LANGUAGE INSTRUCTION AND ACADEMIC PERFORMANCE IN MATHEMATICS OF GRADE 3 STUDENTS: BASIS FOR AN INTERVENTION SCHEME

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A Thesis

Presented to

the Faculty of the College of Graduate Studies

SAMAR COLLEGE

City of Catbalogan

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In Partial Fulfilment

of the Requirements for the Degree

MASTER OF ARTS IN EDUCATION

(Educational Management)

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May 2021

APPROVAL SHEET

In partial fulfillment of the requirement for the degree Master of Arts in Education, Major in Educational Management, this thesis entitled, "**LANGUAGE INSTRUCTION AND ACADEMMIC PERFORMANCE IN MATHEMATICS OF GRADE 3 STUDENTS: BASIS FOR AN INTERVENTION SCHEME**" has been prepared and submitted by **ROMUALDO C. VALERA** who, having passed the comprehensive examination, is hereby recommended for Oral Defense.

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ACKNOWLEDGMENTS

Pursuing the graduate studies has been a dream for the researcher. However, because of so many things to prioritize, the dream was a bit delayed. But after the push and motivation of his family to finish his graduate studies, he eventually got the timing. Thus, he wanted to record his deepest gratitude and appreciation to the following:

To **Dr. Guillermo D. Lagbo**, his adviser and statistician, for his wisdom, professional guidance, enthusiasm, and patience that helped him in the realization of this endeavor;

To **Dr. Nimfa T. Torremoro**, Dean of the College of Graduate Studies and Chairman of the Panel of Pre-oral and Final Oral Defenses, for her words of encouragement and motherly guidance that motivated more the researcher to pursue in writing his thesis;

To the members of the Panel of Pre-Oral and Final Oral Defenses: **Dr. Nimfa T. Torremoro**, **Dr. Natalia B. Uy**, **Dr. Imelda M. Uy**, **Dr. Letecia R. Guerra**, and **Dr. Michelle L. Mustacisa**, for the constructive suggestions that scholarly improved the manuscript;

To **Dr. Carmela R. Tamayo, EdD., CESO V**, Schools Division, for the permission accorded to the researcher to field the instrument to the respondents in the District of Gandara I;

To **Maritess C. Peralta**, District Supervisor of the District of Gandara I, school heads of the elementary schools in the district of Gandara I, teachers, and students in the Elementary School, for the assistance afforded to the researcher as well as for honestly answering the research instrument during the fielding of the same;

To his sister, **Romeda C. Valera**, for the words of wisdom, motivation, and encouragement in times of difficulty and for being the wind beneath her wings despite the distance;

To his **parents**, for their understanding and moral support as well as for being the source of strength to the researcher;

To his uncle, **Gil**, who, through thick and thin, helped him all the way until the finish of this study;

To his **distant friend**, not present personally, but helped him financially and emotionally throughout the conduct of this endeavor;

Above all, to the **Lord Jesus Christ**, for making all things possible in His perfect timing; for the financial abundance, for the strength physically and emotionally, the graces He had bestowed, and the good health He gave during the entire conduct of the research endeavor. To Him all these are offered.

To all of you, a million thanks . . .

R. C. V.

DEDICATION

This research endeavor is heartily dedicated

to my family:

Papa, **Mama**, **Ate**, and **Bunso**,

who were my motivation and source of my inspiration

in the success of this undertaking;

To my **relatives** and **friends**,

for their support either financially, physically, and

emotionally as well as their encouragement and words

of wisdom;

Above all,

To our **God Almighty** who, through His Divine Providence,

made this piece of work a realization.

Romualdo

A B S T R A C T

Thesis	:	**LANGUAGE INSTRUCTION AND ACADEMIC PERFORMANCE IN MATHEMATICS OF GRADE 3 STUDENTS: BASIS FOR AN INTERVENTION SCHEME**
Author	:	**ROMUALDO C. VALERA**
Language Used	:	English
Research Type	:	Thesis
Discipline Group	:	Educational Management
Program	:	MAEd
Full Title of Degree	:	Master of Arts in Education – Educational Management
Year Completed	:	2021
Institution	:	Samar College
Address	:	City of Catbalogan
Keywords	:	Language Instruction Academic Performance Mathematics Grade 3 Student Intervention Scheme

This study assessed the effect of language instruction in Mathematics of Grade 3 students in the District of Gandara I during the School Year 2020-2021. Specifically, this study sought answers to the following questions: 1) what is the

profile of the student-respondents in terms of the following personal characteristics, namely: age and sex, nutritional status, grade obtained of the previous grade level of the following subject areas, namely: Mother Tongue and Mathematics, parents' highest educational attainment, parents' occupation, gross monthly family income, and attitude toward studying Mathematics; 2) what is the level of language instruction in Mathematics using the mother tongue as assessed by the student-respondents; 3) is there a significant relationship between the level of language instruction in Mathematics using the mother tongue as assessed by the student-respondents and their personal characteristics.

Likewise, it answered the following questions: 4) what is the Mathematics performance of the student-respondents based on the mean grade during the first and second quarters; 5) is there a significant relationship between the Mathematics performance of the student-respondents based on the mean grade during the first and second quarters and the level of language instruction in Mathematics using the mother tongue; 6) what difficulties are encountered by the student-respondents in Mathematics language instruction; and 7) what intervention scheme may be derived based on the findings of this study.

Based on the foregoing specific questions, the

following hypotheses were tested: 1) there is no significant relationship between the level of language instruction in Mathematics using the mother tongue as assessed by the student-respondents and their personal characteristics; and 2) there is no significant relationship between the Mathematics performance of the student-respondents based on the mean grade during the first and second quarters and the level of language instruction in Mathematics using the mother tongue.

From the findings of the study, it disclosed that the student-respondents considered the level of language instruction in Mathematics using the Mother Tongue as "highly comprehensible" being shown by the grand weighted mean of 4.03, and in associating relationship between the level of language instruction in Mathematics using the Mother Tongue as assessed by the student-respondents and their personal characteristics, it was found significant in terms of grade obtained of the previous grade level in the Mother Tongue, parents' highest educational attainment, and attitude toward studying Mathematics, while it was not significant in terms of age, sex, nutritional status, reading performance based on the reading assessment, grade obtained of the previous grade level in Mathematics, parents' occupation, and gross monthly family income.

Meantime, the mean performance of the student-

respondents in Mathematics which was represented by their academic grades was as follows: first quarter, 81.72 with a SD of 1.68 and for the second quarter, 83.73 with a SD of 2.19, and in associating relationship between the Mathematics performance of the student-respondents based on the mean grade during the first and second quarters and the level of language instruction in Mathematics using the mother tongue, it was found significant.

Finally, the student-respondents considered their difficulties in Mathematics language instruction as “highly difficult” being shown by the grand weighted mean of 4.39.

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THE PROBLEM AND ITS BACKGROUND

Introduction

Teaching Mathematics needs to be articulated by the language used in instruction whereby the students understand its concepts and ideas. In the primary grades it should be taught in the language the students use at home and in the community known as the mother tongue.

Language is central to or pervasive in the realm of human. Language forms the basis of whatever social cohesion to be attained, determine the worldview, as well. Language intimately links the past with the present, and the present with the future. One cannot escape its influences even by silence. Human beings need language to grasp things intellectually and to get others to do so, to a large extent, language defines humanity (Israel et al., 2013:3).

Furthermore, David (2006:1) opined that language is undoubtedly one of the most important areas of the curriculum. They are both means to an end and an end in themselves. That is, they provide a child with the tools to communicate and at the same time an integral part of the creative process that results from this communication when the language arts are taught with awareness, as well as enjoyment, students gain competence of their language and confidence among themselves.

They learn to integrate the components of language into all aspects of their lives.

However, Barwell, Barton, and Setati (2007:115) argue for the great importance of recognizing that language and multilingualism in particular, interacts with learning Mathematics. Likewise, Moschkovich (2007:32) says that early studies of bilingual students learning Mathematics often focused on word problems, translating from the language of instruction to mathematical symbols.

Basic arithmetic operations, such as addition, subtraction, multiplication and division, are commonly used in occupational and educational settings where it is essential. Yet, the knowledge of arithmetic is not enough for the learners to think reflectively and creatively. There is need for the mastery of mathematical language and verbal ability which might be helpful for spatially gifted learners in multiple domains (Ominiyi et al., 2013:542-546).

The National Policy on Education (NPE) affirmed that Government recognizes the importance of language as a means of promoting social interaction, national cohesion and preservation of our culture. The policy endorsed the need for every child to learn the language of the immediate environment (Alexander, 2000:2).

Furthermore, Republic Act Number 10157 provides that the State shall adopt the mother tongue-based multilingual

education (MTB-MLE) method. The mother tongue of the learner shall be the primary medium of instruction for teaching and learning in the kindergarten level (Official Gazette). Many Filipino learners face various barriers in education and one of these barriers is that our learners begin their schooling in a language where they do not comprehend. They do not understand the language of education being used as a medium of instruction in the classroom (DepEd, 2011). Many learners become discouraged and tend to drop out from school. Low quality education often has disproportionate impact on vulnerable groups and leads to school and resource wastage as learners drop out, are pushed out or end up repeating grades (Bowden, 2002:8).

Thus, the learners should begin their education in a language they understand; it will develop a strong foundation and a motivation to attend school. In addition, it will develop their cognitive and reasoning skills enabling children to operate in different language starting in the mother tongue with transition to Filipino and then English. Test carried out in several developing countries revealed that many students had not attained the competency levels required for their level of schooling. Thus, EFA reports that millions of children are leaving school without having acquired basic skills (EFA Summary Report 2010).

Accordingly, an enormous gap between the number of

graduating from school and those among them are mastering the minimum level of literacy. The Department of Education Order Number 16 Series of 2012, states that starting the School Year 2012-2013, the mother tongue-based multilingual education (MTB-MLE) will be implemented in all public schools specifically in Grade I, as part of the K to 12 Curriculum. The students' language at home will be used to teach all the learning areas for literacy and as a medium of instruction inside the classroom. The cognitive development and its effects in other academic areas, students taught to read and write in their first language acquire competencies more quickly (DepEd Order No. 74, s. 2009).

DepEd noted empirical studies like, the Lingua Franca Project and Lubuagan First Language Component Program, showing that learners learn to read more quickly in their first language. The study revealed that students who have learned to read and write in their first language learn faster to speak, read and write in a second language and third language than those who are taught in a second or third language first. In terms of cognitive development and its effects in other academic areas, students taught to read and write in their first language acquire such competencies more quickly (DepED, 2009). From the records it was noted that the MPS of the Grade 3 students in Mathematics for the past three years was: 73.25 in the School Year (SY) 2017-2018 while 72.61

during the SY 2018-2019 and 73.34 during the SY 2019-2020.

The data signified that the students manifested unfavorable performance in the subject lower than 75 as required by the DepEd (Gandara I District EMIS, 2020). Probably, this could be attributed to the medium of instruction used in teaching that caused the students to lag behind.

Thus the researcher, premised on foregoing situation was motivated to conduct this study for the reason that students seemingly encounter difficulties in understanding some mathematical word, signs, symbols, formula, operation, and computation. Furthermore, he wanted to look into the effect of language instruction in Mathematics subject. It was hoped that the findings of the study would provide inputs in improving the Mathematics performance of Grade 3 students in the District of Gandara I, Schools Division of Samar.

Statement of the Problem

This study assessed the effect of language instruction in Mathematics of Grade 3 students in the District of Gandara I during the School Year 2020-2021.

Specifically, this study sought answers to the following questions:

1. What is the profile of the student-respondents in terms of the following personal characteristics, namely:

1.1 age and sex;

1.2 nutritional status

1.3 grade obtained of the previous grade level of the following subject areas, namely:

1.3.1 Mother Tongue; and

1.3.2 Mathematics;

1.4 parents' highest educational attainment;

1.5 parents' occupation;

1.6 gross monthly family income; and

1.7 attitude toward studying Mathematics?

2. What is the level of language instruction in Mathematics using the mother tongue as assessed by the student-respondents?

3. Is there a significant relationship between the level of language instruction in Mathematics using the mother tongue as assessed by the student-respondents and their personal characteristics?

4. What is the Mathematics performance of the student-respondents based on the mean grade during the first and second quarters?

5. Is there a significant relationship between the Mathematics performance of the student-respondents based on the mean grade during the first and second quarters and the level of language instruction in Mathematics using the mother tongue?

6. What difficulties are encountered by the student-respondents in Mathematics language instruction?

7. What intervention scheme may be derived based on the findings of this study?

Hypotheses

Based on the foregoing specific questions, the following hypotheses were tested:

1. There is no significant relationship between the level of language instruction in Mathematics using the mother tongue as assessed by the student-respondents and their personal characteristics.

2. There is no significant relationship between the Mathematics performance of the student-respondents based on the mean grade during the first and second quarters and the level of language instruction in Mathematics using the mother tongue.

Theoretical Framework

The study was anchored on the following theories, namely: Social Interaction Theory by Vygotsky, Social Development Theory by Bruner and the Rational Frame Theory by Hayes and Homes.

Social Interaction Theory by Vygotsky (1934:45) is an explanation of language development emphasizing the role of social interaction between the developing child and

linguistically knowledgeable adults. Social interaction plays an important role in the learning process and proposed the zone of proximal development (ZPD) where learners construct the new language through socially mediated interaction.

Likewise, Social Development Theory by Bruner, (1961:31) espoused and made prominent in the Western World laid the foundations of a model of language development in the context of adult-child interaction.

Moreover, Relational Frame Theory by Hayes and Homes (2001) is a psychological theory of human language, which argues that the building block of human language and higher cognition is relating, that is, the human ability to create links between things. It can be contrasted with associative learning, which discusses how links between stimuli in the form of the strength of associations in memory. However, Relational Frame Theory argues that natural human language typically specifies not just the strength of a link between stimuli but also the type of relation as well as the dimension along which they are to be related. For example, a tennis ball is not just associated with an orange, but can be said to be the same shape, but a different color and not edible. In the preceding sentence, same, different and not are cues in the environment that specify the type of relation between the stimuli, and shape, color and edible specify the dimension

along which each relation is to be made. It further argues that while there are an arbitrary number of types of relations and number of dimensions along which stimuli can be related, the core unit of relating is an essential building block for much of what is commonly referred to as human language or higher cognition (Hayes et al., 2001:191).

Conceptual Framework

Figure 1 illustrates the conceptual framework of the study.

The base of the schema represents the research environment and the respondents of the study who are the Grade 3 Students from the District of Gandara I.

