MATHEMATICAL LEARNING PACKAGE UTILIZING SQRQCQ STRATEGY IN IMPROVING WORDED PROBLEM-SOLVING SKILLS

A Master's Thesis
Presented to the Faculty of the Graduate School
College of Teacher Education
Southern Luzon State University
Lucban, Quezon

In Partial Fulfillment
of the Requirements for the Degree
Master of Arts in Education
With Specialization in Elementary Education

by

DARLENE MAE E. AGUILA
June 2020

CERTIFICATE OF ORIGINALITY

I hereby affirm that this compliance is my own work and that, to the best of my understanding and certainty, it covers no material previously published by another person nor material to which a considerable range has been acknowledged for award of any other degree or diploma of a university or other institute of higher learning, except were due credit is made in the text.

I also declare that the logical content of this thesis is the product of my own effort, even though I have customary assistance from others on style, presentation and semantic expression.

dmaguila

DARLENE MAE E. AGUILA
Signature of Author over Printed Name

June 25, 2020
Date

APPROVAL SHEET

Republic of the Philippines
Southern Luzon State University
Lucban, Quezon

The Thesis of

DARLENE MAE E. AGUILA

Entitled

MATHEMATICAL LEARNING PACKAGE UTILIZING SQRQCQ STRATEGY IN IMPROVING WORDED PROBLEM-SOLVING SKILLS

Submitted in Partial Fulfillment of the
Requirements of the Degree

Master Of Arts In Education
With Specialization in Elementary Education

In College of Teacher Education
Southern Luzon State University has been approved
by the Committee

MARITES M. ROH, MAT
Member

RIZAIDE A. SALAYO, MAT
Member

MARIFE S. MAGPANTAY, Ph.D.
Chairperson

GRACE D. PERMALINO, MAEd
Adviser

MARIFE S. MAGPANTAY, Ph.D
Dean, CTE

Accepted in partial fulfillment of the requirements
for the degree Master of Arts in Education with specialization in Elementary Education

APR 29 2021

Date

GONDELINA A. RADOVAN, Ph. D.
Vice President for Academic Affairs

DEDICATION

This valuable piece of work is wholeheartedly dedicated to my loving parents,
MARGAUX and ARMER; to my supportive siblings, DANICA, DAVID,
and DANIEL and to my Ginoo, JOHN CARLO who have been
the source of my strength, happiness, and inspiration
against the unbearable forces of life’s challenges.
Above all, to ALMIGHTY GOD, for the guidance,
power of mind, protection and healthy life.
All of these, I offer to You.

DMEA

ACKNOWLEDGEMENT

The researcher would like to express her sincerest gratitude to those who contributed to the success of this study. With love, respect, and honor, she would like to acknowledge the support given to her by the following:

PROF. GRACE D. PERMALINO, research adviser, for sharing her ideas and **s**uggestions for the improvement of the study, for her perseverance and patience in every consultation and checking of the manuscript, for her concern and support throughout the making of the study;

DR. MARIFE S. MAGPANTAY, chairperson, **PROF. MARITES M. ROH** and **PROF. RIZAIDE A. SALAYO,** for serving as the panelists during the thesis defense and for helping her improve the research paper through their comments, critiques and suggestions;

DR. HERMOGENES M. PANGANIBAN, Schools Division Superintendent of the Division of Lucena, and **MRS. ROWENA J. ADORMEO,** principal of Lucena South 1 Elementary School, for allowing the researcher to conduct her study;

GRADE THREE-LOYALTY PUPILS OF LUCENA SOUTH 1 ELEMENTARY SCHOOL SY 2019-2020, her respondents for the willingness and cooperation in the study;

MRS. MA. GLORIA E. AGUILA and **MR. ARMERANTE A. AGUILA,** her parents, **RACHEL DANICA, JOHN DAVID,** and **NIKKO DANIEL,** her siblings who always give moral support, unconditional love, words of advice and assistance which motivated her to strive hard and develop self-confidence;

MR. JOHN CARLO CONSIGNADO LORBIS, her boyfriend, for always believing on her that she can get all through this and for serving as her guide as well as her greatest inspiration to make this study successful;

The **Validators,** for validation of the research instruments;

And to **Those** whose names do not appear here but nonetheless contributed to the success of this study.

Above all, the researcher offers praises and thanks to the **ALMIGHTY GOD,** who makes all things possible in His name, for generously equipping her with the divine support, unending guidance, endless blessings, unlimited courage, wisdom and strength. Without Him, the study would not have been impossible.

TABLE OF CONTENTS

	Page
Title	i
Biographical Sketch	ii
Certificate of Originality	iv
Approval Sheet	v
Dedication	vi
Acknowledgement	vii
Table of Contents	ix
List of Tables	xi
Figure	xii
List of Appendices	xiii
Abstract	xiv
Chapter I Introduction	1
Background of the Study	3
Objectives	4
Hypothesis	5
Significance of the Study	6
Scope and Limitations	7
Definitions of Terms	8
Chapter II Review of Literature	11
Conceptual Framework	48
Research Paradigm	50
Chapter III Methodology	52
Research Locale	52
Respondents	52
Research Design	53
Research Instrument	54
Data Gathering Procedures	58
Statistical Treatment	59
Chapter IV Results and Discussion	64
Chapter V Summary, Findings, Conclusion and Recommendations	82
Summary	82
Findings	83

Conclusion 84
Recommendations 85

References Cited 87
Appendices 97

LIST OF TABLES

Table		Page
1	Level of Competence in Solving Worded Problems	64
2	Level of Competence in Reading Comprehension Skills	66
3	Correlation of Pupils' Competence in Solving Worded Problems to the Reading Comprehension Skills	67
4	Comparison of the Pretest/Posttest Scores in Solving Worded Problems of the Grade 3 Pupils Before and After Utilizing SQRQCQ Strategy	73
5	Comparison of the Pretest/Posttest Scores in Reading Comprehension of the Grade 3 Pupils Before and After Utilizing SQRQCQ Strategy	75
6	Weighted Mean Distribution of the Acceptability of the Mathematical Learning Package as to Content	77
7	Weighted Mean Distribution of the Acceptability of the Mathematical Learning Package as to Accuracy	78
8	Weighted Mean Distribution of the Acceptability of the Mathematical Learning Package as to Usability	80

FIGURE

Figure **Page**

1 Independent-Dependent Model on Mathematical Learning Package Utilizing SQRQCQ Strategy in Improving the Worded Problem-Solving Skills 50

LIST OF APPENDICES

Appendix		Page
A	Letter of Communication	98
B	Certification of Validation	102
C	Research Instruments	103
D	Item Analysis	121
E	Statistical Computation	123

ABSTRACT

Title of Research: Mathematical Learning Package Utilizing SQRQCQ Strategy in Improving Worded Problem-Solving Skills

Researcher: Darlene Mae E. Aguila

Adviser: Prof. Grace D. Permalino

This study intended to improve the worded problem-solving skills of Grade Three pupils by using the developed Mathematical Learning Package utilizing Survey Question Read Question Compute Question (SQRQCQ) strategy. Specifically, it determined the significant difference on the level of performance of the respondents before and after utilizing SQRQCQ strategy and evaluated the level of acceptability of the learning package as to content, accuracy and usability. It employed quantitative-correlational method and one-group pretest-posttest design. Thirty-four (34) pupils served as the respondents of the study. The gathered data revealed that the pupils' level of competence in solving worded problems got a mean score of 13.15 classified as beginning while their reading comprehension obtained a mean score of 12.06 which fell on "frustration level" description. A significant relationship between the level of competence in solving worded problems and reading comprehension skills was also determined as indicated in pearson-r value of 0.772 which is higher than the critical value of 0.339. Further, a significant difference on the level of performance in solving worded problems was evident upon the analysis of pretest/posttest as revealed in the t-test value of 13.103 at 0.05 significance level. Likewise, a significant difference on the level of performance in reading comprehension was also proved as it gained a computed t-test value of 11.453 at 0.05 significance level. Certainly, utilization of SQRQCQ strategy fosters improvement in worded problem-solving skills. Thus, the Mathematical Learning Package has been *"strongly accepted"* among experts. It is advisable for use of Mathematics teachers in Grade 3.

Keywords: *mathematics, problem-solving skills, reading comprehension, SQRQCQ strategy*

Chapter I

INTRODUCTION

Mathematics and literacy are often perceived as separate entities. Traditionally, Mathematics focuses on procedural and computation skills; whereas, literacy focuses on fluency and comprehension. As cited in the K to 12 Mathematics Curriculum Guide (2013), Mathematics pervades life at any age and in any circumstance. Its value goes beyond the classroom and the school so educators must teach this learning area comprehensively and with much depth to achieve the twin goals of mathematics which are the progress of critical thinking and problem-solving skills among learners.

Beginning in the primary grades, problem solving is one aspect of mathematical competence that is expected to be gained in mathematics learning. The main target of the school's mathematics curriculum is for the students to gain the experience to transfer and apply learned knowledge and skills to solve problems (Permata, 2018). In an article, it had been mentioned that a mathematically competent student does not only understand how to compute and perform algorithms but is also capable to pose and solve mathematical problems (SEI-DOST & MATHTED, 2011).

In some instances, students would much rather attempt computation problems over word or story problems because traditionally, students are more familiarized to the former. Since computation problems and word problems require the same mathematical skill, one might wonder why students struggle when carrying out these tasks. Reading comprehension skill is one of the required skills to develop mathematical literacy. Many strategies exist to assist students in technical reading but the mathematics learning by grade school lacks emphasis on acquisition on reading comprehension skill (Abidin, Mulyati, and Yunanasah, 2015). A concrete reading strategy for solving word problems is rarely taught to students.

On a study by Progress in International Reading Literacy Study (PIRLS, 2015), one technical reading strategy, Survey, Question, Read, Recite, Review (SQ3R), was developed in 1941 by Robinson. Later in 1965, Leo Fay described his adaptation of the SQ3R strategy. The technical reading strategy was tailored by Fay to assist students comprehend and compute word problems. This new strategy was called SQRQCQ, meaning Survey, Question, Read, Question, Compute, and Question. It is a literacy skill strategy especially designed to help students in learning mathematics. SQRQCQ is sort of a “secret” for solving word problems, which have long been a nemesis for almost every math student.

Reading comprehension and math literacy are indispensable as far as student’s performance in solving word problems in Mathematics is concerned (Marasigan, 2016). Since the adoption of the Philippines Standards of Professional Teacher (PPST) in 2018, integrating literacy skills in all content areas has been required, including math. Implementing literacy strategies into all content areas provide students with the flexibility to critically read, write, and communicate effectively. Accordingly, current educators are now required to integrate writing, vocabulary, and comprehension strategies into everyday instruction to support bridging the gap between literacy and mathematics.

SQRQCQ can help students target a process to decide what problem is being asked, what information is required, and what approach to use in solving the problem in computation (Saclao, 2018). Further, it asks students to reflect on what they are doing to solve the problem on their understanding. Hence, this practice explains how SQRQCQ works in mathematical reading texts.

Background of the Study

Schools Division of Lucena City, true to its vision of providing quality education to its clientele, conducted a numeracy test to all students. The said test was given to measure the students' numeracy level. Students' performance at Lucena South 1 Elementary School, one of the biggest public elementary school in Lucena City, showed that Mathematics continues to be the most difficult field of study in basic education. The test conducted revealed that four hundred sixteen (416) pupils out of one thousand three hundred twenty-four (1324) or 31.42% are non-numerates (Numeracy Level Test results, 2019). In an analysis, one of the major problems is the undeniable fact that students cannot successfully solve word problems. As expressed by Jan (2012), children face difficulties in solving mathematical word problems as most of the time they do not comprehend the wording of the problem.

Likewise, the average quarterly Mean Percentage Score of the Grade 3 pupils in Mathematics during the 1st and 2nd quarters of SY 2019-2020 showed poor results. They performed below the target of 75% MPS which indicates that the pupils' performance in this subject is not quite good. Test results revealed the least mastered competencies wherein one vital contributory factor to the current poor performance is the difficulties in word problem solving. Similarly, Phonapichat et al., (2013) found in their study that pupils have difficulties in understanding the keywords appearing in problems; thus, they cannot interpret them in mathematical sentences. Pupils are unable to figure out what to assume and what information from the problem is necessary to solving it. Pupils are also impatient and do not like to read mathematical problems.

In the same way, Rose (2011) imparted in her study that Math text is more complexed to grasp than most written communication students encounter. Due to this, mathematical word problem solving can become a significant challenge because both the reading comprehension and the technical math knowledge are involved.

The researcher believes that students' problem in reading comprehension occurs because of several factors. One is that they only read a passage briefly and they use learning methods that are inappropriate. This problem is truly alarming and calls for improvement in the teaching-learning process. As what has been cited by Mulyati (2017), there is a positive correlation between reading skill and mathematical problem solving.

Considering the connection of reading comprehension in mathematical problem solving skills and inadequate performance of the pupils, the researcher became motivated to conduct this study that dealt with the utilization of the literacy strategy Survey, Question, Read, Question, Compute, Question (SQRQCQ) to provide guidance among teachers on how to improve pupils' worded problem-solving skills in mathematics. Knowing that Ardini (2013) and Glick (2019) had been very positive that SQRQCQ is a good option to comprehend mathematical readings, the researcher's interest to attest this claim in her locality was further ignited.

Objectives of the Study

This study aimed to improve the worded problem-solving skills of Grade 3 pupils in mathematics by utilizing SQRQCQ strategy in classroom instruction.

Specifically, it attempted to achieve the following objectives:

1. Assess the level of competence of Grade 3 pupils in terms of:

   1.1 Solving worded problems; and

   1.2 Reading comprehension

2. Correlate the pupils' competence in solving worded problems to the reading comprehension skills

3. Develop a Mathematical Learning Package utilizing the SQRQCQ strategy in Mathematics for Grade 3.

4. Find out if there is a significant difference on the level of competence of the respondents before and after utilizing SQRQCQ strategy as shown in the pretest and posttest results in terms of:

   4.1 Solving worded problems; and

   4.2 Reading comprehension

5. Evaluate the level of acceptability of the Mathematical Learning Package as to:

   5.1 Content;

   5.2 Accuracy; and

   5.3 Usability

Hypothesis

1. There is no significant relationship between the pupils' competence in solving worded problems and reading comprehension.

2. There is no significant difference on the level of competence of the respondents before and after utilizing SQRQCQ strategy in terms of solving worded problems.
3. There is no significant difference on the level of competence of the respondents before and after utilizing SQRQCQ strategy in terms of reading comprehension.

Significance of the Study

As the study attempts to improve the worded problem-solving skills in Mathematics, this study would be beneficial to the following:

Pupils. Since pupils are the major beneficiaries of this endeavor, utilizing SQRQCQ strategy in the problem-solving process provides them a strategic way in comprehending mathematical reading texts. It would train pupils to be more careful in solving the problem in detail. Also, it would allow them to organize in a logical order the necessary steps to solve a word problem. Thus, it will benefit them in developing their critical thinking and problem-solving skills in accordance to the twin goal of Mathematics curriculum.

Teachers. This study would be a great help for those who are teaching Mathematics for it can be used as problem-solving process learning strategy especially to those who encounter problems about comprehending a mathematical text. The Mathematical Learning Package utilizing the SQRQCQ strategy would give them patterns on how to sharpen and develop pupils' critical thinking and problem-solving skills. Moreover, this study is important because it would provide math teachers, who are not naturally trained in content reading, assistance on how to teach their pupils to read and comprehend the mathematical language of worded problems.

School Heads. The result of the study would encourage them to support teaching Mathematics for the benefits of improving the worded problem-solving skills of the pupils. Upon knowing it, they would have a basis for an intervention plan that they need to develop in addressing certain issues related to Mathematics instruction.

Future Researchers. This study would serve as a source of information for researchers who will embark on a similar study addressing difficulty in worded problem-solving. The concepts, instruments, methodology, findings and recommendations may prove useful as a bedrock of knowledge in conceptualizing parallel studies.

Scope and Limitations

This study focused on the utilization of SQRQCQ strategy in improving the worded problem-solving skills using the developed Mathematical Learning Package. The respondents were thirty-four (34) Grade Three pupils of Lucena South 1 Elementary School for the School Year 2019-2020. The study employed quantitative-correlational method and one-group pretest-posttest design. A researcher-made pretest and posttest consisting thirty (30) items were developed to assess the level of competence in solving worded problems. Likewise, a twenty (20) item test adopted from the Philippine Informal Reading Inventory (Phil IRI) Manual 2018 was also utilized in assessing the reading comprehension skills of the respondents.

Moreover, a mathematical learning package consisted of five (5) lesson plans and worksheets utilizing the SQRQCQ strategy was developed and used in teaching the selected learning competencies for five (5) weeks. A survey checklist questionnaire comprised of fifteen (15) statements was administered to seven (7) experts to evaluate the level of acceptability of the learning package as to content, accuracy and usability.

However, this study was limited only on the learning competencies involving worded problem-solving in measurement, statistics and probability of the fourth grading period in Mathematics 3. The five learning competencies are the following: (1) visualizing, and representing, and solving problems involving conversion of time measure; (2) visualizing, and representing, and solving routine and non-routine problems involving conversions of common units of measure; (3) visualizing, and representing, and solving routine and non-routine problems involving capacity measure; (4) solving routine and non-routine problems involving areas of squares and rectangles; and (5) solving routine and non-routine problems using data presented in a single-bar graph.

This study was conducted during the S.Y. 2019-2020.

Definition of Terms

For a better understanding and clarity, the researcher defined the following terms operationally and conceptually:

Accuracy is the condition or quality of being true, correct, or exact (Thesaurus.com). In this study, it is one of the criteria in the acceptability level that was used to rate the learning package in relation to the alignment of the content to the goals and objectives of the K to 12 Curriculum.

Content is the subjects or topics covered in a book or document (Thesaurus.com). Operationally, it is one of the criteria in the acceptability level that was used to rate the learning package in terms of its substance in Mathematics lesson.

Level of Acceptability in this study is the degree of satisfaction of the respondents on the use of the developed learning package in terms of content, accuracy, and usability.

Mathematical Learning Package is a material designed for the learners to learn (UNESCO, 2020). In this study, this pertains to the learning materials developed by the researcher which includes detailed lesson plans (DLP) and worksheets used in teaching worded problem-solving in Mathematics.

Mathematics is a skill subject. It is a tool of science and a language contains own symbols, notations and syntax rules, with which concepts and ideas are effectively expressed. It is all about shapes and figures, quantities, functions, reasoning and logic (K to 12 Mathematics Curriculum Guide, 2013). In this study, Mathematics pertains to the lessons involving word problem solving during the fourth grading period where the SQRQCQ strategy was utilized.

Problem Solving Skills involves being able to identify and define the problem, evaluating and selecting important details, generating solutions, and implementing the selected solution (NSCM, 2010). Explicitly, it refers to the ability to solve problems in an effective and timely manner. Operationally, it serves as the main variable observed for improvement by using the SQRQCQ strategy.

Reading Comprehension is a process by which a person can create meaning while reading written language (Baier, 2011). Operationally, it refers to the level of competence of the pupils in understanding the meaning of a written text as shown in the result of their Philippine Informal Reading Inventory (Phil-IRI).

SQRQCQ Strategy is a process of learning strategy in problem-solving. It provides the students the ability to gain a holistic understanding through reading activities which consists of six steps, namely Survey, Question, Read, Question, Compute and Question developed by Leo Fay (1965). It is a variation of Polya's four-step process and SQ3R (Mulyati, 2017). Operationally, SQRQCQ strategy was utilized to help pupils improve their worded problem-solving skills in Mathematics.

Usability is the capability of being used (Thesaurus.com). Operationally, it was used as a criterion to rate the learning package in terms of its usefulness and importance in improving the worded problem-solving skills in Mathematics.

Worded Problem means a mathematics-related question that highly varies. It is a real situation seen in real life which requires a proper method and mathematical knowledge in order to be solved (Phonapichat, 2013). These are problems that require a student to read and comprehend before he/she computes. Based on this study, worded problem pertains to the story problems about the topics included in the fourth grading period of Mathematics 3.

Chapter II

REVIEW OF LITERATURE

This chapter presents related reading, both literature and studies, which are essential in this research because the concepts and findings tend to support the purpose of this study.

Survey Question Read Question Compute Question (SQRQCQ) Strategy

Various strategies were introduced to help students in reading; though, there are some strategies geared explicitly at the math content area. According to Sticht as mentioned by Ardini (2013) one of this strategies is the Survey, Question, Read, Recite, Review (SQ3R) developed by Robinson in 1941 for a purpose to help soldiers comprehend the technical reading of manuals during World War II. Mulyati (2017) shared that Leo Fay designed his adaptation of the SQ3R strategy on reading strategy to aid students comprehend and compute word problems in the math classroom. This new strategy was called SQRQCQ, meaning Survey, Question, Read, Question, Compute, Question.

As cited by Rose (2011), SQRQCQ is a comprehension strategy specifically designed for word problem in mathematics. In 1965, Fay presented the SQRQCQ at an International Reading Association conference. An explanation behind the strategy stated that, "It is within the problem-solving part of arithmetic that the reading skills have their major functions in both general level of study procedure and a lot of specific level involving vocabulary, comprehension and interpretation skills." Thus, SQRQCQ an approach focused to solving word problems, with terribly specific steps.

Loveless and Betz (2019) imparted that adapting the SQRQCQ method may result to solving math word problems in an easier and less intimidating way. It is a metacognitive guide that offers a systematic way for solving math word problems. SQRQCQ stands for Survey, Question, Read, Question, Compute and Question. In an article, the six steps were clearly discussed which are: (1) Survey, the first step to solving a math word problem is to read the problem in its entirely to understand what is being asked to solve, to get a general understanding; (2) Question, determine what needs to be solved; (3) Read, reread the problem and pay close attention to specific details needed to solve the problem; (4) Question, determine what formulas or equations must be used to set up and solve the problem; (5) Compute, use the formula and/or equations identified in the previous step; and (6) Question, review the final answer and make sure it is correct and accurate. Likewise, they stated that SQRQCQ is a mnemonic that is easy for students to remember.

Baier (2011) shared that SQRQCQ is another mathematics modification to SQ3R. the students begins by surveying (S) the question to acquire a better idea of the problem, and then questions (Q) themselves about the problem, followed by reading (R) the problem once again while giving focus on specific details. After that, the student should question (Q) what mathematical formula must be performed, and compute (C) the mathematical formula. Finally, the student should question (Q) the answer obtained by reviewing their work and checking the process.

