.41-4.20	<i>Often</i>	<i>High</i>
3	2.61-3.40	<i>Sometimes</i>	<i>Moderate</i>
2	1.81-2.60	<i>Rarely</i>	<i>Low</i>
1	1.00-1.80	<i>Never</i>	<i>Very Low</i>

To determine the student's performance in reading comprehension and mathematical problem-solving skills, the researcher used self-made test. Each test is composed of thirty questions focused on the essential competencies appropriate in identifying students' reading comprehension skills and problem-solving skills.

Statistical Treatment of Data

After collecting the data needed, the researcher will tabulate and analyze the gathered data with the help of statistical tools for an easy interpretation and presentation of gathered data. To determine the level of Integrative Reading Comprehension Approach in terms of; (1) literal comprehension, (2) interpretative comprehension, (3) critical comprehension; and Mathematical Problem-Solving Approach in terms of; (1) Understanding, (2) Strategizing, (3) Implementing, the researcher used Mean and Standard Deviation. It is also used to determine the students' performance in terms of Reading Comprehension skills and Problem-Solving skills. The rating scale below was used to determine the frequency and relative frequency of the scores of the respondents in Reading Comprehension Test and Problem-Solving Test.

Scores	Verbal Interpretation
26-30	<i>Advanced</i>
21-25	<i>Proficient</i>
16-20	<i>Approaching Proficiency</i>
11-15	<i>Developing</i>
0-10	<i>Beginning</i>

To determine the significant relationships of the dependent and independent variable, the researcher use the formula of Pearson product-moment correlation coefficient. The rating scale below was used to determine the significant relationship between the independent and dependent variable.

GUILFORD RULE OF THUMB

r	Strength of Relationship
< 0.2	<i>Negligible Relationship</i>
0.2 – 0.4	<i>Low Relationship</i>
0.4 – 0.7	<i>Moderate Relationship</i>
0.7 – 0.9	<i>High Relationship</i>
> 0.9	<i>Very High Relationship</i>

3. Results and Discussion

This chapter deals with the presentation, analysis and interpretation of the data gathered to answer the sub problem relative to the main problem of this study. This part discusses the findings of the study based on the research questions.

Level of Integrative Reading Comprehension Approach

In this study, the level of Level of Integrative Reading Comprehension Approach refers to the literal, interpretative and critical comprehension. The following table reveals the average mean, standard deviation and verbal interpretation of the level of Integrative Reading Comprehension Approach as perceived by Grade 7 students of Binahaan Integrated School of Pagbilao District II, Division of Quezon.

Table 1. Level of Integrative Reading Comprehension Approach in terms of Literal Comprehension

STATEMENT	Mean (x)	Standard Deviation	Remarks
1. When I read, I can identify or highlight the key words in a selection.	4.36	0.90	Always
2. I can easily scan the text and locate the key words to find the specific information quickly.	4.34	0.75	Always
3. I understand the information and facts directly stated in the text.	4.48	0.66	Always
4. I can locate the particular elements or specific details in a text, such as key concepts, names, dates or certain information in answer to a question.	4.48	0.66	Always
5. When I read, I skim from the text headings and sub-headings, pictures, diagrams, captions, any italicized or bold words, and the first and last paragraphs of the text.	4.33	0.74	Always
GRAND MEAN	4.39	0.63	Always

Verbal Interpretation = Very High Level

Table 1 reveals the level of integrative reading comprehension approach in terms of literal comprehension. It shows that the statement that “When I read, I can identify or highlight the key words in a selection” (M = 4.36, SD= 0.177) with a verbal interpretation of very high level. It also shows that the statement “I can easily scan the text and locate the key words to find the specific information quickly” (M = 4.34, SD= 0.75) with a verbal interpretation of very high level. The table indicates that the statement “I understand the information and facts directly stated in the text” (M = 4.48, SD= 0.66) with a verbal interpretation of very high level. It also indicates that statement I can locate the particular elements or specific details in a text, such as key concepts, names, dates or certain information in answer to a question (M = 4.48, SD= 0.66) with a verbal interpretation of very high level. It also shows that the statement “When I read, I skim from the text headings and sub-headings, pictures, diagrams, captions, any italicized or bold words, and the first and last paragraphs of the text” with a verbal interpretation of very high level. It can be gleaned from table 1, the level of integrative reading comprehension approach in terms of literal comprehension is very high level (M= 4.39 and SD=0.63).