This box is then connected upward to a bigger frame. Particularly the variables involved represented by three boxes and the interplay of the variables. The box at the left refers to the personal characteristics of the student-respondents in terms of age and sex, nutritional status, grade obtained of the previous grade level of the following subject areas, namely: Mother Tongue and Mathematics, parents' highest educational attainment, parents' occupation, gross monthly family income, and attitude toward studying Mathematics. The other boxes at the right side represent the dependent variables; the lower frame enclosed the level of language instruction in Mathematics using the Mother Tongue

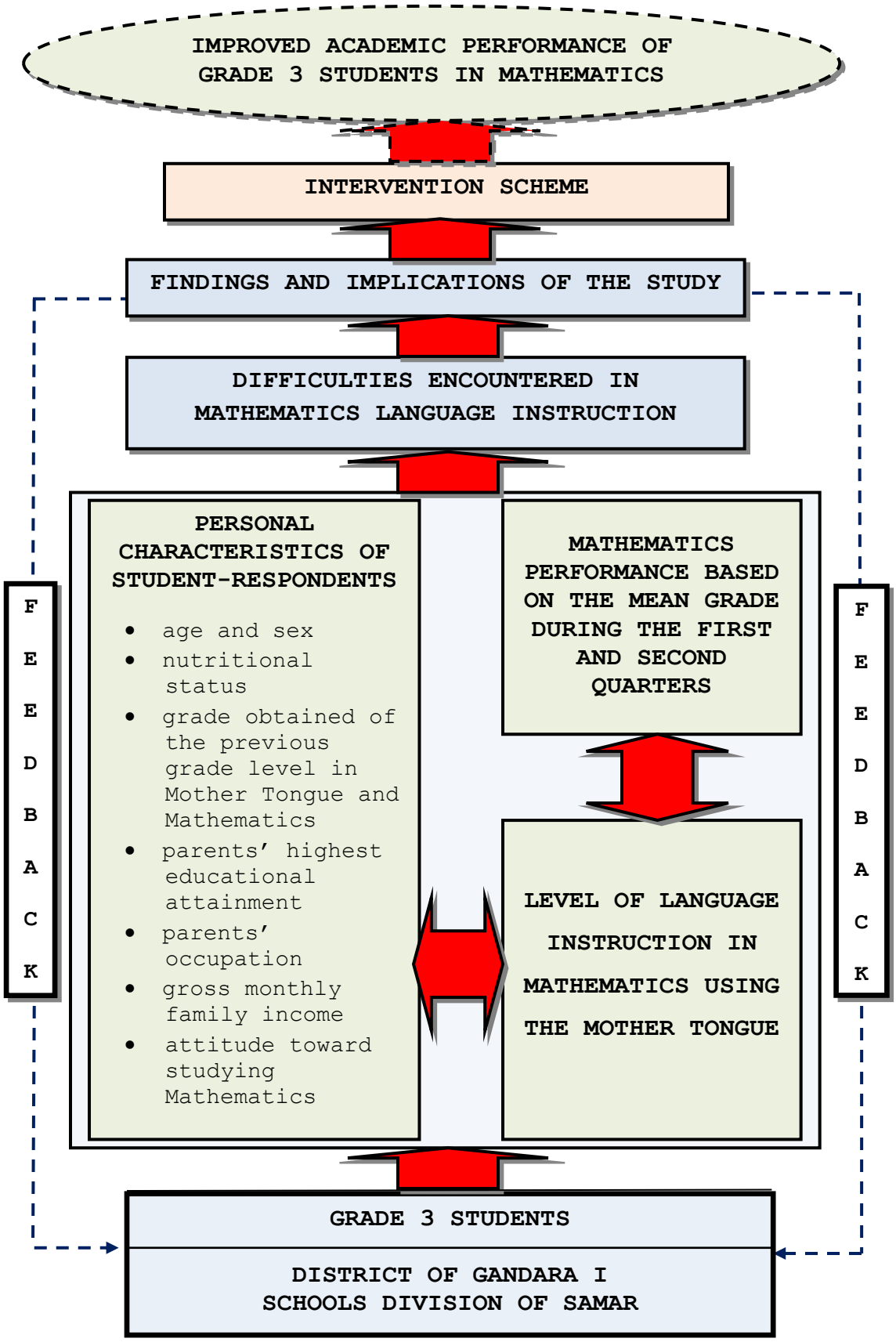

Figure 1. The Conceptual Framework of the Study

as assessed by the student-respondents, which was associated with their personal characteristics for any significant linear relationship that is represented by the two-way arrow in between the two variables; while the upper frame contains the Mathematics performance of the student-respondents based on the mean grade during the first and second quarters.

Furthermore, the Mathematics performance of the student-respondents based on the mean grade during the first and second quarters was associated with the level of language instruction in Mathematics using the Mother Tongue. The vertical two-way arrow extending between the two aforesaid variables represents this process.

Moreover, the foregoing box representing the processes undertaken in this study is connected upward to another box representing the difficulties encountered in Mathematics language instruction that is further connected to another upper box depicting the findings and implications of the study that would provide feedback mechanism to the locale and respondents of the study for redirection.

The next box where the aforementioned lower boxes is connected represents the intervention scheme derived from the findings of the study, which would lead to the ultimate goal of the study, the improved academic performance of Grade 3 students in Mathematics.

Significance of the Study

The findings of the study would prove beneficial to the following stakeholders, namely: students, teachers, school administrators, DepEd key officials, parents, and future researchers.

To the Students. This study would help students to better understand the use and importance of language instruction in Mathematics subject and also to improve their academic performance in the said subject area using language instruction.

To the Teachers. This study would give idea or references to the teacher on the importance and effect of language instruction in Mathematics subject. Furthermore, this would also help them assess students' knowledge or understanding in Mathematics subject using language instruction or approach.

To the School Administrators. The findings of the study would provide inputs for the school administrators in providing intervention to the teachers to enhance their competence in language instruction thereby developing programs and intervention activities to improve the performance of the students in Mathematics.

To the DepEd Key Officials. This study would give idea or reference to the DepEd key officials of the effect of language instruction in school and to the students. Moreover, it would help them better understand the importance of

language instruction in Philippine educational system to provide policy recommendations for the enhancement of curriculum.

To the Education Program Supervisors in Mathematics. The findings of the study would serve as valuable inputs for the education program supervisors in Mathematics for the program that they would develop for implementation to enhance the academic performance of the students.

To the Parents. This study would help parents understand their children's concerns and to easily guide or help them with their learning in Mathematics.

To the Future Researchers. This result of this study would also benefit future researchers who would be dealing with similar topic as a source of related information.

Scope and Delimitation

This study assessed the effect of language instruction in Mathematics among Grade 3 students in the District of Gandara I, Schools Division of Samar. This involved the determination of their profile variates in terms of age and sex, nutritional status, reading performance based on the reading assessment, grade obtained of the previous grade level of the following subject areas, namely: Mother Tongue, and Mathematics, parents' highest educational attainment, parents' occupation, gross monthly family income and attitude

toward studying Mathematics. It also elicited the level of language instruction in Mathematics using the Mother Tongue based on the assessment of the student-respondents which was associated with their profile variates.

Furthermore, the Mathematics performance of the student-respondents was determined based on their mean grade during the first and second quarters which was associated with the assessed level of language instruction in Mathematics using the Mother Tongue. Moreover, the difficulties encountered by the student-respondents on language instruction in Mathematics were identified as inputs for the proposed intervention scheme.

This study was conducted during the School Year 2020-2021.

Definition of Terms

To provide common frame of reference to the readers, the following terms used in this study are herein defined, conceptually and operationally:

Academic Performance. Conceptually, this term refers to the measurement of student achievement across various academic subjects. Teachers and education officials typically measure achievement using classroom performance, graduation rates and results from standardized tests (www.DepEd.gov.ph/ 12 January 2020). As used in this study, the term refers to

is the outcome of education, the extent to which a student, teacher or institution has achieved their educational goals. As used in this study, this term refers to the performance of Grade 3 students in Mathematics subject.

Difficulty. Conceptually, this term refers to the thing which seemingly hard to accomplish, understand, deal with (www.merriamwebster.com/ 12 January 2020). As used in this study, the term refers to something that hinders you or causes you to have to face challenges, or the state or condition of being challenged or having a hard time. As used in this study this term refers to the difficulties that the teacher may face during the discussion using the Mother Tongue in Mathematics.

Intervention Scheme. Conceptually, this term refers to the design which describe and communicate multidisciplinary practice that is intended to improve the condition of something (www.merriamwebster.com/ 12 January 2020). Operationally, this term refers to the training matrix developed to improve the competence of the teachers and thereby improve the academic performance of students.

K to 12 Curriculum. This refers to the courses or subjects taught in school from Kindergarten through Grade 12. As it is used in the field of education, K-12 curriculum usually refers to the specific learning objectives and activities experienced by students in grades kindergarten

through twelve. As used in this study, this term refers to the subject Mathematics.

Language Instruction. This term refers to the medium of instruction is the language used by the teacher to teach. Teaching the language, or education content, through the target language increases the amount of exposure the learner gets to it, and the opportunities they have to communities in it, and therefore to develop their control of it. As used in this study, this term refers to the language instruction that will be using during the Mathematics. It is used in describing mathematical symbol, object, signs, formula, operation, computation and etc.

Learning Material. This term refers to a spectrum of educational materials that teachers use in the classroom to support specific learning objectives, as set out in lesson plans. As used in this study, this term refers to educational materials that teacher use in describing mathematical symbol, object, signs, formula, operation, computation and etc.

Mathematics. This term refers to the abstract science of number, quantity, and space. Mathematics may be studied in its own right (pure Mathematics), or as it is applied to other disciplines such as physics and engineering (applied Mathematics). As used in this study, this term refers as a subject that will be discuss to the students in describing mathematical symbol, object, signs, formula, operation,

computation and etc.

Methodology. This term refers to a system of methods used in a particular area of study or activity. As used in this study, this term refers to methods used in describing mathematical symbol, object, signs, formula, operation, computation and the like.

Mother Tongue. This refers to the language which a person has grown up speaking from early childhood. The first language that you learn when you are a baby, rather than a language learned at school or as an adult. It further refers to one's native language from which another language derives. As used in this study, this term refers as language of instruction to the students in discussing mathematical symbols, objects, signs, formula, operation, computation and the like.

Motivation. This term refers to the reason or reasons one has for acting or behaving in a particular way. As used in this study, this term refers to the desire or willingness to do/understand Mathematics subject, its symbols, formula and do mathematical computation.

Chapter 2

REVIEW OF RELATED LITERATURE AND STUDIES

This chapter presents the literature and studies which are related to the present study. These materials were carefully perused and are hereby presented. These readings were taken from the works of various authorities and researchers, such as books, journals, magazines, and other published and unpublished materials including electronic sources.

Related Literature

The following sets of literature are reviewed by the researcher and found their relevance to this study.

A recent Australian review of numeracy teaching noted the significant role of language in Mathematics learning. The National Numeracy Review Report (2008), commissioned by the Council of Australian Governments (COAG), synthesized evidence on effective numeracy teaching to support the goal of improving numeracy outcomes for Australian students. The report of the review acknowledged the significance of language in Mathematics learning, and averred that the language and literacies of Mathematics be explicitly taught by all teachers of Mathematics in recognition that language can provide a formidable barrier to both the understanding of

Mathematics concepts and to providing students access to assessment items aimed at eliciting mathematical understandings (COAG, 2008:5-6).

Furthermore, research evidence about the role of language in numeracy learning was included in this report in the discussion of ways of supporting students' numeracy learning, although it was noted that there was a limited amount of research into language factors in Mathematics education. Several issues relating to language and literacy were identified, such as: the specialized symbols and expressions of mathematical language, the use of everyday English terms that have different meanings in Mathematics classrooms, language-based factors in solving mathematical word problems, Communication in the Mathematics classroom (COAG, 2008).

It is important to note the difference between literacy in Mathematics and mathematical literacy. Literacy in Mathematics, that is, how students access Mathematics through language, and with the role that language plays in Mathematics teaching and learning. The term mathematical literacy uses literacy in the sense of an aptitude, as in the Program for International Student Assessment (PISA) (Thomson, Cresswell, and De Bortoli, 2004:2).

The Programme for International Students' Assessment (PISA) framework defines mathematical literacy as an

individual's capacity to identify and understand the role that Mathematics plays in the world, to make well-founded judgments and to use and engage with Mathematics in ways that meet the needs of that individual's life as a constructive, concerned and reflective citizen (www.deped.gov.ph/ 20 September 2020).

Schleppegrell (2007:139) published a review of research by applied linguists and Mathematics educators that highlighted the pedagogical challenges of Mathematics. The review notes that since at least the mid-1980s researchers have been pointing to ways that language is implicated in the teaching of Mathematics. A key influence has been the discussion by Halliday (1978:18) of the mathematical register. He pointed out that counting, measuring, and other everyday ways of doing Mathematics draw on everyday language, but that the kinds of Mathematics that students need to develop through schooling use language in new ways to serve new functions.

A summary of key linguistic features of the Mathematics register (Schleppegrell, 2007:141) is indicative of the different aspects of language involved include multiple semiotic register, that is, Mathematics symbolic notation, oral language, written language and graphs and visual displays; grammatical patterns that are composed of technical vocabulary, dense noun phrases, being and having verbs,

conjunctions with technical meaning implicit logical relationships.

Mathematics is like a language, although technically it is not a natural or informal human language, but a formal, that is, artificially constructed language. Importantly, we use our natural everyday language to teach the formal language of Mathematics. Sometimes we encounter problems when the technical words we use, as formal parts of Mathematics, conflict with an everyday understanding or use of the same word, or related words (Gough, 2007:2)

Moreover, it uses many words in the English language that are already familiar to students in their everyday lives. Words such as change have a specific mathematical meaning, but as they also have an everyday meaning, they are ambiguous in Mathematics classrooms.

Greer and Mukhopadhyay (2015:10-15) noted that Mathematics only makes sense when it becomes fixed firmly in historical, cultural, social, and political contexts. Math instructors should understand that academic language is different from 26 daily dialects in terms of vocabulary and the arrangement of words and phrases to result in the creation of well-formed sentences (Haag et al., 2015).

Kim et al. (2015:6-8) emphasized the significance of linguistics in the instruction and learning of Mathematics gave credence to the idea that the lack of mastery in the

instructional language will hinder pupils' understanding of the procedures needed to solve math word problems.

Roth and Simon (2015:35-36) in Australia, Canada, the United Kingdom, and the United States specified an established interdependence between language mastery and attainment in Mathematics.

Henry and Baltes (2014:21-22) have shown that language effects the teaching and learning of Mathematics. Sociocultural theory encourages the teaching of Mathematics around students' cultural identities, which makes Mathematics accessible to those who have traditionally had difficulty learning the subject.

Using the same mathematical terminology as defined by the rigid observance of rules or conventions and choice of language, pronunciation, and grammar, in addition to building mathematical understanding from real-life experiences, leads to the comprehension of Mathematics concepts (Warren & Miller, 2014:11-12).

Toll and Luit (2014:23-24) noted that the capacity to measure language-related variables in test items and to relate those measures to student performance is imperative to effectively evaluating the effect of language factors on students' performance in Mathematics.

Rubinstein-Avila, Sox, Kaplan, and McGraw (2014:17) suggested that Mathematics instructors need to be aware of

the relationships between mathematical capabilities and particular features of linguistic ability; in particular, attention has to be directed towards the unique vocabulary associated with Mathematics.

Star and Stylianides (2013:33) stated that conceptual understanding and procedural knowledge are the foundations of mathematical reasoning. Teaching techniques would therefore benefit from a widening of the range of Mathematics discourse to include conceptual knowledge and procedural understanding.

Furthermore, many symbols for ideas are used in the study of math. The meaning of a word in Mathematics is often influenced by culture and the context in which it is used (Solano-Flores et al., 2013:29).