SQRQCQ as expressed by Hanna (2015), is a text comprehension strategy that supports students in reading and learning math word problems in a math classroom. This strategy helps students to have an organize steps to follow for them to understand much easier a mathematics word problem. Moreover, she added that SQRQCQ requires students to reflect on their process of solving the problem, their understanding of the problem and the reasonableness of their solution. Encompassing all the statements, it is believed that this strategy would be very helpful when working on word problems with students to help them organize their thoughts as well as build their confidence when solving word problems.

According to Heidema (2011), the six-step strategy SQRQCQ was designed by Fay (1965) and was modeled after SQ3R, one of the best-known reading strategies. Likewise, Balak (2019) stated that students follow a similar process in SQRQCQ that much like the SQ3R method. Though, the former concerns explicitly towards solving mathematics word problems. The above statement agreed with Heidema (2011), asserted that SQRQCQ is envisioned to permits students to have an organize and logical order of steps needed in solving worded problems. It assists students in reading and learning mathematics, mainly in solving word problems.

As stated by Ardini (2013), SQRQCQ initiated by Fay (1965) is considered beneficial to apply to students in learning Math in English since reading texts in math contains computation and word problems. Through following the logical order of steps of SQRQCQ, the students could improve their critical thinking in reading while answering the questions in each problem. So, teaching mathematical reading in the classroom will be easier by considering the SQRQCQ strategy to comprehend the reading texts.

In an article of Rudenstine (2019), SQRQCQ helps to guide students through the process of solving a mathematical word problem. Students apply a constant set of steps to form their method to solving the problem and to reflect metacognitively on what they have done. Students use the acronym to recall and monitor the following steps: (1) Survey, students skim the problem to gather a general understanding of the nature of the problem;

(2) Question, students ask what the problem is about, and what information it requires; (3) Read, students read the problem carefully and identify important information, relationships and details; (4) Question, students ask what they need to do to solve the problem; (5) Compute/Construct, students perform the operations necessary to solve the problem; and (6) Question, students ask if the solution makes sense, and if they solved the problem correctly.

Lighthouse View (2011) added that completing the steps, students have numerous means of attaining information and understanding the process. During step 1, they focus is on meaning both at the word level and in context. Steps 2, 4 and 6 incorporate self-regulation strategies through reflecting and evaluating the previous step by asking question. Each step is a building block to the next where students are encouraged to look deeper into the meaning of the problem.

Ardini (2013) shared that the students do survey in the first step. They survey the problem swiftly to get a general idea of it. The teacher can talk to the students about the problem and discusses what parts are important. He can also guide the students to find out if there are any distracting words which are not important in solving the problem. Further, the teacher can have the students to offer guesses about what the problem wants them to do. The second step is question. In the first question, the students analyze what the problem is asking for. The problem may ask the students to calculate. The following step is reread. This step is useful to identify facts, relevant information, and details the students will need to solve the problem. The fourth step is the second question wherein students are requested to do reflecting again about the question. This question formed focuses on what mathematical operation(s) to apply and list them in the order they are to be performed. Next step is compute. In this step, the students do the computation to solve the problem. After the computation, the students then come to the last step, question. The third question is necessary for checking if the computation is right and the answer makes sense. If the answer is “no”, the students are expected to make correction on it.

From all the above mentioned readings, it can be concluded that steps of SQRQCQ are beneficial for students to understand more about their process on mathematical reading text. The strategy surely trains students to be more careful in solving the problem in logical order. As cited by Mulyati (2017), it is one of the problem-solving process learning strategies giving students ability to gain a holistic understanding through reading activities. Likewise, according to Metsisto as mentioned by Krier (2015), students may use a reading strategy called SQRQCQ to break a problem into smaller pieces. Using a structure to analyze and solve real-world problems allows students to process and understand the context of the question and access information to find the solution.

According to Roberts as cited by the Lighthouse View (2011), the strategy was developed to assists those students facing difficulties with math word problems. SQRQCQ serves as a road map that guides students down the right highway to reach their destination of answering the word problems correctly. Also, this strategy slows down a student to guide them in captivating the right path to their destination for classroom teachers frequently witness students bypassing the words within a word problem. Without navigating their way through the problems, students directly racing to the numbers making them end up lost.

As expressed by Puspita (2018), it is crucial for elementary school pupils to develop critical thinking skills and reasoning, however through SQRQCQ method, it allows them to logically manage the steps needed to solve word problems. Hence, sharpening students’ understanding and comprehension of a mathematical text leading to the development of their higher order thinking skills. Given these points, Ardini (2013) stressed that by means of SQRQCQ, it hones the students' capabilities in solving word problems in mathematics. Through asking the appropriate questions, gathering important details, organizing the relevant information, reasoning logically, making decision, and checking the whole answer, the students are considered as problem solvers and critical thinkers

In addition to this, Larasati (2018) mentioned in her study that SQRQCQ is a problem-solving process learning strategies allowing students to gain an ability to understand a text through reading activity. Thus, it is an effective and suitable method to help students solve their problem. Relative to this, Murcia (2018) stated that students must possess good reading comprehension as well as analytic and computational skills before he can effectively solve a word problem.

According to Abidin as cited by Puspita (2018), SQRQCQ is a mathematical learning strategy that is appropriate in guiding the pupils to understand the content of a mathematical text while increasing their comprehension. This is essential to get used to analyze a mathematical story problem and to maintain their understanding for a longer period of time until they finally arrived at the right answer. Meanwhile, according to research, Magen-Nagar (2016), shared that one of the key factors that contribute to success in solving problems in mathematics is selecting an efficient strategy.

In line with some of the opinions above, Lighthouse View (2011) shared some advantages of utilizing SQRQCQ strategy: (1) provides an outline for problem solving; (2) can assist to retrieve an information; and (3) aids student to create a meaningful connection between the question being asked in a word problem and how to solve the problem.

Similarly, Larasati (2018) shared in her study the benefits of SQRQCQ method to students. It can improve reading comprehension and helps them to asking questions effectively as they read and respond to the text. Students learn to think creatively and work cooperatively when use higher level thinking skills. Accordingly, it supports students to think about the text they are reading for deeper comprehension.

On the other hand, according to Lighthouse view (2011), the disadvantages are: (1) the process can seem to be long and time consuming; and (2) method requires interaction among the students to be effective. In the same way, Larasati (2018) discussed that for students who have a hard time thinking beyond the text, this will be a challenging activity and a lot of time will be needed in order to be applied while reading. However, it was concluded in her study that using SQRQCQ method has a significant impact on the students' success in reading comprehension.

Glick (2019) concedes in her study that using SQRQCQ strategy helps students to extrapolate key information in word problems and come up with an accurate step to be used in order to solve the problem. It was found out that the strategy was better suited for organizing information rather than increasing student performance. She added that students who were having difficulties in solving a word problem fast would terminate new strategy and depend on a system previously taught for solving problems. Yet, students who utilized the strategy properly were able to find the precise solution.

From the findings of the study made by Saclao (2018), SQRQCQ strategy assists students in reading and learning mathematics; allows them to organize in a logical order the steps necessary to solve a word problem; and asks them to reflect on what they are doing to solve the problems on their own understanding and on the reasonableness of a solution. It was also suggested that teachers should practice reading strategies for solving math word problems to assist students develop effective reading and communication in mathematics. This is corresponding to the research results by Lopez-Mohler (2013); and Phonapichat, Wongwanich, and Sujiva (2014) as cited by Mulyati (2017) stated that students who struggle in solving math word problem have difficulties in reading and understanding the word problem.

Basol and Ozel (2011) imparted that there is a positive correlation between reading skill and mathematical problem solving. In line with this, a research conducted by Mulyati (2017) about the effect of integrating children's literature and SQRQCQ problem solving learning, shows positive outcomes. It can be concluded that the SQRQCQ problem solving learning with children's literature can encourage students to read text containing problems, identify important information, involving their knowledge in the organization and adaptation processes to interpret the reading content, and writing on the problem solving by the problem-solving steps. It is in line with Piaget's (1972) constructivist learning theory wherein students employ their thinking skill to distinguish and understand the content of the text, assess given ideas and presenting new concepts related to the texts.

As discussed by Puspita (2018) in his action research, he was inspired to implement SQRQCQ method to improve the reading comprehension of the students due to students' poor performance when answering questions after reading a discourse text and their unreceptive response during learning process. Corollary to this, the results showed significant increase in the reading comprehension of the students after applying SQRQCQ method. Likewise, in a study carried out by Latifah (2019) entitled improving the reading ability of understanding mathematical discourse, it revealed that SQRQCQ strategy is an effective method for improving reading skills specifically understanding the mathematics discourse. Thus, planning a lot of time for vocabulary instruction and teaching students to analyze multi-step word problems by applying reading strategies in mathematics was suggested.

In contrast, a research by Rose as cited by Mulyati (2017) associated to the utilization of SQRQCQ indicates that there is a decrease in the student performance at post assessment, though it is not so significant decrease. This reveals that SQRQCQ failed to improve the student performance in solving word problems; however, there was an increase in students' confidence when solving word problems. Students learn to read the problems more than once before attempting to solve it. That's why the findings revealed that students felt that they can answer the word problems appropriately.

Relative to the results, it was stated that Rose (2011) implemented the SQRQCQ strategy in solving word problems for three times a week which took as long as more than one hour each session. For this reason, Rose recommended that to gain better results, advance research concerning math and reading comprehension must be done for a longer period. Additionally, Mulyati (2017) affirmed that it is crucial to take extra time to help students learn and practice using SQRQCQ strategy when solving worded problems.

Therefore, through utilizing literacy strategies in mathematics instruction, students are learning to think effectively and critically to guide them fully understand the concepts. Regular use of literacy strategy is considered as vital element in learning. From different studies read, SQRQCQ literacy strategy introduced by Leo Fay (1965) is specially designed for solving word problems in Mathematics. It is a six-step process in solving word problems namely: Survey, Question, Read, Question, Compute, Question. Several researchers believed that it is an effective strategy to enhance the problem-solving skills of the pupils because it provides a logical and systematic way of solving the problem. Also, it allows the pupils to organize their thoughts and gain holistic understanding of the problem. So, this strategy was utilized in this study to test its effectiveness and impact in the worded problem-solving skills of the Grade 3 pupils.

Worded Problem-Solving Skills in Mathematics

Teaching and learning Mathematics are very fascinating and exciting both on the part of the teacher and the students. Mathematics is an important subject because of its practical role to a person and the society (Murcia, 2018). It plays a big role in developing human thoughts, bringing strategic, systematic reasoning processes used in problem analysis and solving. Also, enabling the students to experience on how to solve daily life problems by applying their mathematical knowledge and skill is the main purpose of mathematics teaching (Osman, 2018).

According to Benito as cited by Merle (2015), the aims of learning Mathematics are: (1) mastery of basic mathematical skills is needed in order to cope with the demand of life; (2) Mathematics is the language of sciences, and many disciplines depend on this subject as a symbolic means of communication; and (3) Mathematics education plays a big role in evolving students' problem solving and decision making skills. Hence, Permata (2018) asserted that Mathematics can be used as a tool to make job easier, more effective, and efficient.

Unfortunately, Patena (2013) stated that the low understanding level accompanied by disheartening national test results of the students, (Phonapichat, 2013), raised several issues concerning the quality of education particularly in Mathematics. Besides, Mathematics is often perceived as difficult because of its abstract nature (Moraña, 2017) resulting to a significantly low achievement in Mathematics as well as relatively low self-efficacy among students who are impatient in solving word problems posed great challenges to current Mathematics educators to change the attitude of the students towards this subject (Adora, 2017).

Relative to this, the Department of Education through DepEd Order No. 42 s. 2017, implemented the PPST aimed to engage teachers to actively embrace a continuing effort in attaining proficiency. It is because quality learning is contingent upon quality teaching. Primarily, the goals of the government at enhancing the quality of education in our country depend on the ability of the teachers for they are the ones who portray the major role of imparting the all the knowledge, skills, and values to the students.

As stated in Republic Act 9155, Rule 1, Section 1, “The Department of Education shall protect and promote the right of all citizens to quality basic education and shall take proper steps to make such education accessible to all.” Actually, it is specified that the goal of basic education is providing the students with the knowledge, basic skills, and values they need to become self-reliant, caring, productive, and patriotic citizens. Knowing that the progress and development of a strong nation depends primarily on the education that people acquired, excellence and quality in education has been the mission of all leaders (Diloy, 2015).

According to Iyad and Aslan as quoted by Osman (2018), the basic skills of mathematical problem-solving can be measured and improved through various methods and techniques. Students are expected to learn and develop their problem-solving skills in primary grades so that they can apply in real-life situations using analytical and critical thinking skills.

Heidema (2011) mentioned that problem solving in mathematics is viewed with a conceptual model proposed by George Polya (1957). Polya's model has four steps: 1) understand the problem; 2) devise a plan; 3) carry out the plan; and 4) look back. One important aspect in problem-solving is understanding the question. It needs to be understood, before problem could be solved (Polya 1981; Zalina 2005). However, long sentences and various information involved in a word problem, many students got confused in identifying the problem. They tend to misunderstand the meaning of the given problem. Giving sense to the problems was critical to understand the objective that needs to be accomplish (Tambychik, 2010).

According to Maria as cited by Lubis (2017), the method of problem solving is a theory developed by Dewey, Polya and Wallas, the steps are as follows: (1) understand the problem; (2) development of a solution; (3) advancement of learning through discussion, and (4) conclusion. Likewise, according to Bransford and Stein as quoted by Permata (2018), an IDEAL problem solver consists of five indicators including (1) identifying problems; (2) defining the problem; organizing information and question; (3) exploring solution; finding possible strategies; (4) acting on the strategies; and (5) looking back and evaluate. IDEAL is a strategy that can be used to describe the process of problem solving.

From the opinions above, it can be understood that there are several proposed step-by-step problem-solving processes that students may follow. But basically, solving math problems involve recognizing what is asked in the problems, providing solutions and applying the procedure of finding answers.

Mathematical word problem solving has been gaining so much attention in the past decades. As cited by Tambychik (2010), one major aspect of Mathematics curriculum is problem solving. It requires students to apply, utilize and integrate various mathematical concepts, ideas and skills as well as making decision.

As has been cited by Lein (2016), word problem solving is a complex process which entails students to integrate cognitive and metacognitive processes to identify relevant information, determine what information is missing, and create an adequate representation of the problem which leads to the selection and execution of appropriate solution strategies. In line with this, Woodward (2012) shared that problem solving encompasses analysis and reasoning, construction of argument, and the advancement of innovative strategies. Students with established proficiency in solving mathematical problems are well-prepared for advanced mathematics and other complex problem-solving tasks.

Lubis (2017) shared that problem-solving activities is one of the activities in mathematics that are considered important. The purpose of mathematics courses in schools is that the students are able to: (1) understand the mathematical concept; (2) solve problems that include the ability to understand the problem, devised a mathematical model, solve the model and interpret the obtained solution; (3) perform mathematical manipulation in making generalizations; and (4) have respect for the usefulness of mathematics in life. Given these points, it appears that problem solving is the basis of all mathematical and scientific discoveries.

According to several education psychologists, thinking skills can be improved in elementary school stages (Sulak, 2010). The thinking skills being described is not limited to responding to the questions asked and participating in a teacher-centered classes. The goal is to lead students to solve word problems through developing critical and analytical thinking skills.

According to Woodward as cited in Lein (2016), solving routine problems does not constitute problem solving, like those that students can solve using familiar methods in a step-by-step process. For example, no-context problems such 28 + 42 =? are routine problems. In contrast, non-routine problems require unpredictable, unique and unrehearsed processes to solve a given task. It involves deeper understanding and analysis.

Various types of survey were conducted to determine what difficulties the students were suffering and then tried something to improve their ability to solve problems. Apart from understanding the problems, other difficulties faced were making decision on how to solve the problems. Several researchers believed that students struggle to make connection. Students failed solving a problem because they were unskilled in organizing the given information and constructing mathematical sentences necessary in the process of problem solving. Relative to this, Murcia (2018) imparted that pupils struggle in comprehending the content of word problems effectively and making connections with the ideas expressed in it.

Malibiran et al. (2019) stated that problem-solving is an important skill needed not only in mathematics class but in everyday living as well. In some instances, students may have mastery of the mathematical concepts but still find it difficult to apply the skills in real life situations and in solving worded problems. In their study conducted, it was revealed that numerous factors such as prior grade in Mathematics and English, reading comprehension skills and attitude towards Mathematics affect the performance of the students in problem-solving.

According to Olga as cited in Osman (2018), an area of difficulty and frustration for a significant number of students is word problem-solving. Recent studies revealed that students have poor performance in answering worded problem-solving questions. They commonly struggle to understand the mathematical language and lead to misconception. In contrast, the study conducted by Alcantara et al. (2017) about problem solving skills in Mathematics revealed that the level of problem-solving skills of students is above average and their mathematics performance is proficient. It was found out that there is a positive correlation between the mathematics performance and level of problem-solving skills.

Tambychik (2010) shared that the capabilities to make expressive perceptions, to provide good concentration, to use memory effectively, and to reflect logically are significant factors in solving problems. Furthermore, it was mentioned that children might struggle in thinking and learning when they established difficulty in giving attention, making perception by visual and auditory, describing orientation of space and shape, understanding language and remembering simple things. Hence, any interference in the systems might result in difficulties in problem-solving.

As discussed by Punzalan et al. (2017) notwithstanding the various educational changes executed and the several teaching strategies supported, struggle in problem-solving continue to manifest. According to Phonapichat (2013) difficulties affecting mathematical problem solving can be classified as; (1) students cannot comprehend the problem due to the poor imagination and practice required to analyze the text; (2) students have low reading and comprehension skills, unskilled to recognize and organize the necessary information given in the problem; (3) students lack interest in solving mathematical problems due to the length and complexity of the problems; (4) teachers do not present daily life matters as problems very often; (5) teachers are naturally making students to use the formula through memorization of the keywords found; (6) teachers concentrate on using the examples specified in textbooks instead of focusing on the principles behind each problem; and (7) teachers do not consider the order of thinking process.

Murcia (2018) added that the difficulties faced by the students are due to lack of vocabulary in mathematics and limited technique in solving word problems. In line with this, some proposed solutions to the word problem solving skills were presented: (1) establish a tutor-tutee relationship wherein a good pupil teaches a slower classmate assigned to him in areas of reading comprehension and problem-solving; (2) develop vocabulary before the beginning of math class; (3) use of object representation and manipulatives to visualize word problems; and (4) organize the given information in the word problem.

Joubert (2009) formulated five categories of difficulties that children may experience whilst attempting to solve mathematical word problems. These are (1) reading and understanding the language used within a word problem; (2) identifying and imagining the context in which a word problem is set; (3) forming a number sentence to represent the Mathematics involved in the word problem; (4) carrying out the mathematical calculation; and (5) interpreting the answer in the context of the question.

Moreover, Joubert (2009) accumulated a list of strategies that can be utilize to overcome difficulties with mathematical word-problems: (1) encourage students to read the mathematical word problems thoroughly; (2) teach students which sort of information may be needed; (3) ensure that students practice solving word problems regularly to be familiarize with the structure of word problems that will let them to come up with the accurate calculation to be applied; and (4) encourage students to check if their answer satisfies the context of the question.

Tuohimaa et al. as cited by Jan (2012) mentioned that children are usually asked to read the math story or the problem presented, jot down the mathematical operation required to finish the activity, and then compute and find the answer to the problem. However, learners are often limited to activities involving computation and spent little time in problem solving. Also, teachers directly write the problem statement arithmetically for students, so they could get the answers without concentrating on how to solve it as the way the problem stated.

As stated in DepEd Order No. 42, s. 2017 entitled “National Adoption and Implementation of the Philippine Professional Standards for Teachers” the Philippine Professional Standards for Teachers (PPST) shall be used as a basis for all learning and development programs for teachers. In line with this statement, one of the thirty-seven (37) strands that encompasses the dimensions of teacher practices is the strategies for promoting literacy and numeracy. Thus, teachers are expected to model a comprehensive selection of effective teaching strategies that promote learner achievement in literacy and numeracy.

From the statements above, it can be understood that with the implementation of PPST, all teachers regardless of learning area and grade level need to utilize a range of teaching strategies that promote literacy and numeracy to expand learners’ opportunities to access wider understandings. Knowing that literacy and numeracy skills are used in many aspects of our lives, these are considered as the key for accessing the broader curriculum and courses (PPST Resource Package Module 2, 2018)

Balak (2019) imparted that teaching students how to solve word problems is a critical aspect of mathematics learning because it involves the use a combination of literacy skills and high-level mathematical problem-solving skills to find the solution. In line with this statement, Swanson et al. (2012) stated that through the use of verbal and visual strategy, students do improve performance of verbal working memory, computation and overall solution accuracy.

Sulak (2010) found that problem solving strategies contain reasoning. It showed that at the end of the application, students established the ability to think analytically. Conducting problem solving approaches training is significantly effective to improve problem solving. Meanwhile, second-grade elementary students attained success applying problem solving strategies though students' ability to process and comprehend problem solving strategies occur in time.

Knowing how to practice multiple strategies allows students to be more successful in solving problems. Therefore, it is suggested that students must be exposed to problems that will require them to employ various strategies to make them more competent in deciding suitable ways to solve problems.Proving, Vula & Kurshumlia (2015) and Diloy (2025) stated that students' difficulties in problem-solving can be overcome through various strategies and activities. Additionally, teachers should use innovative methods and strategies in teaching to attain students' better academic performance.

Based on the research results of Osman (2018), it is proved that exposure to different strategies nurtures meaningful ways of learning mathematics. Learning multiple procedures are beneficial to the students for they are provided with alternative ways in planning and searching for solutions.

However, Osman (2018) found that though there are various techniques and strategies that could help students in problem-solving, there are teachers who still use the old teaching method and teacher-centered approaches. Even Mooney (2014) had already inspired teachers to familiarize themselves to the teaching techniques that suits to the abilities, needs and strengths of their pupils. Thus, teachers must be really encouraged to consider the diverse learning styles and individual differences of the pupils through employing various strategies and procedures in their teaching process.

As cited by Jan and Rodrigues (2012), several researchers advocated that students should be trained to read and understand the problem, formulate a plan, solve the problem, and then proficiently check their answer if it is possible in the situation of the story problem. On the other hand, Van der Schoot et al. as cited by Boonen (2016) shared that problem solvers should learn to apply problem solving strategy that will guide them to decode the problem statement hidden in the text into a numerical representation.

Solving word problems is a complex skill since the various components encompassing problem solving do not certainly follow a strictly linear model. However, the ability to solve word problems can benefit students to enhance their skill to unravel real world problem scenarios (Depaepe, et al., 2010; Van de Walle, et al., 2013).