Table 2. Level of integrative reading comprehension approach in terms of Interpretative Comprehension

STATEMENT	Mean (x)	Standard Deviation	Remarks
1. My focus shifts to reading between the lines, based on the meaning of the text or the text being studied.	4.32	0.75	Always
2. As a reader, I piece together pieces of information to form beliefs about the author’s purpose and message.	4.38	0.72	Always
3. I can easily identify the message and mood of the text.	3.88	1.02	Often
4. Predicting outcomes is easy for me after reading a text or	3.99	0.96	Often
5. I understand the facts that are explicitly stated in the text.	4.15	0.98	Often
GRAND MEAN	4.15	0.74	Often

Verbal Interpretation = High Level

Table 2 reveals the level of integrative reading comprehension approach in terms of interpretative comprehension. It shows that the statement that “My focus shifts to reading between the lines, based on the meaning of the text or the text being studied” (M = 4.32, SD= 0.75) with a verbal interpretation of very high level. It also shows that the statement “As a reader, I piece together pieces of information to form beliefs about the author’s purpose and message” (M = 4.38, SD= 0.72) with a verbal interpretation of very high level. The table indicates that the statement “I can easily identify the message and mood of the text” (M = 3.88, SD= 1.02) with a verbal interpretation of high level. It also indicates that statement “Predicting outcomes is easy for me after reading a text or selection” (M = 3.99, SD= 0.96) with a verbal interpretation of high level. It also shows that the statement “I understand the facts that are explicitly stated in the text” (M = 4.15 SD= 0.98) with a verbal interpretation of high level.

Table 3. Level of Integrative Reading Comprehension Approach in terms of Critical Comprehension

STATEMENT	Mean (x)	Standard Deviation	Remarks
1. When I read, I support my answer in a selection with a logical reason.	4.21	0.84	Always
2. I can make generalization and judgements based on the test that I read.	4.23	0.82	Always
3. Creating alternative solution is easy for me to do after making a conclusion and judgement on the text being studied.	4.22	0.86	Always
4. When I read, I link between the text and my own experience and knowledge to develop an answer.	4.00	0.96	Often
5. I am a reader that asks open-ended questions to gain deeper understanding.	4.10	0.98	Often
GRAND MEAN	4.15	0.75	Often

Verbal Interpretation = Very High Level

Table 3 shows the level of integrative reading comprehension approach in terms of critical comprehension. It presents that the statement that the statements “When I read, I link between the text and my own experience and knowledge to develop an answer and I am a reader that asks open-ended questions to gain deeper understanding” garnered verbal interpretation of high level (M=4.0, SD = 0.96) The table also indicates that the statement “When I read, I support my answer in a selection with a logical reason (M=4.21, SD = 0.84) with a verbal interpretation of high level. It also indicates that the statements “I can make generalization and judgements based on the test that I read” (M=4.23 and SD = 0.82) and “Creating alternative solution is easy for me to do after making a conclusion and judgement on the text being studied” M=4.22 and SD = 0.86). It can be gleaned from table 3 that the level of integrative reading comprehension approach in terms of literal comprehension (M= 41.5, SD 0.75) with verbal interpretation of high level.

Level of Mathematical Problem-Solving Approach

The Level of Mathematical Problem-Solving Approach emphasizes the mathematical procedures in solving a problem and learning styles of the students. It is composed of the three parts; Understanding, Strategizing, and Implementing which was presented in the tables which display the weighted mean, standard deviation and verbal interpretation.