Instructors should continue to advocate for integrating numeracy and literacy in the teaching and learning of math; this would include calling attention to the meaning-making resources used to construct mathematical understanding (Bunch, 2013:44-45).

Bunch's (2013:32) Linguistic issues associated with the teaching of mathematical ideas include the use of more than one system of studying signs and symbols and their use.

According to Vukovic and Lesaux (2013:16-17) language competency is important for students' mathematical development.

Furthermore, the Mathematics taught in K to 12 in the

lower elementary Mathematics Kindergarten to grade three (K-3). In K-3, Students learn how to read, write and say numbers from experience by counting, measuring and putting objects in a collection. They appreciate Mathematics, its usefulness and practical applications. Through personal experience, they develop an understanding of relative size, equivalent forms of numbers and the use of numbers to represent attributes of real-world objects and quantities. They develop number sense, a sense of how much and how many is increasingly varied and complex situations. Students learn the meaning of the four basic operations at these grade levels when to use them and how to use them.

Likewise, in Language Instruction, the learner's first language should be used as a supplement to English in teaching Mathematics to enhance the learner's understanding of the concept. Teachers should explain the lessons in the learners' language, particularly when the teacher notices that the students are having difficulty in understanding the topic. School administrators should recommend to their teachers the use of the learners' first language as supplement for teaching Mathematics and other subjects and support them in developing instructional materials for this purpose.

The foregoing literature reviewed provided the concepts of the study and strengthened its need for the conduct of this endeavor.

Related Studies

The following sets of studies were reviewed by the researcher which were found related to the study. Similarities and differences between the studies cited and the present study ware exposed and discussed.

The study of Luevano and Collins (2020) entitled, "Novel Intervention Strategy for ELLS in Reading and Problem-Solving Performance," revealed that there are difficulties that educators face when providing instruction to ELL students in solving word problems containing novel math concepts and unfamiliar linguistic information. By providing individualized instruction in the participants' native and second languages informed by culture and preference assessments, it provided students an opportunity to make meaningful connections between mathematical concepts and background knowledge in the absence of overwhelming and unfamiliar information.

The study of Luevano and Collin posed similarity with the study at hand considering that both studies tackled language instruction in Mathematics. However, they differed in the area of the study. While the previous study focused on the novel intervention strategy in problem-solving, the present study focused on the language instruction and academic performance in Mathematics.

Another relevant study was conducted by Owens and Bino

(2018) entitled, “Argument that Problems with Mathematics Syllabus implementation and Desired Learners’ Outcomes in Papua New Guinea.” The study disclosed that inappropriate syllabus or languages policy are due to a systemic lack of appropriate teacher preparation. The elementary teachers who participated in the project were without exception enthusiastic about using their Tok Ples. Rather than a switch to English, what is needed is teacher training courses to include a focus on how to identify vernacular language for teaching Mathematics.

The study of Owens and Bino was in parallel with the study at hand in the sense that both studies delved on Mathematics performance in the light of vernacular teaching. However, they differed in the focus of the study. The previous study focused on vernacular teaching of Mathematics, the present study delved on the language instruction in Mathematics and academic performance.

Lomibao et al. (2016) conducted a study entitled, “Factors that Determine the Performance of Learners in Mathematics in South African Schools and elsewhere.” From the result, it was found out that the factors include language, as well as school and home, and socio-economic factors. Furthermore, there was evidence on the effect of language on African student’s academic performance and teachers’ excellence in teaching Mathematics through the medium of

English (L2), as well as factors that contribute to their excellence in this subject.

Data showed that language is a controversial issue, with some participants believing that having linguistic capital facilitated their understanding and excellence in Mathematics while others perceived no relationship between these variables. Results further revealed that some participants attributed their excellence in Mathematics to the within-individual element of human agency. Participants' statements demonstrated the power of within-individual elements that can lead to success regardless of whether or not the individual learner/student has a predisposition to the cultural-linguistic capital of English.

The foregoing study showed parallelism with study at hand considering that Mathematics was the subject of the study. However, the area of the study served as the difference between the two studies. The previous study was more on the factors that determine the performance of students in Mathematics that includes language instruction while the present study focused on the language instruction and academic performance in Mathematics.

From the study of Sosibo (2016) entitled, "Far-Reaching Implications of Language Instruction for Mathematics Teachers, Teacher-Education Lecturers and Policy-Makers," revealed that while efforts are made to improve students' and

teachers' performance in Mathematics, ways should be found on how to tap in the intrinsic characteristics in order to promote their excellence in Mathematics and other subjects. In addition, ways should be found on how to strengthen the resilience of students and teachers studying Mathematics using human agency and other within-individual elements such as attitudes and motivation.

Furthermore, results of this study provide a fresh, positive and different perspective on research in Mathematics, as they demonstrate that L2 students have capacity to excel in this subject and to rise above the circumstances over which they have no control like home and test language, and school and home socio-economic status.

The study of Sosibo was relevant to the present study since both delved on language instruction in Mathematics. However, they differed in the process of the study. The previous study considered far-reaching implications while the present study associated language instruction and academic performance.

In the study of Dale (2015) entitled, "Facilitation as a Key Factor in Language Instruction in Mathematics" disclosed that learners internalize and establish the language of Mathematics in the foundation phase. It is surprising, therefore, to note that the dearth of research on this crucially important aspect. Countries with learners who

have mastered the language of Mathematics succeed in international benchmarking assessment, and also succeed in the lucrative career, to the benefit of themselves, their families and their communities.

The study cited posed significant relevance to the study at hand in the sense that both studies delved on language instruction in Mathematics. However, they differed in the locale of the study. The previous study was conducted in South Africa whereas the present study was conducted in the Philippines.

The study of Sastre-Vazquez et al. (2013) entitled, "Expressed Satisfaction of Students in Mathematics Instruction" revealed that generally speaking, most students expressed satisfaction with the language instruction used in teaching Mathematics. They recognized the usefulness of the discipline and demonstrated an interest in it. Mathematics is considered to be of intermediate difficulty; it is neither very easy nor very difficult however, language instruction facilitated their learning the subject.

The foregoing study had resemblance to the present study considering that both studies considered language instruction as the major variable. But they differed in the focus of the study. The previous study focused on the satisfaction expressed by student through the language instruction whereas the present study associated language instruction with the

academic performance in Mathematics.

The study of Webb and Webb (2013) added relevance to the present study entitled, "Language Instruction in Mathematics and the Descriptive Difficulties of University Students" disclosed that students need to overcome their descriptive difficulties if they are to successfully complete their University studies. In short, the results appear to show that students do not understand the basic elements of the language of Mathematics which leads to numerous construction and interpretation errors. The students were unable to associate concepts with their definitions and much less of providing examples The teacher can scaffold mathematical learning by judicious questioning with open-ended or Socratic questioning so that the students are prompted to give reasons for their answers and are stretched to think and to verbalize their thoughts.

The foregoing study posed parallelism with the present study considering the both studies focused on language instruction. However, the process of the study served as the difference between the two studies. The previous study associated language instruction and the descriptive difficulties of university students whereas the present study associated language instruction with the academic performance.

From the study of Espada (2012) entitled, "Language

Instruction Used in Understanding Mathematical Symbols" disclosed that on entering University, students have a very limited understanding of mathematical symbols. The response rate was very low in the exercises which asked students to identify mathematical concepts, interpret symbolic expressions and translate and articulate the different languages, both natural and symbolic. Consequently, it is difficult to establish and characterize the shortcomings of the students as regards these skills. However, effective language instruction used in teaching facilitated their understanding as regards mathematical concepts and symbols.

The study of Espada was relevant to the present study in the sense both studies delved on language instruction. However, the focus of the study served as the significant difference between the two studies. The study of Espada utilized language instruction in understanding mathematical symbols while the present study associated language instruction with the academic performance.

In the study of Warren et al. (2012) entitled, "Language Instruction in Teaching Mathematics and Classroom Climate" discovered that students can make meaning in their own minds and the classroom climate can enhance dialogue if it is non-threatening. The students feel comfortable in voicing opinions without fear of retribution or ridicule. In this environment, the teacher can cater for both the mathematical

and the language needs of the students.

The study of Warren et al. was related to the present study although indirectly considering that language instruction was considered as one of the major variables of the study. However, the two studies differed in the correlation process. The previous study correlated language instruction and classroom climate while the present study correlated language instruction with academic performance.

From the study of Schuitema (2011) entitled, "Development of Dialogic Language Instruction in Teaching Multilingual Mathematical Classes" showed that it seems that the development of dialogic teaching in multilingual mathematical classes, in the form of exploratory talk, can increase numeracy, mathematical reasoning, and English skills if teachers are exposed to the theory and practice of discourse development through effective language instruction. Results from this study have important implications for classroom instruction and language instruction. Since ELLs must acquire both the academic English register and the Mathematics register simultaneously, teachers must be prepared to act as both a language and content area teacher.

The foregoing study had similarities to the present study in terms of the major variables delved into, language instruction and Mathematics. However, the two studies differed in the area of the study. The previous study delved

into the development of dialogic language instruction in teaching multilingual mathematical classes. The present study delved into language instruction and academic performance.

The studies cited, likewise, provided the researcher concepts and enough rationale for pursuing the present study.

Chapter 3

METHODOLOGY

This chapter presents the procedures undertaken in this study, which include the research design, locale of the study, instrumentation, validation of instrument, sampling procedure, data gathering procedure, and the statistical treatment of data.

Research Design

This study employed the descriptive-correlation research design. Descriptive since the study identified the personal characteristics of student-respondents in terms of the following: age and sex, nutritional status, grade obtained of the previous grade level of the following subject areas, namely: Mother Tongue and Mathematics, parents' highest educational attainment, parents' occupation, gross monthly family income, and attitude toward studying Mathematics.

Likewise, the level of language instruction in Mathematics using the Mother Tongue as assessed by the student-respondents, which was associated with their personal characteristics for any linear relationship. Also, it determined their Mathematics performance based on the mean grade during the first and second quarter, which was associated to the level of language instruction in

Mathematics using the Mother Tongue.

Descriptive and inferential statistical tools were utilized in the analysis of data, which include Frequency Count, Percentage, Arithmetic Mean, Standard Deviation, Mode, Weighted Mean, Pearson's Product-Moment Coefficient of Correlation, Spearman's Rank Coefficient of Correlation, and the Fisher's t-Test.

Locale of the Study

Figure 2 shows the map of the locale of the study.

The study was conducted in the District of Gandara I, Schools Division of Samar involving the following schools, namely: Arong ES, Balocawe ES, Buao ES, Bunyagan ES, Caparangasan ES, Carmona ES, Casab-ahan ES, Caugbusan ES, Concepcion ES, Elcano ES, Gandara I CES, Giaboc ES, Hinayagan ES, Jasminez ES, Lungib ES, Macugo ES, Nacube ES, Nalihugan ES, Napalisan ES, Natimonan ES, Palanas ES, Purog ES, Rawis ES, Samoyao ES, San Antonio ES, San Francisco ES, San Isidro ES, Sidmon ES, Tagnao ES, Tambongan ES, and Burabod 2 ES.

Gandara is a 2nd class municipality in the province of Samar, Philippines. According to the 2010 census, it has a population of 31,943. The town was formerly named Bangahon, but its population was resettled to its current location on September 29, 1902. After settling in its new location, the

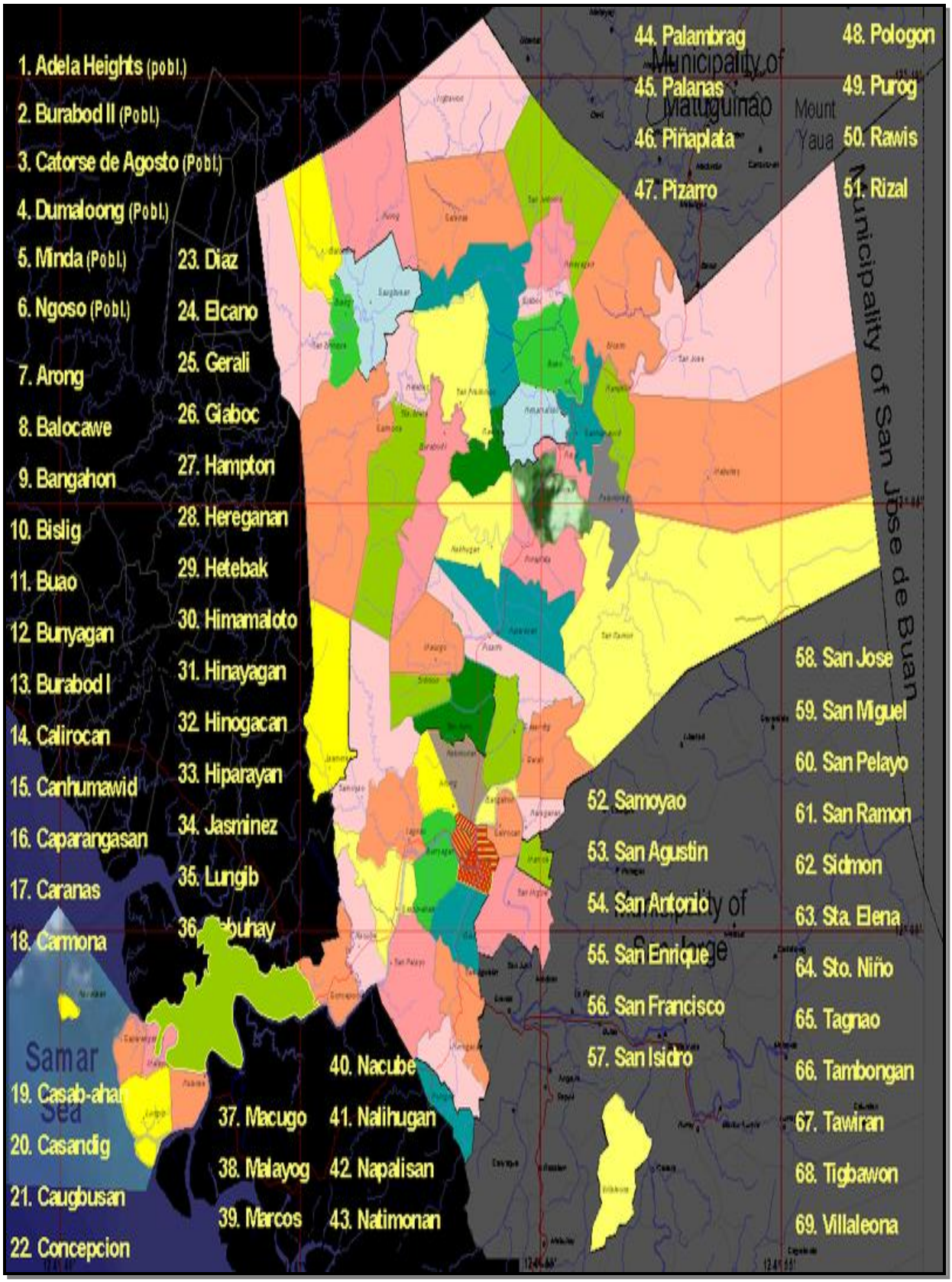

Figure 2. The Map Showing the Locale of the Study

name Gandara was given to it in commemoration of the former Governor General Jose de la Gandara y Navarro.