As shared by Glick (2019), students always struggle with solving word problems in math. They always seem to find it difficult predicting the crucial parts of the word problem despite the skills and techniques taught in order to successfully solve the problem. After reflecting on how he could help his students, his study discovered that literacy skill is an area that affects students’ ability to solve mathematical word problems.

As mentioned by Tambychik (2010), some of the statements familiarly heard when students are doing their homework are Mathematics problems are difficult and they did not know how to do it that's why they didn't usually finish answering it. They seem to have hard time working on worded problem solving. Yet, they still need to learn mathematics because it is useful to our daily living. It helps people to be able to anticipate, plan, decide, and properly solve each problem in daily life (Phonapichat, 2013).

The combined statements and conclusions about worded problem-solving skills in mathematics seem to indicate that it is an important critical aspect in mathematics teaching that must be developed in an early stage. Problem-solving requires a combination of literacy skills and high-level mathematical skills in order to perform appropriate solutions to the problem. However, from the several studies conducted, it was revealed that students find it difficult to perform worded problem-solving as caused by several factors such as ineffective teaching strategies, lack of interest, parental involvement, computational and mathematical skills and most especially poor reading comprehension. In view of this, this study is trying to address the difficulties by utilizing a literacy strategy that might help in improving the worded problem-solving skills in Mathematics.

Reading Comprehension in Mathematics

Through the years, there have been numerous studies conducted that proved the contribution of reading comprehension skill in mathematical problem solving. It is believed that the higher the students' ability to process text and understand its meaning, the higher the mathematics learning outcomes. Likewise, multiple indications were found that students' reading ability and their academic achievement in mathematics are somehow related (Akbash, 2016).

Reading comprehension is a literacy skill (Kanniainen, 2019) that involves taking what was just read and deriving meaning from those words (Rutzler, 2017). Basically, it is the ability to read, understand, process and recall what was just read. Having excellent reading comprehension skills is important to increase the enjoyment and effectiveness of reading. It is very evident in a math class where students are given word problems. Without good reading comprehension skills, students will surely struggle determining what is being asked and said in the word problems.

However, on improving students' reading comprehension, Rutzler (2017) shared that asking questions before, during and after reading helps to ensure that students fully understand what is happening or going to happen in a text. In the same way, Reavis (2017) suggested that asking questions is a strategy to engage students' inquiry and critical analysis in developing critical literacy and problem-solving skills. Consequently, students are more likely to understand and persevere solving problems if they are taught reading strategies.

Rittner (2018) stated that literacy is the foundation on which all other subjects are built. So far, in most mathematics classroom, literacy is not often the priority. Instead one focuses on worksheets, demonstrations, manipulatives, and inquiry-based learning. However, reading is necessary in developing skills and understanding in mathematics. Students are expected to possess the ability to read the directions, interpret their meaning and solve the problem. Similarly, for students to successfully solve a word problem, they must correctly interpret a math problem. Thus, literacy skills are crucial.

In a typical Math class, students are likely to incorporate literacy skills for it is essential for success in today's ever-changing world. Phillips and Wong as quoted by Gallego (2017) describe literacy as the "spine" that "holds everything together" in all subject areas. Accordingly, the success of students in any learning area depends on the significant, identifiable and distinctive use of literacy. Literacy in Mathematics is described as "numeracy" simply means the ability with or knowledge of numbers (The Oxford English Dictionary, 1989).

Relative to this, Balak (2019) imparted that problem solving requires students to use a combination of their literacy skills and their high-level mathematics problem solving skills to find the solution. Thus, teaching students how to solve word problems is a critical aspect of mathematics.

Recent study by Cappelli (2015) conveyed that students who excel in math today are able to do the following: remembering facts and procedures, and realize why the procedures work; explain and justify their thought process; read and apply mathematical symbols and language; utilize background knowledge; analyze and interpret diagrams and word problems; and select the most appropriate process to solve a problem. It is observed that each item requires some form of literacy, considered as a fundamental key to attain success in mathematics. Simply, research has shown that literacy has great impact in mathematics learning and problem solving from pre-school all the way up to the college level.

Reading comprehension is a vital component, particularly for word problem solving in Mathematics learning (Heidema, 2011). This has been affirmed by Murcia (2018) when she stated that solving math problem entails students to apply two skills at the same time: reading and computing. Likewise, Phonapichat (2013) stated that when students cannot understand what the text implies, they cannot start the thinking process to solve the problem. Hence, several studies revealed that the key factor that affects mathematics is reading comprehension.

Dagmar Koesling's mathematical reading and reasoning process model as mentioned by Reavis (2017), suggested that some of the steps to ensure that students become mathematically literate may be: (1) first, students must read for understanding and comprehending the context; (2) read again that involves looking for key information, considering problem-solving techniques, and representing the problem in mathematical language; (3) the third read requires students to come up with mathematical formula in order to solve the problem and interpret their output. Meanwhile, teachers may consistently ask questions to gauge their comprehension and guide them to find the answer.

Jan and Rodrigues (2012) stated that word problems are integral part of Mathematics curriculum. Students usually have trouble in comprehending the language in word problems. Therefore, it is reasonable that students' performance in solving word problems is attributed to their problems in comprehension. Comprehending the content of the word problem has a crucial role in conveying information and interpreting some events that provokes students' thinking towards the text.

Kyttala and Bjorn (2014) proclaimed that beginning in elementary, word problems are important part of math curriculum. However, one must have both linguistic and mathematical knowledge to be able to solve mathematical word problems. Literacy and math skills are interchangeable during the process of solving word problems. Likewise, Bjork and Bowyer-Crane (2013) found that reading comprehension is the greatest factor in predicting performance on mathematical word problems explicitly in primary grades.

Students are learning when they are actively participating. In Math classes, Kardamis (2019) expressed that teachers typically involve students in the problem-solving activities through utilizing literacy skill strategies that can promote deeper understanding. In line with this, Taylor (2019) suggested that incorporating reading, writing, speaking, listening and critical thinking in instruction provides students with opportunities to develop literacy in mathematics while deepening their mathematical knowledge, conceptual understanding and skills. Likewise, Rittner (2018) emphasized that literacy is important for more than just reading. It greatly affects the formation of opinions, problem-solving skills, and decision-making strategies of the students. This simply implies that students with higher level literacy skills particularly reading comprehension will most likely understand a mathematical text.

Teaching and learning math don't have to be scary, stressful and difficult. As written in the book entitled Building Mathematical Comprehension as cited by Math Geek Mama (2016), there are highly recommended literacy strategies that can be applied in teaching Mathematics. The objective of teaching and learning math is not merely to work or compute through set of steps or just memorizing facts. It aims to develop understanding and comprehension behind the meaning of the given numbers as well as their connections to each other. Also, to be able to apply these skills in solving real life scenarios, some of the literacy strategies mentioned are: (1) teach Math vocabulary; (2) use schema; (3) make connections; (4) make predictions; and (5) visualize. This confirms that implementing literacy strategies in a math instruction aids the students in learning to read mathematically with deeper comprehension.

Hite (2009) shared that students' problem-solving skills were very low. Whenever they were face in a difficult problem, they tend to ask a lot of questions about it and did not attempt it first on their own. Hence, she implemented reading strategies to help students improve their abilities to give more focus on and solve word problems. Such strategies are (1) teaching students to break down story problems; (2) learn the steps in solving them; (3) write their own story problems; (4) create math dictionaries; (5) write story problem webs; and (6) listen to themselves reading problems. It was concluded to keep reading strategies and problem solving to be the focus in a Mathematics classroom.

According to Ara as cited by Jan (2012) adequate reading skills and lack of vocabulary were barriers for children to engage in mathematical tasks, particularly word problems. Moreover, Boonen et al. (2016), expressed that research evidences showed that student's reading comprehension abilities influence the success in word problem solving. Indeed, to be good in math, one needs to have solid reading skills.

King (2018) discussed that reading and writing are complex fundamental learning skills that students usually use and apply in math class. Same with mathematics, reading is a two-way process because it initially requires the transfer of encoded information to the reader and then gain understanding and comprehension of the text. On the contrary, Freitag (2013) stated that reading a mathematics text is far more complex than simply being able to read the words on the page. It is about comprehending the mathematical concepts incorporated in the written text.

Understanding enough list or collection of words is a main factor to gain comprehension in several learning areas, including mathematics. With that, Riccomini (2015) stated that teaching and learning the mathematical linguistic is important for the development mathematical competence. Students' vocabulary in mathematics plays a significant part on their language development, in due course improved mathematical proficiency.

Galasso (2019) shared that in developing mathematical habits of mind and truly understanding mathematics, literacy is very crucial. Reading and math are often considered as separate subjects. However, they need to be developed together as much as efficient learning is concern. When constructing connection of problems, making practical arguments and evaluating the reasoning of others and listening to accuracy all entail students to apply their skills to read, write, listen, and speak at a depth that displays mathematical understanding and learning.

In an article titled "Better reading comprehension leads to better math comprehension", Escudero (2019) agreed that reading is the main source of information. Good reading comprehension opens the door to acquiring new knowledge and gives a substantial impact on student's performance, particularly in mathematics. Previous studies have shown significant relationship between mathematical and linguistic abilities specifically on resolving word problems. It emphasizes that for students to learn effectively mathematics, it is helpful to let them know how to solve verbal problems that are meaningful and related to their experiences.

As regards to reading comprehension, Glenberg et al. (2011) stated that familiarizing children to a certain type of reading comprehension strategy has positive impact on their ability to solve verbal problems. Similarly, Rittner (2018) shared that students are expected to apply literacy skills in all content areas to become well-rounded learners. Making students analyze those connections can be a valuable tool to develop better understanding of the concepts in a math class.

Hoffer (2016) imparted that historically, teachers have created a misconception that reading and math are entirely separate learning areas having little to do with one another. However, reading and math need each other. Reading refers to intensifying one’s understanding through making connection of the things in the world. To support the students, teachers need to train them as how-to create meaning out of all the diverse representations and mathematical texts. Students must not only know how to read, yet further instructions about unique reading strategies are necessary to assist the learners in tackling mathematical word problems.

Poor reading comprehension makes it hard for students to understand and learn mathematics. As mentioned by Kenney (2019) students know how to compute, they just don’t get what is asked in the question. For sometimes, when students say that they don’t know what to do, teachers interpret problems without letting them to conceptualize by themselves. Indeed, teachers are trying to assist students to read and interpret mathematics text and discuss problem. However, this strategy seems very procedural rather than about helping students to read for understanding. This describes how some teachers failed to impart the skills needed to effectively read in mathematics class. Corollary to this, for students to effectively comprehend mathematical ideas rather than to follow precise routines and steps, educators must coach them to engross expressively with mathematical texts. Mathematics teachers should recognize the part of their job in guiding and supporting their students to become independent and self-regulated learners upon reading texts.

Sanhadi (2017) discussed that the ability to understand reading texts determines the achievement of students in solving word problems. As suggested by Priest et al. (2012) in her study, one of the difficulties that students face in solving word problems is lack of understanding about the given story problems. The same phenomenon has been investigated by Cruz et al. (2014) in connection to reading comprehension skill and ability to solve word problems at primary level of basic education. The results of the study disclosed that the failure to solve mathematical problems is due to poor reading comprehension. Matel (2014) study, agreed that there is a significant relationship between students' reading comprehension skills and mathematical problem-solving skills. Further, math educators should introduce varied techniques and strategies in solving word problems.

An article published by the University of Kansas (2019) imparted that the ability to absorb and understand the content is a crucial skill for every student. Thus, integrating literacy skills in all learning areas is necessary. This implies the importance of utilizing various strategies for teaching literacy skills in the classroom because it allows students to look for needed information, discover topics comprehensively and gain a greater understanding of the world. Hence, teachers are facing the challenge to incorporate literacy skills in word problem solving in mathematics.

Minero (2019) shared that in a math class in Concourse Village Elementary School (CVES) located in New York City, students are engaged to stimulating and interesting word problems by reading, writing, and interpreting to unfold the meaning of the text.

Thus, breaking the problems down into smaller details. Before seeing solutions to a problem, the students are trying to simplify first what it is saying through the three-read protocol that promotes both individual and collaborative learning. The problem was read thrice, teacher reads it first, followed by the students, and then everybody reads it together.

Findings of the study carried out by Steinhilber (2011) revealed that students struggle with math because they lack basic mathematical skills. Similarly, mathematical language was difficult for some students. In relation to word problems, teachers admitted that most students find it difficult to learn. Their practices in teaching word problems was demonstrated through reading the word problem and pulling out the key details to label on a diagram. After that, they work on converting the diagram into mathematical equation, which students solve. Once solving the equation, they refer to the word problem to evaluate their answer. Yet, it was emphasized in the findings of the study that the final step was mostly skip by students.

Gaston et al. (2016) explained that instead of just teaching the children how to read, it is very important to teach them how to read with comprehension. In order to fully understand the material, they must fully interpret the meaning of the text. Considering the above statement, learning and reading materials must be suited and related to the student’s life to make an impact, making meaningful and effective learning. Teachers are expected to do differentiation in assessing students’ ability to think critically and analytically rather than simply rote memorization.

According to Chauvin and Theodore as cited by Rittner (2018), one of the major issues that K-12 teachers are facing is that students struggle to understand the texts that are used in the classrooms. If a student cannot even comprehend what they are reading, it would be impossible to develop deeper understanding of the content. Consequently, no learning takes place.

Based on a study of Gallego (2017), it has been the teachers' apprehension that students find difficulty in understanding mathematical word problems due to poor level of reading comprehension, limited vocabulary, and less exposure to various methods and strategies used. This is the purpose why the researcher conducted the study about the utilization of language and literacy strategies in teaching mathematics to address those issues concerning students' difficulties in solving math problems. As a result, it was concluded that the use of language and literacy strategies helps improve the math performance of students, thus, increasing their level of competence. Among these strategies utilized in the study are K-N-W-S, the three-level guide, problem roulette, RAFT, process log and the SQRQCQ strategy.

The above assumptions and views provide a conclusion that reading comprehension skills play an important role in students' performance on word problem solving. Several researchers shared their findings about the positive correlation between reading comprehension and problem solving. So, it is necessary to develop such skills starting from the elementary school. Encouraging pupils to pay more attention to reading comprehension skills and dealing with semantic-linguistic characteristics in word problems would provide a good starting point to work toward more equally balanced word problem solving instructions. Accordingly, mathematics teachers should be aware of their responsibility to incorporate literacy strategy in teaching to facilitate students' mathematical understanding. With that, this study is intended to consider literacy practices in math instruction through the utilization of SQRQCQ strategy.

Development of Mathematical Learning Package

In delivering the lesson, a learning package can be an essential tool for educators. As stated in Don Bosco Press (2019) teaching and learning enhancement tools are package incorporating features that make learning more fun, engaging and interesting to the learners. These are instructional aids to enrich the learners' educational experience and performance. Also, to assist teachers in facilitating and engaging their students to learn efficiently.

As defined by Ambrose et al. (2010) lesson plan is a roadmap of what the teachers need to impart with the learners and the way on how it will be done efficiently during the teaching-learning process. It offers a general framework of the learning objectives, content, strategies, learning activities and assessment process. Similarly, a lesson plan provides the guidelines for the attainment of the learning objectives as showed in the evaluation of the lesson through applying various teaching approaches, strategies, and methods.

Pongo (2017) imparted that lesson plan is a guide that aids accomplish a mission that is to be executed in a learning environment with the learners. It was declared that lesson plan is very important because it securely aligns all classroom instructions and activities with curriculum goals and objectives. Moreover, it is considered as a creative process which gives an outline for meaningful learning. It guides teachers to deliver their lessons in a systematic way. Likewise, Ridner (2019) of study.com shared that lesson planning is one of the fundamental purposes of every teacher. Well-organized and creative lessons lead to greater enjoyment to the learners as they engage themselves in the learning process.

Relative to this, Lewis (2018) imparted that a lesson plan is an instrument to keep the classroom well-managed and guarantees that all learning resources are sufficiently covered and utilized. However, a lesson plan must support learning as it develops closure in a way that teachers facilitates and guides pupils to organize the ideas on their minds meaningfully. This helps pupils to appreciate effectively what they have learned and provides them the desired skills needed as they cope with real-life situations. A closure is a quick synopsis of a lesson that helps pupils retain information and acquired skills.

Cox (2019) on the other hand mentioned that the lesson plan is a methodical guide that outlines the learning objectives that will be accomplish during the lesson. Creating a lesson plan involves setting objectives, applying teaching strategies and use of appropriate materials during the teaching -learning process. It also contains specific components or steps derived from Hunter Method such as purpose, anticipatory set, input modeling, check for understanding, guided practice, independent practice, and closure. These has been adopted for decades by educators to develop a successful lesson.

Alvarado (2018) stated that math educators were skilled in utilizing and creating lesson plan in learning competencies aligned in curriculum guide, specifically applicable for identified least mastered competencies. Teachers were encouraged to develop a structure of their lesson in creative and learner-centered instruction. Thus, they should integrate activities that are inclined to guide learners in discovering and unfolding the skills in a gradual manner. He also added that an effective teacher passionately craft and wholeheartedly devote their time and expertise in structuring lessons and producing appropriate materials to attain the quality education needed by 21^{st} century learners.

According to Evangelista (2013) and McClymont (2019), lesson plan is a written guide that aids teachers to provide clear direction and procedures in delivering instructions to the pupils. It meant to assist and guide the teachers in maximizing classroom time. So, teachers should avoid cramming too much information into one lesson because lesson plans don't have to be lengthy. It can be spread out into several days if necessary. This supports the ideas of Womack et al. (2015) who discussed the most effective practices in lesson planning. According to them, the key issue for lesson planning is certainty. The plan doesn't have to be unnecessarily lengthy, it just has to "be there". One way of evaluating if a lesson plan is adequate is to determine if it can be carried out without breaks in delivery. When there is an evidence that learners are attaining the objectives, the goal is being met. Thus, lesson planning is adequate.

Maximo (2014) described that the lesson plan is a teacher's blueprint. It is a declaration of accomplishments that are expected to be attained as an outcome of the pupils' engagement in day to day various activities facilitated by the teacher. In designing and formulating a lesson plan, she shared that pupils' educational development depends on proper selection of subject matter, activities, learning experiences, instructional methods, and evaluation techniques suited to their needs, abilities, interests and level of maturity. Planning lesson before the teaching process prevents waste of time that may lead to haphazard teaching. Hence teachers were given a feeling of security and conscious of what needs to achieve for the day.

In curriculum and lesson planning, Romano (2018) conveyed that it needs to be engaging, relevant and productive. A good lesson plan is hard to produce that's why he directed teachers to create something that works and flexible enough to yield the desired outcome. She suggested five tips to improve lesson planning that learners will surely enjoy. First, start with a big picture, do not rely on fluff, get creative about the resources, think backward and relate the lesson plan to real-life situation, and get nontraditional.

As cited by Hoover (2019), creating a lesson plan is important to the teachers, learners, and administrators. Writing a lesson plan is more than just a piece of paperwork, instead it is a means to ensure that teachers are prepared for each class and to stay on track. Lesson plan should contain its basic elements, but it does not have to be complicated. It helps teachers to define “why you teach”, “how it will be taught”, and “what will be taught”. In addition, a well-structured lesson makes it simpler for learners to remember and understand the concepts presented to them.

Teachers use lesson plans to become more effective in facilitating instruction. As shared by Houston ISD (2013) their outlined lesson plan utilizes the components of effective teaching, comprising the use of full lesson cycle, learning resources, checks for understanding, and recommendations for differentiation. These are models of daily lesson plans constructed on the data originated in the curriculum documents.

Moreover, Matt (2016), defined a well-planned lesson plan as exciting and effective in developing academic value to the learners. Learning should be principally connected with the pupils’ drive to learn, their enthusiasm and passion. So, whatever is taught with these qualities will be process to the long-term memory of the pupils to guide them develop more skills and knowledge.

In a discussion about an outline to create effective lessons, Kelly (2017) imparted that writing lesson plans ensures to address the requirements of the curriculum, efficiently planning teaching time and use of best strategies suited to learners’ needs. As teachers form a lesson plan, begin with the end in mind through asking what do the learners need to learn. Hence, determine the objectives. Also, decide the methods and teaching techniques to be used to teach the concept and ideas in your lesson. Teachers must also choose ways on how the learners can practice the skill and information they have just learned. Then, evaluate the learning through a simple show of hands, a game activity or a quiz. Furthermore, homework or assignments may also be included.

TeachableMath (2018) concluded that a clear and organized set of lesson plan have many significant benefits. A good planning permits more effective teaching process. It also boosts teachers' confidence when delivering the lesson in the classroom. For many things can happen in class, it is important for teachers to adapt their plans to respond to the students' needs. It was mentioned that Jim Scrivener once said that teachers need to prepare the thoroughly, but in class, they must teach the learners, not the plan.

Various formats of lesson plans have strengths and are designed to guide learning. As shared by Linde (2019), the 4-A lesson plan is a unique model that focuses on four main concepts necessary for student success. The four components are: (1) activate prior knowledge; (2) acquire new knowledge; (3) application; and (4) assessment. These categories allow teachers to make sure students are ready to learn. Activating prior knowledge entails students to make connections with their previous learning and prepare their brains to acquire new ideas. Presented and taught new knowledge were applied to real world scenarios. Eventually, to determine students' understanding, an assessment was given.

As stated by Antofina (2016), learning materials are used by the teachers to facilitate the lessons effectively. Likewise, these are used by the learners to acquire learning effectively. It enables teachers to express and discussed efficiently the intended content of the lesson. The learning process becomes more exciting when pupils can utilize various learning materials. The teaching-learning materials can be bought or created easily by both the teacher and the pupils. These can be found locally, easy to carry and simple to ensure that the learning remain to the minds of the learners for a longer time. Meanwhile, Lewis (2018), describe the learning materials as spectrum of educational materials that teachers use to attain the learning goals and objectives. The teaching-learning process employs various learning materials that focus on the enhancement of learning through pupils' interaction.

According to Weber as cited by Nigar (2017), learning materials make the teaching and learning process dynamic as these influence the senses of the pupils. The awareness of several things is based on visual (40%), audio (25%), touch (17%), taste (3%) and smell (15%). Learning materials make teaching process effective and impressive. It can be used by teachers to improve the lesson for effective communication, classroom interaction and attainment of goals and objectives.