Table 4. Level of Mathematical Problem-Solving Approach in terms of Understanding

STATEMENT	Mean (x)	Standard Deviation	Remarks
1. I understand every word and concept in the mathematical problem.	4.36	0.76	Always
2. I am familiar with the units in which measurements are given.	4.48	0.66	Always
3. I can easily identify the unknown in the mathematical problem.	4.36	0.90	Always
4. I can assess whether there is missing information/s in the given mathematical problem.	4.46	0.68	Always
5. After I read the given mathematical problem, I can identify the mathematical concepts applied in the problem.	4.32	0.74	Always
GRAND MEAN	4.40	0.62	Always

Verbal Interpretation = Very High Level

As shown in Table 4, the respondents have a very high level of mathematical problem-solving approach in terms of understanding. Among the statements on the table, the statement “I am familiar with the units in which measurements are given” garnered the highest average mean and lowest standard deviation (M= 4.48 and SD = 0.66) with verbal interpretation of very high level. This is followed by the statements “I can assess whether there is missing information/s in the given mathematical problem” which verbally interpreted as very high level. In the statements “I understand every word and concept in the mathematical problem” and “I can easily identify the unknown in the mathematical problem” both garnered the same average mean. The table also indicates that the statement “After I read the given mathematical problem, I can identify the mathematical concepts applied in the problem” (M= 4.32, SD = 0.74), which is verbally interpreted as very high level. Overall, the level of mathematical problem-solving approach in terms of understanding is very high level (M = 4.40, SD = 0.62).

Table 5. Level of Mathematical Problem-Solving Approach in terms of Strategizing

STATEMENT	Mean (x)	Standard Deviation	Remarks
1. I usually recognize patterns while solving mathematical problems.	4.34	0.75	Always
2. I make virtual representations of the variables presented in the given mathematical problem.	4.48	0.66	Always
3. Organizing data is one of the things that I do while solving a mathematical problem.	4.32	0.75	Always
4. I adopt different point of view in solving mathematical problems.	4.38	0.72	Always
5. I usually do intelligent guessing and testing while solving mathematical problems.	3.88	1.02	High
GRAND MEAN	4.28	0.64	Always

Verbal Interpretation = Very High Level

As shown in Table 5, the respondents have a very high level of mathematical problem-solving approach in terms of strategizing. Among the statements on the table, the statement “I make virtual representations of the variables presented in the given mathematical problem” garnered the highest average mean and lowest standard deviation ($M = 4.48$ and $SD = 0.66$) with verbal interpretation of very high level. This is followed by the statements “I adopt different point of view in solving mathematical problems” which verbally interpreted as very high level. In the statements “I usually recognize patterns while solving mathematical problem” which is verbally interpreted as very high level. The table also indicates that the statement “After I read the given mathematical problem, I can identify the mathematical concepts applied in the problem” ($M = 4.32$, $SD = 0.75$).

Overall, the level of mathematical problem-solving approach in terms of strategizing is very high level ($M = 4.28$, $SD = 0.64$).

Table 6. Level of Mathematical Problem-Solving Approach in terms of Implementing

STATEMENT	Mean (x)	Standard Deviation	Remarks
1. Reasoning is a great tool for me while implementing strategies in problem-solving.	4.20	0.83	Always
2. In order to solve the given mathematical problem, I consider the appropriate computations.	4.75	0.49	Always
3. I make sure that my computations are correct before arriving in a concrete conclusion.	4.28	0.81	Always
4. I sometimes use examples to explain my own thinking in solving problems.	3.87	1.02	Often
5. I use set of strategies to achieve my goals in mathematical problem-solving.	4.09	0.98	Often
GRAND MEAN	4.24	0.64	Always