Gandara's colonial past is evident from the solitary watchtower, the relics of the church and fragmented artworks. These are remnants from the old Gandara, named Bangahon due to its geographical location in the forked of the Gandara River. "Guin babanga han wala ug too nga salug". The book Conquestas de las Islas Filipinas by San Agustin the Bangahon states it was already a Pueblo or town in 1729, and was made a parish by the Spanish Jesuits Missionaries with St. Michael the Archangel as patron saint.

The Eighteenth Century ended with Bangahon at the height of abundance and prosperity being a trading center complemented with its fertile soil producing plentiful and ample harvest every year. However, when the American battleships landed at Calbayog on February 9, 1900, the municipal officials of Bangahon burned their town to avoid capture by American soldiers. The problem of where to build a new town was solved during a conference of July 25, 1901, at barrio San Pelayo wherein Dumalo-ong was unanimously chosen due to its ideal location being at the center and midway of the left river, right river and downstreams barrios. Furthermore, the site was located almost halfway between Calbayog City and Catbalogan City. Gandara's foundation anniversary is February the 29th.

Established in 1902 and named after the surname of Spanish Governor General Jose de la Gandara y Navarro, the first captain was Jose Dionesio Mendiola, who died during the year's cholera epidemic and replaced by Jose Piczon on June 15, 1902, serving until June 15, 1903. Succeeded by Ramon Mendiola (1903–1906) who was remembered for celebrating the first Gandara town fiesta on September 29, 1903. From the year 1907, town executives were called Presidents.

The town's new poblacion was built on some six hectares of farmland donated by Martino Reyes. The donation was executed on January 12, 1909. The school site covered by certificate of title no. 95 dated July 20, 1912, and that of the parish under lot no. 146-CAD-444-D dated August 31, 1976, further supported by an extra judicial donation dated March 20, 1908.

Article 960 dated October 23, 1903, transferred the jurisdiction of barangays Bangon, Buenas Aires, Calanyugan, Cambaye, San Luis, Pangi and Pagsanghan to the Municipality of Tarangnan and in 1979, Pagsanghan and San Jorge were created as new municipalities out of Gandara.

Presently, Gandara is politically subdivided into 69 barangays. The town is noted for its Kiseo, Kalinayan, Tableya, Pulahanes, Lingganay, Bangahon Church Ruins, the Wacthtower.Gandara's Carabao Festival is a colorful festival that includes street dancing and celebrates the varied

usefulness of the carabao in the farming activities of Gandareno peasants. It is also a homage to St. Michael the Archangel, the patron saint of the townspeople.

Lastly, the people of Gandara are hospitable, fun loving and very religious. In its totality, the place is a wonderful and a great place to live in (Office of the MPDC, 2010).

Instrumentation

In order to gather the needed data of this study, the researchers used the questionnaire.

Questionnaire. The questionnaire used to capture the descriptive part of the study. It was composed of four parts whereby Part I determined the personal characteristics of the student-respondents in terms of age and sex, nutritional status, reading performance based on the reading assessment, grade obtained of the previous grade level of the following subject areas, namely: Mother Tongue and Mathematics, parents' highest educational attainment, parents' occupation and gross monthly family income.

Part II appraised the attitude of the student-respondents toward studying Mathematics. Ten attitude statements were considered in this part which were responded by the respondents using the following five-point Likert scale, viz: 5 for Strongly Agree (SA), 4 for Agree (A), 3 for

Uncertain (U), 2 for Disagree (D) and 1 for Strongly Disagree (SD).

Furthermore, Part III elicited the level of language instruction in Mathematics using the Mother Tongue based on the assessment of the student-respondents. This part contained 10 indicators which were responded by the respondents using the following five-point Thurstone scale, viz: 5 for Extremely Comprehensible (EC), 4 for Highly Comprehensible (HC), 3 for Moderately Comprehensible (MC), 2 for Slightly Comprehensible (SC), and 1 for Not Comprehensible (NC).

Finally, Part IV captured the difficulties encountered by the student-respondents relative to language instruction in Mathematics. This was composed of six indicators which were responded using the following five-point Thurstone scale, viz: 5 for Extremely Difficult (ED), 4 for Highly Difficult (HD), 3 for Moderately Difficult (MD), 2 for Slightly Difficult (SD), and 1 for Not Difficult (ND).

School Forms. The school forms were composed of the permanent record and the reading assessment result. The permanent record was the ultimate source of the Mathematics performance of the student-respondents during the first and second quarters and the obtained grade of the previous grade level in Mother Tongue and Mathematics.

Validation of Instrument

Since the questionnaire was mostly adapted from standard source, it underwent expert validation procedure. The questionnaire was submitted for expert validation through the members of the panel of oral examiners focusing on the following areas, namely: face, content, construct, pragmatic, and convergent-discriminant validity with consideration on the cognitive and situational perspectives of the respondents. Their comments and suggestions for improvement were considered in the revision of the questionnaire for actual data gathering.

Sampling Procedure

In conducting the sampling procedure, the researcher asked the list of total enrolment of the Grade 3 Students in the District of Gandara I. From the list, the sample size was determined by using Slovin's Formula as follows:

$$n = N/(1 + Ne^2)$$

Where: n refers to the sample size;

N refers to the total enrolment of the Grade 3 students; and

e refers to the margin of error set at .05.

Meanwhile, the stratified-random sampling technique without replacement was employed in determining the number of respondents in the district by school. All the names of the

Grade 3 students were written in a piece of paper. Each was rolled, placed in a box and shaken then one by one it was drawn until the sample size was reached.

Table 1 provides the summary of the respondents of the study.

Data Gathering Procedure

As a protocol, the researchers sought permission from the Schools Division Superintendent to conduct the study at the District of Gandara I. Once approved, the researcher replicated the request for the district supervisors and school administrators of the District of Gandara I to collate information essential to this study, respectively.

The researcher personally fielded the instrument to the student-respondents in the different schools under the District of Gandara I to generate 100 percent retrieval and in order to conduct verification and probing with vague responses. Data gathering was done during recess and breaks so that it would not disturb classes. Likewise, he personally

Table 1

The Number of Student-Respondents

Indicator	Number
Total Sample	211
Response Rate	**100.00%**

conducted documentary analysis with the consolidated school forms available at the district office.

There was a delay in the data collection considering that some of the respondents were not around at the time of visit. A call back for three times was done and during the third call back, once the respondent was not around yet, the research sought for the contact number and conducted telephone interviews.

The data gathering lasted for two months within the months of January to March, 2021.

Statistical Treatment of Data

Right after gathering the relevant information in the study, data analysis immediately followed using appropriate statistical tools, both descriptive and inferential, which include the following, namely: Frequency Count, Percentage, Arithmetic Mean, Standard Deviation, Mode, Weighted Mean, Pearson's Product-Moment Coefficient of Correlation, Spearman's Rank Coefficient of Correlation, and the Fisher's t-Test.

Frequency Count. This tool was used to determine the personal characteristics of the student-respondents in terms of its magnitude of occurrence.

Percentage. This measure was used to convert the magnitude of occurrence of each variable with respect to the

total respondents using the following formula (Sevilla et al., 1992:200):

$$P = [f/N] \times 100$$

where: P refers to the percentage;

f refers to the number of occurrence; and

N refers to the total number of samples.

Arithmetic Mean. This was used to express the average of some of the identified characteristics of the respondents specifically on the data that are in ratio and interval scale. The following formula (Freud & Simon, 1992:35) was used:

$$\mu = \frac{\Sigma fX}{N}$$

where: μ refers to the arithmetic mean or average;

f refers to the frequency of occurrence;

X refers to the identified variable; and,

n refers to the sample size.

Standard Deviation. This statistic was used to support the calculation of the Arithmetic Mean by calculating the deviation of the observations from calculated averages. The following formula Freud & Simon, 1992:52) was used:

$$s = \sqrt{\frac{\Sigma f(X - \mu)^2}{n - 1}}$$

where: s refers to the standard deviation;

f refers to the frequency of occurrence;

X refers to the identified variable; and

μ refers to the arithmetic mean.

Mode. This tool was used to calculate the most frequent occurring observation which was determined by the highest registered frequency in the step distribution (Walpole, 1989:207).

Weighted Mean. This statistic was employed to determine the collective appraisal of the student-respondents regarding their attitude toward studying Mathematics, level of language instruction in Mathematics using the Mother Tongue, and the difficulties encountered on language instruction in Mathematics. The formula (Pagoso, 1997:111) employed was as follows:

$$\mu_w = \frac{\Sigma f_i X_i W_i}{n}$$

where: μ_w refers to the weighted mean;

f_i refers to the frequency of a category of variable;

X_i refers to the identified category of a variable;

W_i refers to the weights which are expressed in a five-point scale; and

n refers to the sample size.

In interpreting the weighted mean, the following set of five-point scales was used:

Range	Interpretation	
4.50-5.00	Strongly Agree	(SA)
	Extremely Comprehensible	(EC)
	Extremely Difficult	(ED)
3.50-4.49	Agree	(A)
	Highly Comprehensible	(HC)
	Highly Difficult	(HD)
2.50-3.49	Uncertain	(U)
	Moderately Comprehensible	(MC)
	Moderately Difficult	(MD)
1.50-2.49	Disagree	(D)
	Slightly Comprehensible	(SC)
	Slightly Difficult	(SD)
1.00-1.49	Strongly Disagree	(SD)
	Not Comprehensible	(NC)
	Not Difficult	(NS)

Pearson's Product-Moment Correlation Coefficient. This was used to determine the linear association between the level of language instruction in Mathematics using the Mother Tongue and the personal characteristics of the student-respondents, and the linear relationship between the academic performance of the student-respondents and the level of language instruction in Mathematics using the Mother Tongue.

The formula (Walpole, 1997:375) utilized was as follows:

$$r_{xy} = \frac{n\sum XY - (\sum X)(\sum Y)}{\sqrt{\left[n\sum X^2 - (\sum X)^2\right]\left[n\sum Y^2 - (\sum Y)^2\right]}}$$

where:

r_{xy} refers to the Pearson's r value;

$\sum X$ refers to the sum of the X scores;

$\sum Y$ refers to the sum of the Y scores;

$\sum X^2$ refers to the sum of the squared X scores;

$\sum Y^2$ refers to the sum of the squared Y scores;

$\sum XY$ refers to the sum of the paired X and Y scores; and

n refers to the number of paired scores.

Spearman's Rank Coefficient of Correlation. The Spearman's Rho was employed to associate linear relationship between two variables which are in a not normal distribution using the following formula (Walpole, 1997:460):

$$\rho = 1 - \frac{6\sum D^2}{N^3 - N}$$

where: ρ refers to the coefficient of linear association between paired ranks assigned to individual scores on two variables;

D refers to the deviation between

paired ranks; and

N refers to the total number of paired observations.

Table 2, was used as guide in interpreting the degree of linear association (SRTC, 2013:98).

Fisher's t-Test. This statistical tool was used to test the significance of the coefficient of linear association (Pearson's r) between a set of paired variables. The formula (Best & Khan, 1998:402-403) applied in this case was as follows:

$$t_f = r_{xy}\sqrt{\frac{N-2}{1-r_{xy}^2}}$$

where:

t_f refers to the Fisher's t-test value;

r_{xy} refers to the value of the Pearson r;

n-2 refers to the degree of freedom; and

n refers to the sample population.

To test the normality of the distribution in a parametric test, the Shapiro Wilk test (Goss-Sampson, 2020:30) was employed using the following formula:

$$\omega = \frac{(\sum^{n}_{i=1}\alpha_i x_{(i)})^2}{\sum^{n}_{i=1}(x_i - \mu)^2}$$

where the $x_{(1)}$ is the smallest ordered sample value and α_1 is the constant value generated from the mean, variance, and

Table 2

Table of Linear Association

Correlation Coefficient	Interpretation
0	No linear association
$0<p<\pm0.2$	Very weak linear association
$\pm0.2\leq p<\pm0.4$	Weak linear association
$\pm0.4\leq p<\pm0.6$	Moderate linear association
$\pm0.6\leq p<\pm0.8$	Strong linear association
$\pm0.8\leq p<\pm1.0$	Very strong linear association
±1.0	Perfect linear association

covariance of the order statistics of a sample size n from a normal distribution. The higher the value of ω than the chosen alpha level, the normal the distribution is.

Furthermore, in all cases in the testing the hypotheses, the decision whether the null hypothesis was accepted or rejected, the following decision rule served as guide: accept the null hypothesis if and when the computed value turned lesser than the critical or tabular value or the p-value turned greater than the α; on the other hand, reject the null hypothesis if and when the computed value turned equal or greater than the critical or tabular value or the p-value turned equal or lesser than the α.

Finally, the hypotheses testing assumed the level of significance equals to $\alpha=0.05$ in a two-tailed test. Available statistical software or packages were utilized for accuracy and precision in the data processing.

Chapter 4

PRESENTATION, ANALYSIS, AND INTERPRETATION OF DATA

This chapter presents the findings of the study with the corresponding analysis and interpretation of data. Included here are the following: profile of student-respondents, level of language instruction in Mathematics using the mother tongue as assessed by the student-respondents, relationship between the level of language instruction in Mathematics using the mother tongue as assessed by the student-respondents and their personal characteristics, Mathematics performance of the student-respondents based on the mean grade during the first and second quarters, relationship between the Mathematics performance of the student-respondents based on the mean grade during the first and second quarters and the level of language instruction in Mathematics using the mother tongue, and difficulties are encountered by the student-respondents in mathematics language instruction.

Profile of Student-Respondents

This part contains the profile of student-respondents in terms of the following personal characteristics, namely: age and sex, nutritional status, reading performance based on the reading assessment, grade obtained of the previous grade

level of the following subject areas, namely: Mother Tongue, and Mathematics, parents' highest educational attainment, parents' occupation, gross monthly family income, and attitude toward studying mathematics.

Age and Sex. Table 3 presents the age and sex distribution of the student-respondents.

From the table, it can be gleaned that the oldest student-respondent was aged 11 years old while the youngest was nine years old whereby majority of them were aged nine years old accounting for 138 or 65.40 percent. Sixty-five of them or 30.81 percent were aged 10 years old and only eight or 3.79 percent registered an age of 11 years.

Table 3

Age and Sex Distribution of Student-Respondents

Age	Sex		Total (f)	%
	Male	Female		
11	4	4	8	3.79
10	38	27	65	30.81
9	63	75	138	65.40
Total	**105**	**106**	**211**	**100.00**
%	**49.80**	**50.20**	**100.00**	
Mean	**9.38 years old**			
SD	**0.56 year**			

The mean age of the student-respondents was posted of 9.38 percent with a SD of 0.56 year. The data signified that the student-respondents were on the right age just fitted for the grade level they were enrolled in.

Moreover, more than half of the student-respondents belonged to the female sex accounting for 106 or 50.20 percent. But the male counterpart was slightly lower in number accounting for 105 or 49.80 percent. The data manifested that the student-respondents were almost same in number in terms of sex disaggregation. This indicated that both the male and the female students got interested already in schooling especially this time that is under the new normal with modular instruction being used as a modality.

Nutritional Status. Table 4 shows the nutritional status of the student-respondents.