As mentioned by UNESCO's International Institute for Educational Planning (2020), learning materials serve as concrete vehicles for guiding the learning of the pupils. It is constructed on the standards set by the curriculum that associate disciplines with immense ideas and concepts, and a product of study. Considerations are given in creating learning materials such as linkage with learning goals, content, appropriateness, storage and access, and prioritization in the resource environment. Meanwhile, Nii Darko (2014) describes learning materials as the concrete materials established and utilized by the teachers and pupils for educational purposes. Also, learning materials motivates pupils, clarify the presented ideas, enhance learners' vocabulary, discourage cramming among the teachers, saves time, livelier and more active classrooms, and evades dullness during discussion. Yet, many countries are facing challenges of inadequate availability, ineffective and poor-quality usage of learning and teaching materials (Elliot and Corrie, 2015).

According to Mamais (2018), learning materials can increase the intrinsic motivation among pupils for learning and sustain their interest throughout the learning process. The learners have prolonged interest and engagement for the activity that is necessary because learning cannot be forced to the pupils if they were not ready. Learning materials should present diversity and stimulate the thinking skills of the pupils to work out from different perspectives. In addition, it also generates connections that are valuable for the retention and creativity of the pupils.

The above citations explained the vital role of lesson plans and learning materials in delivering instruction. They serve as an aid to a more effective teaching-learning process for they provide clear directions and procedures to follow. In this study, a learning package consisting of lesson plans and worksheets were developed that utilize the SQRQCQ strategy to be used in teaching worded problem-solving in mathematics.

As a whole, a six-step process literacy strategy called Survey, Question, Read, Question, Compute, Question known as SQRQCQ was tailored by Leo Fay (1965) to serve as a guide in working with worded problem solving in a mathematics instruction. This strategy provides an organized and systematic way of solving worded problems concerning deeper comprehension of the content through series of questions that helps the learners reflect on their own understanding that guides them to obtain the answer. As stated by some researchers who conducted studies related to SQRQCQ strategy, it is an effective strategy to enhance the problem-solving skills of the pupils because it provides a logical way of solving the problem. Meanwhile, numerous studies revealed that poor reading comprehension is one of the key factors that causes low performance in solving worded problems. Also, it is an important yet critical aspect in mathematics teaching that must be developed in an early stage. In addition, previous studies disclosed their findings that problem solving has significant relationship with reading comprehension. Furthermore, a well-prepared lesson and appropriate learning materials ensure an effective instruction. Both are important in presenting and delivering the content of the lessons to the pupils in a meaningful way. Also, educators must be aware on the latest trends and updates on various strategies to improve delivery of instruction and mastery of learning among learners. With that remark, the SQRQCQ strategy may be utilized in delivering lesson to improve worded problem-solving skills.

Conceptual Framework

SQRQCQ is a six-step reading strategy meaning Survey, Question, Read, Question, Compute, Question. It was designed by Leo Fay in 1965 to help students comprehend and compute word problems (Mulyati, 2017). It is intended for word problem in Mathematics (Rose, 2011). It provides logical order for solving math word problems (Article in Loveless and Betz, 2019) and assists students to organize the steps to follow in a way that is much easier for them to understand when solving word problems (Hanna, 2015). By following the logical order of steps of SQRQCQ, the students could sharpen their critical thinking in reading (Ardini, 2013). Likewise, working through the steps, students have multiple means of acquiring information and understanding the process (Article in Lighthouse View, 2011). They logically solve the problem from identifying what is asked, organizing the important details, deciding on what formula or strategy should be utilized, carrying out the necessary computations and checking whether the answer is correct (Puspita, 2018).

On the other hand, multiple indications are found in the literature that students' reading comprehension and word problem-solving skills are related. It is believed that the higher the students' ability to process text and understand its meaning, the higher the mathematics learning outcomes (Akbash, 2016). Indeed, reading comprehension and math literacy are indispensable as far as students' performance in solving word problems in mathematics is concerned. With poor reading comprehension skills, students have a hard time identifying what is being asked in a problem (Kanniainen, 2019). Asking questions is a strategy to engage students' inquiry and critical analysis in developing problem-solving skills (Reavis, 2017). Pupils need to learn how to comprehend a mathematical text to be able to successfully do the appropriate solutions to solve a word problem.

However, students' problem on worded problem-solving was showed in the studies conducted by Murcia (2018) which revealed that pupils face difficulty in understanding the content of math problems; Moraña (2017) discovered the low self-efficacy among students in solving worded problems; and Phonapichat (2013) findings revealed several factors affecting math problems solving such as poor reading comprehension and lack of interest in solving mathematical problems.

Knowing that reading comprehension is an essential component for success especially in word problems and given the difficulties and low achievement in mathematical problem solving among elementary school students, incorporating SQRQCQ strategy in the lesson plan in teaching mathematics will guide the pupils appropriately to reach their destination of correctly answering word problems. It may sharpen one's reading comprehension and develop to a more effective reader. Also, it may help pupils improve their worded problem-solving skills by attending to critical elements: what the problem was asking them to find, key information in the problem, writing and carrying out an accurate plan for solving the problem and correctly solving mathematical word problems. Thus, utilization of SQRQCQ strategy can be a gateway to improve the worded problem-solving skills in Mathematics.

Research Paradigm

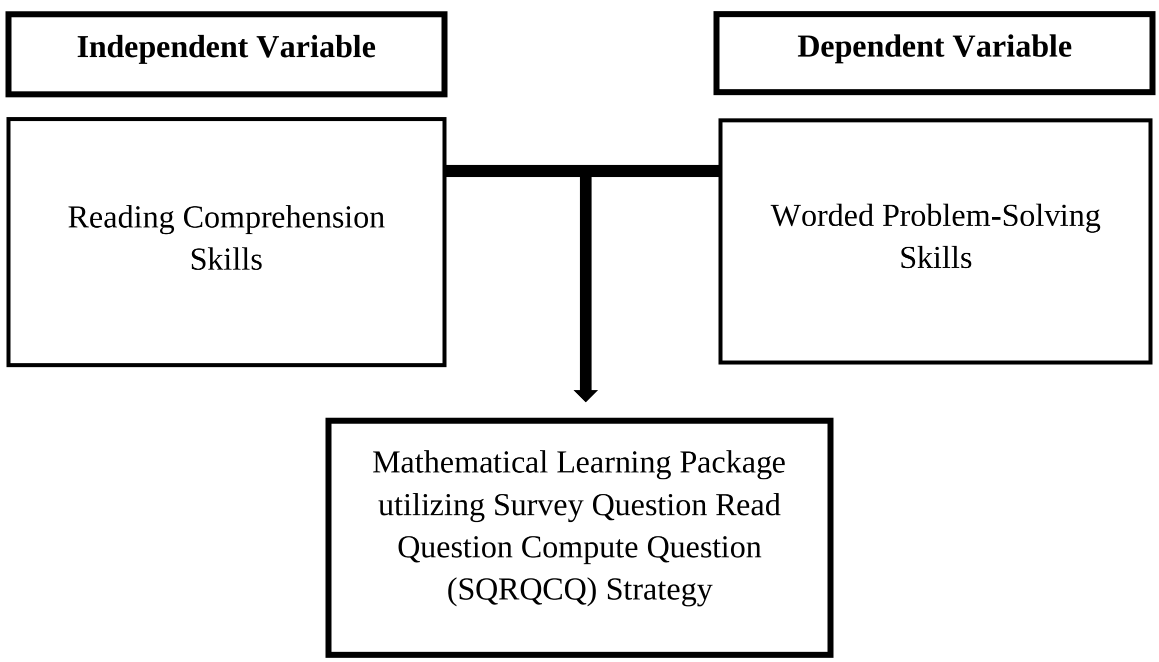


Figure 1. ***Independent – Dependent Model on the Mathematical Learning Package Utilizing SQRQCQ Strategy in Improving Worded Problem- Solving Skills***

Figure 1 presents the independent – dependent model on the Mathematical Learning Package utilizing SQRQCQ strategy in improving worded problem-solving skills considered by the researcher in the conduct of the study.

The independent variable includes the reading comprehension skills of the respondents while their worded problem-solving skills is the dependent variable. This illustrates the relationship of the dependent variable to the independent variable as it shows that the level of competence of the respondents in solving worded problems depend on their reading comprehension skills. This corresponds to the idea that mathematics performance and reading comprehension skills are closely related as far as pupil's performance in solving worded problems is concerned.

Furthermore, the output of the study is the developed Mathematical Learning Package which includes the researcher-made detailed lesson plans and worksheets utilizing the Survey Question Read Question Compute Question (SQRQCQ) Strategy. This aims to improve the worded problem-solving skills of the respondents.

Chapter III

METHODOLOGY

This chapter discusses the materials and methods used in the study. It includes research locale and design, population and sampling, research instrumentation, data gathering procedures and statistical treatment.

Locale of the Study

The researcher chose Lucena South 1 Elementary School as the locale of the study. It is a large-sized Public Elementary School in the Division of Lucena City, located at Quezon Avenue Street, Barangay Cotta, Lucena City. As shown in the Numeracy Level Test results in two consecutive school years, 2018-2019 and 2019-2020, the school has high percentage of non-numerates. The researcher believed that her study may benefit the school in addressing the problems in Mathematics instruction.

Respondents

The respondents were the nineteen (19) boys and fifteen (15) girls with a total number of thirty-four (34) Grade 3 pupils of Lucena South 1 Elementary School for the School Year 2019-2020. It is a heterogeneous class in a self-contained classroom setting. Having a relatively poor results in the Numeracy Level Tests as well as in the quarterly examinations, this class was selected as respondents using purposive sampling.

Research Design

The research utilized a quantitative-correlational method which intends to describe the relationship between solving worded problems and reading comprehension skills of the respondents. Initially, the study identified the relationship between the two variables through administering the researcher-made 30-item pretest about solving word problems and utilizing the 20-item test in reading comprehension adopted from the test that can be found in Philippine Informal Reading Inventory (Phil-IRI) Manual 2018.

Thenceforward, one-group pretest-posttest design was employed. It is a research design that measured the same dependent variable in one group of participants before and after a treatment is administered (SAGE Publications, 2019) as shown in the pretest and posttest. After knowing the relationship between solving word problems and reading comprehension skills of the respondents, the researcher proceeds on the utilization of the Survey Question Read Question Compute Question (SQRQCQ) reading strategy in teaching mathematics using the developed Mathematical Learning Package which includes the researcher-made detailed lesson plans and worksheets. Then, the posttest was administered to the respondents. Score results was evaluated and analyzed using appropriate statistical treatment to determine the significant difference on the pupils' competence in solving worded problems and reading comprehension.

Moreover, a survey checklist questionnaire comprising of fifteen (15) statements was administered to evaluate the level of acceptability of the Mathematical Learning Package in terms of content, accuracy and usability.

Instrumentation

In order to attain the objectives, different instruments were utilized in the conduct of the study.

A. Pretest/Posttest in Solving Worded Problems

The researcher-made pretest/posttest was developed, validated and used as the instrument to determine the significant difference on the worded problem-solving skills of the respondents after utilizing SQRQCQ strategy.

Construction of Table of Specification

The Table of Specifications (TOS) was constructed based on the learning competencies in Mathematics of Grade Three in the fourth grading period as prescribed in the Department of Education Curriculum Guide. There were five learning competencies covered in the fourth grading period about solving worded problems in measurement, statistics and probability. The learning competencies were: (1) visualizing, representing, and solving problems involving conversion of time measure; (2) visualizing, representing, and solving routine and non-routine problems involving conversions of common units of measure; (3) visualizing, representing, and solving routine and non-routine problems involving capacity measure; (4) solving routine and non-routine problems involving areas of squares and rectangles; and (5) solving routine and non-routine problems using data presented in a single-bar graph.

Moreover, the Bloom's Revised Taxonomy (2001) was used as a guide in formulating questions. The designed test was made up of 60% easy questions integrating the most basic cognitive level which are remembering and understanding. There are 30% average questions integrating the cognitive level of applying, and 10% difficult questions that measured the higher order thinking skills namely analyzing, evaluating and creating.

Initial Draft

The researcher developed the pretest/posttest in order to find the significant difference on the worded problem-solving skills of the pupils before and after utilizing SQRQCQ strategy. The first draft of the test was composed of thirty (30) multiple choice items with four (4) options. It was consulted to the research adviser and thesis panel members during the pre-oral defense.

Face Validation

To determine its validity, the test was presented to one (1) Public School Principal, two (2) Master Teacher II, and four (4) Master Teacher I in the Division of Lucena City. Their suggestions were taken for improvement of the test.

After taking notes of the suggestions and comments, the initial draft of the pretest/posttest was revised to make it more appropriate to the grade level. Some significant revisions include grammatical errors and confusing statements. The proper guidelines in assembling the test items were also suggested such as arranging test items from easy to difficult, listing of options in increasing/decreasing length, and italicization of the English terms used.

Content Validation

To prove whether the test is relevant, reliable and valid, the constructed test was subjected to pilot testing. The researcher administered the test to a non-respondent section of Grade Three in Lucena South 1 Elementary with thirty-four

(34) pupils. The result underwent item analysis to assess the quality of the items and to determine if there is a need for modification, revision or enhancement. The level of difficulty was also determined in each item. (see Appendix D).

Final Draft

After the validation and pilot testing, ambiguous and misleading questions were modified. Some items were accepted while items found to be very difficult or very easy were discarded. Item number 2, 3, 4, 5, 6, 7, 8, 9, 10, 15, 17, 21, 22, 23, 24, 28, 29 and 30 were retained. However, item number 1, 11, 12, 13, 15, 16, 18, 19, 20, 25, 26, and 27 were revised/reconstructed while only item number 20 was rejected and replaced by new one.

Finally, the final draft of the pretest/posttest was constructed. The thirty (30) items were composed of four (4) fill in the blank items, four (4) matching type items, four (4) true/false items and eighteen (18) multiple choice items with four (4) options. (see Appendix C).

B. Pretest/Posttest in Reading Comprehension

A 20-item test found in the Philippine Informal Reading Inventory (Phil IRI) Manual 2018 intended for Grade Three was adopted. It was utilized to measure the level of competence in reading comprehension of the respondents. The test was composed of four (4) selections with five (5) questions each. The questions require varying cognitive skills which were classified as literal, inferential and critical questions.

Eight (8) questions were classified as literal questions in which the answers were explicitly stated in the text. Another eight (8) questions were classified as inferential questions in which the answers were not explicitly stated in the text. These questions required the learner to establish relationships between what he/she knows and what is stated in the text. Finally, four (4) were classified as critical questions which require the learner to analyze, synthesize and make judgments on the author's ideas. Moreover, there are three (3) options in each number.

C. Acceptability of Mathematical Learning Package

Lesson plans and worksheets were developed that utilize the SQRQCQ strategy in teaching Mathematics 3. To evaluate its level of acceptability, a survey checklist questionnaire was made.

Initial Draft

The researcher constructed a survey type checklist questionnaire. It had fifteen (15) statements divided into three (3) parts intended to evaluate the level of acceptability of the Mathematical Learning Package in terms of the following: (1) Content; (2) Accuracy; and (3) Usability.

A scale was provided to enable the respondents to check their answers based on the statements. The scale had four options: Strongly Acceptable, Acceptable, Fairly Acceptable and Not Acceptable. It was shown to the research adviser for comments and suggestions.

Content Validation

To determine its validity, the questionnaire was presented to two (1) Public School Principal, two (2) Master Teacher II, and four (4) Master Teacher I in the Division of Lucena City. After considering their suggestions, some minor revisions were taken for improvement of the questionnaire. This involves merging of similar statements and correcting some grammatical errors.

Final Draft

The final instrument was administered to one (1) Education Program Specialists in Mathematics, one (1) Public Schools District Supervisor, two (2) Public Schools Principal Advisers in Mathematics and (3) Master Teachers teaching in elementary school. This was done to evaluate the Mathematical Learning Package in terms of its content, accuracy and usability.

Data Gathering Procedures

To gather the needed data, permission from the Schools Division Superintendent of Lucena City was first secured. The researcher also asked permission from the principal of Lucena South 1 Elementary School to conduct the study in the said school. Upon approval of the permit, the researcher started conducting her study. The researcher herself facilitated the flow of the study.

Initially, a pretest was administered to Grade Three pupils to assess their level of competence in solving worded problems. The results were correlated to their level of competence in reading comprehension as shown in their Phil IRI results to determine the significant relationship between the level of competence in solving worded problems and reading comprehension.

After that, immediate implementation of the lessons involving solving worded problems covered in the fourth grading period in Mathematics 3 was conducted for five (5) weeks. On the utilization process, the researcher herself delivered the instruction using the lesson plans contained within the developed Mathematical Learning Package. Each lesson was provided with various and differentiated activities that allowed the whole class to familiarize themselves with SQRQCQ strategy before they can use and apply it independently. The researcher witnessed the enhanced participation of the class during sessions. The eagerness and excitement of the pupils in every activity they performed was also observed. After each session, the pupils were tasked to answer the worksheets by utilizing the SQRQCQ strategy in solving worded problems.

Posttest in solving worded problems and reading comprehension was administered after the five-week implementation. Based on the results obtained from the pretest/posttest, it was analyzed and computed to determine the significant difference in the competence of pupils in solving worded problems and reading comprehension before and after utilizing SQRQCQ strategy.

Finally, the researcher administered the survey type checklist questionnaire among one (1) Education Program Specialist in Mathematics, one (1) Public Schools District Supervisor, two (2) Public Schools Principal Advisers in Mathematics and (3) Master Teachers teaching in elementary school. After a week, she retrieved the copies of the questionnaire. Responses were tallied, tabulated, and analyzed using the most appropriate statistical treatment.

Statistical Treatment

The data and information gathered were tallied, tabulated and analyzed statistically by the researcher. In order to achieve the objectives in this study, the following statistical tools were applied on the data collected.

To determine the level of competence in solving worded problems and reading comprehension of the respondents, mean was utilized.

$$\overline{X} = \frac{\Sigma x}{n}$$

Where:

$\overline{X}$ = Mean

Σx = Sum of scores

n = Number of respondents

The computed mean of solving worded problems was interpreted using the following scale below as cited from DepEd Order No. 31, s. 2012.

Range of Score (%)	**Level of Competence**
90 and above	Advanced
85 – 89	Proficient
80 – 84	Approaching Proficiency
75 -79	Developing
74 and below	Beginning

The computed mean of reading comprehension was interpreted using the following scale below as cited from Philippine Informal Reading Inventory Manual (2018).

Range of Score (%)	**Interpretation**
90 and above	Independent
75 – 89	Instructional
74 and below	Frustration

To determine the degree of dispersion and variability of the scores of the respondents, standard deviation was utilized.

$$\mathrm{SD} = \sqrt{\frac{\sum(X - \bar{X})^2}{n - 1}}$$

Where:

SD = Standard Deviation

$\bar{X}$ = Mean

X = Scores of the Respondents

n = Number of respondents

To determine the significant relationship between the level of competence in solving worded problems and reading comprehension, Pearson Product Correlation was utilized.

$$\mathrm{r} = \frac{\mathrm{n\sigma xy} - (\Sigma \mathrm{x})(\Sigma \mathrm{y})}{\sqrt{[\mathrm{n}\Sigma \mathrm{x}^2 - (\Sigma \mathrm{x})^2][\mathrm{n}\Sigma \mathrm{y}^2 - (\Sigma \mathrm{y})^2]}}$$

Where:

r = Correlation between solving worded problems and reading comprehension

Σx = Sum of scores in solving worded problems

Σy = Sum of scores in reading comprehension

Σxy = Sum of the product of solving worded problems and reading comprehension

n = Number of respondents

Σx^2 = Sum of squared of scores in solving worded problems

Σy^2 = Sum of squared of scores in reading comprehension

The computed Pearson-r was interpreted using the scale below.

Range Interval	**Interpretation**
0.00 to ± 0.20	Negligible Correlation
0.21 to ± 0.40	Low Correlation
0.41 to ± 0.60	Moderately Correlation
0.61 to ± 0.80	High Correlation
0.81 to ± 0.99	Very High Correlation
± 1.00	Perfect Correlation

To determine if there is a significant difference on the level of the performance of the respondents before and after utilizing SQRQCQ strategy as shown in the pretest and posttest results, t-test for dependent samples was used.

$$t = \frac{\frac{(\Sigma d)}{n}}{\sqrt{\frac{\Sigma d^2 - \left[\frac{(\Sigma d)^2}{n}\right]}{(n-1)(n)}}}$$

Where:

t = t – value

Σ = summation

d = difference of scores

d^2 = square of the difference

n = number of respondents

To determine the extent of the responses in the level of acceptability of the mathematical learning package, weighted mean was computed.

$$WM = \frac{4f + 3f + 2f + 1f}{n}$$

Where:

WM = Weighted Mean

f = Frequency of each option

n = Number of respondents

For the interpretation and analysis of data, the following descriptions were utilized.

Scale	Range	Qualitative Description
4	3.26 – 4.00	Strongly Acceptable
3	2.51 – 3.25	Acceptable
2	1.76 – 2.50	Fairly Acceptable
1	1.00 – 1.75	Not Acceptable

Chapter IV

RESULTS AND DISCUSSION

This chapter presents the analysis and interpretation of data gathered through the research instruments used in the study. In presenting and analyzing the data gathered, the researcher organized this chapter into five (5) parts: 1) level of competence of the Grade 3 pupils in solving worded problems and reading comprehension; 2) significant relationship between the level of competence in solving worded problems and reading comprehension; 3) developed mathematical learning package; 4) significant difference between the level of competence of the Grade 3 pupils before and after utilizing the SQRQCQ strategy in terms of solving worded problems and reading comprehension; and 5) acceptability level of the mathematical learning package as to content, accuracy and usability.

Table 1 Level of Competence in Solving Worded Problems

Range of Score	Level of Problem-Solving Skills	F	%
22 and below	Beginning	34	100
	TOTAL	34	100

Mean = 13.15 ***SD = 4.34***

Table 1 presents the level of competence of Grade 3 pupils in solving worded problems. Considering the result, 34 out of 34 pupils got score of 22 and below. This indicates that 100% of the pupils are considered as beginning on their level of problem-solving skills. No one got score higher than 22.

The mean score of 13.15 indicates that the pupils' level of competence in the given worded problem-solving test was classified as beginning. Likewise, the standard deviation of 4.34 means that most pupils got a score higher or lower than the mean, with a score range of 9 – 17. In the beginning level, as cited in DepEd Order No. 31, s. 2012, pupils struggle with his/her understanding which implies that prerequisite and fundamental knowledge or skills have not been fully developed to aid understanding. They cannot give numerical answer to a stated question by making use of mathematical relationships between quantities. As an analysis of the test conducted, pupils have poor competence in the following learning competencies: (1) visualizing, representing, and solving problems involving conversion of time measure; (2) visualizing, representing, and solving routine and non-routine problems involving conversions of common units of measure; (3) visualizing, representing, and solving routine and non-routine problems involving capacity measure; (4) solving routine and non-routine problems involving areas of squares and rectangles; and (5) solving routine and non-routine problems using data presented in a single-bar graph.

