

Variations of Sorsogon Dialects as Mother Tongue-Based Medium of Instruction in Grade School Mathematics

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Abstract - *One of the salient features in the implementation of K to 12 curricula in the Philippines is the use of the Mother tongue or lingua franca of the area as the medium of instruction from kindergarten to Grade 3 which brought significant effects to the Mathematics classroom situation. Sorsogon province with fourteen municipalities and one city has several local languages that varies from district to municipalities.*

This descriptive-comparative study using survey-questionnaire and unstructured interview was conducted to describe, illustrate and compare dialects in the Province of Sorsogon as Mother Tongue-Based (MTB) medium of instruction in grade school Mathematics. A stratified sampling technique was utilized in determining the representative area for each of the identified four language varieties existing in the province such as Masbate Sorsogon dialect, Bikol Sorsogon, Waray Sorsogon, and Miraya Sorsogon dialect.

Findings revealed that variations in the mathematical terms of Sorsogon dialects within and between the representative areas include lexical and orthographical variations as used by the respondent grades 1 and 2 teachers of the identified four dialects. On the other hand, syntactic variations are visible in the mathematical statements as translated by the respondents in their own dialect. The difficulty of translating technical terms in mathematics and insufficient MTB-based instructional materials are the top problems met by the grade school teachers. A translation dictionary was developed as ready reference that could be validated and be utilized by the grade school teachers in the sample area of the study.

Keywords – *Variation, Sorsogon, Mother tongue, mathematics*

I. INTRODUCTION

The teaching of elementary school children is a difficult and demanding job. An elementary school

teacher's knowledge must be broad enough to teach language skills, reading and writing, mathematics and science; direct a child's social and moral development; and also encourage creative and artistic expression in a child. Swetz (2003) added that teaching is basically a process of communication and interaction. Although a teacher may use concrete materials to introduce a concept in a lesson, the teacher still remains the guide for learning, structuring the learning situations through the use of verbal suggestions, directions, questions, and encouragements.

Mathematics is one subject that pervades life in any circumstance and its value goes beyond the four corners of the classroom and the school. Therefore, it must be learned comprehensively and with much depth as a school subject. It is explicitly stated in the Department of Education (DepEd) K to 10 Mathematics Curriculum Guide (2011) that one way of achieving goals of mathematics is through organized and rigorous curriculum content and recognizing the different contexts of Filipino Learners.

One of the salient features in the implementation of K to 12 programs is the Mother Tongue-Based Multilingual Education (MTB-MLE) which was already implemented nationwide last SY 2012-2013. The lingua franca in the area shall be used as the medium of instruction from kindergarten to grade 3 (<http://mlephil.wordpress.com>). This scenario brought significant effect to the classroom situation in all subject areas particularly in mathematics subjects due to the changes in medium of instruction. Mathematical terms should be realigned with the dialects of the learners understandable to them.

The aforementioned paragraphs support the idea of the study that teacher's language affects the teaching – learning process. Teacher's verbal communication remains the primary means of instruction that influence student's capacity to learn. With the implementation of the Mother Tongue-Based Multilingual Education (MTB-MLE), the teacher must be knowledgeable of the

lingua franca used in a particular area enough to be able to impart the required skills and competencies in the subject area particularly in mathematics.

The MTB-MLE scheme was based on the principle that beginning pupils learn better if they have the confidence and the facility of the languages that they are familiar with, all systems went underway. The experimental study of Espada (2012) on the nature of language in teaching kindergarten mathematics revealed that pupils exposed to the Mother tongue proved to be superior when tested with skills in certain subjects including mathematics. It was concluded in her study that the most basic concepts and literary skills in mathematics can be taught best in the child's native language.

This could be strengthened by Edward Lee Thorndike's law of readiness of Association theory (or Stimulus-Response) which states that when an individual is prepared to respond or act, allowing him to do so is satisfying. Moreover, in the theory of provided by Abraham Maslow said that before an individual maximizes his great potential he first need to satisfy his basic needs so that, self actualization will follow gradually. Thus before teaching the students using another language, teacher should prepare students in introducing school subject gradually until reaching the familiarity of the subject technical terms.