Verbal Interpretation = Very High Level

Table 6 reveals mathematical problem-solving approach in terms of implementing. Among the statements on the table, the statement “In order to solve the given mathematical problem, I consider the appropriate computations” garnered the highest average mean of 4.75 and lowest standard deviation of 0.49 ($M = 4.75$ and $SD = 0.49$) with verbal interpretation of very high level. This is followed by the statements “I make sure that my computations are correct before arriving in a concrete conclusion” with an average mean of 4.28 and standard deviation of 0.81 ($M = 4.28$ and $SD = 0.81$) which verbally interpreted as very high level. In the statements “Reasoning is a great tool for me while implementing strategies in problem-solving. 4.20 and standard deviations of 0.83 ($M = 4.20$ $SD = 0.83$) which is verbally interpreted as very high level. The table also indicates that the statements “I use set of strategies to achieve my goals in mathematical problem-solving” ($M = 4.09$ $SD = 0.98$) and “I sometimes use examples to explain my own thinking in solving problems” ($M = 3.87$, $SD = 1.02$) which are verbally interpreted as high level. It can be gleaned from table 6 that the level of mathematical problem-solving approach in terms of implementing of Grade 7 students is 4.15 and standard deviation of 0.64 ($M = 4.24$, $SD = 0.64$) with verbal interpretation of high level.

Level of Students' Performance in Reading Comprehension Skills in terms of Test

Table 7 presents the Level of Students' Performance in Reading Comprehension Skills in terms of Test of Grade 7 students. It further indicates the average mean, standard deviation, frequency, distribution of frequency and verbal interpretation.

Table 7. Level of Students' Performance in Reading Comprehension Skills

Test Scores	Frequency (f)	Percentage (%)	Verbal Interpretation
26-30	33	27.97 %	Advanced
21-25	43	36.44 %	Proficient
16-20	32	27.12 %	Approaching Proficiency
11-15	8	6.78 %	Developing
10 and below	2	1.69 %	Beginning
Total	118	100%	

Overall Mean = 22.15

Standard Deviation = 5.34

Verbal Interpretation = Proficient

It can be gleaned from the Table 7, that the mean level of Students' Performance in terms of Reading Comprehension Skills of Grade 7 students is "**Proficient**" ($M = 22.15$, $SD = 5.34$). It further indicates that among one hundred eighteen (118) students, thirty-three (33) or twenty seven and ninety-seven hundredths (27.97%) who got an "Advanced" level, forty-three (43) students or thirty-six and forty-four hundredths percent (36.44%) who got the "Proficient" level, thirty two (32) or twenty seven and twelve hundredths percent (27.12%) who got "Approaching Proficiency" level, eight (8) students or six and seventy-eight hundredths (6.78%) percent who belong to "Developing" level and lastly, two(2) students or one and sixty nine (1.69%) who are in the "Beginning" level. The finding reveals that the Level of Students' Performance in Reading Comprehension Skills is "Proficient". This study means that grade 7 students are quite good in reading comprehension as revealed in their test scores.

Level of Students' Performance in Mathematical Problem-Solving Skills in terms of Test

It can be gleaned from the Table 8, that the mean level of Students' Performance in terms of Mathematical Problem-Solving Skills of Grade 7 students is "Approaching Proficiency" with 20.67 mean of the test scores and a standard deviation of 4.71.

Table 8. Level of Students' Performance in Problem-Solving Skills

Test Scores	Frequency (f)	Percentage (%)	Verbal Interpretation
26-30	20	16.95 %	Advanced
21-25	49	41.53 %	Proficient
16-20	34	28.81 %	Approaching Proficiency
11-15	11	9.32 %	Developing
10 and below	4	3.39 %	Beginning
Total	118	100%	

Overall Mean = 20.67

Standard Deviation = 4.71

Verbal Interpretation = Approaching Proficiency

The table presents that among one hundred eighteen (118) students, twenty (20) or sixteen and ninety-five hundredths (16.95%) who got an "Advanced" level, forty-nine (49) students or forty one and fifty-three hundredths percent (41.53%) who got the "Proficient" level, thirty four (34) or twenty eight and eighty one hundredths percent (28.81%) who got "Approaching Proficiency" level, eleven (11) students or 9.32% percent who belong to "Developing" level and lastly, two(4) students or three and thirty nine (3.39%) who are in the "Beginning" level. The finding reveals that the Level of Students' Performance in Mathematical Problem-Solving Skills is "Approaching Proficiency".