As stated by Murcia (2018), pupils face difficulty in understanding the content of the math problems correctly and connecting the ideas expressed in it. This was affirmed in a study carried out by Phonapichat (2013) which revealed that low achievement in mathematical problem-solving of pupils was due to difficulties in understanding the keywords that appears in the problem, consequently cannot translate them into mathematical equation. Also, whenever pupils do not understand the problem, they tend to guess the answer without any thinking process. Likewise, on a study conducted by Permata et al. (2018) about student’s way of thinking in solving problems, the result showed that most students were not able to identify the problem, provide solutions and find the correct answer.

The findings mean that mathematics teachers are encouraged to introduce varied strategies and techniques in solving word problems to help pupils improve their competence and gain better results.

Table 2 Level of Competence in Reading Comprehension Skills

Range of Score	Level of Reading Comprehension Skills	F	%
15 - 18	Instructional	9	26.47
14 and below	Frustration	25	73.53
	TOTAL	34	100

Mean = 12.06 ***SD = 3.24***

Table 2 discloses the level of competence of Grade 3 pupils in reading comprehension skills. It can be noted that there were 25 out of 34 pupils or 73.53% got a score ranging 14 and below that correspond to frustration level. About 9 pupils got score ranging from 15 to 18 indicating that 26.47% of the respondents belonged to instructional level. However, no pupil was able to reach the independent reading competence level.

As general interpretation, the mean score of 12.06 indicates that the pupils' level of competence in the given reading comprehension test was at frustration level. Likewise, the standard deviation of 3.24 means that most pupils got a score higher or lower than the mean, with a score range of 9 – 15. As cited in the Phil-IRI Manual (2018), frustration reading level indicated that readers find reading materials too difficult that cannot effectively respond to them. This simply implies that most of the pupils found it difficult to read, understand, and derive meaning from the written text. So, there was a need to improve the pupils' competence in reading comprehension.

The same findings were found on Larasati (2018) concerning students' achievement in reading comprehension. It was observed that many students had problem in reading comprehension due to low vocabulary mastery and difficulty to understand the text. As stated by Puspita (2018) student's problem in reading comprehension is that they only read at glance for a passage and they use learning methods that are not right.

From both results of the pretest, it can be concluded that majority of the respondents have poor worded problem-solving skills and reading comprehension. These findings were significant in order to provide appropriate actions that are suited to the needs and abilities of the pupils.

Table 3 Correlation of Pupils' Competence in Solving Worded Problems to the Reading Comprehension Skills

Number of Pupils	Pearson r	Critical Value	Decision on Ho	Interpretation
34	0.772*	0.339	Reject	High Correlation/ Significant

**Significant 0.05*

Table 3 shows the relationship between the pupils' competence in solving worded problems and reading comprehension skills. The hypothesis which states that "there is no significant relationship between the level of competence in solving worded problems and reading comprehension skills" is rejected because Pearson r which is 0.772 is higher than the critical value of 0.339. A positive r-value indicates that there is a positive high correlation between the pupils' level of competence in solving worded problems and reading comprehension skills. This proved that there is a significant relationship between solving worded problems and reading comprehension. This relates to research results of Matel (2014); Near (2014) and Malibiran (2019) stated that there is a significant relationship between students' reading comprehension skills and mathematical problem-solving skills.

The results imply that pupils with poor reading comprehension skills are more likely to have poor performance in solving worded problems. Lack of reading comprehension leads to difficulties in understanding the words appearing in math problems and fails to catch the important details to solve the problems correctly. As cited by Jan and Rodrigues (2012) pupils' performance in solving worded problems is affected by difficulties in comprehension.

Referring to item number 13 of the pretest/posttest in solving worded problems which states that *"Nasa ikatlong baitang na si Paolo. Siya ay mahilig magbasa. Naglalaan siya ng 2 oras upang basahin ang kanyang paboritong aklat. Ilang minuto ang kanyang inilalaan sa pagbabasa?",* this question requires both skills in solving worded problems and reading comprehension of the learners to get the correct answer. A learner needs full understanding of the context of the problem such as *"what is asked", "what are the important details",* and *"what must be done to solve it".* Likewise, upon knowing what to do in order to solve the problem, it is important that the pupil knows how to execute the four fundamental operations such as addition, subtraction, multiplication and division, and have prior knowledge of the pre-requisite skills like conversions of time measure.

Moreover, item number 18, *"Si tiya Ellen ay namalengke. Bumili siya ng 2 ½ kilong lansones at 1 kilong rambutan. Ilan lahat ang gramo ng prutas na kanyang binili?",* is a type of question that also requires both skills in performing mathematical computation and reading comprehension. In solving this question systematically, the learner must effectively know what the problem is all about. This could be done through reading the entire problem with comprehension. Understanding the meaning of basic addition terms like *"ilan lahat" or "total"* will help the learner decide on how to translate the word problem into a mathematical equation. For example, *2 ½ kg + 1 kg = n*. Likewise, pre-requisite knowledge in conversions of common units of measure is necessary.

The findings of this study can lead to reconsidering the teaching strategies used if it is suited to guiding the pupils to comprehend mathematical word problems in a logical manner. Malibiran (2019) stated that in order to apply the correct mathematical concept, students must be able to comprehend the text they are reading. Rittner (2018) emphasized that pupils with higher level of reading comprehension will most likely understand a mathematical written text. With that, teachers may reflect the importance of literacy strategies in a math classroom. Gallego (2017) concluded in a study that literacy strategies help improve the mathematics performance of students.

In line with the opinion above, Sanhadi et al. (2017) who investigated the contribution of reading comprehension skill to mathematical problem solving of students revealed that the higher the students' ability to understand the reading, the higher the mathematics learning outcomes. The same is expressed by Ramos et al. (2015) who identified existing problems behind the low math scores of students. Findings divulged that there is a significant correlation between the ability to understand reading text with the students' ability to solve mathematical problems.

This also affirms the results of a study conducted by Basol et al. (2011) which revealed that there is a positive correlation between reading skill and mathematical problem solving. Problem-solving does not only require mathematical computation but also understanding of the problem (Malibiran, 2019). Thus, reading comprehension held an important role in mathematical thinking process in problem solving. Accordingly, to improve the problem-solving skill, it can be done by improving their reading skill.

The Developed Mathematical Learning Package

The succeeding page presents the Mathematical Learning Package that was developed by the researcher. It covers five (5) learning competencies involving word problem-solving about measurement, statistics, and probability of Grade 3 in the fourth grading period as prescribed in the Department of Education K to 12 Curriculum Guide.

The Mathematical Learning Package was subjected to evaluation by some experts: (1) Education Program Specialists in Mathematics, one (1) Public Schools District Supervisor, two (2) Public Schools Principal Advisers in Mathematics and (3) Master Teachers teaching in elementary school to determine its acceptability level in terms of content, accuracy, and usability.

The Mathematical Learning Package utilizing the Survey Question Read Question Compute Question (SQRQCQ) strategy can be a great help for the Grade 3 Mathematics teachers as it can be utilized as a potential tool in teaching worded problem-solving. This contains detailed lesson plans following the 4As (Activity, Analysis, Abstraction, Application) format. and worksheets.

Rationale

Lesson plans and learning materials play a vital role in delivering instruction efficiently. They serve as an aid to a more effective teaching-learning process for they provide clear directions to follow for the attainment of the learning objectives and goals. The developed Mathematical Learning Package utilizing the SQRQCQ strategy can be a gateway to improve the worded problem-solving skills of the pupils. This is beneficial because learners frequently have great difficulty reading statement of problems in mathematics. Utilizing the strategy provides organized and systematic steps to follow when solving word problems. The six steps of SQRQCQ strategy are as follows:

Survey *(Pagsusuri)* – Pupils read through the problem quickly to get a general understanding. Pupils were explained that survey was just like skimming the problem. They are required to answer the questions, *"Binasa ko ba ang suliranin?"* and *"Tungkol saan ang suliranin?"*

Question *(Pagtatanong)* – Pupils ask themselves about what is asked in the problem. At this point, they have to know what needs to be solved, answering the question, *"Ano ang tinatanong sa kuwentong suliranin?".*

Read *(Pagbasa)* – Pupils are requested to reread the problem while paying close attention to specific details and relationship needed to solve the problem. This time, they are required to answer the questions, *"Binasa ko bang muli ang suliranin?"* and *"Ano-ano ang mahahalagang impormasyon na makatutulong upang malutas ang suliranin?".*

Question *(Pagtatanong)* – Pupils ask themselves on what mathematical operations and/or equations to be carried out to solve the problem, asking, *"Anong operasyon sa matematika ang aking gagamitin upang malutas ang suliranin?".*

Compute *(Pagkukuwenta)* – Pupils do the computations of the mathematical operation and/or equations identified in the preceding step.

Question *(Pagtatanong)* – Pupils reflect and review whether they have performed all necessary steps needed and/or if the answer seems to be accurate, asking, *"Naisagawa ko ba ang mga hakbang na kailangan upang malutas ang suliranin?",* and *"May label ba ang aking sagot?".*

MATEMATIKA 3

Kagamitan sa Pagtuturo

Estratehiyang Survey Question Read Question Compute Question (SQRQCQ) sa Paglutas ng Pasulat na Suliranin

DARLENE MAE E. AGUILA

May-Akda

2020

Table 4 Comparison of the Pretest/Posttest Scores in Solving Worded Problems of the Grade Three pupils before and after utilizing SQRQCQ Strategy

	No. of Items	LS	HS	Mean	SD	Mean Difference	df	Computed t-value	tabular value	Interpretation
Pretest n=34	30	6	20	13.15	4.34	7.23	33	13.103	2.035	Significant
Posttest n=34	30	13	29	20.38	5.78					

$\alpha = 0.05$

Table 4 shows the comparison of the pretest and posttest scores in solving worded problems of the grade three pupils before and after utilizing SQRQCQ strategy. The data revealed that the lowest score during pretest is 6, with 20 as the highest score compared to the lowest score in posttest which is 13, with 29 as the highest score. The mean for pretest is 13.15 and the standard deviation is 4.34 while the mean of posttest is 20.38 and the standard deviation is 5.78.

Applying t-test for dependent samples in comparing Pretest/Posttest Scores in Solving Worded Problems of the Grade Three pupils before and after utilizing SQRQCQ Strategy, a t-value of 13.103 at 0.05 level of significance was obtained. Since the t-value is greater than the tabular value 2.035, there is a significant difference on the level of competence of the respondents before and after utilizing SQRQCQ strategy. Therefore, the null hypothesis is rejected. This shows that the utilization of SQRQCQ strategy gives positive impact on the pupils' competence in solving worded problems.

Moreover, the presented data above revealed that SQRQCQ, the six-step strategy, utilized in the study assists the pupils in solving word problems. It signifies that the improved scores of the students in their posttest is attributed to the use of the Mathematical Learning Package utilizing the SQRQCQ strategy in teaching worded problems. Thus, the developed Mathematical Learning Package is effective in teaching word problems in Mathematics. Likewise, enhanced participation of the whole class was witnessed by the researcher during sessions. The pupils' eagerness and excitement every time they perform activities included in the lessons were also observed.

The findings of the study validated the previous researches conducted to investigate the impact of SQRQCQ strategy in sharpening the worded problem-solving skills in Mathematics. Ardini (2013) found that results of SQRQCQ trained pupils to be more careful in solving the problem in detail. The more questions proposed assisted the other steps to be well done by the pupils. Hence, doing the logical order of steps of SQRQCQ sharpens the pupils' critical thinking in reading while answering the questions or problem inside the text.

Gallego (2017) hypothesized in a study that with the use of literacy strategy in teaching mathematics, students' experiences become more innovative. Thus, addressing the issues concerning students' difficulty in comprehending math word problems due to poor level of comprehension. It was concluded that the use of literacy strategy helps improve the math performance of the students. Saclao (2018) also concluded that SQRQCQ is a strategy that could assist the students in solving word problems.

However, Rose (2011) who used reading comprehension strategy SQRQCQ divulged that it does not improve students' assessment scores. Yet, there was an increase in students' confidence when solving word problems after studying with SQRQCQ.

Table 5 Comparison of the Pretest/Posttest Scores in Reading Comprehension of the Grade Three pupils before and after utilizing SQRQCQ Strategy

	No. of Items	LS	HS	Mean	SD	Mean Difference	df	Computed t-value	tabular value	Interpretation
Pretest n=34	20	5	17	12.06	3.24	3.65	33	11.453	2.035	Significant
Posttest n=34	20	12	20	15.71	2.59					

α= 0.05

Table 5 shows the comparison of the pretest and posttest scores in reading comprehension of the grade three pupils before and after utilizing SQRQCQ strategy. The data revealed the lowest score during pretest is 5, with 17 as the highest score compared to the lowest score in posttest which is 12, with 20 as the highest score. The mean for pretest is 12.06 and the standard deviation is 3.24 while the mean of posttest is 15.71 and the standard deviation is 2.59.

Applying t-test for dependent samples in comparing Pretest/Posttest Scores in Reading Comprehension of the Grade Three pupils before and after utilizing SQRQCQ Strategy, a t-value of 11.453 at 0.05 level of significance was obtained. Since the t-value is greater than the tabular value 2.035, there is a significant difference on the level of competence of the respondents before and after utilizing SQRQCQ strategy. Therefore, the null hypothesis is rejected.

The variation in the pretest and posttest scores gives an impression that the pupils performed better in the posttest which was administered after the utilization of the SQRQCQ strategy. It is interpreted that utilizing the SQRQCQ strategy could improve the reading comprehension of the learners.

These findings go along with the investigation of several researchers, Latifah (2019) studied to improve the reading ability of understanding mathematical discourse through critical thinking learning model by using the SQRQCQ strategy. It was discovered that learning with the development of critical thinking skills through the SQRQCQ strategy is effective for improving reading skills when understanding mathematical text.

Larasati (2018) examined the effect of using SQRQCQ method on the students' achievement in reading comprehension. It showed that students' score in experimental group was higher than the control group. The calculation revealed that the t-test 8.54 was higher than t-table 2.042. Based on the data analysis, it was concluded that using SQRQCQ method has a significant effect on the students' achievement in reading comprehension specifically narrative text. Similarly, Puspita (2018) carried out a study on implementing SQRQCQ to improve reading comprehension of fourth grade pupils. Results showed that the application of SQRQCQ method increases the activities and skills of students in reading comprehension.

SQRQCQ strategy guides the pupils to increase their comprehension in understanding the content of the material. This is in accord with Mulyati (2017) who found out that there is a higher effect of SQRQCQ integrating children's literature on the reading comprehension skill of the respondents rather than utilizing the usual learning technique and learning with Polya's four-step. Likewise, it was concluded that SQRQCQ problem solving learning can encourage students to read text that contains problems, mark on any significant information, interpret the reading content which involves knowledge in the organization and adaptation processes, and writing on the problem-solving steps.

Acceptability Level of the Mathematical Learning Package

Table 6 Weighted Mean Distribution of the Acceptability of the Mathematical Learning Package as to Content

Statement	WM	QD
1. The contents present adequate developmental concepts.	3.71	SA
2. The content represents a well-organized and logical sequence of ideas.	3.86	SA
3. The content of the lesson includes motivating activities that are appropriate to each lesson.	3.57	SA
4. The topics are clear and arranged in a manner that allows understanding of the concepts.	3.71	SA
5. The activities used in each lesson are simple but interesting and challenging.	3.57	SA
Average Weighted Mean	**3.68**	**SA**

Table 6 presents the level of acceptability of the Mathematical Learning Package as to content. The obtained weighted mean for all the statements in the content of the material ranged from 3.57 – 3.86 which indicates that the learning package is strongly acceptable for the target users.

Among the indicators, statement 2 (the content represents a well-organized and logical sequence of ideas) obtained the highest weighted mean (3.86) which falls under *strongly acceptable*. This finding means that the experts have evaluated the content of the developed Mathematical Learning Package as well-organized and possess logical sequence of ideas necessary for effective implementation of the lessons and meaningful experience of the learners.

Statements 1, 3, 4, and 5 attained the weighted means of 3.71, 3.57, 3.71, and 3.57 respectively which fall under the qualitative description of *strongly acceptable*. Generally, the experts evaluate the content of the learning package as *strongly acceptable* with 3.68 AWM.

As stated in TeachableMath (2018) an organized set of lesson plan have several significant benefits. It permits more effective teaching-learning process. Likewise, it may boost teachers' confidence in delivering a lesson in the classroom. This supports Matt (2016) emphasizing that a well-planned lesson is effective in developing academic value to the learners. Learning that is mainly connected with the learners' determination and passion will be process to the long-term memory of the pupils.

Moreover, Ambrose et al. (2010) a good lesson plan offers a general framework of the learning objectives, content strategies, learning activities and assessment process. In the same way, it provides guidelines for the successful attainment of the objectives through application of appropriate activities that is simple but interesting and challenging.

Table 7 Weighted Mean Distribution of the Acceptability of the Mathematical Learning Package as to Accuracy

Statement	WM	QD
1. The learning package is appropriate to the age and ability of the Grade 3 pupils.	4.00	SA
2. Information is enough and covered all the target learning competencies for the fourth grading period.	3.57	SA
3. The learning package is well-planned and developed based on the learning competencies that are indicated in K to 12 Curriculum Guide.	3.71	SA
4. Each concept is clear and effective in providing the expected learning competencies in the curriculum guide.	3.57	SA
5. The learning package is congruent with the goals and objectives found in the K to 12 Curriculum Guide.	4.00	SA
Average Weighted Mean	**3.77**	**SA**

Table 7 presents the level of acceptability of the Mathematical Learning Package as to accuracy. The obtained weighted mean for all the statements in the accuracy of the material ranged from 3.57 – 4.0 which indicates that the learning package is strongly acceptable for the target users.

Among the indicators, statement 1 (the learning package is appropriate to the age and ability of the Grade 3 pupils) and statement 5 (the learning package is congruent with the goals and objectives found in the K to 12 Curriculum Guide) garnered the same weighted mean of 4.0 which falls under *strongly acceptable* qualitative description. This finding connotes that the experts have evaluated the accuracy of the developed Mathematical Learning Package as suited to the age and ability of a grade 3 pupil as it is also aligned with the K to 12 Curriculum Guide. Thus, it supports to the attainment of the twin goals of Mathematics in the basic education level which are critical thinking and problem solving.

Statements 2, 3, and 4 attained the weighted means of 3.57, 3.71, and 3.57 respectively which fall under the qualitative description of *strongly acceptable*. In general, the experts evaluate the accuracy of the learning package as *strongly acceptable* with 3.77 AWM.

As mentioned by Alvarado (2018), math educators were skilled in utilizing and creating lessons aligned in curriculum guide. Teachers were also encouraged to develop a lesson in creative and learner-centered instruction. Learner-centered instruction means that the nature, interests, abilities and needs of the learners were considered in providing instruction. Thus, they should integrate activities that are inclined to help learners in discovering the skills in a gradual manner and attain the quality education needed by 21st century learners.

Furthermore, Kelly (2017) imparted that in crafting a lesson plan, ensure to address the requirements of the curriculum, efficiently planning teaching time and employ best strategies suited to learners' needs. Maximo (2014) added that pupils' educational development depends on proper selection of subject matter, activities, instructional methods, and learning experiences suited to their needs, abilities, interests and level of maturity.

Table 8 Weighted Mean Distribution of the Acceptability of the Mathematical Learning Package as to Usability

Statement	WM	QD
1. The learning package can serve as a new learning material in teaching and learning worded problem-solving in Mathematics.	4.00	SA
2. The learning package enables the user to develop his/her critical and analytical thinking.	4.00	SA
3. SQRQCQ strategy used in the learning package can serve as a new model in teaching worded problem-solving in any classroom.	4.00	SA
4. SQRQCQ strategy can help pupils to have better performance in solving worded problems.	4.00	SA
5. SQRQCQ strategy relates to the present trends in solving worded problems.	4.00	SA
Average Weighted Mean	**4.00**	**SA**

Table 8 discloses the level of acceptability of the Mathematical Learning Package as to usability. The obtained weighted mean for all the statements in the accuracy of the material is 4.0 which falls under the qualitative description of strongly acceptable.

The results revealed that the experts evaluated the usability of the Mathematical Learning Package as *strongly acceptable*. This finding implies that the developed material is useful for it can serve as a new learning tool to develop the critical and analytical thinking of the grade 3 pupils by utilizing SQRQCQ strategy. Hence, guiding them to improve their competence in solving worded problems in Mathematics.

As cited in a study by Glick (2019) SQCQRQ strategy helps students to extrapolate key information in word problems and come up with an accurate step to be able to solve the given problem. This affirms Saclao's statement (2018) that SQRQCQ strategy allows students to organize their ideas in a logical order, reflect on what they are doing to solve the problems on their own understanding and on the reasonableness of a solution.

As shown in the preceding three (3) tables, the dimensions namely: content, accuracy, and usability, are strongly accepted by the experts. One of them suggested that the learning package can be utilized in the Division of Lucena City provided that it undergoes proper validation from the LRMDS Division. Therefore, this study proves that the Mathematical Learning Package utilizing the SQRQCQ strategy is recommended for use in teaching worded problem-solving in Grade 3.

On a study carried out by Sihombing (2017) on Development of Mathematics Module Based in Improving Students' Mathematical Problem-Solving Ability, it was strongly acceptable to be used among high school students since it reveals an overall mean of 4.58 with valid criteria. Likewise, the same findings were revealed on the study conducted by Adora (2014), wherein her developed and validated workbook in Mathematics was rated as Very Much Valid and accepted by the respondents in terms of its clarity, usefulness, language and style, and suitability.

Chapter V

SUMMARY, FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

This chapter gives a summary of the study conducted. It presents the findings derived from the analysis and interpretation of the gathered data. Furthermore, this imparts the conclusions drawn and the recommendations offered based on the results.

Summary

This study was concerned in the utilization of SQRQCQ strategy to improve the worded problem-solving skills in Mathematics of Grade 3 pupils at Lucena South 1 Elementary School SY 2019-2020. Specifically, it assessed the level of competence of Grade 3 pupils in solving worded problems and reading comprehension; correlated the level of competence of Grade 3 pupils in solving worded problems and reading comprehension; developed a mathematical learning package utilizing the SQRQCQ strategy; determined the significant difference on the level of performance of Grade 3 pupils in solving worded problems and reading comprehension before and after utilizing SQRQCQ strategy; and evaluated the level of acceptability of the Mathematical Learning Package as to content, accuracy and usability.