Mother Tongue-Based Multilingual Education (MTB-MLE) is a curriculum and teaching methodology that enables learners to participate well in education through the use of their first language. Using the learner's first language will lead to a successful and meaningful learning and will bridge to the development of other basic skills; such as listening, counting, writing and reading utilizing the second languages. The first language of the learner therefore serves as a scaffold to the second language of the learner.

Consuelo (2012) further point out that with the preceding contentions about the importance of the first language there is a critical that a teacher must play to fill in this gap, to give meaningful lessons and to create materials to intervene in order to develop a particular skills. It must be within the learners' context.

The first paragraph of DepEd Order 74, series 2009 states that lessons and findings of various local initiatives and international studies in basic education have validated the superiority of the use of the learner's mother tongue or first language in improving the learning outcomes and promoting Education for All (EFA). Moreover, its paragraph four strengthened its claim through the results of the study of the Department

of Education in Region IV-B (MIMAROPA) entitled "Double Exposure in Mathematics: A Glimpse of Mother Tongue First" has provided the local validation of the fundamental observation that top performing countries in the Trends in International Mathematics and Science Study are those that teach and test students in science and math in their own languages.

The Philippines is indeed multilingual and this fact applies to its regions and provinces. The latter compose dialect areas which are sections of the country defined by distinct word usage and pronunciations bounded by isoglosses (Fromkin & Rodman 1997, p. 406) and delineated by language/dialect boundaries. As stated in DepEd Order No. 16, series 2012, Bikol is one of the twelve mother tongue languages offered as a learning area and utilized as a language of instruction and Sorsoganon language is one of the languages/dialects in Bicol region.

The Province of Sorsogon located at the southernmost tip of Bicol Peninsula and is divided into fourteen municipalities and one city. The local language spoken by Sorsogoneños varies from district to municipalities. To illustrate, people in Bacon, Prieto Diaz and Magallanes speak another form of Bikol. In Sorsogon town, Casiguran and Juban slightly different for some of the terms used are similar to hiligaynon as spoken in Masbate. Another form of dialects which uses terms and tones similar to the waray-waray of Samar Island are spoken in Barcelona, Gubat, Bulusan, Matnog, Irosin and Sta. Magdalena. The native people of Pilar and Donsol speak a dialect similar but not exactly alike to the "Miraya Bicol" spoken by the nearby towns of Camalig and Daraga in Albay province.

Mathematics from K to 10 is a skills subject with five content areas in the curriculum such as Numbers and Number Sense, Measurement, and Geometry commonly used in grade school mathematics with the integration of topics from Patterns and Algebra, and Probability and Statistics. Thus, this preliminary survey research focuses on variations of dialects for the five content areas of mathematics curriculum among the sample selected areas based from the identified local languages spoken in the province as input to the future instructional materials research outcome in their own dialect.

Palma (2009) mentions that the whole purpose of the materials is to initiate the students to the "real world" they are exposed. Instructional materials should include elements found in that world and are meant to help students understand and explain reality. The

inception of the MTB-MLE in the current K to 12 curriculum has been taken as a challenge by both the Department of Education (DepEd) and the Teacher Education Institutions (TEIs) not only in the province but in the country as a whole. Some of these challenges were the development, validation, and reproduction of the instructional materials which suits the needs of the school in the locality.

The apparent cause of the confusion among teachers and students alike appears to be that the appropriate information and implementation guidelines on both the K to 12 and MTB-MLE programs have not properly filtered down to those teachers out there in the field on whose shoulders rest the burden on implementing the ocean change in the basic education system. These are some of the observed experiences that cause problems of the teachers in the implementation of MTB-MLE in the country. Problems met in the implementation of MTB-MLE program in the province of Sorsogon is also part of this endeavor.