The table shows that majority of the student-respondents were in normal nutritional status accounting for 65.88

Table 4

Nutritional Status of Student-Respondents

Nutritional Status	f	%
Normal	139	65.88
Wasted	67	31.75
Obese	5	2.37
Total	**211**	**100.00**

percent while 67 or 31.75 percent were wasted and five or 2.37 percent were obese.

The data denoted that the student-respondents were in healthy condition which signified they have the capacity to endure the hardship of schooling during this new normal considering that they were in normal condition.

Reading Performance Based on the Reading Assessment. Table 5 contains the reading performance of the student-respondents based on the reading assessment.

The table shows that majority of the student-respondents were "instructional" accounting for 200 or 94.80 percent. Only few of them, that is, 11 or 5.20 percent were "independent."

The data signified that most of the student-respondents were still deficient in the area of reading which indicated that they need an intervention to improve their reading skills.

Table 5

Reading Performance Based on the Reading Assessment of the Student-Respondents

Reading Level	f	%
Independent	11	5.20
Instructional	200	94.80
Total	**211**	**100.00**

Grade Obtained of the Previous Grade Level. Table 6 contains the grade obtained by the student-respondents of the previous grade level in the following subjects, namely: Mother Tongue and Mathematics.

The table shows that the mean grades of the student-respondents during the previous grade level were as follow: Mother Tongue, 83.38 with a SD of 3.21; and Mathematics, 83.76 with a SD of 2.24.

The data manifested the exemplary performance of the student-respondents in the aforementioned subjects having obtained a mean grade higher than cut-off grade set by the DepEd which was 75.00 percent. This indicated that the student-respondents fully assimilated the subject considering that their native language was used in teaching.

Parents' Highest Educational Attainment. Table 7 reveals the parents' highest educational attainment of the student-respondents.

Table 6

Grade Obtained of the Previous Grade Level of the Student-Respondents

Subject	Mean	SD
Mother Tongue	83.38	3.21
Mathematics	83.76	2.24
Overall	**83.57**	**2.73**

Table 7

Parents' Highest Educational Attainment of Student-Respondents

Educational Level	Father		Mother	
	f	%	f	%
Post Graduate	19	9.00	12	5.69
College Graduate	46	21.80	43	20.38
College Level	30	14.22	23	10.90
Techno-Vocational	13	6.16	18	8.53
High School Graduate	55	26.07	76	36.02
High School Level	22	10.43	17	8.06
Elementary Graduate	19	9.00	16	7.58
Elementary Level	4	1.90	5	2.37
No Schooling	3	1.42	1	0.47
Total	**211**	**100.00**	**211**	**100.00**

Table 7 presents that of the fathers of the student-respondents, a number of them, that is, 55 or 26.07 percent were high school graduates while 46 of them or 21.80 percent were college graduates, 30 or 14.22 percent were college level and the rest were distributed to the other identified educational levels.

The same table shows that of the mothers of the student-respondents, a number of them, that is, 76 or 36.02 percent were high school graduates while 43 or 20.38 percent were college graduates. Twenty-three or 10.90 percent of them were in the college level and the rest were slimly distributed to the other identified educational levels.

The data signified that the parents of the student-

Table 8

Parents' Occupation of Student-Respondents

Occupation	Father		Mother	
	f	%	f	%
Teacher	4	1.90	0	0.00
Government Employee	17	8.06	4	1.90
Employee in Private Entity	11	5.21	3	1.42
Practice of Profession	15	7.11	20	9.48
Businessman	22	10.43	11	5.21
Farmer	54	25.59	52	24.64
Fisherman	34	16.11	9	4.27
Sari-sari Store Owner	8	3.79	71	33.65
Driver	26	12.32	3	1.42
Barangay Official	7	3.32	25	11.85
Laborer	7	3.32	8	3.79
Carpenter	6	2.84	0	0.00
Housewife	0	0.00	5	2.37
Total	**211**	**100.00**	**211**	**100.00**

respondents were literate, that is, they have the capability to read, write, and understand messages which could be an advantage to their children as learning facilitators during the new normal using the modular instruction modality.

Gross Monthly Family Income. Table 9 presents the gross monthly family income of the student-respondents.

The table presents that the majority of the student-respondents registered a gross monthly family income of less than ₱10,000 accounting for 142 or 67.30 percent while 67 or 31.75 percent earned a gross monthly family income of P10,000-₱9,999. Only few of the student-respondents, that is, two or

Table 9

Gross Monthly Family Income of Student-Respondents

Income Bracket	f	%
P30,000-P49,999	2	0.95
P10,000-P29,999	67	31.75
Less than P10,000	142	67.30
Total	**211**	**100.00**
Modal Income	**Less than P10,000**	

percent registered higher gross monthly family income of P30,000-P49,999.

The data signified that the student-respondents belonged to the low income earning family. This could be lower than the poverty threshold which indicated that they could hardly make their ends meet indicating that only their basic and nutritional needs could be provided to the members of the family. However, they put premium to education that despite their situation they prioritized the schooling of their children.

Attitude Toward Studying Mathematics. Table 10 appraises the attitude of the student-respondent toward studying Mathematics. There were 10 attitude statements included here whereby the students agreed or disagreed each statement.

From the table, it can be noted that the student-

Table 10

Attitude Toward Studying Mathematics of Student-Respondents

Attitude Statement	WM	I
1. Learning Mathematics is important to me.	4.64	SA
2. The main purpose of learning Mathematics is to help me develop mentally and academically.	4.37	A
3. I am enthusiastic in learning Mathematics verbally and mentally in school.	4.24	A
4. Learning how to compute and calculate encourages me to think mentally.	4.09	A
5. Learning mathematical concepts hones my computational abilities.	4.22	A
6. I am more motivated to solve word problems skillfully and correctly.	4.19	A
7. My computational skills lead me to get higher grades.	4.27	A
8. I am more regular in attending classes to learn new concepts and techniques in solving Mathematics problems.	4.24	A
9. I consider mathematical skills as part of my academic and intellectual development.	4.26	A
10. I exert harder in learning more concepts in Mathematics.	4.26	A
Grand Weighted Mean	**4.28**	
Interpretation	**Agree**	

Legend:			
	4.50-5.00	Strongly Agree	(SA)
	3.50-4.49	Agree	(A)
	2.50-3.49	Uncertain	(U)
	1.50-2.49	Disagree	(D)
	1.00-1.49	Strongly Disagree	(SD)
		Weighted Mean `	(WM)
		Interpretation	(I)

respondents "strongly agreed" only one attitude statement corresponding to the following: "learning Mathematics is important to me" with a weighted mean of 4.64. The remaining statements were "agreed" by the student-respondents with weighted means ranging from 4.09 to 4.37. The attitude statements that obtained the highest and the least weighted means, respectively, corresponded to: "the main purpose of learning Mathematics is to help me develop mentally and academically" and "I am more motivated to solve word problems skillfully and correctly."

Taken as a whole, the student-respondents "agreed" their attitude toward studying mathematics. This was supported by the grand weighted mean of 4.28 which indicated that they have a highly favorable attitude toward mathematics. This denoted that they were very interested in learning their lessons in mathematics.

Level of Language Instruction in Mathematics Using the Mother Tongue.

Table 11 contains the assessment of the student-respondents on the level of language instruction in Mathematics using the Mother Tongue. Ten indicators were identified in this area that were assessed by the respondents.

Table 10 reveals that the student-respondents assessed the level of language instruction in Mathematics using the Mother Tongue as "highly comprehensible" in all indicators

Table 11

Level of Language Instruction in Mathematics Using the Mother Tongue

Indicator	WM	I
1. Content.	3.98	HC
2. Creative way.	3.91	HC
3. Discussion.	3.82	HC
4. Use of instructional support.	4.04	HC
5. Asking question.	3.99	HC
6. Teaching meaning of terms in Mathematics.	4.10	HC
7. Bilingual support.	4.09	HC
8. V**isual cues, graphic representations, gestures, realia, and pictures.**	4.16	HC
9. Key mathematical phrases and new vocabulary.	4.06	HC
10. Discussion of mathematical functions.	4.12	HC
Grand Weighted Mean	**4.03**	
Interpretation	**Highly Comprehensible**	

Legend:			
	4.50-5.00	Extremely Comprehensible	(EC)
	3.50-4.49	Highly Comprehensible	(HC)
	2.50-3.49	Moderately Comprehensible	(MC)
	1.50-2.49	Slightly Comprehensible	(SC)
	1.00-1.49	Not Comprehensible	(NC)
		Weighted Mean `	(WM)
		Interpretation	(I)

with weighted means ranging from 3.91 to 4.16. The indicators that obtained the highest and the least weighted means, respectively, were: "**V**isual cues, graphic representations, gestures, realia, and pictures" and "discussion." This indicated that the student-respondents could easily assimilate lessons in Mathematics using the foregoing modes.

Taken as a whole, the student-respondents considered the level of language instruction in Mathematics using the Mother Tongue as "highly comprehensible" being shown by the grand weighted mean of 4.03. This indicated that the student-respondents considered the use of Mother Tongue in teaching Mathematics as effective using the identified modes of instruction.

Relationship Between the Level of Language Instruction in Mathematics Using the Mother Tongue as Assessed by the Student-Respondents and Their Personal Characteristics

Table 12 reveals the relationship between the level of language instruction in Mathematics using the Mother Tongue as assessed by the student-respondents and their personal characteristics in terms of age and sex, nutritional status, reading performance based on the reading assessment, grade obtained of the previous grade level of the following subject areas, namely: Mother Tongue, and Mathematics, parents' highest educational attainment, parents' occupation, gross monthly family income, and attitude toward studying mathematics.

Age. In associating the level of language instruction in Mathematics using the Mother Tongue as assessed by the student-respondents and their age using the using the Pearson's r, the coefficient resulted to 0.079 denoting a very weak linear association. To ascertain the significance

Table 12

Relationship Between the Level of Language Instruction in Mathematics Using the Mother Tongue as Assessed by the Student-Respondents and Their Personal Characteristics

Variate	Linear Association		Fisher's t-test	p-value @ .05	Evaluation/ Decision
	Coeffi-cient	Degree			
Age	0.079	Very Weak	1.146	0.255	NS / Accept Ho.
Sex	0.016	Very Weak	0.231	0.822	NS / Accept Ho.
Nutritional Status	0.000	None	0	0.997	NS / Accept Ho.
Reading Performance	0.009	Very Weak	0.130	0.896	NS / Accept Ho.
Grade Obtained in Mother Tongue	0.189	Very Weak	2.762	0.006	S / Reject Ho.
Grade Obtained in Mathematics	0.096	Very Weak	1.394	0.165	NS / Accept Ho.
Parents' Highest Educational Attainment	0.330	Weak	5.054	0.000	S / Reject Ho.
Parents' Occupation	0.098	Very Weak	1.424	0.157	NS / Accept Ho.
Gross Monthly Family Income	0.108	Very Weak	1.571	0.117	NS / Accept Ho.
Attitude Toward Studying Mathematics	0.594	Moderate	10.675	0.000	S / Reject Ho.

Fisher's t-critical = ±1.971
df = 209

S - Significant
NS – Not Significant

of the calculated coefficient, the Fisher's t-Test was employed which yielded a value of 1.146 with a p-value of

0.255. The critical value was set at ±1.971 at df = 209. In comparing the calculated value with the critical value and the p-value with the α of .05. It was obvious that the computed t-value turned lesser than the critical value and the p-value turned greater than the α. Following the decision rule stated in the methodology, the linear association between the level of language instruction in Mathematics using the Mother Tongue as assessed by the student-respondents and their age was not significant. Therefore, the hypothesis stating that there is no significant between the level of language instruction in Mathematics using the Mother Tongue as assessed by the student-respondents and their age was accepted. This meant that the age of the student-respondents did not influence their assessment on the level of language instruction in Mathematics using the Mother Tongue.

Sex. In associating the level of language instruction in Mathematics using the Mother Tongue as assessed by the student-respondents and their sex using the using the Spearman's Rho, the coefficient resulted to 0.016 denoting a very weak linear association. To ascertain the significance of the calculated coefficient, the Fisher's t-Test was employed which yielded a value of 0.231 with a p-value of 0.822. The critical value was set at ±1.971 at df = 209. In comparing the calculated value with the critical value and

the p-value with the α of .05. It was obvious that the computed t-value turned lesser than the critical value and the p-value turned greater than the α. Following the decision rule stated in the methodology, the linear association between the level of language instruction in Mathematics using the Mother Tongue as assessed by the student-respondents and their sex was not significant. Therefore, the hypothesis stating that there is no significant between the level of language instruction in Mathematics using the Mother Tongue as assessed by the student-respondents and their sex was accepted. This meant that the sex of the student-respondents did not influence their assessment on the level of language instruction in Mathematics using the Mother Tongue.

Nutritional Status. In associating the level of language instruction in Mathematics using the Mother Tongue as assessed by the student-respondents and their nutritional status using the using the Spearman's Rho, the coefficient resulted to 0.000 denoting a no linear association. To ascertain the significance of the calculated coefficient, the Fisher's t-Test was employed which yielded a value of 0 with a p-value of 0.997. The critical value was set at ±1.971 at df = 209. In comparing the calculated value with the critical value and the p-value with the α of .05. It was obvious that the computed t-value turned lesser than the critical value

and the p-value turned greater than the α. Following the decision rule stated in the methodology, the linear association between the level of language instruction in Mathematics using the Mother Tongue as assessed by the student-respondents and their nutritional status was not significant. Therefore, the hypothesis stating that there is no significant between the level of language instruction in Mathematics using the Mother Tongue as assessed by the student-respondents and their nutritional status was accepted. This meant that the nutritional status of the student-respondents did not influence their assessment on the level of language instruction in Mathematics using the Mother Tongue.

Reading Performance. In associating the level of language instruction in Mathematics using the Mother Tongue as assessed by the student-respondents and their reading performance using the using the Spearman's Rho, the coefficient resulted to 0.009 denoting a very weak linear association. To ascertain the significance of the calculated coefficient, the Fisher's t-Test was employed which yielded a value of 0.130 with a p-value of 0.096. The critical value was set at $\pm$1.971 at df = 209. In comparing the calculated value with the critical value and the p-value with the α of .05. It was obvious that the computed t-value turned lesser than the critical value and the p-value turned greater than

the α. Following the decision rule stated in the methodology, the linear association between the level of language instruction in Mathematics using the Mother Tongue as assessed by the student-respondents and their reading performance was not significant. Therefore, the hypothesis stating that there is no significant between the level of language instruction in Mathematics using the Mother Tongue as assessed by the student-respondents and their reading performance was accepted. This meant that the reading performance of the student-respondents did not influence their assessment on the level of language instruction in Mathematics using the Mother Tongue.