The respondents were thirty-four (34) Grade 3 pupils who were chosen through purposive sampling. This study utilized a quantitative-correlational method to identify the relationship between the two variables: solving worded problems and reading comprehension. Initially, the pretest was administered in order to assess the pupils' competence in solving worded problems and reading comprehension, mean and standard deviation were utilized. Meanwhile, to correlate the pupils' competence in solving worded problems to their reading comprehension skills, Pearson product correlation formula was used.

Likewise, one-group pretest-posttest design was employed. The researcher developed a Mathematical Learning Package utilizing SQRQCQ strategy for worded problem-solving. It was used in teaching worded problem-solving for five weeks. The researcher administered the posttest to find out the significant difference on the level of performance of Grade 3 pupils before and after utilizing the SQRQCQ strategy. Statistically, t-test for dependent samples was used. For the experts to evaluate the acceptability of the mathematical learning package, the researcher administered a survey checklist questionnaire with four-point scale as main source of data. It assessed the content, accuracy and usability of the learning package by calculating weighted mean.

Findings

Based on the analysis and interpretation of the gathered data, the following were the significant findings:

1. The level of competence of the Grade 3 pupils in solving worded problems got a mean score of 13.15 with a standard deviation of 4.34 classified as beginning and the level of competence in reading comprehension garnered a mean score of 12.06 with a standard deviation of 3.24 which indicates a frustration level.
2. The computed pearson-r between the level of competence in solving worded problems and reading comprehension of the Grade 3 pupils was 0.772 which suggests a high correlation. Since the r-value surpassed the critical value of 0.339.

there was a significant relationship between solving worded problems and reading comprehension skills.

3. A Mathematical Learning Package utilizing the Survey Question Read Question Compute Question (SQRQCQ) strategy was developed by the researcher. This covers five (5) learning competencies in the fourth grading period of Mathematics 3. Topics included were worded problem-solving in measurement, statistics, and probability.
4. There is a significant difference on the level of performance of the Grade 3 pupils in solving worded problems as revealed in mean score for pretest and posttest of 13.15 and 20.38 respectively and computed t value of 13.103. Similarly, there is a significant difference on the level of performance of Grade 3 pupils in reading comprehension with the mean score of 12.06 and 15.71 for pretest and posttest respectively and computed t value of 11.453.
5. The experts' evaluation on the level of acceptability of the Mathematical Learning Package as to content got an average weighted mean of 3.68 (strongly acceptable); accuracy obtained an average weighted mean of 3.77 (strongly acceptable); and usability achieved an average weighted mean of 4.0 (strongly acceptable). The over-all average weighted mean is 3.82 categorized as *strongly acceptable*.

Conclusions

In view of the findings of this study, the following conclusions were drawn:

1. The respondents' level of competence in solving worded problems is classified as beginning and the reading comprehension is at the frustration level.

2. There is a significant relationship between solving worded problems and reading comprehension. Hence, when pupils have poor reading comprehension, it can predict a low performance in solving worded problems.
3. A Mathematical Learning Package utilizing the SQRQCQ strategy in solving worded problems has been developed.
4. Utilizing SQRQCQ strategy is a gateway to improve the worded problem-solving skills in Mathematics and reading comprehension.
5. The developed Mathematical Learning Package utilizing SQRQCQ strategy in solving worded problems is acceptable. This signifies that it could be used as a potential tool to improve worded problems solving skills in Mathematics 3.

Recommendations

In light of the findings and conclusions, the following recommendations are hereby offered:

1. Students may constantly practice solving mathematical problems to improve their level of competence.
2. Students may need proper assistance to develop favorable attitude toward reading various reading materials.
3. Teachers may adapt the SQRQCQ strategy and utilize the Mathematical Learning Package to improve the worded problem-solving skills and reading comprehension of the pupils.
4. Administrators may provide seminars and workshops about the utilization of SQRQCQ strategy as well as other reading and mathematical problem-solving

strategies to update their teachers on the latest trends that they can use in teaching students on how to read effectively and solve problems systematically.

5. Similar studies may be replicated to confirm the findings of the present study. However, the word problems used in this study contained measurement, statistics and probability only for the period of 5 weeks. Thus, other areas in Mathematics like algebra and geometry may be used and the period of study may be extended in further studies.
6. The present study was carried out on Mathematics subject. However, it may not be confined to this subject only. The utilization of SQRQRQ strategy may be investigated in other disciplines of sciences with diverse sample size and grade levels for more reliable and generalize results.
7. With permission from the researcher, future researchers may test the validity and reliability of the results of this study through employing a true experimental research design.
8. For deeper analysis, each step of SQRQCQ strategy may be investigated individually and results be interpreted separately.

References Cited

Abidin, Y., Mulyati, T., & dan Yunansah, H. (2015). *Literacy learning in the context of multiliteration, integrative, and differentiated education*. Retrieved from https://scholar.google.com/scholar?hl=id&as_sdt=0,5&cluster=5922052226004246920

Adora, N.M. (2017). Mathematics performance of grade six pupils in the National Achievement Test, Division of Northern Samar: Basis in developing a workbook in elementary Mathematics VI. *International Journal of Science and Research (IJSR)*, 6(10), 2097-2101. Retrieved November 1, 2019, from https://www.ijsr.net/archive/v6i10/ART20177627

Adora, N.M. (2014). *Development and validation of a workbook in elementary mathematics VI*. Retrieved January 25, 2020, from http://www.isaet.org/images/extraimages/A1114063.pdf

Akbash, S. (2016). The effect of reading comprehension on the performance in Science and Mathematics. *Journal of Education and Practice*, 7(16), 108-121. Retrieved from https://files.eric.ed.gov/fulltext/EJ1108657.pdf

Alcantara, E.C. & Bacsa, J.M. (2017). Critical thinking and problem-solving skills in Mathematics of Grade-7 public secondary students. *Asia Pacific Journal of Multidisciplinary Research,* 5(4), 21-27. Retrieved January 25, 2020, from https://www.researchgate.net/publication/326058813_Critical_Thinking_and_Problem_Solving_Skills_in_Mathematics_of_Grade_7_Public_Secondary_Students

Alvarado, G.F. (2018). *Lesson exemplar and ims, quality teaching.* Retrieved December 1, 2019, from https://www.pressreader.com/philippines/sunstar-pampanga/20180207/281608125884989

Ambrose, S.A. et al. (2010). *How learning works seven research-based principles for smart teaching*. Retrieved December 14, 2019, from https://firstliteracy.org/wp-content/uploads/2015/07/How-Learning-Works.pdf

Antofina, V. (2016). *Teaching and learning materials*. Retrieved December 15, 2019, from https://www.slideshare.net/En_Teng/teaching-and-learning-materials

Ardini, D.A. (2013). *Using SQRQCQ to mathematical reading texts: Sharpening students' critical thinking and reasoning skills.* Retrieved October 15, 2019, from https://www.academia.edu/6487280/Using_SQRQCQ_to_Mathematical_REading_Texts_Sharpening_Students_Critical_Thinking_and_Reasoning_Skills

Baier, K. (2011). *The effects of SQ3R on fifth grade students' comprehension level.* Retrieved January 11, 2020, from https://etd.ohiolink.edu/!etd.send_file?accession=bgsu1300677596&disposition=attachment

Balak, E. (2019). *Word problems.* Retrieved October 14, 2019, from https://eabalakmathlitmix.wordpress.com/word-problems/

Barton, M.L., Heidema, C., & Jordan, D. (2011). *Teaching reading in Mathematics and Science*. Retrieved October 20, 2019, from https://pdo.ascd.org/lmscourses/PD11OC134/media/CCSS_Literacy_Math_M3_ReadingTeaching_Reading.pdf

Basol, B., Ozel, S. dan Ozel, Z. (2011). The relationship between reading comprehension competence and word problem comprehension among third-grade students. *Journal of European Education,* 1(1). Retrieved October 25, 2019, from http://eu-journal.org/index.php/JEE/article/view/173

Bjork, I. & Bowyer-Crane, C. (2013). *Cognitive skills used to solve mathematical word problems and numerical operations: A study of 6 to 7 year old children.* Retrieved December 20, 2019, from DOI: 10.1007/s10212-012-0169-7

Boonen, A., Koning, B., Jolles, J. & Schoot, M. (2016). *Word problem solving in contemporary math education: A plea for reading comprehension skills training.* Retrieved October 15, 2019, from https://www.frontiersin.org/articles/10.3389/fpsyg.2016.00191/full

Cappelli, A. (2015). Implementing literacy strategies and activities to help Math students in Geometry. *Education Masters.* Retrieved November 29, 2019, from https://core.ac.uk/download/pdf/48621063.pdf

Cox, J. (2019). *Here's what you need to know about lesson plans*. Retrieved December 14, 2019 from https://www.thoughtco.com/what-is-a-lesson-plan-2081359

Cruz, J., & Lapinid, M. (2014). Students' difficulties in translating worded problems into mathematical symbols. *The DLSU Research Congress Proceeding.* Retrieved October 22, 2019, from https://xsite.dlsu.edu.ph/conferences/dlsu_research_congress/2014/_pdf/proceedings/LLI-I-009-FT.pdf

Depaepe, F., De Corte, E., & Verschaffel, L. (2010). Teacher's approaches towards word problem solving: Elaborating or restricting the problem context. *Teaching and Teacher Education: An International Journal of Research and Studies*, 26, 152-160. Retrieved October 30, 2019, from https://www.researchgate.net/publication/229414646_Teachers'_approaches_towards_word_problem_solving_Elaborating_or_restricting_the_problem_context

Department of Education. (2013). *Curriculum guide for grade three mathematics.* Retrieved from https://www.deped.gov.ph/wp-content/uploads/2019/01/Math-CG_with-tagged-math-equipment.pdf

Department of Education. (2017). *National adoption and implementation of the Philippine Professional Standards for Teachers.* Retrieved October 2, 2019, from https://www.deped.gov.ph/2017/08/11/do-42-s-2017-national-adoption-and-implementation-of-the-philippine-professional-standards-for-teachers/

Diloy, R.E. (2015). *Evidence-based teaching and learning in English, Science, Mathematics, Filipino and Araling Panlipunan in selected secondary schools in the Division of Rizal: Impact on student learning outcome during the school year 2012-*

2013. Retrieved October 20, 2020, from https://depedcalabarzon.ph/wp-content/uploads/2012/05/Evidence-Based-Teaching-in-ESM-FAP-in-Selected-Secondary-Schools.pdf

Don Bosco Press Inc. (2019). *Teaching and Learning Enhancement.* Retrieved January 10, 2020, from http://www.donboscopress.ph/teaching-and-learning-enhancement-tools

Escudero, A. (2019). *Better reading comprehension leads to better math comprehension.* Retrieved December 1, 2019, from https://www.smartickmethod.com/blog/math/word-problems/better-reading-comprehension-math-comprehension/

Evangeslita, M.T. (2013). *Lesson Plan*. Retrieved from https://www.slideshare.net/martianne21/lesson-plan-lesson-planning

Galasso, S. (2019). *Strategies for supporting reading in your math class.* Retrieved December 1, 2019, from https://www.carnegielearning.com/blog/supporting-reading-in-your-math-class/

Gallego, J.R. (2019). Language and literacy strategies in teaching mathematics: Do They Correlate with Students' Psychological Needs? *Research Gate*. Retrieved from https://www.researchgate.net/publication/318501297_Language_and_Literacy_Strategies_in_Teaching_Mathematics_Do_they_Correlate_with_Students'_Psychological_Needs

Gaston, A., Martinez, J., Martin, E.P. (2016). Embedding literacy strategies in social studies for eight-grade students. *Journal of Social Studies Education Research,* 7, 73-95. Retrieved October 14, 2019, from https://eric.ed.gov/?id=EJ1105358

Glenberg, A.M., Willford, J., Gibson, B.R. (2011). Improving reading to improve math. *Scientific Studies of Reading.* DOI 10.1080/10888438.2011.564245

Glick, L. (2019). Implementation of literacy strategies and the impact on word problems. *Theses and Dissertations.* Retrieved November 30, 2019, from https://rdw.rowan.edu/cgi/viewcontent.cgi?article=3677&context=etd

Hanna, J. (2015). *Reading strategy portfolio-final*. Retrieved October 20, 2019, from https://www.scribd.com/doc/254094274/reading-strategy-portfolio-final

Hite, S. (2009). Improving problem solving by improving reading skills. *Summative Projects for MA Degree.* Retrieved from https://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1016&context=mathmidsummative

Hoffer, W. (2016). *Why teach reading in math?* Retrieved December 1, 2019, from https://www.pebc.org/why-teach-reading-in-math/

Hoover, N. (2019). *Parts of a lesson plan and an effective, easy template*. Retrieved January 15, 2020, from https://owlcation.com/academia/Parts-of-a-Lesson-Plan-How-to-Write-Lesson-Plans

Jan, S. & Rodrigues, S. (2012). Students' difficulties in comprehending mathematical word problems in English language learning contexts. *International Researchers,* 1(3), 152-157. Retrieved October 23, 2019, from https://www.academia.edu/2708056/STUDENTS_DIFFICULTIES_IN_COMPREHENDING_MATHEMATICAL_WORD_PROBLEMS_IN_ENGLISH_LANGUAGE_LEARNING_CONTEXTS

Joubert, M. (2009). Children's difficulties with mathematical word problems. *Informal Proceedings,* 29(3). Retrieved October 14, 2019, from http://www.bsrlm.org.uk/wp-content/uploads/2016/02/BSRLM-IP-29-3-06.pdf

Kanniainen, L., Kiili, C., Tolvanen, A., & Aro, M. (2019). *Literacy skills and online research and comprehension: struggling readers face difficulties online.* Retrieved January 10, 2020, from DOI:10.1007/s11145-019-09944-9

Kardamis, L. (2019). *10 ways literacy can promote a deeper understanding of Math.* Retrieved December 1, 2019, from https://www.teachthought.com/literacy/10-ways-literacy-csn-promote-a-deeper-understanding-of-math/

Kelly, M. (2017). *Write lesson plans*. Retrieved December 15, 2019, from https://www.thoughtco.com/write-lesson-plans-8035

Kenney, J.M. et al. (2019). *Literacy strategies for improving mathematics instruction.* Retrieved December 1, 2019, from http://www.ascd.org/publications/books/105137/chapters/Reading-in-the-Mathematics-Classroom.aspx

King, A. (2018). *Reading and writing in math class.* Retrieved December 1, 2019, from https://www.edutopia.org/article/reading-and-writing-math-class

Krier, A. (2015). *A study of integrating vocabulary instruction of linear equations in a Middle School classroom.* Retrieved from https://pdfs.semanticscholar.org/2776/73457455e37b92353d3c42fa5e1f99f7e766.pdf

Kyttala, M., & Bjorn, P.M. (2014). The role of literacy skills in adolescents' mathematics word problem performance. *Learning and Individual Differences,* 29, 59-66. Retrieved December 22, 2019, from https://doi.org/10.1016/j.lindif.2013.10.010

Larasati, M. (2018). *The effect of using SQRQCQ method on the students' achievement in reading comprehension.* Retrieved October 20, 2019, from https://scholar.google.com/scholar?as_ylo=2016&q=sqrqcq&hl=en&as_sdt=0,5#d=gs_qabs&u=%23p%3DcWwpCMcM7yMJ

Latifah, L. (2019). Improving the ability of reading understanding of mathematical discussion through critical thinking development models in class 7, SMP PGRI 4 CIM. *STKIP SILIWANGI Journals,* 8(1). Retrieved January 6, 2020, from https://www.researchgate.net/publication/332733181_PENINGKATAN_KEMAMPUAN_MEMBACA_PEMAHAMAN_WACANA_MATEMATIKA_MELALUI_MODEL_PEMBELAJARAN_PENGEMBANGAN_BERPIKIR_KRITIS_D

ENGAN_MENGGUNAKAN_STRATEGI_SQRQCQ_SURVEY_QUESTIONS_READ_QUESTIONS_COMPUTE_QUESTIONS_D

Lein, A.E. (2016). *Effectiveness of mathematical word problem solving interventions for students with learning disabilities and mathematics difficulties: A meta-analysis.* Retrieved November 1, 2019, from https://www.semanticscholar.org/paper/Effectiveness-of-Mathematical-Word-Problem-Solving-Lein/3d039c5686115a8fb639cb3c1077727898dbeec4

Lewis, B. (2018). *TLM – Teaching/Learning Materials*. Retrieved December 16, 2019, from https://www.thoughtco.com/tlm-teaching-learning-materials-2081658

Lewis, B. (2018). *Writing a lesson plan: Context and closure*. Retrieved December 15, 2019, from https://www.thoughtco.com/lesson-plan-step-5-closure-2081851

Linde, S. (2017). *4As Lesson Plan Sample.* Retrieved January 11, 2020, from https://study.com/academy/lesson/4as-lesson-plan-sample.html

Literacy & Learning: Reading in the Content Areas. Retrieved September 1, 2019, from http://media2.lpb.org/images/pdf/litlearn/strategies/strat_sqrqcq.pdf

Loveless, B. & Betz, A. (2019) *Strategies for solving math word problems.* Retrieved November 1, 2019, from https://www.educationcorner.com/math-word-problems.html

Lubis, J.N., Panjaitan, A., Surya, E. & Syahputra, E. (2017). Analysis mathematical problem-solving skills of student of the Grade VIII-2 Junior High School Bilah Hulu Labuhan Batu. *International Journal of Novel Research in Education and Learning*, 4(2), 131-137. Retrieved October 15, 2019, from https://www.researchgate.net/publication/318585223_Analysis_Mathematical_Problem_Solving_Skills_of_Student_of_the_Grade_VIII-2_Junior_High

Magen-Nagar, N. (2016). The effects of learning strategies on mathematical literacy: A comparison between lower and higher achieving countries. *International Journal of Research in Education and Science (IJRES)*, 2(2), 306-321. Retrieved from https://files.eric.ed.gov/fulltext/EJ1105113.pdf

Malibiran, H. & Aplaon, Z. (2019). Determinants of problem-solving performance in Mathematics 7: A regression model. *International Forum*, 22(1), 65-86. Retrieved January 25, 2020, from https://www.researchgate.net/publication/335099202_Determinants_of_Problem-Solving_Performance_in_Mathematics_7_A_Regression_Model

Mamais, C. (2018). *What is the major importance of teaching and learning materials?* Retrieved February 26, 2020, from https://www.quora.com/What-is-the-major-importance-of-teaching-learning-materials

Marasigan, J.M. (2016). *Reading comprehension and mathematical literacy as determinants of students' performance in solving word problems in Physics*. (Unpublished Graduate Thesis). Lucban Quezon, Philippines: Southern Luzon State University

Matel, P. B. (2014). *Reading Comprehension and Mathematical Problem-solving Skills of Fourth Year High School Students of Tagaytay City Science National High School.* (Published Master's Thesis). Indang, Cavite: Cavite State University. Retrieved from https://www.academia.edu/8070763/Reading_Comprehension_and_Mathematical_Problem_Solving_Skills

Matt, V. (2016). 7 *Steps to Prepare an Exciting and Effective Lesson Plan*. Retrieved February 15, 2020, from https://www.theeducator.com/blog/7-steps-prepare-exciting-effective-lesson/

Maximo, A.G. (2014) *Designing and Developing A Lesson Plan*. Retrieved from https://www.slideshare.net/avigailgabaleomaximo/developing-lesson-plan-educ-5

McClymont, G. (2019). 7 *Components of an Effective Classroom Lesson Plan*. Retrieved from https://owlcation.com/academia/Components-of-an-Effective-Classroom-Lesson-Plan

Merle, J.C. (2015). *Increasing in the level of numeracy of the students through math plus.* Retrieved September 5, 2019, from http://depedcalabarzon.ph/wp-content/uploads/2015/11/R2A-in-CALABARZON-Volume-2-No.1-Series-2015.pdf

Minero, E. (2019). *A game-changing practice fuses math and literacy.* Retrieved December 1, 2019, from https://www.edutopia.org/article/game-changing-practice-fuses-math-and-literacy

Mooney, C., Briggs, M., Fletcher, M., Hansen, A., & McCullouch, J. (2014). *Primary mathematics teaching theory and practice.* Retrieved from https://www.amazon.co.uk/Primary-Mathematics-Teaching-Practice-Achieving/dp/1446295591

Moraña, M. (2017). Achievement test and academic performance in mathematics of second year high school students in the Division of Zambales, Philippines. *International Journal of Development Research*, 7(1), 11272-11277. Retrieved from https://www.academia.edu/37955389/ACHIEVEMENT_TEST_AND_ACADEMIC_PERFORMANCE_IN_MATHEMATICS_OF_SECOND_YEAR_HIGH_SCHOOL_STUDENTS_IN_THE_DIVISION_OF_ZAMBALES_PHILIPPINES

Mulyati, T. et al. (2017). Effect of integrating children's literature and SQRQCQ problem solving learning on elementary school student's mathematical reading comprehension skill. *International Electronic Journal of Mathematics Education*, 12(3), 217-232. Retrieved September 1, 2019, from https://www.iejme.com/article/effect-of-integrating-childrens-literature-and-sqrqcq-problem-solving-learning-on-elementary-school

Murcia, L. (2018). *Action research proposal: Mathematics problem-solving skill and reading comprehension.* Retrieved October 13, 2019, from https://owlcation.com/stem/Action-Research-Proposal-Mathematics-Problem-Solving-Skill-And-Reading-Comprehension

Near, S. (2014). *Literacy Instruction in Math Classes.* Published master's thesis, State University of New York, New York. Retrieved from https://dspace.sunyconnect.suny.edu/handle/1951/64572

Nigar, D. (2017). *Teaching Aids: Meaning and importance*. Retrieved February 17, 2020, from https://www.slideshare.net/DarakhshanNigar/teaching-aids-meaning-and-importance-73438174

Nii Darko, Wellington J. (2014). *Teaching and learning aids*. Retrieved February 16, 2020, from https://www.slideshare.net/jellyways/aids-and-applications-for-easier-learning-and-teaching-finals

Osman, S., et al. (2018). Enhancing students' mathematical problem-solving skills through bar model visualization technique. *International Electronic Journal of Mathematics Education,* 13(3), 273-279. Retrieved October 15, 2019, from https://www.semanticscholar.org/paper/Enhancing-students'-mathematical-problem-solving-Osman-Yang/289a00c464dd4e30ae22c885e4f2569c4c989776

Patena, A.D. & Dinglasan, B.L. (2013). Students' performance on Mathematics departamental examination: Basis for Math intervention program. *Asian Academic Research Journal of Social Sciences & Humanities,* 1(14). Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2276044