Significant Relationship between the Students' Performance in Reading Comprehension Skills and Students' Performance in Mathematical Problem-Solving Skills

The Table 9 presents the Significant Relationship between the Students' Performance in Reading Comprehension Skills and Students' Performance in Mathematical Problem-Solving Skills

Table 9. Significant Relationship between the Students' Performance in Reading Comprehension Skills and Students' Performance in Mathematical Problem-Solving Skills

Students' Performances	R - value	p - value	Strength	Analysis
Integrative Reading Comprehension Skills	0.889**	0.000	High Relationship	Significant
Mathematical Problem-Solving Skills				

The table 9, shows the significant relationship between which predicts significantly as manifested by lower probability values in its indicator at 0.00 level of significance. Further, the positive values for r indicates high relationship between integrative reading comprehension skills and mathematical problem-solving skills. The table shows that there is significant relationship between the Students' Performance in Reading Comprehension Skills and Students' Performance in Mathematical Problem-Solving Skills.

Significant Relationship between the Integrative Reading Comprehension Approach and Students' Performance in terms of Reading Comprehension Skills

Table 10. Significant Relationship between the Integrative Reading Comprehension Approach and Students' Performance in terms of Reading Comprehension Skills

Integrative Reading Comprehension Approach	R - value	p - value	Strength	Analysis
Literal Comprehension	0.832**	0.000	High Relationship	Significant
Interpretative Comprehension	0.823**	0.000	High Relationship	Significant
Critical Comprehension	0.761**	0.000	High Relationship	Significant

The table 10, shows the significant relationship between which predicts significantly as manifested by lower probability values in its indicator at 0.00 level of significance. Further, the positive values for r indicates high relationship between the three level of integrative reading comprehension approach. The table 10 show that there is Significant Relationship between the Integrative Reading Comprehension Approach and Students' Performance in terms of Reading Comprehension Skills.

Significant Relationship between the Mathematical Problem-Solving Approach and Students' Performance in terms of Problem-Solving Skills

Table 11. Significant Relationship between the Mathematical Problem-Solving Approach and Students' Performance in terms of Problem-Solving Skills

Mathematical Problem-Solving Approach	R - value	p - value	Strength	Analysis
Understanding	0.754**	0.000	High Relationship	Significant
Strategizing	0.757**	0.000	High Relationship	Significant
Implementing	0.688**	0.000	Moderate Relationship	Significant

The table 11, shows the significant relationship between which predicts significantly as manifested

by lower probability values in its indicator at 0.00 level of significance. Further, the positive values for r indicates high relationship between the level of understanding and strategizing, while moderate relationship in implementing.

The table 11 show that there is Significant Relationship between the Mathematical Problem-Solving Approach and Students' Performance in terms of Problem-Solving Skills.

4. Summary of Findings

This chapter includes the presentation of a summary, findings, conclusion based on the hypothesis, and the corresponding recommendations.

Summary

The purpose of this study is to determine the level of integrative reading comprehension approach and mathematical problem-solving approach and by finding its significant relationships to students' performance in reading comprehension and mathematical problem solving skills. The information on related literature and studies were gathered to formulate the objectives of the studies.