Grade Obtained in Mother Tongue. In associating the level of language instruction in Mathematics using the Mother Tongue as assessed by the student-respondents and their grade obtained in Mother Tongue using the using the Pearson's r, the coefficient resulted to 0.189 denoting a very weak linear association. To ascertain the significance of the calculated coefficient, the Fisher's t-Test was employed which yielded a value of 2.762 with a p-value of 0.006. The critical value was set at $\pm$1.971 at df = 209. In comparing the calculated value with the critical value and the p-value with the α of .05. It was obvious that the computed t-value turned greater than the critical value and the p-value turned lesser than the α. Following the decision rule stated in the methodology,

the linear association between the level of language instruction in Mathematics using the Mother Tongue as assessed by the student-respondents and their grade obtained in Mother Tongue was significant. Therefore, the hypothesis stating that there is no significant between the level of language instruction in Mathematics using the Mother Tongue as assessed by the student-respondents and their grade obtained in Mother Tongue was rejected. This meant that the grade obtained during the previous grade level of the student-respondents in Mother Tongue significantly influenced their assessment on the level of language instruction in Mathematics using the Mother Tongue.

The coefficient being positive suggested a direct proportional relationship which meant that the student-respondents with higher grade obtained in Mother Tongue during the previous grade manifested higher assessment on the level of language instruction in Mathematics using the Mother Tongue than the student-respondents with lower grades obtained.

Grade Obtained in Mathematics. In associating the level of language instruction in Mathematics using the Mother Tongue as assessed by the student-respondents and their grade obtained in Mathematics during the previous grade level using the using the Pearson's r, the coefficient resulted to 0.096 denoting a very weak linear association. To ascertain the

significance of the calculated coefficient, the Fisher's t-Test was employed which yielded a value of 1.394 with a p-value of 0.165. The critical value was set at ±1.971 at df = 209. In comparing the calculated value with the critical value and the p-value with the α of .05. It was obvious that the computed t-value turned lesser than the critical value and the p-value turned greater than the α. Following the decision rule stated in the methodology, the linear association between the level of language instruction in Mathematics using the Mother Tongue as assessed by the student-respondents and their grade obtained in Mathematics during the previous grade level was not significant. Therefore, the hypothesis stating that there is no significant between the level of language instruction in Mathematics using the Mother Tongue as assessed by the student-respondents and their grade obtained in Mathematics during the previous grade level was accepted. This meant that the grade obtained in Mathematics during the previous grade level of the student-respondents did not influence their assessment on the level of language instruction in Mathematics using the Mother Tongue.

Parents' Highest Educational Attainment. In associating the level of language instruction in Mathematics using the Mother Tongue as assessed by the student-respondents and their parents' highest educational attainment using the using the Spearman's Rho, the coefficient resulted to 0.330

denoting a weak linear association. To ascertain the significance of the calculated coefficient, the Fisher's t-Test was employed which yielded a value of 5.054 with a p-value of 0.000. The critical value was set at ±1.971 at df = 209. In comparing the calculated value with the critical value and the p-value with the α of .05. It was obvious that the computed t-value turned greater than the critical value and the p-value turned lesser than the α. Following the decision rule stated in the methodology, the linear association between the level of language instruction in Mathematics using the Mother Tongue as assessed by the student-respondents and their parents' highest educational attainment was significant. Therefore, the hypothesis stating that there is no significant between the level of language instruction in Mathematics using the Mother Tongue as assessed by the student-respondents and their parents' highest educational attainment was rejected. This meant that the parents' highest educational attainment of the student-respondents in Mother Tongue significantly influenced their assessment on the level of language instruction in Mathematics using the Mother Tongue.

The coefficient being positive suggested a direct proportional relationship which meant that the student-respondents whose parents had a higher educational attainment manifested higher assessment on the level of language

instruction in Mathematics using the Mother Tongue than the student-respondents with lower educational level completed.

Parents' Occupation. In associating the level of language instruction in Mathematics using the Mother Tongue as assessed by the student-respondents and their parents' occupation using the using the Spearman's Rho, the coefficient resulted to 0.098 denoting a very weak linear association. To ascertain the significance of the calculated coefficient, the Fisher's t-Test was employed which yielded a value of 1.424 with a p-value of 0.157. The critical value was set at $\pm$1.971 at df = 209. In comparing the calculated value with the critical value and the p-value with the α of .05. It was obvious that the computed t-value turned lesser than the critical value and the p-value turned greater than the α. Following the decision rule stated in the methodology, the linear association between the level of language instruction in Mathematics using the Mother Tongue as assessed by the student-respondents and their parents' occupation was not significant. Therefore, the hypothesis stating that there is no significant between the level of language instruction in Mathematics using the Mother Tongue as assessed by the student-respondents and their parents' occupation was accepted. This meant that the parents' occupation of the student-respondents did not influence their assessment on the level of language instruction in

Mathematics using the Mother Tongue.

Gross Monthly Family Income. In associating the level of language instruction in Mathematics using the Mother Tongue as assessed by the student-respondents and their gross monthly family income using the using the Spearman's Rho, the coefficient resulted to 0.108 denoting a very weak linear association. To ascertain the significance of the calculated coefficient, the Fisher's t-Test was employed which yielded a value of 1.571 with a p-value of 0.117. The critical value was set at $\pm$1.971 at df = 209. In comparing the calculated value with the critical value and the p-value with the α of .05. It was obvious that the computed t-value turned lesser than the critical value and the p-value turned greater than the α. Following the decision rule stated in the methodology, the linear association between the level of language instruction in Mathematics using the Mother Tongue as assessed by the student-respondents and their gross monthly family income was not significant. Therefore, the hypothesis stating that there is no significant between the level of language instruction in Mathematics using the Mother Tongue as assessed by the student-respondents and their gross monthly family income was accepted. This meant that the gross monthly family income of the student-respondents did not influence their assessment on the level of language instruction in Mathematics using the Mother Tongue.

Attitude Toward Studying Mathematics. In associating the level of language instruction in Mathematics using the Mother Tongue as assessed by the student-respondents and their attitude toward studying Mathematics using the using the Spearman's Rho, the coefficient resulted to 0.594 denoting a moderate linear association. To ascertain the significance of the calculated coefficient, the Fisher's t-Test was employed which yielded a value of 10.675 with a p-value of 0.000. The critical value was set at $\pm$1.971 at df = 209. In comparing the calculated value with the critical value and the p-value with the α of .05. It was obvious that the computed t-value turned greater than the critical value and the p-value turned lesser than the α. Following the decision rule stated in the methodology, the linear association between the level of language instruction in Mathematics using the Mother Tongue as assessed by the student-respondents and their attitude toward studying Mathematics was significant. Therefore, the hypothesis stating that there is no significant between the level of language instruction in Mathematics using the Mother Tongue as assessed by the student-respondents and their attitude toward studying Mathematics was rejected. This meant that the attitude toward studying Mathematics of the student-respondents in Mother Tongue significantly influenced their assessment on the level of language instruction in Mathematics using the Mother Tongue.

The coefficient being positive suggested a direct proportional relationship which meant that the student-respondents highly favorable attitude toward studying Mathematics manifested higher assessment on the level of language instruction in Mathematics using the Mother Tongue than the student-respondents with less favorable attitude toward it.

In summary, of the student-related profile variates, only their grade obtained in the Mother Tongue during the previous grade level, parents' highest educational attainment, and attitude toward studying Mathematics posed significant linear association with their assessment on the level of language instruction in Mathematics using the Mother Tongue. The other variates showed no significant relationship at all.

Mathematics Performance of Student-Respondents Based on the Mean Grade During the First and Second Quarters

Table 13 reveals the Mathematics performance of the student-respondents based on the mean grade during the first and second quarters.

From the table, it can be gleaned that the mean performance of the student-respondents in Mathematics which was represented by their academic grades was a follows: first quarter, 81.72 with a SD of 1.68 and for the second quarter,

Table 13

Mathematics Performance of Student-Respondents Based on the Mean Grade During the First and Second Quarters

Quarter	Mean	SD
First Quarter	81.72	1.68
Second Quarter	83.73	2.19
Overall	**82.73**	**1.94**

The overall mean performance of the student-respondents during first and second quarters was posted at 82.73 with a SD of 1.94. This indicated that the student-respondents fared very well with Mathematics with their mean higher than the required grade by the DepEd which is 75.00.

Relationship Between the Mathematics Performance of the Student-Respondents Based on the Mean Grade During the First and Second Quarters and the Level of Language Instruction in Mathematics Using the Mother Tongue

Table 14 contains the relationship between the Mathematics performance of the student-respondents based on the mean grade during the first and second quarters and the level of language instruction in Mathematics using the mother tongue.

In associating the aforementioned variables using the using the Pearson's r, the coefficient resulted to 0.180 denoting a very weak linear association. To ascertain the

Table 14

Relationship Between the Mathematics Performance of the Student-Respondents Based on the Mean Grade During the First and Second Quarters and the Level of Language Instruction in Mathematics Using the Mother Tongue

Linear Association		Fisher's t-test	p-value @ .05	Evaluation/ Decision
Coefficient	Degree			
0.180	Very Weak	2.645	0.009	S / Reject Ho.

Fisher's t-critical = ±1.971
df = 209

S - Significant
NS – Not Significant

significance of the calculated coefficient, the Fisher's t-Test was employed which yielded a value of 2.645 with a p-value of 0.009. The critical value was set at ±1.971 at df = 209. In comparing the calculated value with the critical value and the p-value with the α of .05. It was obvious that the computed t-value turned greater than the critical value and the p-value turned lesser than the α. Following the decision rule stated in the methodology, the linear association between the Mathematics performance of the student-respondents based on the mean grade during the first and second quarters and the level of language instruction in Mathematics using the mother tongue was significant. Therefore, the hypothesis stating that there is no significant between the Mathematics performance of the student-respondents based on the mean grade during the first

and second quarters and the level of language instruction in Mathematics using the mother tongue was rejected. This meant that the assessment on the level of language instruction in Mathematics using the Mother Tongue of the student-respondents based on the mean grade during the first and second quarters was influenced by their assessment on the level of language instruction in Mathematics using the mother tongue.

The coefficient being positive suggested a direct proportional relationship which meant that the student-respondents higher performance in Mathematics based on their mean grade during the first and second quarters manifested higher assessment on the level of language instruction in Mathematics using the Mother Tongue than the student-respondents with lower performance.

Difficulties Encountered by the Student-Respondents in Mathematics Language Instruction

Table 15 presents the difficulties encountered by the student-respondents in Mathematics Language Instruction. There were six identified difficulties included in this area that were assessed by the student-respondents.

Table 14 shows that student-respondents considered two identified difficulties as "extremely difficult" corresponding to the following statements: "limited language

Table 15

Difficulties Encountered by the Student-Respondents in Mathematics Language Instruction

Difficulty	WM	I
1. Limited language proficiency.	4.65	ED
2. Lack of competence in expressive and receptive languages.	4.58	ED
3. Commitment to learn to memorize and reproduce result.	4.44	HD
4. Lack of language proficiency.	4.25	HD
5. Lack of patience in teaching concepts such as menus.	4.23	HD
6. Tendency of Mathematics educators and policy makers to emphasize the distinction between the subject language of Mathematics and more informal talk that can hinder the process of inducting children into Mathematics practices	4.16	HD
Grand Weighted Mean	**4.39**	
Interpretation	**Highly Difficult**	

Legend:			
	4.50-5.00	Extremely Difficult	(ED)
	3.50-4.49	Highly Difficult	(HD)
	2.50-3.49	Moderately Difficult	(MD)
	1.50-2.49	Slightly Difficult	(SD)
	1.00-1.49	Not Difficult	(ND
		Weighted Mean `	(WM)
		Interpretation	(I)

proficiency" and "lack of competence in expressive and receptive languages" with weighted means of 4.65 and 4.58, respectively. The remaining four identified difficulties were assessed by the same group of respondents as "highly difficult" with weighted means ranging from 4.16 to 4.44. The difficulties that obtained the highest and the least weighted

means were: “commitment to learn to memorize and reproduce result” and “tendency of Mathematics educators and policy makers to emphasize the distinction between the subject language of Mathematics and more informal talk that can hinder the process of inducting children into Mathematics practices.”

Taken as a whole, the student-respondents considered their difficulties in Mathematics language instruction ad “highly difficult” being shown by the grand weighted mean of 4.39. This indicated that the student-respondents encountered problems in Mathematics language instruction that need to be addressed properly both by the teachers and school administrators.

Chapter 5

SUMMARY OF FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

This chapter presents the summary of findings with the corresponding conclusions drawn from them and the recommendations based on the conclusions drawn.

Summary of Findings

The following were the salient findings of the study:

1. The oldest student-respondent was aged 11 years old while the youngest was nine years old whereby the mean age was posted of 9.38 percent with a SD of 0.56 year. Moreover, more than half of the student-respondents belonged to the female sex accounting to 106 or 50.20 percent.

2. Majority of the student-respondents were in normal nutritional status accounting to 65.88 percent.

3. Majority of the student-respondents were "instructional" accounting for 200 or 94.80 percent.

4. The mean grades of the student-respondents during the previous grade level were as follow: Mother Tongue, 83.38 with a SD of 3.21; and Mathematics, 83.76 with a SD of 2.24.

5. Of the fathers of the student-respondents, a number of them, that is, 55 or 26.07 percent were high school graduates while a number of the mothers, that is, 76 or 36.02 percent were high school graduates also.

6. Majority of the student-respondents registered a gross monthly family income of less than ₱10,000 accounting for 142 or 67.30 percent.

7. The student-respondents "agreed" their attitude toward studying mathematics. This was supported by the grand weighted mean of 4.28.

8. The student-respondents considered the level of language instruction in Mathematics using the Mother Tongue as "highly comprehensible" being shown by the grand weighted mean of 4.03.

9. In associating relationship between the level of language instruction in Mathematics using the Mother Tongue as assessed by the student-respondents and their personal characteristics, it was found significant in terms of grade obtained of the previous grade level in the Mother Tongue, parents' highest educational attainment, and attitude toward studying mathematics while it was not significant in terms of age, sex, nutritional status, reading performance based on the reading assessment, grade obtained of the previous grade level in Mathematics, parents' occupation, and gross monthly family income.

10. The mean performance of the student-respondents in Mathematics which was represented by their academic grades was a follows: first quarter, 81.72 with a SD of 1.68 and for the second quarter, 83.73 with a SD of 2.19.

11. In associating relationship between the Mathematics performance of the student-respondents based on the mean grade during the first and second quarters and the level of language instruction in Mathematics using the mother tongue, it was found significant.

12. The student-respondents considered their difficulties in Mathematics language instruction ad "highly difficult" being shown by the grand weighted mean of 4.39.

Conclusions

From the findings of the study, the following conclusions were drawn:

1. The student-respondents were on the right age just fitted for the grade level they were enrolled in whereby almost same in number in terms of sex disaggregation was noted which indicated that both the male and the female students got interested already in schooling especially this time that is under the new normal with modular instruction being used as a modality.

2. The student-respondents were in healthy condition which signified they have the capacity to endure the hardship of schooling during this new normal considering that they were in normal condition.

3. Most of the student-respondents were still deficient in the area of reading which indicated that they

need an intervention to improve their reading skills.

4. The student-respondents manifested exemplary performance in the Mother Tongue and Mathematics having obtained a mean grade higher than cut-off grade set by the DepEd which was 75.00 percent. This indicated that they fully assimilated the subjects considering that their native language was used in teaching.

5. The parents of the student-respondents were literate, that is, they have the capability to read, write, and understand messages which could be an advantage to their children as learning facilitators during the new normal using the modular instruction modality.