Permata, L.D., Kusmayadi, T.A. & Fitriana, L. (2018). Mathematical problem-solving skills analysis about word problems of linear program using IDEAL problem solver. *Journal of Physics: Conf Series.* Retrieved October 15, 2020, from https://iopscience.iop.org/article/10.1088/1742-6596/1108/1/012025/meta

Phonapichat, P., Wongwanich, S. & Sujiva, S. (2013). An analysis of elementary school students' difficulties in mathematical problem solving. *Procedia – Social and Behavioral Sciences*, 116(2014), 3169-3174. Retrieved October 15, 2019, from https://www.researchgate.net/publication/270847106_An_Analysis_of_Elementary_School_Students'_Difficulties_in_Mathematical_Problem_Solving

PIRLS. (2015). *Assessment framework*. Retrieved October 15, 2019, from https://timssandpirls.bc.edu/pirls2016/index.html

Pongo, A.K. (2017). *Importance of Lesson Plan.* Retrieved December 20, 2019, from https://www.slideshare.net/mobile/popsytro/importance-of-lesson-plan

Punzalan, E.M. & Buenaflor, R.F. (2017). Modeling the relationship between the basic computational and problem-solving skills of Fourth-Year high school students in the Division of Zambales, Philippines. *International Journal of Education and Research,* 5(1), 173-184. Retrieved January 25, 2020, from https://www.ijern.com/journal/2017/January-2017/15.pdf

Puspita, R.D. et al. (2018). SQRQCQ method implementation to improve reading comprehension of 4th grade: Action research conducted in Indonesian Elementary School. *International Conference on Elementary Education.* Retrieved from https://scholar.google.com.pk/citations?user=0orkfPEAAAAJ&hl=th#d=gs_md_c

ita-d&u=%2Fcitations%3Fview_op%3Dview_citation%26hl%3Dth%26user%3D0orkfPEAAAAJ%26citation_for_view%3D0orkfPEAAAAJ%3A_FxGoFyzp5QC%26tzom%3D-480

Quasi-Experimental and Single-Case Experimental Designs. (2019). Retrieved January 26, 2020, from https:///us.sagepub.com/sites/default/files/upm-binaries/89876_Chapter_13_Quasi_Experimental_and_Single_Case_Designs.pdf

Ramos, R., Baking, E., Quiambao, D., Nicdao, R., Nuqui, A.V., & Cruz, R. (2015). The reading comprehension and mathematics proficiency level of high school students and their correlates. *Journal of Business & Management Studies*, 1(2), 1-7. Retrieved from http://manuscript.advancejournals.org/uploads/022ba167856333c99e7d16a9d617aca9e8e08062593ab8f6249c7b7f6d1b4036/Manuscript/5422.pdf

Reavis, L. (2017). *Literacy in the mathematics classroom.* Retrieved November 29, 2019, from https://medium.com/literate-schools/literacy-in-the-mathematics-classroom-e97c9a2979d7

Riccomini, P. J. (2015). The language of mathematics: The importance of teaching and learning mathematical vocabulary. *Reading and Writing Quarterly*, 31(3), 235-252. Retrieved December 1, 2019, from https://www.researchgate.net/publication/276443539_The_Language_of_Mathematics_The_Importance_of_Teaching _and_Leanring_Mathematical_Vocabulary

Ridner, A. (2019). *Lesson Plans.* Retrieved December 15, 2019, from https://study.com/learn/lesson-plans.html

Rittner, M. A. (2018). Impact of literacy on student readiness in math and science classroom. *Honors Project.* Retrieved from https://scholarworks.bgsu.edu/cgi/viewcontent.cgi?article=1432&context=honorsprojects

Romano, A. (2018). *5 Tips to Improve your Lesson Plan.* Retrieved December 10, 2019 from http://neatoday.org/new-educators/5-tips-improve-lesson-plan/

Rose, K. (2011). *The effect of SQRQCQ on Fourth graders' math word problem performance.* Retrieved September 1, 2019, from https://etd.ohiolink.edu/!etd.send_file?accession=bgsu1300673366&disposition=inline

Rudenstine, A. et al. (2019). *SQRQCQ.* Retrieved October 20, 2019, from https://www.redesignu.org/design-lab/learning-activities/sqrqcq

Rutzler, S. (2017). *Math and Reading.* Retrieved November 22, 2019, from https://www.mathgenie.com/blog/author/sarah-rutzler

Saclao, J.G. (2018). *Enhancing problem solving abilities of millennial learners: Achieving the goals of K to 12 mathematics curriculum.* Retrieved October 20, 2019, from https://www.bulacandeped.com/wp-content/uploads/2018/07/JOSEFINO-G.-SACLAO.pdf

Sanhadi, K. C. D., Mardiyana, Pramudya, I. (2017). *The Contribution of Reading Comprehension Skill to Mathematics Problem Solving Students of 11th Grade High Schoolmate Surakarta in Linear Program Material.* Retrieved from https://pdfs.semanticscholar.org/1447/d748586294acf1a278d62364d099a5f6dc2a.pdf

SEI-DOST & MATHTED. (2011). *Framework for Philippine Mathematics Teacher Education.* Retrieved October 20, 2019, from http://www.sei.dost.gov.ph/images/downloads/publ/sei_mathteach.pdf

Sihombing H. (2017). *Development of Mathematics Module Based on Metacognitive Strategy in Improving Students' Mathematical Problem-Solving Ability at High School.* Retrieved March 15, 2020, from https://www.researchgate.net/publication/318983738_Development_of_Mathematics_Module_Based_on_Metacognitive_Strategy_in_Improving_Students'_Mathematical_Problem_Solving_Ability_at_High_School

SQRQCQ. Retrieved October 20, 2019, from https://bernhardstrategies.weebly.com/sqrqcq.html

SQRQCQ (Survey, Question, Read, Question, Compute, Question) solving math word problems. (2011). Retrieved October 20, 2019, from https://www.google.com/amp/s/lighthouseview.wordpress.com/2011/03/03/sqrqcq-survey-question-read-question-compute-question-solving-math-word-problems/amp

Steinhilber, R. (2011). How Secondary Mathematics Teachers are Incorporating Literacy in their Classrooms and to What Extent? *Education Masters*, Retrieved from https://fisherpub.sjfc.edu/cgi/viewcontent.cgi?article=1269&context=education_ETD_masters

Sulak, S. (2010). Effect of problem-solving strategies on problem solving achievement in primary school mathematics. *Procedia- Social and Behavioral Sciences*, 9(2010), 468-472. Retrieved October 15, 2019, from https://www.researchgate.net/publication/238003877_Effect_of_problem_solving_strategies_on_problem_solving_achievement_in_primary_school_mathematics

Tambychik, T. & Meerah, T.S. (2010). Students' difficulties in Mathematics problem-solving: What do they say? *Procedia -Social and Behavioral Sciences*, 8(2010), 142-151. Retrieved October 15, 2019, from https://www.sciencedirect.com/science/aticle/pii/S1877042810021257

Taylor, C. S. (2019). How to can wee deepen our understanding of math by using literacy. Retrieved December 1, 2019, from https://dpi.wi.gov/math/disciplinary-literacy/literacy-in-math

TeachableMath (2018). *6 reasons why it is important to have a lesson plan.* Retieved November 22, 2019, from https://teachablemath.com/6-reasons-why-it-is-important-to-have-a-lesson-plan/

Teachers can use exemplar lessons to become more effective in classroom. (2013). Retrieved December 1, 2019, from https://blogs.houstonisd.org/news/2013/03/06/teachers-can-use-exemplar-lessons-to-become-more-effective-in-classroom/

Teaching literacy in your k-12 classrooms. (2019). Retrieved December 1, 2019, from https://educationonline.ku.edu/community/teaching-reading-and-writing-skills

Thesaurus (2020). Retrieved from https://www.thesaurus.com/

United Nations Educational Scientific and Cultural Organization. (2020). *Learning and teaching materials.* Retrieved January 23, 2020, from https://learningportal.iiep.unesco.org/en/issue-briefs/improve-learning/curriculum-and-materials/learning-and-teaching-materials

Using literacy strategies to teach math. (2016). Retrieved December 1, 2019, from https://mathgeekmama.com/using-literacy-strategies-to-teach-math/

Womack, S.T. et al. (2015). *Most effective practices in lesson planning.* Retrieved January 12, 2020, from https://files.eric.ed.gov/fulltext/ED553616.pdf

Woodward, J. et al. (2012). *Introduction to the improving mathematical problem solving in Grades 4 through 8 practice guide.* Retrieved November 1, 2019, from https://ies.ed.gov/ncee/wwc/Docs/PracticeGuide/mps_pg_052212.pdf

Vula, E. & Kurshumlia, R. (2015). Mathematics word problem solving through collaborative action research. *Journal of Teacher Action Research,* 1(2), 34-46. Retrieved from http://www.practicalteacherresearch.com/uploads/5/6/2/4/56249715/vula_34-46.pdf

APPENDICES

Appendix A

Letter of Communication

Republic of the Philippines
SOUTHERN LUZON STATE UNIVERSITY
GRADUATE SCHOOL
Lucban, Quezon

February 7, 2020

DR. HERMOGENES M. PANGANIBAN
OIC - Schools Division Superintendent

Sir:

Greetings of Peace!

The undersigned is a Graduate School student taking Master of Arts in Education with specialization in Elementary Education and presently working on her thesis entitled ***"Mathematical Learning Package Utilizing SQRQCQ Strategy in Improving Worded Problem-Solving Skills"***

This study is designed to improve the worded problem-solving skills in Mathematics among Grade 3 pupils by utilizing SQRQCQ strategy. It is hoped that the outcome of this study can help the teachers and administrators support teaching Mathematics.

In connection with this, she is formally requesting your good office the permission to allow her to conduct the study in the Division of Lucena City and let the Grade Three class of Lucena South 1 Elementary School be the respondents of the said study.

Thank you very much and may God bless you.

Respectfully yours,

(SGD) DARLENE MAE E. AGUILA
Researcher

Noted by:

GRACE D. PERMALINO
Adviser

Approved by:

(SGD) DR. HERMOGENES M. PANGANIBAN
OIC - Schools Division Superintendent

Republic of the Philippines
SOUTHERN LUZON STATE UNIVERSITY
GRADUATE SCHOOL
Lucban, Quezon

Mrs. ROWENA J. ADORMEO
Principal II, Lucena South 1 Elementary School
Lucena City

Madam:

Greetings of Peace!

The undersigned is a Graduate School student taking Master of Arts in Education with specialization in Elementary Education and presently working on her thesis entitled ***"Mathematical Learning Package Utilizing SQRQCQ Strategy in Improving Worded Problem-Solving Skills"***

This study is designed to improve the worded problem-solving skills in Mathematics among Grade 3 pupils by utilizing SQRQCQ strategy. It is hoped that the outcome of this study can help the teachers and administrators support teaching Mathematics to cater the needs of the learners.

In connection with this, she is formally requesting your good office the permission to allow her to conduct the study in your school and let the Grade III pupils be the respondents of the said study.

Your positive response on this request will help a lot in achieving completion of the study.

Thank you very much and may God bless you.

Respectfully yours,

(SGD) DARLENE MAE E. AGUILA
Researcher

Noted by:

GRACE D. PERMALINO
Adviser

Approved by:

(SGD) ROWENA J. ADORMEO
Principal, Lucena South 1 Elementary School

Republic of the Philippines
SOUTHERN LUZON STATE UNIVERSITY
GRADUATE SCHOOL
Lucban, Quezon

Mrs. MARINETTE M. ADIGAN
Master Teacher I, Lucena South 1 Elementary School
Lucena City

Madam:

Greetings of Peace!

The undersigned is a Graduate School student taking Master of Arts in Education with specialization in Elementary Education and presently working on her thesis entitled ***"Mathematical Learning Package Utilizing SQRQCQ Strategy in Improving Worded Problem-Solving Skills"***

In connection with this, she humbly asks a permission to validate her research instruments.

Your positive response on this request will help a lot in achieving completion of the study.

Thank you very much and may God bless you.

Respectfully yours,

(SGD) DARLENE MAE E. AGUILA
Researcher

Noted by:

(SGD) GRACE D. PERMALINO
Adviser

APPROVED:

(SGD) MARINETTE M. ADIGAN
Master Teacher I, Lucena South 1 Elementary School

Republic of the Philippines
SOUTHERN LUZON STATE UNIVERSITY
GRADUATE SCHOOL
Lucban, Quezon

Dear Respondents,

Greetings of Peace!

The undersigned is a Graduate School student taking Master of Arts in Education with specialization in Elementary Education and presently conducting a study entitled ***"Mathematical Learning Package Utilizing SQRQCQ Strategy in Improving Worded Problem-Solving Skills"***

In view of this, may I request you to be one of the respondents of this research? Rest assured that whatever data I will gather will be held confidential and will be used solely for the purpose of this study.

Attached herewith is the questionnaire for you to accomplish.

Thank you very much for your cooperation. God bless!

Respectfully yours,

(SGD) DARLENE MAE E. AGUILA
Researcher

Noted:

GRACE D. PERMALINO
Thesis Adviser

Appendix B

Certification of Validation

Republic of the Philippines
SOUTHERN LUZON STATE UNIVERSITY
GRADUATE SCHOOL
Lucban, Quezon

CERTIFICATE OF VALIDATION

To Whom It May Concern:

This is to certify that the questionnaire prepared by **DARLENE MAE E. AGUILA** for the completion of her study entitled **"MATHEMATICAL LEARNING PACKAGE UTILIZING SQRQCQ STRATEGY IN IMPROVING WORDED PROBLEM-SOLVING SKILLS"** has been content validated by the undersigned.

(SGD) ELENA E. TRAQUEÑA
Master Teacher I
San Lorenzo Elementary School
Lucena City, Quezon

Date Validated: January 27, 2020

Appendix C

Research Instruments

Republic of the Philippines
Department of Education
Region IV-A CALABARZON
SCHOOLS DIVISION OFFICE – LUCENA CITY
West 1 Compound, Ilayang Iyam Lucena City

Table of Specification (TOS)

Fourth Quarter in Mathematics 3
S.Y. 2019-2020

Learning Competencies	No. of Days	No. of Items	Item Placement		
			Remembering, Understanding Easy (60%)	**Applying Average (30%)**	**Analyzing, Evaluating, Creating Difficult (10%)**
A. Visualizes, and represents, and solves problems involving conversion of time measure	2	6	1, 2, 3, 4	13, 14	
B. Visualizes, and represents, and solves routine and non-routine problems involving conversions of common units of measure	2	6	5, 6, 7, 8	15	16
C. Visualizes, and represents, and solves routine and non-routine problems involving capacity measure	2	6	9, 10, 11, 12	17, 18	
D. Solves routine and non-routine problems involving areas of squares and rectangles	2	6	19, 20	21, 22, 23	24
E. Solves routine and non-routine problems using data presented in a single-bar graph	2	6	25, 26, 27, 28	29	30
TOTAL	**10**	**30**	**18**	**9**	**3**

MATEMATIKA 3
ORIGINAL PRETEST/POSTTEST

Pangalan ____ Petsa ________
Baitang at Seksyon _______________ Puntos _______

A. **<u>Pagpupuno sa Patlang</u>**
Hanapin sa loob ng kahon ang katumbas na sukat ng oras.

3 taon	96 oras	56 araw	10 minuto

1. 600 segundo =______________
2. 4 araw =______________
3. 8 linggo =______________
4. 36 buwan =______________

B. **<u>Pagtapat-tapatin</u>**
Hanapin sa Hanay B ang katumbas na yunit ng nasa Hanay A. Isulat ang letra ng sagot sa patlang.

Hanay A	Hanay B
______5. 5 metro	A. 24 kilo
______6. 14 Kilo	B. 7 metro
______7. 24 000 gramo	C. 14 000 gramo
______8. 700 sentimetro	D. 500 sentimetro

C. **<u>Tama o Mali</u>**
Iguhit sa patlang ang ☺ kung angkop ang nakalagay na dami ng laman sa sumusunod na lalagyan at ☹ kung hindi.

______9. Ang baso ng buko ***juice*** ay <u>300 mL.</u>
______10. Ang sopas na nasa palayok ay <u>18 L.</u>
______11. Ang bote ng ***coke*** ay <u>150 mL.</u>
______12. Ang dalawang ***gallon*** ng tubig ay <u>600 L.</u>

D. **<u>Uring Papili</u>**
Bilugan ang letra ng tamang sagot sa bawat bilang.

13. Nasa ikatlong baitang na si Paolo. Siya ay mahilig magbasa. Naglalaan siya ng 210 minuto upang basahin ang kanyang paboritong aklat. Ilang oras ang kanyang inilalaan sa pagbabasa?

A. 2 oras
B. 2 at kalahating oras
C. 3 oras
D. 3 at kalahating oras

14. Ang palaruan ay 50 metro ang haba at 25 na metro ang lapad. Ano ang **area** nito?
A. 75 sq.m
B. 750 sq.m
C. 1 250 m
D. 1 250 sq.m

15. Bumyahe patungong Lucena ang aming lolo at lola. Mula sa Maynila ay naglakbay sila ng 240 000 metro. Ilang kilometro ang katumbas nito?
A. 24 km
B. 240 km
C. 2 400 km
D. 24 000 km

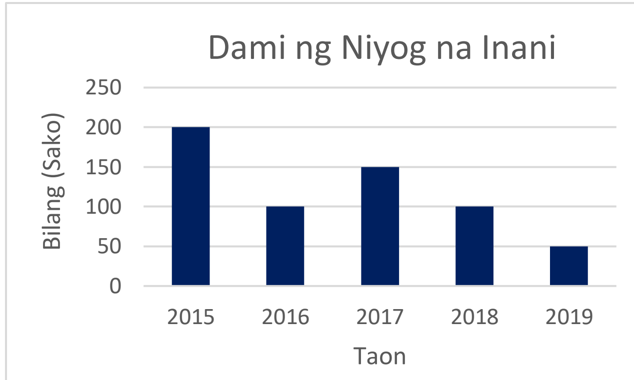
16. Si Kiel ay tumakbo ng 700 sentimetro. Gaano ang katumbas nito sa metro?
A. 9 metro
B. 8 metro
C. 7 metro
D. 6 metro

17. Ang pamilya Consignado ay nakakaubos ng 5 L tubig sa loob ng isang araw. Ilang mililitro ang katumbas nito?
A. 5 mL
B. 50 mL
C. 500 mL
D. 5 000 mL

18. Si tiya Ellen ay nagpunta sa palengke. Bumili siya ng 3 ½ kilong mangga at 1 ¾ kilong rambutan. Ilang gramo ng prutas lahat?
A. 5 225 gramo
B. 4 500 gramo
C. 3 750 gramo
D. 2 870 gramo

19. Ang **area** ng parisukat na may sukat na 4 cm ang bawat bahagi ay ______?
    A. 8 cm
    B. 160 cm
    C. 16 sq.cm
    D. 800 sq.cm
20. Gaano karami ang matitira kung nagamit mo ang 150 mL mula sa 1000 mL na shampoo na binili mo?
    A. 350 mL
    B. 550 mL
    C. 757 mL
    D. 850 mL
21. Ang parisukat na lote ay may sukat na 2 metro ang bawat bahagi. Ano ang **area** nito?
    A. 4 sq. m
    B. 4 sq.m
    C. 4 m
    D. 400 sq.m
22. Ang kuwarto ay 7 metro ang haba at 5 na metro ang lapad. Ano ang **area** nito?
    A. 2 sq.m
    B. 12 sq.m
    C. 35 sq.m
    D. 75 sq.m
23. Gumawa ng bandila ng Pilipinas ang mga mag-aaral para sa kanilang proyekto sa Araling Panlipunan. Ano ang **area** ng bandila kung ito ay may habang 20 cm at lapad na 10 cm?
    A. 200 sq.cm
    B. 120 sq.cm
    C. 60 sq.cm
    D. 30 sq.cm
24. Ang **area** ng aming silid-aralan ay 80 sq.m. Kung ang lapad nito ay 5 metro, ano ang haba nito?
    A. 40 m
    B. 30 m
    C. 24 m
    D. 16 m

25-30. Gamitin ang datos sa **graph** at sagutin ang mga tanong.



25. Tungkol saan ang **bar graph**?
    A. Tsart ng naibentang niyog
    B. Tsart ng naitanim na niyog
    C. Tsart ng niyog na inani
    D. Tsart ng niyog na ipinamigay

26. Kung pagsasamahin an bilang ng inaning niyog sa mga taon na magkasingtulad ang bilang ng inani, ilan lahat ito?
    A. 100
    B. 200
    C. 500
    D. 1 000

27. Anong taon ang naitalang may pinakamaraming ani ng niyog?
    A. 2018
    B. 2016
    C. 2017
    D. 2015

28. Ano-anong taon ang naitalang magkasingtulad ang bilang ng inaning niyog?
    A. 2018 at 2016
    B. 2016 at 2017
    C. 2017 at 2018
    D. 2015 at 2018

29. Ilang sako ng niyog ang inani sa loob ng limang taon?
    A. 900 sako
    B. 550 sako
    C. 600 sako
    D. 400 sako

30. Sa iyong palagay, bakit bumaba ang bilang ng inaning niyog sa paglipas ng taon?
    A. Tamad mag-ani ang mga tao
    B. Maraming tao ang patuloy na nagtatanim ng niyog
    C. Paborito ng mga tao ang produktong gawa sa niyog
    D. Maraming puno ng niyog ang nasira dahil sa mga bagyo

Susi sa Pagwawasto

1. 10 minuto	11. ☹	21. B
2. 96 oras	12. ☹	22. C
3. 56 araw	13. D	23. A
4. 3 taon	14. D	24. D
5. D	15. B	25. C
6. C	16. C	26. B
7. A	17. D	27. D
8. B	18. A	28. A
9. ☺	19. C	29. C
10. ☹	20. D	30. D

MATEMATIKA 3
REVISED PRETEST/POSTTEST

Pangalan ____ Petsa ________
Baitang at Seksyon ________________ Puntos _______

A. ***Pagpupuno sa Patlang***

Hanapin sa loob ng kahon ang katumbas na sukat ng oras.

2 taon	96 oras	56 araw	5 minuto

1. 300 segundo =_______________
2. 4 araw =_______________
3. 8 linggo =_______________
4. 36 buwan =_______________

B. ***Pagtapat-tapatin***

Hanapin sa Hanay B ang katumbas na yunit ng nasa Hanay A. Isulat ang letra ng sagot sa patlang.