II. OBJECTIVES OF THE STUDY

The main purpose of this study is to describe, illustrate and compare dialects in the Province of Sorsogon as Mother Tongue-Based medium of instruction in grade school Mathematics. The study aimed to illustrate and compare variations of Mathematical terms and statements (in Sorsogon dialects) as MTB medium of instruction within and between the following area: Sorsogon Proper, Bacon, Gubat, and Donsol; to determine common problems met by the grade school teachers in the implementation of MTB-MLE in grade school mathematics subject in the identified areas; and to develop translation dictionary of Sorsogon dialects in mathematics.

III. MATERIALS AND METHODS

This study utilized a descriptive-comparative research design using survey questionnaire. Survey questionnaire includes the respondents profile, the equivalent dialect used in teaching of the list of common mathematical terms, and the problems met in the implementation of MTB-MLE. Vocabulary and translation table was used in comparing and describing variations of Sorsogon dialects as mother tongue-based medium of instruction in grade school mathematics.

A stratified sampling technique was used in the study in determining the area that represents each of the identified four existing language varieties in the province. Bacon was selected to represent the local Bikol language and Sorsogon City Proper to represent the local Masbate Sorsogon language. The municipality

of Gubat was selected to represent the local Bisakol (Waray Sorsogon) language, and Donsol to represent the local Miraya (similar to Daraga, Albay) language. The respondents of the study from each selected area are the forty grades 1 and 2 experienced teachers, age ranges from late 20s to early 60s of the Department of Education.

The location of the school was also considered in the selection of the teacher respondents. There were teacher representatives from both the Central and non-central school in each selected areas to determine the variations of mathematical terms in Sorsogon dialect as used in teaching within and between the sample area.

Data gathered were validated through the conduct of the unstructured interview using the same instrument in the locality where the sample school in the area is located. Informants born in the area at least 50 years of age and a resident of at least 10 years who can give and translate accurately the mathematical terms in their own dialect were considered in validating the translation of grades 1 and 2 teachers.

IV. RESULTS AND DISCUSSIONS

Table 1 illustrates the variations of mathematical terms of Sorsogon dialects as Mother Tongue-Based (MTB) medium of instruction in elementary schools. The table includes common mathematical terms in numbers and number sense which includes terms for counting, operations and relations, and ordinal numbers; geometry; measurements; and patterns and algebra with variations within and between the sample area such as in Sorsogon Proper (Central Sorsogon) which represents the Masbate Sorsogon dialect, Bacon which represents the standard Bikol dialect, Municipality of Gubat which represents the Waray Sorsogon dialect, and in Municipality of Donsol which represent the Miraya Sorsogon dialect.

The variations of Sorsogon dialects within the area include the orthographical and lexical variations such as *sayu* or *sayo* equivalent terms of “one” in Gubat, and *mas itu sa* or *mas saday sa* equivalent term of “is less than” in Donsol. These variations could be also observed explicitly between the sampled areas though there are similarities in the mathematical terms of the Sorsogon dialects. These similarities could be illustrated by the numbers and number sense terms such as ninety which is *nubenta* or *nobenta*, addition which is *pagdagdag*, subtraction which is *pagbawas*, first which is *primero*; line in geometry term which is *linya*, in measurement terms like week which is *semana*, and

small which is *saday* are some of the common terms of Sorsogon dialects from the four sample areas.