6. The student-respondents belonged to the low income earning family. This could be lower than the poverty threshold which indicated that they could hardly make their ends meet indicating that only their basic and nutritional needs could be provided to the members of the family. But, they put premium to education that despite their situation they prioritized the schooling of their children.

7. The student-respondents have a highly favorable attitude toward mathematics. This denoted that they were very interested in learning their lessons in mathematics.

8. The student-respondents considered the use of Mother Tongue in teaching Mathematics as effective using the identified modes of instruction.

9. Of the student-related profile variates, only their grade obtained in the Mother Tongue during the previous grade level, parents' highest educational attainment, and attitude toward studying Mathematics posed significant linear association with their assessment on the level of language instruction in Mathematics using the Mother Tongue. The other variates showed no significant relationship at all.

10. The student-respondents fared very well with Mathematics with their mean higher than the required grade by the DepEd which is 75.00.

11. The assessment on the level of language instruction in Mathematics using the Mother Tongue of the student-respondents based on the mean grade during the first and second quarters was influenced by their assessment on the level of language instruction in Mathematics using the mother tongue whereby the student-respondents with higher performance in Mathematics based on their mean grade during the first and second quarters manifested higher assessment on the level of language instruction in Mathematics using the Mother Tongue than the student-respondents with lower performance.

12. The student-respondents encountered problems in Mathematics language instruction that need to be addressed properly both by the teachers and school administrators.

Recommendations

Based on the conclusions drawn from the findings of the study, the following are recommended:

1. Inasmuch as the reading level of the student-respondents was found wanting, an intervention activity in reading should be implemented to them to enhance their reading level.

2. Mother Tongue, being found effective, should be continued as a medium of instruction in Mathematics for Grade 3 students.

3. Parents should be encouraged to assist their children with their schooling especially in the new normal where modular instruction was used as learning facilitators.

4. Problems encountered by the students in Mathematics language instruction should be addressed properly.

5. Another study may be conducted in other districts to validate the findings of this study.

Chapter 6

INTERVENTION SCHEME

This chapter presents the intervention scheme to enhance language instruction of teachers in teaching Mathematics and eventually improve the academic performance of Grade 3 students in the said learning area.

Rationale

Language instruction provides teachers with a framework for desired competencies for effective teaching Mathematics among Grade 3 students. As a professional teacher, he is involved with learners, fellow teachers, school officials and community leaders. At the heart of his involvement is the teaching-learning process, which is characterized by dynamism and relevance. In order to respond to the demand and the call of the profession, the teacher needs to continuously assess his competences. As it came out from the study, the teacher-respondents manifested highly favorable attitude toward teaching that served as the influencer to the extent of their teaching in Mathematics among the grade 3 students which they should be reinforced by the school administrators to boost their attitude to it through providing them this intervention program.

Objectives

This Intervention scheme aims to enhance the competences of the elementary school teachers in the District of Gandara I in teaching Mathematics particularly among Grade 3 students.

Specifically, it is expected to:

1. Commit the teacher to individual accountability for professional growth and shared responsibility for the Grade 3 students in Mathematics;

2. Help the teachers chart their own professional development plan and give them avenue for a training program and development activities that would benefit them, the school, the division and the region;

3. Ensure quality education through improved learning outcomes of the Grade 3 students in Mathematics; and

4. Enhance teaching competences in providing learning activities for diverse learners in Mathematics among Grade 3 students and to use community resources to improve their academic performance in the aforementioned learning area.

Features of the Program

The content of the Intervention Program covers the following areas, namely: 1) objectives; 2) methods/strategies; 3) resources; 4) time frame; and 5) success indicator.

The Intervention Program

Objectives	Methods/ Strategies	Resources	Time Frame	Success Indicator	
1. To improve competences in using varied strategies in teaching Mathematics among Grade 3 students	Attend district training program	Register in the District/ Cluster training	December 2021 2nd Quarter Break	Knowledge and Skills in teaching Mathematics among Grade 3 students	Increased interest of Grade 3 students to lesson activities in Mathematics
	On-line study	Surf Internet lesson guides	Once a week, 2nd Quarter		
	Training for TICs of elementary schools	Register in the District/ Cluster training	December 2021 2nd Quarter Break		
2. To gain more content knowledge and skills in teaching Mathematics among Grade 3 students	Attend training on Content in the Division Attend Short-term course	Request INSET Funds, SEF Scholarship Grants from LGU, DepEd	Summer INSET 2022; Saturday classes 2nd Quarter	Increased Competences and mastery of the content and skills in teaching Mathematics among Grade 3 students	Increased students' performance in Mathematics among Grade 3 students based on the Division/ Regional/ National Tests Results
	Attend LAC Sessions to study DepEd digital lessons in teaching Mathematics among	Request Master Teachers/ PSDS as resource persons	Monthly from September 2021 to February 2022	Increased Teachers' Proficiency Result	

	Grade 3 students				
	Psycho-social training for Mathe-matics teachers	Request INSET Funds, SEF Scholar-ship Grants from LGU, DepEd	Summer INSET 2022; Satur-day classes 2nd Quarter	Increased Competen-ces and mastery of the content and skills in teaching Mathema-tics among Grade 3 students	Increased students' perfor-mance in Mathema-tics among Grade 3 students based on the Division/ Regional/ National Tests Results
3. To acquire know-ledge and skills in pro-viding lear-ning active-ties that respond to de-mands of the commu-nity	Engage in Community projects	Look for available NGO project	1st 2 Satur-days of October 2021	Enhanced compe-tences in estab-lishing learning environ-ment conducive to community aspira-tions	Increased Mathema-tics Aca-demic Per-formance and parti-cipation in school activities
	Profes-sional readings on connec-ting classroom activities to community develop-ment	Research in Library/ LGU centers	2nd Quarter Break 2021		

Strategy of Implementation

There are many things that need to be done before the Intervention Program can be implemented, which include: 1) ask the help from the district supervisor in seeking the approval from the schools division superintendent for the

implementation of the program; 2) once approved, request from the schools division superintendent in issuing a memorandum for the implementation of the Intervention Program in the district and inviting support from the school administrators for its effective implementation; 3) the district supervisor, school administrators and general PTCA officers should invite cooperation among elementary school teachers for the participation in the activities of the program; and 4) seek alliance from the local government unit (LGU) or non-government organizations (NGO's) in the implementation of the program specially if budget is required.

Monitoring and Evaluation

This is the most important part of the Intervention Program because the persons involved in the implementation of the program can determine whether the goals and objectives are carried out or not. They can also ascertain what other things are needed to be done to accomplish the goals and objectives. In monitoring and evaluation, the following can be used as tools: 1) monthly progress report; 2) monthly accomplishment report of activities; and 3) regular strategic assessment and planning among school administrators and elementary school teachers as well as parents and stakeholders.

Funding Source

Funding for this intervention scheme may come from the following sources:

1. General PTA or Homeroom PTA funds;

2. Proceeds from an income-generating project launched by the school; and

3. Voluntary support and donations from the LGU and from education-oriented NGOs such as the PLAN Philippines and the like.

Budgetary Requirements

In implementing this scheme, the following budgetary requirements would be entailed:

Supplies and Materials	P 15,000.00
Meals and Snacks during assessment and planning	25,000.00
Registration Fees for INSET (Face-to-Face and Virtual Trainings) . . .	50,000.00
Other Incidental Expenses	10,000.00
Total	P 100,000.00

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A P P E N D I C E S

APPENDIX A

REQUEST FOR APPROVAL OF RESEARCH TITLE

SAMAR COLLEGE
COLLEGE OF GRADUATE STUDIES
City of Catbalogan

10 February 2020

Dr. NIMFA T. TORREMORO
Dean, College of Graduate Studies
Samar College
City of Catbalogan

M a d a m e:

The undersigned will enroll in thesis writing this 1st Semester, School Year 2020-2021. In this regard, she would like to present the following proposed thesis titles, preferably Number 1, for your evaluation, suggestions and recommendation.

1. Language Instruction and Academic Performance in Mathematics of Grade 3 Students: Basis for an Intervention Scheme
2. Correlates of Academic Performance in Mathematics of Grade 3 Students
3. Learning Competence of Grade 3 Students in Mathematics.

(SGD) ROMUALDO C. VALERA
Researcher

Recommended Title No.

1 **(SGD) GUILLERMO D. LAGBO, DPA**
Evaluator
1 **(SGD) NATALIA B. UY, PhD**
Evaluator
1 **(SGD) LETECIA R. GUERRA, PhD**
Evaluator

Approved Title No.: # 1

(SGD) NIMFA T. TORREMORO, PhD
Dean, College of Graduate Studies

APPENDIX B

Republic of the Philippines
Commission on Higher Education
Region VIII
SAMAR COLLEGE
COLLEGE OF GRADUATE STUDIES
City of Catbalogan

ASSIGNMENT OF ADVISER

NAME	:	ROMUALDO C. VALERA
COURSE	:	Master of Arts in Education
SPECIALIZATION	:	Educational Management
TITLE OF THESIS PROPOSAL	:	Language Instruction and Academic Performance in Mathematics Subject of Grade 3 Students: Basis for an Intervention Scheme
NAME OF ADVISER	:	Guillermo D. Lagbo, DPA

(SGD) ROMUALDO C. VALERA
Researcher

CONFORME:

(SGD) GUILLERMO D. LAGBO, DPA
Adviser

APPROVED:

(SGD) NIMFA T. TORREMORO, PhD
Dean, College of Graduate Studies

APPENDIX C

QUESTIONNAIRE
(For Student-Respondent)

Republic of the Philippines
Commission on Higher Education
Region VIII
SAMAR COLLEGE
COLLEGE OF GRADUATE STUDIES
City of Catbalogan

24 November 2020

Dear Respondent,

The undersigned is currently conducting a study entitled, "Language Instruction and Academic Performance in Mathematics of Grade 3 Students: Basis for an Intervention Scheme," as one of the requirements for the degree, Master of Arts in Education (MAEd) major in Educational Management with the College of Graduate Studies of Samar College, City of Catbalogan.

As potent source of information, the undersigned requests your cooperation in answering the attached questionnaire.

Rest assured that any information given in this questionnaire will be held in strict confidentiality and shall be used solely for the purpose of this study.

Thank you very much for the usual cooperation.

Very truly yours,

(SGD) ROMUALDO C. VALERA
Researcher

PART I. PROFILE OF RESPONDENT

Direction: Kindly supply the information asked for by writing on the space provided or by checking appropriate box.

1. Name: _____

2. Age: _____ 3. Sex: ☐ Male ☐ Female

4. Nutritional Status: ☐ Normal ☐ Severely Wasted
☐ Wasted ☐ Obese

5. Reading Performance Based on the Reading Assessment:

☐ Independent ☐ Frustration

☐ Instructional ☐ Non-Reader

6. Grade Obtained of the Previous Grade Level (Grade 2):

Mother Tongue: _____ Mathematics: _____

7. Parents' Highest Educational Attainment:

Father		Mother
☐	Post Graduate	☐
☐	College Graduate	☐
☐	College Level	☐
☐	Techno-Vocational	☐
☐	High School Graduate	☐
☐	High School Level	☐
☐	Elementary Graduate	☐
☐	Elementary Level	☐
☐	No Schooling	☐

8. Parents' Occupation:

Father		Mother
☐	Teacher	☐
☐	Government Employee	☐
☐	Employee in Private Entity	☐
☐	Practice of Profession	☐
☐	Businessman	☐
☐	Farmer	☐
☐	Fisherman	☐
☐	Sari-sari Store Owner	☐
☐	Driver	☐

☐ Barangay Official ☐

☐ Laborer ☐

☐ Carpenter ☐

☐ Others, (specify) _____ ☐

9. Gross Monthly Family Income:

☐ Less than P10,000 ☐ P50,000-P69,999

☐ P10,000-P29,999 ☐ P70,000-P89,999

☐ P30,000-P49,999 ☐ P90,000 and over

10. Academic Performance in Mathematics:

First Quarter: _____

Second Quarter: _____

PART II. ATTITUDE TOWARD STUDYING MATHEMATICS

Direction: Below are statements depicting your attitude toward studying Mathematics. Kindly signify your agreement or disagreement on each of the statement by checking appropriate column using the following scale:

5 – Strongly Agree (SA)
4 – Agree (A)
3 – Uncertain (U)
2 – Disagree (D)
1 – Strongly Disagree (SD)

Attitude Statement	5 (SA)	4 (A)	3 (U)	2 (D)	1 (SD)
1. Learning Mathematics is important to me.					
2. The main purpose of learning Mathematics is to help me develop mentally and academically.					
3. I am enthusiastic in learning Mathematics verbally and mentally in school.					
4. Learning how to compute and calculate encourages me to think mentally.					

5. Learning mathematical concepts hones my computational abilities.					
6. I am more motivated to solve word problems skillfully and correctly.					
7. My computational skills lead me to get higher grades.					
8. I am more regular in attending classes to learn new concepts and techniques in solving Mathematics problems.					
9. I consider mathematical skills as part of my academic and intellectual development.					
10. I exert harder in learning more concepts in Mathematics.					

PART III. ASSESSMENT ON THE LEVEL OF LANGUAGE INSTRUCTION IN MATHEMATICS

Direction: Below are indicators that indicate the level of language instruction in Mathematics. Kindly assess each statement the way you understand Mathematics using the mother tongue by checking appropriate column using the following scale:

5 – Extremely Comprehensible (EC)
4 – Highly Comprehensible (HC)
3 – Moderately Comprehensible (MC)
2 – Slightly Comprehensible (SC)
1 – Not Comprehensible (NC)

Indicator	5 (EC)	4 (HC)	3 (MC)	2 (SC)	1 (NC)
1. Content.					
2. Creative way.					
3. Discussion.					
4. Use of instructional support.					
5. Asking question.					
6. Teaching meaning of terms in Mathematics.					
7. Bilingual support.					
8. V**isual cues, graphic representations, gestures, realia, and pictures.**					

9. Key mathematical phrases and new vocabulary.					
10. Discussion of mathematical functions.					

Source: https://www.colorincolorado.org/article/math-instruction-english-language-learners

PART IV. DIFFICULTIES ENCOUNTERED ON LANGUAGE INSTRUCTION IN MATHEMATICS

Direction: Below are identified difficulties encountered on language instruction in Mathematics. Kindly assess the degree of your encounter in each identified difficulty by checking appropriate column using the following scale:

5 – Extremely Difficult (ED)
4 – Highly Difficult ` (HD)
3 – Moderately Difficult (MD)
2 – Slightly Difficult (SD)
1 – Not Difficult` (ND)

Difficulty	5 (ED)	4 (HD)	3 (MD)	2 (SD)	1 (ND)
1. Limited language proficiency.					
2. Lack of competence in expressive and receptive languages.					
3. Commitment to learn to memorize and reproduce result.					
4. Lack of language proficiency.					
5. Lack of patience in teaching concepts such as menus.					
6. Tendency of Mathematics educators and policy makers to emphasize the distinction between the subject language of Mathematics and more informal talk that can hinder the process of inducting children into Mathematics practices					

Source: https://www.researchgate.net/publication/288132408_Aspects_that_Pose_Challenges_in_the_Teaching_of_Mathematics_at_Grade_3_Level

Thank You . . .