Hanay A	Hanay B
______5. 5 metro	A. 24 kilo
______6. 15 kilo	B. 7 metro
______7. 24 000 gramo	C. 14 000 gramo
______8. 700 sentimetro	D. 500 sentimetro

C. ***Tama o Mali***

Iguhit sa patlang ang ☺ kung angkop ang nakalagay na dami ng laman sa sumusunod na lalagyan at ☹ kung hindi.

______9. Ang baso ng buko *juice* ay 300 mL.
______10. Ang sopas na nasa palayok ay 18 L.
______11. Ang bote ng gamot sa lagnat ay 10 L.
______12. Ang isang timbang tubig ay 4 000 mL.

D. ***Uring Papili***

Bilugan ang letra ng tamang sagot sa bawat bilang.

13. Nasa ikatlong baitang na si Paolo. Siya ay mahilig magbasa. Naglalaan siya ng 2 oras upang basahin ang kanyang paboritong aklat. Ilang minuto ang kanyang inilalaan sa pagbabasa?
    A. 120 minuto
    B. 180 minuto
    C. 240 minuto
    D. 300 minuto

14. Nais ni Karlo na makakuha ng mataas na marka sa kanilang pagsusulit kaya naman naglaan siya ng 2 at kalahating oras sa pag-aaral ng kanyang aralin. Ilang minuto ang katumbas ng 2 at kalahating oras?
    A. 60 minuto
    B. 90 minuto
    C. 150 minuto
    D. 180 minuto

15. Bumiyahe patungong Lucena ang aming lolo at lola. Mula sa Maynila ay naglakbay sila ng 240 000 metro. Ilang kilometro ang katumbas nito?
    A. 24 km
    B. 240 km
    C. 2 400 km
    D. 24 000 km

16. Si Kiel ay tumakbo ng 700 sentimetro samantalang si Baste ay tumakbo ng 8 metro. Gaano kalayo ang pagitan ng tinakbo ni Kiel at Baste gamit ang panukat na sentimetro?
    A. 100 sentimetro
    B. 150 sentimetro
    C. 175 sentimetro
    D. 200 sentimetro

17. Ang pamilya Consignado ay nakakaubos ng 5 L tubig sa loob ng isang araw. Ilang mililitro ang katumbas nito?
    A. 5 mL
    B. 50 mL
    C. 500 mL
    D. 5 000 mL

18. Si tiya Ellen ay namalengke. Bumili siya ng 2 ½ kilong lansones at 1 kilong rambutan. Ilang gramo ng prutas ang kanyang binili?
    A. 2 000 gramo
    B. 3 000 gramo
    C. 3 500 gramo
    D. 4 500 gramo

19. Ano ang angkop na yunit ang gagamitin sa pagsukat ng *area* ng panyo?
    A. sentimetro
    B. sq. cm
    C. metro
    D. sq. M

20. Si Ginoong Lorbis ay may parihabang *parking lot* na may habang 10 metro at lapad na 4 metro. Ano ang *formula* sa pagkuha ng *area* ng *parking lot*?
    A. side x side
    B. length + width
    C. side + side
    D. length x width

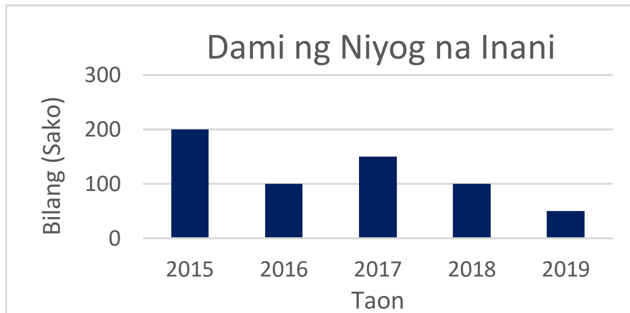
21. Ang parisukat na lote ay may sukat na 2 metro ang bawat bahagi. Ano ang *area* nito?
    A. 4 m
    B. 4 sq.m
    C. 40 sq.m
    D. 400 sq.m

22. Ang kuwarto ay 7 metro ang haba at 5 na metro ang lapad. Ano ang *area* nito?
    A. 2 sq.m
    B. 12 sq.m
    C. 35 sq.m
    D. 75 sq.m

23. Gumawa ng bandila ng Pilipinas ang mga mag-aaral para sa kanilang proyekto sa Araling Panlipunan. Ano ang *area* ng bandila kung ito ay may habang 20 cm at lapad na 10 cm?
    A. 200 sq.cm
    B. 120 sq.cm
    C. 60 sq.cm
    D. 30 sq.cm

24. Ang *area* ng aming silid-aralan ay 80 sq.m. Kung ang lapad nito ay 5 metro, ano ang haba nito?
    A. 40 m
    B. 30 m
    C. 24 m
    D. 16 m

25-30. Gamitin ang datos sa *graph* at sagutin ang mga tanong.



25. Ano ang tawag sa talaan sa itaas?
    A. tsart
    B. *drawing*
    C. *bar graph*
    D. talahanayan

26. Ilang sako ng inaning niyog ang ibinaba noong taong 2018 sa 2019?
    A. 50 sako
    B. 100 sako
    C. 200 sako
    D. 300 sako

27. Anong taon ang pangalawa sa may mataas na bilang ng inaning niyog?
    A. 2015
    B. 2016
    C. 2017
    D. 2018

28. Ano-anong taon ang naitalang magkasingtulad ang bilang ng inaning niyog?
    A. 2015 at 2016
    B. 2016 at 2017
    C. 2017 at 2018
    D. 2016 at 2018

29. Ilang sako ng niyog ang inani sa loob ng limang taon?
    A. 400 sako
    B. 600 sako
    C. 750 sako
    D. 900 sako

30. Sa iyong palagay, bakit bumaba ang bilang ng inaning niyog sa paglipas ng taon?
    A. Tamad mag-ani ang mga tao
    B. Maraming tao ang patuloy na nagtatanim ng niyog
    C. Paborito ng mga tao ang produktong gawa sa niyog
    D. Maraming puno ng niyog ang nasira dahil sa mga bagyo

Susi sa Pagwawasto

1. 5 minuto	11. ☹	21. B
2. 96 oras	12. ☺	22. C
3. 56 araw	13. A	23. A
4. 3 taon	14. C	24. D
5. D	15. B	25. C
6. C	16. A	26. A
7. A	17. D	27. C
8. B	18. C	28. D
9. ☺	19. B	29. B
10. ☹	20. D	30. D

Komprehensyon sa Pagbasa
PRETEST/POSTTEST

Pangalan ____ Petsa ______________
Baitang at Seksyon ___________________ Puntos _____________

Panuto: Basahin nang tahimik ang bawat kuwento. Pagkatapos, basahin ang mga tanong at isulat ang titik ng tamang sagot sa sagutang papel.

Ang Loro ni Lolo Kiko

May loro si Lolo Kiko.
Nagsasalita ang loro ni Lolo.
Keso ang paborito nito.
Aba! Nakawala ang loro!
Ay! Nasa puno na ang loro!

Bilang ng mga salita: 29
(Filipino: Wika ng Pagbabago, Medrano, Z.S., 2004

1. Ano ang alaga ni Lolo Kiko?
   A. aso
   B. loro
   C. pusa
2. Ano ang paborito ng alaga ni Lolo? Paborito nito ang _________________.
   A. makalipad sa puno
   B. makatikim ng keso
   C. makausap si Lolo Kiko
3. Ano kaya ang naramdaman ni Lolo nang mawala ang loro?
   A. masaya
   B. malungkot
   C. nagalit
4. Saan kaya naganap ang kuwento? Naganap ang kuwento sa _________.
   A. bahay
   B. gubat
   C. paaralan
5. Ano ang isa pang magandang pamagat sa kuwento?
   A. Si Lolo Kiko
   B. Ang Loro sa Puno
   C. Ang Alagang Loro

B. **O Pagong!**

O, pagong na maliit
sa garapon nakatira.
Ikaw ba ay sasaya
kapag nakawala ka na?
O, batang mabait
tulungan mo ako.
Paglabas ko rito
masaya talaga ako.

Bilang ng mga salita: 30
(Filipino: Wika ng Pagbabago, Medrano, Z.S., 2004)

6. Nasaan ang pagong sa kuwento? Ang pagong ay nasa ____________.
   A. loob ng hardin
   B. loob ng garapon
   C. labas ng garapon

7. Alin sa sumusunod na mga salita ang nagsasabi tungkol sa pagong?
   A. mabait
   B. maliit
   C. masaya

8. Sino ang nag-uusap sa kuwento?
   A. ang mga bata
   B. ang mga pagong
   C. ang bata at ang pagong

9. Ano kaya ang nararamdaman ng pagong sa kuwento? Ang pagong ay ________.
   A. malungkot
   B. masaya
   C. galit

10. Bakit kaya sinulat ang kuwentong ito?
   A. Hatid nito ang isang balita.
   B. Nais nitong magbigay-kaalaman.
   C. Nais nitong magbigay ng aliw.

C. **Reyna ng Duwende**

Selina ang pangalan
ng reyna ng mga duwende.
Lagi siyang nakaupo
sa malaking balde.
Berdeng balde ang paborito niya
at balat ng saging
ang korona niya.
O! Kay saya ni Reyna Selina!

Bilang ng mga salita: 35
Sinulat ni:T. Nong

11. Para saan ang balde ng reyna?
    A. Upuan ito ng reyna.
    B. Ginagamit ito sa paglalaba.
    C. Lalagyan ito ng tubig ng reyna.

12. Ano ang nararamdaman ng reyna? _______________ ang reyna.
    A. Nag-aalala
    B. Natutuwa
    C. Napapagod

13. Alin sa sumusunod ang sinasabi sa kuwento?
    A. Hinahawakan ng mga duwende ang korona.
    B. Ang korona ay may mamahaling diamante.
    C. Galing sa prutas ang korona ng reyna.

14. Saan kaya naganap ang kuwento? Naganap ang kwento sa __________.
    A. kaharian ng mga balde
    B. kaharian ng mga saging
    C. kaharian ng mga duwende

15. Bakit kaya sinulat ang "Reyna ng Duwende"?
    A. Hatid nito ang isang balita.
    B. Nais nitong magbigay-aral.
    C. Nais nitong magbigay ng aliw.

D. **Manonood Ako!**

May karera ng kotse.
Makukulay raw ang mga kotse.
Manonood ako ng karera.
Magdadala ako ng kamera.
Magsisimula na ito.
Sasakay na ako sa bisikleta.
Mabilis ang andar ko.
Naku! Dumulas ang bisikleta!
Aray! Kay raming putik ng tuhod ko!

Bilang ng mga salita: 42
Sinulat ni:T. Nong

16. Saan papunta ang bata sa kuwento? Papunta ang bata sa _________.
    A. parada ng mga kotse
    B. karera ng mga kotse
    C. karera ng mga bisikleta

17. Alin sa sumusunod ang nagsasabi tungkol sa mapapanood ng bata?
    A. Madaming bisikleta rito.
    B. Makukulay ang mga kotse rito.
    C. Makukulay ang mga bisikleta rito.

18. Bakit kaya mabilis ang andar ng bata?
    A. Gusto niyang mapanood ang karera.
    B. Sasali siya sa makulay na parada.
    C. May kaibigan siya sa karera.

19. Alin sa sumusunod ang nagpapakitang nasaktan ang bata sa kuwento?
    A. Mabilis and andar ko.
    B. Naku! Dumulas ang bisikleta!
    C. Aray! Kay daming putik ng tuhod ko!

20. Alin sa sumusunod ang isa pang magandang pamagat para sa kuwento?
    A. Parada ng mga Kotse
    B. Karera ng mga Kotse
    C. Karera ng Bisikleta

Susi sa Pagwawasto

1. B	11. A
2. B	12. B
3. B	13. C
4. A	14. C
5. C	15. C
6. B	16. B
7. B	17. B
8. C	18. A
9. A	19. C
10. C	20. B

QUESTIONNAIRE TO EVALUATE THE ACCEPTABILITY OF THE MATHEMATICAL LEARNING PACKAGE UTILIZING SQRQCQ STRATEGY TO IMPROVE WORDED PROBLEM-SOLVING SKILLS

Name ____

Directions: Kindly rate the acceptability of the developed mathematical learning package according to the following criteria: content, accuracy, and usability of the material. Read the following statements carefully and check your answer on the appropriate column that corresponds to your answer. Use the following scale.

Point Score	**Descriptive Rating**
4	(SA) – Strongly Acceptable
3	(A) – Acceptable
2	(FA) – Fairly Acceptable
1	(NA) – Not Acceptable

CRITERIA	**OPTIONS**			
	SA 4	**A 3**	**FA 2**	**NA 1**
A. CONTENT				
1. The contents present adequate developmental concepts.				
2. The content represents a well-organized and logical sequence of ideas.				
3. The content of the lesson includes motivating activities that are appropriate to each lesson.				
4. The topics are clear and arranged in a manner that allows understanding of the concepts.				
5. The activities used in each lesson are simple but interesting and challenging.				
B. ACCURACY				
1. The learning package is appropriate to the age and ability of the Grade 3 pupils.				
2. Information is sufficient and covered all the target learning competencies for the fourth grading period.				
3. The learning package is well-planned and developed based on the learning competencies that are indicated in K to 12 Curriculum Guide.				
4. Each concept is clear and effective in providing the expected learning competencies in the curriculum guide.				
5. The learning package is congruent with the goals and objectives found in the K to 12 Curriculum Guide.				

CRITERIA	OPTIONS			
	SA 4	**A 3**	**FA 2**	**NA 1**
C. USABILITY				
1. The learning package can serve as a new learning material in teaching and learning worded problem-solving in Mathematics.				
2. The learning package enables the user to develop his/her critical and analytical thinking.				
3. SQRQCQ strategy used in the learning package can serve as a new model in teaching worded problem-solving in any classroom.				
4. SQRQCQ strategy can help pupils to have better performance in solving worded problems.				
5. SQRQCQ strategy relates to the present trends in solving worded problems.				

Comments and Suggestions

____
____
____.

DARLENE MAE E. AGUILA
Researcher

Appendix D

Item Analysis

Item	Nr	Nt	D_f	Interpretation	D_c	Interpretation	Action
1	27	34	0.79	Easy	0.11	Non-discriminating	Revise
2	25	34	0.74	Average	0.78	Discriminating	Retain
3	22	34	0.65	Average	0.67	Discriminating	Retain
4	25	34	0.735	Average	0.556	Discriminating	Retain
5	25	34	0.74	Average	0.78	Discriminating	Retain
6	23	34	0.676	Average	0.556	Discriminating	Retain
7	24	34	0.706	Average	0.556	Discriminating	Retain
8	24	34	0.706	Average	0.778	Discriminating	Retain
9	18	34	0.529	Average	0.889	Discriminating	Retain
10	17	34	0.5	Average	0.556	Discriminating	Retain
11	23	34	0.68	Average	0.33	Non- discriminating	Revise
12	11	34	0.32	Average	0.22	Non- discriminating	Revise
13	5	34	0.147	Difficult	0.333	Non- discriminating	Revise
14	7	34	0.206	Difficult	-0.33	Questionable	Discard
15	18	34	0.529	Average	0.556	Discriminating	Retain
16	26	34	0.765	Easy	0.222	Non- discriminating	Revise
17	14	34	0.412	Average	0.556	Discriminating	Retain
18	6	34	0.176	Difficult	0.444	Non- discriminating	Revise
19	7	34	0.206	Difficult	0.222	Non- discriminating	Revise
20	3	34	0.088	Difficult	0.222	Non- discriminating	Revise
21	12	34	0.353	Average	0.556	Discriminating	Retain
22	16	34	0.471	Average	0.556	Discriminating	Retain
23	21	34	0.618	Average	0.889	Discriminating	Retain
24	11	34	0.324	Average	0.556	Discriminating	Retain
25	32	34	0.941	Easy	0.222	Non- discriminating	Revise
26	30	34	0.882	Easy	0.333	Non- discriminating	Revise
27	32	34	0.941	Easy	0.222	Non- discriminating	Revise
28	10	34	0.294	Average	0.556	Discriminating	Retain
29	16	34	0.471	Average	0.667	Discriminating	Retain
30	18	34	0.529	Average	0.889	Discriminating	Retain

$$D_f = \frac{Nr}{Nt}$$

Where:

D_f = Index of difficulty

Nr = No. of pupils who answered correctly

Nt = No. of pupils who answered the test item

Interpretation:		
0.00 – 0.25	Difficult	Revise/Discard
0.26 – 0.75	Average	Retain
0.76 – 1.00	Easy	Revise/Discard

$$D_c = \frac{R_u - R_l}{\frac{1}{2} T}$$

Where:

D_c = Discrimination Power

R_u = No. of pupils from the upper group who answered correctly

R_l = No. of pupils from the lower group who answered correctly

Interpretation:		
-1.00 – -0.54	Questionable	Discard
-0.55 – 0.45	Non-discriminating	Revise
0.46 – 1.00	Discriminating	Retain

Appendix E

Statistical Computation

Respondent Number	Test Scores			
	Solving Word Problems		Reading Comprehension	
	Pretest	Posttest	Pretest	Posttest
1	9	17	9	12
2	17	29	15	18
3	18	29	16	20
4	11	20	10	16
5	11	13	8	14
6	20	26	15	18
7	15	24	14	15
8	15	26	14	17
9	15	14	13	14
10	7	14	13	18
11	7	18	7	12
12	6	16	5	14
13	10	18	11	14
14	13	18	10	16
15	8	13	8	12
16	17	27	15	19
17	12	24	15	17
18	18	25	17	18
19	10	17	12	15
20	8	13	9	12
21	9	14	8	13
22	7	15	14	16
23	15	16	12	13
24	20	29	16	19
25	20	29	14	20
26	14	19	10	16
27	12	17	14	16
28	10	18	8	13
29	16	27	14	19
30	19	27	16	18
31	13	14	11	13
32	10	16	8	12
33	19	26	17	19
34	16	25	12	16

Level of Competency in Solving Word Problems

Pretest scores	Frequency (f)	Analysis	Posttest scores	Frequency (f)	Analysis
6	1	Beginning	13	3	Beginning
7	3	Beginning	14	4	Beginning
8	2	Beginning	15	1	Beginning
9	2	Beginning	16	3	Beginning
10	4	Beginning	17	3	Beginning
11	2	Beginning	18	4	Beginning
12	2	Beginning	19	1	Beginning
13	2	Beginning	20	1	Beginning
14	1	Beginning	24	2	Approaching proficiency
15	4	Beginning	25	2	Approaching proficiency
16	2	Beginning	26	3	Proficient
17	2	Beginning	27	3	Advanced
18	2	Beginning	29	4	Advanced
19	2	Beginning			
20	3	Beginning			
N	34			34	
Total No. of items	30			30	
Mean	13.15	Beginning	20.38		Beginning
S	4.34		5.68		

Level of Competency in Reading Comprehension

Pretest scores	Frequency (f)	Analysis	Posttest scores	Frequency (f)	Analysis
5	1	Frustration	12	5	Frustration
6	0	-	13	4	Frustration
7	1	Frustration	14	4	Frustration
8	5	Frustration	15	2	Instructional
9	2	Frustration	16	6	Instructional
10	3	Frustration	17	2	Instructional
11	2	Frustration	18	5	Independent
12	3	Frustration	19	4	Independent
13	2	Frustration	20	2	Independent
14	6	Frustration			
15	4	Instructional			
16	3	Instructional			
17	2	Instructional			
N	34			34	
No. of items	20			20	
Mean	12.06	Frustration	15.71	Instructional	
SD	3.24		2.59		

Correlation of Pupils' Competence in Solving Worded Problems to the Reading Comprehension Skills

Number of Pupils	**Pearson r**	**Critical Value**	**Decision on Ho**	**Interpretation**
34	0.772*	0.339	Reject	High Correlation/ Significant

**Significant 0.05*

Comparison of the Pretest/Posttest Scores in Solving Worded Problems and Reading Comprehension of the Grade Three pupils before and after utilizing SQRQCQ Strategy

	No. of items	HS	LS	Mean	SD	Mean Difference	Df	T-value	Tabular value
Solving Worded Problems Pretest Posttest	30 30	20 29	6 13	13.15 20.38	4.34 5.78	7.23	33	12.103	2.035
Reading Comprehension Pretest Posttest	20 20	17 20	5 12	12.06 15.71	3.24 2.59	3.65	33	11.453	2.035

**Significant 0.05*

Frequency and Weighted Mean Distribution of the Responses on the Acceptability Level as to Content

Statements	SA (4)	A (3)	FA (2)	NA (1)	WM	QD
1. The contents present adequate developmental concepts.	5	2	0	0	3.71	SA
2. The content represents a well-organized and logical sequence of ideas.	6	1	0	0	3.86	SA
3. The content of the lesson includes motivating activities that are appropriate to each lesson.	4	3	0	0	3.57	SA
4. The topics are clear and arranged in a manner that allows understanding of the concepts.	5	2	0	0	3.71	SA
5. The activities used in each lesson are simple but interesting and challenging.	4	3	0	0	3.57	SA
Average Weighted Mean					**3.68**	**SA**

Frequency and Weighted Mean Distribution of the Responses on the Acceptability Level as to Accuracy

Statements	SA (4)	A (3)	FA (2)	NA (1)	WM	QD
1. The learning package is appropriate to the age and ability of the Grade 3 pupils.	7	0	0	0	4.00	SA
2. Information is enough and covered all the target learning competencies for the fourth grading period.	4	3	0	0	3.57	SA
3. The learning package is well-planned and developed based on the learning competencies that are indicated in K to 12 Curriculum Guide.	5	2	0	0	3.71	SA
4. Each concept is clear and effective in providing the expected learning competencies in the curriculum guide.	4	3	0	0	3.57	SA
5. The learning package is congruent with the goals and objectives found in the K to 12 Curriculum Guide.	7	0	0	0	4.00	SA
Average Weighted Mean					**3.77**	**SA**

Frequency and Weighted Mean Distribution of the Responses on the Acceptability Level as to Usability

Statements	SA (4)	A (3)	FA (2)	NA (1)	WM	QD
1. The learning package can serve as a new learning material in teaching and learning worded problem-solving in Mathematics.	7	0	0	0	4.00	SA
2. The learning package enables the user to develop his/her critical and analytical thinking.	7	0	0	0	4.00	SA
3. SQRQCQ strategy used in the learning package can serve as a new model in teaching worded problem-solving in any classroom.	7	0	0	0	4.00	SA
4. SQRQCQ strategy can help pupils to have better performance in solving worded problems.	7	0	0	0	4.00	SA
5. SQRQCQ strategy relates to the present trends in solving worded problems.	7	0	0	0	4.00	SA
Average Weighted Mean					**4.00**	**SA**