Table 1. Variations of Mathematical Terms of Sorsoganon Dialects as MTB Medium of Instruction in Elementary Schools

| Mathematical Terms | Sorsogon Proper | Bacon | Gubat | Donsol |
|-------------------------|-----------------------------|-----------------------------|--------------------------------|------------------------------|
| One | Saro, isad | Saro | Sayo, sayu | Usad, saro |
| Four | Upat, apat | Apat | Upat | Upat, opat |
| Six | Unom, anom | Anom | Unom, onom | Unom, onom |
| Ten | Sampulo, napulo | Sampulo | Napulo, napolo | Sampulo, sampolo |
| Ninety | Nubenta, nobenta | Nubenta, nobenta | Nubenta, nobenta | Nobenta |
| One-half | Katunga | Kabanga | Katunga | Kabanga |
| Minus (-) | Bawas(an), iban(an) | Inaan, halian | Bawas(an), iban(an) | Salinan, ali-an, bawas(an) |
| Divided by (\div) | Tungaon sa | Bangaon sa, hirirason | Barahinon sa, binarahen sa | Pigbaranga sa, bangaon sa |
| Addition | Pagdagdag | Pagdagdag, pagbiriyo | Pagdagdag | Pagdagdag, pagbiriyo |
| Subtraction | Pagbawas, pag-iban | Pagbawas | Pag-iban, pagbawas | Pagsalin, pagbawas |
| Division | Pagtu(ru)nga, Pagbaranga | Pagbaranga | Pagbarahin, pagturunga | Pagbaranga, pagpaparte |
| Is less than ($<$) | Mas diyot sa, mas saday sa | Mas diit sa | Mas diyo sa | Mas itu sa, mas saday sa |
| Is greater than ($>$) | Mas damu sa | Mas dakul sa, mas dakula sa | Mas daghan sa | Mas dakol sa, mas dakula sa, |
| First | Una, primero | Inot, enot, primero | Una, primero | Una, primero |
| Last | Urhi, ultimo | Hudyan | Urhi, durho | Uryan |
| Shape | Korte | Korte, hugis | Korte, porma | Hugis |
| Size | Kadakuan | Kadakulaan, sukol, lakbang | Kadako | Kadakulaan, Sukol |
| Line | Linya, Kurit | Linya | Linya, gurit | Linya |
| Day | Adlaw | Aldaw | Adlaw | Aldaw |
| Week | Semana, simana | Semana | Semana | Semana, simana |
| Heavy | Magub-at, mabug-at | Magabat, magubat, magub-at | Magub-at | Mabûgat |
| Light | Magian, magaan | Magian | Magian | Magaan |
| Long | Halaba | Halaba | Halaba | Alaba, halabâ |
| Short | Halip-ot, halipot | Halip-ot, halipot | Halip-ot | Alipot |
| Big | Daku, dako | Dakula | Dako | Dakûla |
| Small | Saday | Saday | Saday | Saday, sadiyot |
| Arrange | Ayuson, bisayon, hingayadon | Pakarhayon, ayuson | Hingaydon, Hingayadon, bisayon | Usayon, isayos |
| Increasing | Padamu | Padakul, pahalangkaw | Padaghan, padako | Padakûl |
| Decreasing | Padiyot | Padiit, pababa | Padiyo, pababa | Pa-itu |

Some mathematical terms in Sorsogon dialect are common to the two or three sampled area but different from the other two or one sampled area. This could be illustrated by the terms such as four which is *upat* in Sorsogon Proper, Gubat, and Donsol but *apat* in Bacon, ten which is *sampulo* in Sorsogon Proper, Bacon, and Donsol but *napulo* in Gubat or in Sorsogon Proper, day which is *adlaw* in both Sorsogon Proper and Gubat but

aldaw in Bacon and Donsol, light which is *magian* in Sorsogon (Proper), Bacon, and Gubat but *magaan* in Donsol, long which is *halaba* in Sorsogon Proper, Bacon, and Gubat but *alaba* in Donsol, short which is *halip-ot* in Sorsogon Proper, Bacon, and Gubat but *alipot* in Donsol, big which is *dako* in both Sorsogon Proper and Gubat but *dakula* in both Bacon and Donsol, and among others.