The Researcher

APPENDIX D

PAMAKI-ANA
(Para han mga Estudyante nga Tigbaton)

Republic of the Philippines
Commission on Higher Education
Region VIII
SAMAR COLLEGE
COLLEGE OF GRADUATE STUDIES
City of Catbalogan

Ika-24 han Nobyembre 2020

Hiniguma nga Tigbaton,

An nakapirma ha ubos in ha yana naghihimo in pag-aradman nga gin uluhan nga, "Language Instruction and Academic Performance in Mathematics of Grade 3 Students: Basis for an Intervention Scheme," nga usa nga kinahanglan para han degri nga, Master of Arts in Education (MAEd) nga may medyor hin Educational Management ha Kolehiyo han Gradwado nga Pag-aram han Samar College ha Ciudad han Catbalogan.

Komo usa ng pwede makahatag hin impormasyon hini nga pag-aradman, an nakapirma nangangaro an imo hul-os ng kooperasyon pina-agi hin pagbaton han hini nga pamaki-ana.

Igin papatapud ha imo nga ano man an imo ighatag nga baton hini nga pamaki-ana hihimuon nga sekreto ngan deri igpapasamwak. Ini gagamiton la para ha katuyuan hini nga pag-aradman.

Salamat hin madamo han imo hul-os nga kooperasyon.

An matinalahuron,

(PMDO) ROMUALDO C. VALERA
Researcher

UNA NGA PARTE. AN PERSONAL NGA IMPORMASYON

Direksyon: Alayon paghatag han gin-aaro nga impormasyon pina-agi hin pagsurat ha nakatala-an nga espasyo o pina-agi hin pagtsek ha tama ng kahon sumala han imo baton.

1. Ngaran: _____

2. Pangidaron: _____ 3. Ikinatawo: ☐ Lalaki ☐ Babayi

4. Kabutang han Nutrisyunal: ☐ Normal ☐ Sobra hin Kagasa
☐ Magasa ☐ Matambok

5. Performans ha Pagbasa Sumala han Reading Assessment:

☐ Independent ☐ Frustration
☐ Instructional ☐ Non-Reader

6. Marka nga Nakuha han Ikaduha nga Grado ha masunod:

Mother Tongue: _____ Mathematics: _____

7. Gihahataasi nga Naabot han mga Kag-anak ha Pag-aradman:

Tatay		Nanay
☐	Post Graduate	☐
☐	Nakapagtapos hin Kolehiyo	☐
☐	Naka-abot hin Kolehiyo	☐
☐	Nakatapos hin Bokesyunal	☐
☐	Nakapagtapos hin Haiskul	☐
☐	Naka-abot hin Haiskul	☐
☐	Nakapagtapos hin Elementarya	☐
☐	Naka-abot hin Elementarya	☐
☐	Waray Maka-eskwela	☐

8. Pakabuhi han mga Kag-anak

Tatay		Nanay
☐	Magturutdo	☐
☐	Empleyado han Gobyerno	☐
☐	Empleyado han Pribado nga Kompanya	☐
☐	Propesyunal	☐
☐	Negosyante	☐
☐	Parag-uma	☐

☐	Parapangisda	☐
☐	Tag-iya hin Tindahan	☐
☐	Drayber	☐
☐	Opisyal hin Barangay	☐
☐	Trabahador	☐
☐	Panday	☐
☐	Iba pa, (paki lista) _____	☐

9. Kabug-usan nga Binulan nga Kita han Pamilya:

☐ Ubos hin P10,000 ☐ P50,000 ngada P69,999

☐ P10,000 ngada P29,999 ☐ P70,000 ngada P89,999

☐ P30,000 ngada P49,999 ☐ P90,000 ngan sobra pa

10. Marka nga Nakujha ha Matematika:

Una nga Kwarter: _____

Ikaduha nga Kwarter: _____

IKADUHA NGA PARTE. PAMATASAN MAHITUNGOD HAN PAG-ARAM HIN MATEMATIKA

Direksyon: Nakalista ha ubos amon an mga pamatasan mahitungod han pag-aram hin Matematika. Alayon pagkita ha kada usa nga pamatasan ngan ipakita an imo pag-abuyon o deri pag-abuyon pina-agi han pagtsek han kolumn sumala han imo baton nga gamit an masunod nga iskala:

5 – Makusog nga Naabuyon (MN)
4 – Naabuyon (N)
3 – Siguro (S)
2 – Deri Naabuyon (DN)
1 – Makusog nga Deri Naabuyon (MDN)

Pamatasan	5 (MN)	4 (N)	3 (S)	2 (DN)	1 (MDN)
1. Kinahanglan para ha akon an mahibaro hin Matematika.					
2. An rason nga mahibaro ako han Matematika basi mabuligan ako nga mag-uswag an akon kaaram ngan					

an akon pagtuon ha eskwelahan.					
3. Pursigido ako nga mahibaro han Matematika ha yinakan nga pagkwenta ngan ha pagkwenta ha hunahuna.					
4. An paghibaro hin pagkwenta ngan pagkarkulo nakakahimo ha akon nga maikmat han paghunahuna.					
5. An paghibaro han mga pama-agi ha Matematika nakakapa-uswag han akon abilidad hin pagkwenta.					
6. Mas nagiginpursigido ako pag solbar hin maupay ngan tama han mga sitwasyon ha Matematika nga kinahanglan tagan solusyon.					
7. An akon kadati han pagk-wenta amo an nakakabulig para makakuha ako hin dagko nga mga grado.					
8. Permi ako na sulod han akon mga klase basi mahibaro ako han bag-o nga mga pama-agi hin pagsolbar han mga sitwasyon ha Matematika.					
9. Gin-iisip ko nga an akon kadati han Matematika amo an kaparte han akon intelektwal nga pag-uswag.					
10. Naniniguro gud ako nga mahibaro han damo pa nga pama-agi ha Matematika.					

IKATULO NGA PARTE. PAGKITA HAN LEBEL HAN PAGKA-INTINDI HAN LENGWAHE NGA GAMIT PAGTUTDO HIN MATEMATIKA

Direksyon: An mga nakalista amo an mga indikeytor nga nagmamalatumat han lebel han pagka-intindi han lengwahe nga gamit ha pagtutdo hin Matematika. Alayon pagkita an kada usa nga indikeytor nga ipasabot an lebel han imo pag-intindi pinaagi han pagtsek han kolumn sumala han imo baton nga gamit an masunod nga iskala:

5 – Naiintindihan hin Masyado (MN)
4 – Naiintindihan hin Dako (ND)
3 – Medyo Naiintindihan (MdN)
2 – Naiintindihan hin Guti (NG)
1 – Deri Maintindihan (DM)

Indekeytor	5 (MN)	4 (ND)	3 (MdN)	2 (NG)	1 (DM)
1. An leksyon nga igintututdo.					
2. An mga pama-agi pagtutdo nga magkaiba-iba.					
3. Diskusyon.					
4. Paggamit han mga bulig pagtutdo.					
5. Pagpaki-ana.					
6. Pagtutdo han kahulugan han mga pulong nga gamit ha Matematika.					
7. Paggamit han Winaray nga pinulungan nga hinaluan hin Tinagalog o Engles.					
8. Bisyuwal nga gamit, grapikal nga mga kirit-on, mga kiwa, ungod nga mga bagay, ngan mga litrato.					
9. An mga pinulungan ha Matematikal ngan bag-o nga bokabularyo.					
10. Diskusyon han mga gamit han mga pormula ha pagkwenta.					

Tinikangan: https://www.colorincolorado.org/article/math-instruction-english-language-learners

IKA-UPAT NGA PARTE. MGA NAKITA NGA MGA KAKURIAN HA LENGWAHE GAMIT AN PAGTUTDO HIN MATEMATIKA

Direksyon: An mga nakalista amo an mga nahibaruan nga mga kakurian nga ngakita mahitungod han lengwahe nga gamit ha pagtutdo hin Matematika. Alayon pagkita han kakuri nga imo naabat han kada usa nga nakalista pinaagi han pagtsek han kolumn sumala han imo baton nga gamit an masunod nga iskala:

5 – Makuri hin Masyado (MM)
4 – Makuri hin Dako (MD)
3 – Medyo Makurii (MdM)
2 – Makuri hin Guti (MG)
1 – Deri Makuri (DM)

Kakurian	5 (MM)	4 (MD)	3 (MdM)	2 (MG)	1 (DM)
1. Limitado an kadati paggamit han lengwahe.					
2. Kulang hin kahanas hin paggamit han lengwahe pagpahayag ngan pagkarawat han mensahe.					
3. An pagpursigi pakahibaro pagmemorya ngan pagpakita han resulta.					
4. Kakulang han kahibaro hin kaupay mahiunong han lengwahe.					
5. Kakulang hin pasensya hin pagtutdo han mga pama-agi parehu han mga pormula.					
6. An kina-iya han mga magturotdo hin Matematika ngan mga tagahimo hin polisiya nga gintatagan hin kaibahan an lengwahe gamit ha pagtutdo hin Matematika ngan han impormal nga pag-iru-istorya han leksyon ha lebel han mga bata nga nakakakuri lugod basi mahibaro hin mga kaangayan himuon.					

Tinikangan: https://www.researchgate.net/publication/288132408_Aspects_that_Pose_Challenges_in_the_Teaching_of_Mathematics_at_Grade_3_Level

Salamat . . .

An Tagapag-aram

APPENDIX E

REQUEST LETTER TO THE SCHOOLS DIVISION SUPERINTENDENT

Samar College
Catbalogan City

December 28, 2020

DR. CARMELA R. TAMAYO
Schools Division Superintendent
Schools Division of Samar

Dear Madame:

Good day!

I am presently conducting a research entitled, "Language Instruction and Academic Performance in Mathematics of Grade 3 Students: Basis for an Intervention Scheme," in partial fulfillment of the requirements for the degree Master of Arts in Education, major in Educational Management, which I am currently taking in Samar College, City of Catbalogan. In view of this, I am praying for your kindness to allow the conduct of this study among the school administrators and teachers in the District of Gandara I.

Rest assured that there will be limited face-to-face interaction during the conduct of the study, and the minimum health requirements of wearing of masks, hygienic practices, and physical distancing will be observe should there be a need for physical administration of the research instrument.

Furthermore, please be assured that the privacy of the respondents of this study will be treated with utmost confidentiality and the data collected from them will be used solely for research purposes. A copy of the final manuscript will be provided to your office for reference.

Thank you very much and Godspeed!

Very truly yours,

(SGD) **ROMUALDO C. VALERA**
Researcher

Approved:

(SGD) **CARMELA R. TAMAYO, EdD, CESO VI**
Schools Division Superintendent

APPENDIX F

REQUEST LETTER TO THE PUBLIC SCHOOLS DISTRICT SUPERVISOR

Republic of the Philippines
Commission on Higher Education
Region VIII
Samar College
COLLEGE OF GRADUATE STUDIES
City of Catbalogan

December 28, 2020

THE DISTRICT SUPERVISOR
District of Gandara I
Schools Division of Samar

Madame:

Greetings!

I am presently conducting a research entitled, "Language Instruction and Academic Performance in Mathematics of Grade 3 Students: Basis for an Intervention Scheme," in partial fulfillment of the requirements for the degree Master of Arts in Education, major in Educational Management, which I am currently taking in Samar College, City of Catbalogan. In view of this, I am praying for your kindness to allow the conduct of this study among the school administrators and teachers in the District of Gandara I.

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Thank you very much and Godspeed!

Very truly yours,

(SGD) **ROMUALDO C. VALERA**
Researcher

APPENDIX G

REQUEST LETTER TO THE SCHOOL HEAD

Republic of the Philippines
Commission on Higher Education
Region VIII
Samar College
COLLEGE OF GRADUATE STUDIES
City of Catbalogan

December 28, 2020

THE SCHOOL HEAD
Gandara I Central Elementary School
District of Gandara I
Schools Division of Samar

Sir/Madam:

Greetings!

I am presently conducting a research entitled, "Language Instruction and Academic Performance in Mathematics of Grade 3 Students: Basis for an Intervention Scheme," in partial fulfillment of the requirements for the degree Master of Arts in Education, major in Educational Management, which I am currently taking in Samar College, City of Catbalogan. In view of this, I am praying for your kindness to allow the conduct of this study among the school administrators and teachers in the District of Gandara I.

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Furthermore, please be assured that the privacy of the respondents of this study will be treated with utmost confidentiality and the data collected from them will be used solely for research purposes. A copy of the final manuscript will be provided to your office for reference.

Thank you very much and Godspeed!

Very truly yours,

(SGD) **ROMUALDO C. VALERA**
Researcher

C U R R I C U L U M V I T A E

NAME	:	**ROMUALDO C. VALERA**
ADDRESS	:	Brgy. Catorse de Agosto Gandara, Samar
BIRTH DATE	:	1 November 1991
BIRTH PLACE	:	Tondo, Manila
CIVIL STATUS	:	Single
PRESENT POSITION	:	Elementary Grade Teacher I
STATION	:	Samoyao Elementary School District of Gandara I Schools Division of Samar
DEGREE PURSUED	:	Master of Arts in Education (MAEd)
SPECIALIZATION	:	Educational Management

EDUCATIONAL BACKGROUND

ELEMENTARY	:	Kapitbahayan Elementary School, Tondo, Manila 2002–2003
SECONDARY	:	Ramon T. Diaz Memorial High School, Gandara, Samar 2007-2008
TERTIARY	:	Bachelor of Elementary Education (BEEd) Samar College City of Catbalogan 2014-2015
GRADUATE STUDIES	:	Samar College City of Catbalogan 2020-present

ELIGIBILITY

Licensure Examination for Teachers (LET)	:	27 September 2015 Tacloban City

WORK EXPERIENCE

Elementary Grade Teacher I	:	Samoyao Elementary School District of Gandara I Schools Division of Samar 2018-present

SEMINARS/TRAININGS/WORKSHOPS ATTENDED

Orientation-Workshop on the Formulation of School Contingency Plan held on February 12, 2019.

School Disaster Risk Reduction and Management (SDRRM) Coordinators Convergence held on March 8, 2019.

Gandara I District Teachers' Professional Meeting held on March 25, 2019.

Division Orientation-Workshop on Learners Information System (LIS) BOSY 2019-2020 conducted on July 22, 2019.

School Based Management (SBM) Mentoring and Coaching conducted on August 27, 2019.

District Selection Meet 2019 conducted on August 29-31, 2019.

Capability Building for Kindergarten Teachers in Handling Co-curricular Activities and Division Slumber Party held on October 21-23, 2019.

District-based Roll-out on Disaster Risk Reduction and Management (DRRM) held on October 22, 2019.

Evacuation Camp Management Training held on December 9-11, 2019.

District-Based Orientation on Simulation of SPG/SSG Automated Election System held on February 11, 2020.

District Roll-out on Psychological First Aid Training to SDRRM Coordinators, School Heads and Guidance Advocates of Gandara I District on February 20-22, 2020.

Facilitator in the District Re-echo on DepEd Partnership Database system (DPDS) conducted on March 5, 2020.

Division Workshop on the Encoding and Uploading of Data/ Information Requirements for NSBI C.Y. 2019-2020 to the EBEIS held at the Mika Hotel, Tacloban City on March 8-9, 2020.