It sought to answer the following questions: (1) What is the level of integrative reading comprehension approach in terms of: Literal Comprehension, Interpretative Comprehension, Critical Comprehension, (2) What is the level of mathematical problem-solving approach in terms of: understanding, strategizing and implementing; (3) What is the level of student's performance in Reading Comprehension Skills in terms of test; (4) What is the level of student's performance in Problem Solving Skills in terms of test? (5) Is there a Significant Relationship between the Students' Performance in Integrative Reading Comprehension Skills and Students' Performance in Mathematical Problem-Solving Skills; (6) Is there a significant relationship between the Integrative Reading Comprehension Approach and Students' Performance in Integrative Reading Comprehension Skills; (7) Is there a significant relationship between the mathematical problem-solving approach and students' performance mathematical problem-solving skills?

This study utilized descriptive method of research to attain the objectives The respondents of the study were one hundred eighteen (118) students from three heterogeneous sections in Grade 7 Binahaan Integrated School, Pagbilao II District of the Division of Quezon. Out of the population, the respondents were chosen purposively since the study is focused on enhancing mathematical problem-solving skills of the students. Because of the lower Alert level in the research locale, the selected respondents answered the questionnaires and test by face-to-face interaction. The researcher utilized two self-made survey form for integrative reading comprehension approach and mathematical problem-solving approach. Each part is composed of five (5) statements. To determine the student's performance in reading comprehension and mathematical problem-solving skills, the researcher used self-made test. After administering the questionnaire to the respondents, all the data were gathered, analyzed, and interpreted. The statistical treatment of data was used to analyze and interpret the data given by the respondents. The mean, standard deviation and Pearson product-moment correlation coefficient was used in this study. Electronic forms and spreadsheet applications were used in tabulating and computing and validating the results.

Based on the data presented, analyzed, and interpreted, it found out that grade 7 students have high level of integrative reading comprehension approach in terms of literal comprehension, interpretative comprehension, critical comprehension. The findings reveal that the level of mathematical problem-solving approach of Grade 7 students is high, this means that students are using the in approach of understanding, strategizing and implementing.

The findings also reveal that Grade 7 students are in proficient level in reading comprehension skills in terms of test. This mean that students have higher skills in reading comprehension.

In addition, the level of students' performance in mathematical problem-solving skills in terms of test is "Approaching Proficiency". It means that grade 7 students are good in mathematical problem-solving as revealed in their test scores.

Conclusion

The findings revealed that the null hypothesis was rejected which claims that there is no relationship between the students' performance in reading comprehension skills and students' performance in mathematical problem-solving skills. Thus, there is a significant relationship between those variables. The statistical test confirmed that this implies that the students' performance in reading comprehension skills and students' performance in mathematical problem-solving skills have high relationship. It means that the reading comprehension skills play a mediating role in the development of problem-solving skills.

In addition, there is a significant relationship between the integrative reading comprehension approach and students' performance in terms of reading comprehension skills. It rejects the null hypothesis which claims that there is no relationship between those variables. This means that the performance of the student is related with the approach he/she entail in reading comprehension.

The findings revealed that the null hypothesis was rejected which claims that there is no relationship between the mathematical problem-solving approach and students' performance in terms of problem-solving skills. Thus, the statistical test confirmed that this implies that mathematical problem-solving approach and students' performance in terms of problem-solving skills are related. It can conclude that students who are good at solving word problems can successfully use their conceptual understanding, and word knowledge of problems to reach the correct results.

Recommendations

Based on the findings of the study and the conclusion drawn, the following are recommended:

1. The Pagbilao District II officials should encourage teachers to develop integrated English and Math intervention material to help the left - behind learners in Mathematics.
2. School heads and master teachers can include the other competency in integrating different learning approaches. This can be a topic in the learning action cell, focused group discussions and in – service trainings.
3. Mathematics teachers should develop more approaches in reading comprehension and problem-solving to enhance learners' performances
4. Students can enhance their knowledge and skills of their least – mastered competencies by practicing different approaches in learning.
5. Future researchers may conduct similar studies on the approaches in Mathematics to provide further evidence of its efficiency. Similar studies may also be conducted using intervention materials for more contextualized learning experience.

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