Table 2. Variations of Mathematical Statements in Sorsoganon Dialects as MTB Medium of Instruction in Elementary Schools

| Mathematical Statements | Area | Equivalent MTB- Statements | |
|--|-----------------|--|---|
| | | Most Frequent Translation | Other Forms of Translation |
| Seven minus four. | Sorsogon Proper | An pito bawasan nin upat. | An pito bawasan sin apat. Pito ibanan sin upat. |
| | Bacon | An pito inaan ki apat. | An pito hinalian ki apat. Pito bawasan ki apat. |
| | Gubat | An pito ibanan sin upat. | Pito bawasan upat. An pito bawasan sin upat. |
| | Donsol | An pito salinan nin upat. | An pito bawasan nin upat. Pito alinon so opat. |
| Seven is less than twelve. | Sorsogon Proper | An pito mas diyot kaysa dose. | An pito mas diyot kisa dose. An pito mas diyot sa dose. |
| | Bacon | An pito mas diit sa dose. | An pito mas diit kisa dose. |
| | Gubat | An pito mas diyo kaysa dose. | Mas diyo an pito sa dose. |
| | Donsol | Mas itu an pito sa dose. | An pito mas itu sa dose. Pito itu kaysa dose. |
| How many hours are there in one day? | Sorsogon Proper | Pirang oras igwa sa isad na adlaw? | Pirang oras igwa sa sarong adlaw? Pira na oras an isad na adlaw? |
| | Bacon | Pirang oras igwa sa sarong aldaw? | Pirang oras an sarong aldaw? |
| | Gubat | Pira ka-oras may-on sa sayo ka-adlaw? | Pira na oras an sayo na adlaw? |
| | Donsol | Pirang oras yaon sa usad na aldaw? | Pirang oras an usad na aldaw? |
| Teddy is heavier than Michael. | Sorsogon Proper | Si Teddy mas magub-at kaysa kay Michael. | Mas magub-at si Teddy kaysa kan Michael. |
| | Bacon | Si Teddy mas magabat kaysa kay Michael. | Mas magabat si Teddy kaysa kay Michael. |
| | Gubat | Si Teddy mas magub-at kaysa kan Michael. | Mas magub-at si Teddy kan Michael. |
| | Donsol | Si Teddy mas magubat kaysa kay Michael. | Mas magubat si Teddy kaysa kay Michael. |
| Arrange the numbers in increasing order. | Sorsogon Proper | Ayuson an mga numero sin padamu. | Hingayadon an mga numero sin padamu. Bisayon an mga numero sin padamu. |
| | Bacon | Pakarhayon an mga numero padakul. | Ayuson an mga numero pahalangkaw. |
| | Gubat | Hingaydon an mga numero padaghan. | Bisayon an mga numero padaghan. Hingaydon an mga numero padako. |
| | Donsol | Usayon an mga numero padakul. | Ayuson an mg numero padakol. |

It can also be noted in the table the distinct terms (lexical variations) used by the teachers among the four sampled area such as one which is *isad* or *saro* in Sorsogon Proper, *saro* in Bacon, *sayo* in Gubat, and *usad* or *saro* in Donsol; is less than (<) which is *mas diyot sa* in Sorsogon Proper, *mas diit sa* in Bacon, *mas diyo sa* in Gubat, and *mas itu sa* in Donsol; the ordinal number last which is *urhi* or *ultimo* in Sorsogon Proper, *hudyon* in Bacon, *urhi* in Gubat, and *uryon* in Donsol; arrange which is *ayuson* or *bisayon* in Sorsogon Proper, *pakaryahon* or *ayuson* in Bacon, *hingaydon* or *bisayon*

in Gubat, and *usayon* or *isayos* in Donsol, among others.

It could be also observed from table the Spanish influence in the Sorsoganon dialect in all the sampled area such as *nubenta* or *nobenta* (ninety), *semana* (week), and *primero* (first) which are all common terms to Sorsogon Proper, Bacon, Gubat, and Donsol. These results of variations of Sorsogon dialects within or between the sample area illustrates that there is a need to standardized the spelling (orthography) of these mathematical terms in Sorsoganon dialects for utilization in the classroom. The standardization of the

orthography of Sorsoganon mathematical terms could be also the bases of the development of mother tongue-based instructional materials for grade school mathematics.

Table 2 highlights the variations of mathematical statements in Sorsoganon dialects as Mother Tongue-Based medium of instruction in elementary schools. It includes sample of common mathematical statements in the content areas of the subject such as number and number sense, measurements, and patterns and algebra translated in the dialects of the sampled area of the study such as in Sorsogon (Proper), Bacon, Gubat, and Donsol.

The table reveals the syntactic differences as variation within and between the sample area of the mathematical statements when translated by the grades 1 and 2 teachers in the mother tongue or first language of the learners (L1). It also reveals all the possible translation of the mathematical statements made by

teachers categorized into the most frequent translation and other forms of their translation. To illustrate, let us take the mathematical statement “Seven is less than twelve” as an example that when translated to dialect of Sorsogon Proper it was translated most frequently by the teachers as *An pito mas diyot kaysa dose* but some teachers translated it as *An pito mas diyot kisa dose* or *An pito mas diyot sa dose* with little variations in the word *kaysa*, *kisa*, or *sa* use in comparing the two numbers. It can also be noted from the table that there are mathematical statements when translated to Sorsogon dialect, it is common to two or three sampled area of the study.

Table 3 shows the common problems met by the grades 1 and 2 teachers of Sorsogon Province in the implementation of the MTB-MLE as medium of instruction in Mathematics.

Table 3. Common Problems Met by the Grade School Teachers in the Implementation of MTB-MLE in Mathematics Subject in the Identified Area ($n=40$)

| | PROBLEMS MET | f | RANK |
|----|---|----------|-------------|
| 1. | There are MTB-MLE teachers (for grades 1 and 2) who are not resident of the area. | 11 | 8 |
| 2. | Unfamiliarity of the local terms/ languages for MTB-MLE teaching for grade school. | 20 | 3.5 |
| 3. | Insufficient trainings for teachers teaching grade school children in MTB-MLE. | 14 | 7 |
| 4. | Lack/ insufficient MTB-based teaching/ instructional materials for grade school. | 30 | 2 |
| 5. | Grade school children within the area have different language orientation/ mother tongue (lingua franca), mixed linguistic context. | 18 | 6 |
| 6. | There are technical terms in mathematics that cannot be/ should not be translated in their dialect for teaching the subject. | 32 | 1 |
| 7. | MLE classroom assessment practices vary from school to school and thus different from the standard tests: division, regional, national. | 20 | 3.5 |
| 8. | There are confusions among the grade school children | 19 | 5 |

The table reveals that among the eight common problems identified, the number one problem met by teachers in the implementation of the MTB-MLE in mathematics is that some technical terms in the subject cannot be or should not be translated in their dialect for teaching the subject which was identified by 32 out of 40 respondents from the sampled area. This could be strengthened by the comment of some grade one teachers from Donsol that counting numbers using their own dialect is difficult, they find difficulty in writing number words because some local terms are Spanish words and it is hard for some of the pupils who are trained by the parents to use counting numbers in English terms to translate them in Bicol Donsol.

This problem supports the fact that mathematical terms are very technical that when translated to their own dialect it will appear ambiguous for both the learners and teachers. Though it is a problem but the teachers affirmed the fact that the use of MTB in teaching is more effective because based from their observation during its implementation grades one and two pupils are more participative in the teaching learning process, they are given a bigger chance to express themselves. The grade school teacher respondents convey that the MTB approach is more effective when it is use as a medium of instruction in teaching mathematics for elaboration and explanation of the concepts. It is of great help especially in lower sections where the pupils can easily understand the

concepts because the medium of instruction is their own dialect. This fact could be supported by the experimental study of Espada (2012) which revealed that pupils exposed to the Mother tongue proved to be superior when tested with skills in mathematics.

The ranked two common problems met which was identified by 30 out of 40 grades 1 and 2 teacher respondents was the lack or insufficient MTB-based teaching/ instructional materials for the subject. This was the feedback especially of the grade 1 teachers in the sampled area that until now they don't have enough textbooks, what they do is they are the one who is providing the information or instruction aligned to the competencies reflected in the curriculum guide. This scenario is visible especially in Donsol and Gubat where 100% of the teacher respondents said that this is their top problem. The teaching of the subject become more difficult for them because aside from the fact that there is limited teaching guide and learner's material they tend to translate the material in their own dialect since the provided material is written in the regional dialect which is Bicol Naga. This means that there is really a need to developed and reproduce instructional materials using the dialect of the locality (the lingua franca) understandable by the learners.

These two aforementioned top problems was followed by unfamiliarity of the teachers of the local mathematical terms/languages for MTB-MLE teaching in grade school, and MLE classroom assessment practices vary from school to school different from the standard test such as division, regional, and national level. In relation to this, teachers claimed that there is confusion on the part of the pupils when it comes to giving of test or examination because it is formulated using English language as a medium.

Thus, teachers need to undergo more training that will give inputs on how to used the first language in teaching and learning process as well as in assessment of learning and how to effectively use it inside the classroom. This claim could be further expounded by Consuelo (2012) who point out the importance of the first language where there is a critical that a teacher must play to fill in this gap, to give meaningful lessons and to create materials to intervene in order to develop a particular skills. The abstract concepts taught in the subject would be able to figure out its meaning using the languages understandable to them.

It is also reflected in the table that the least problem met by the teachers is the localization of teachers which means most of the teachers in the school are actually resident of the area which can be supported by the

result. It is important that MTB-MLE teachers in the school should be a bonafide resident of the area. This only show that the elementary schools are progressively implementing the rule of localization since the Department of Education is implementing the Mother Tongue - Based Multi- Lingual Education (MTB-MLE) as stated in the Enhanced Basic Education Act of 2013.

Based from the findings of the study on the variations of Sorsoganon dialects as Mother Tongue – Based medium of instruction in teaching mathematics for grade school mathematics supports the fact that there is a need to develop a translation dictionary for each sampled area of the study. Some of the variations discovered in the investigation are the orthographical, lexical, and syntactic variations of the dialects not only between the sampled areas but also within the area. This implies that the medium of the instructional materials to be developed for each area should be aligned with the dialect (lingua franca) used in the locale.

The developed translation dictionary booklet of mathematical terms in Sorsoganon dialect will serve as ready reference for the teachers teaching mathematics for grades 1 and 2. This could be used as a reference of those who are developing mother tongue-based instructional materials for grade school mathematics using the identified four dialects in the province. It includes common mathematical terms used in Grades 1 and 2 covering the five content areas of the K to 12 curricula such as Numbers and Number Sense, Measurements, Geometry, Patterns and Algebra, and Statistics.

Its translation was based from the responses of the teacher respondents of the study as used in their teaching of Mother Tongue-Based (MTB) Mathematics which is the first language (L1) of their students in the respective area. Thus, a translation in this booklet is subject for further validation and verification.

V. CONCLUSIONS AND RECOMMENDATIONS

The variation of mathematical terms in Sorsoganon dialects includes the orthographical and lexical variations within and between the sample areas as used by teachers. Syntactic variations are visible in mathematical statements among the four existing dialects of Sorsogon. The difficulty of translating technical terms in mathematics and insufficient MTB-based instructional materials are the top problems met by the grades school teachers. There is a need to develop translation dictionary for mathematics in each major area of Sorsogon Province.

It is recommended that the teachers teaching MTB-MLE in grade school must be a bonafide resident of the area. Teachers need to undergo more training that may give inputs on how to effectively use the first language of the learners in the teaching and learning process. Teachers and instructional developers may go hand in hand in the development and validation of the localized MTB-based instructional materials for grade school mathematics. The developed translation dictionary may be validated and be utilized as reference by the grade school teachers in the sample area.

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