

Waray Language Medium of Instruction in Primary Grade Mathematics

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Abstract: *This qualitative study utilized descriptive phenomenological approach. It aimed to investigate the lived experiences of the primary grade teachers teaching grade 1 to grade 3 in mathematics subject using waray (mother tongue) language as a medium of instructions. Participants are primary grade teachers teaching mathematics in Catbalogan 2 districts, for the school year 2017 - 2018; semi-structured, face-to-face interviews and observation were the instruments used in the data gathering. From the data analyses, three major themed emerged: (1) it is easier to teach mathematics using waray (mother tongue) language ; (2) Waraylanguage of instruction make the lessons or discussion more interactive and students centered (3) Challenges encountered by the primary grade teachers in mathematics using waray language. In the challenges encountered by the teachers threesub themes was emerged that is; Difficulty in teaching numbers and shapes, In adequacy of instructional materials and evaluation test is not written in waray language. This study concluded that waray language can be used in teaching mathematics.*

Keywords: Waraylanguage, medium of instruction, mother tongue, mathematics

Date of Submission: 02-08-2018

Date of acceptance: 18-08-2018

I. Introduction:

Language is the key to communication. It can provide bridges to new opportunities, or build barriers to equality. It connects, and disconnects. It creates unity, and can cause conflict. Language is many things, but it is rarely simple.

The role of language in mathematics education has occupied the minds of most mathematics educators in recent years. Studies have shown that there is a significant relationship between language used and mathematics learning (Austin & Howson, 1979; Pimm, 1987; Cocking & Mestre, 1988; Durkin, 1991; Clarkson, 1992; Adler, 2001) as cited by Kaphesi, 2003. Many problems that learners of mathematics encounter are partly due to inability to cope with the demands of the language of instruction, which is partly due to the overall language policy in education.

The interest in the relationship between language and learning in general is not new. Some theorists (e.g., Whorf, 1956) have suggested that language determines and defines thought. Others (e.g., Piaget, 1926, 1952; Vygotsky, 1962) have tended to accept only a limited effect of language on thought, stressing the role of prior cognitive learning in language development and the shifting meanings of words as concepts continue to develop. Although researchers have long recognized the vital role that language plays in mathematics performance (Aiken 1971), they have not always acknowledged its equally important role in the process of acquiring mathematical concepts and skills.

Researchers believe that two-thirds of the world's children grow up in a context where more than one language is spoken. Multilingualism is not a problem, but a reality that can be a resource. Sadly, however, when many children start school, they are forced to abandon their first language and try, often unsuccessfully, to learn in a language they barely understand. (4th International Conference on Language and Education, 'Multilingual Education for All in Asia and the Pacific: Policies, Practices and Processes', held in Bangkok, Thailand in November 2013)

In international math competitions, the high performing countries are those that allow their students to use their home language (Azurin, 2010:5). A corpus of recent studies and literature (Bernardo, 1999; 2001; Dekker, D., 1999; 2003; 2010; Baguingan, 2000; Arzadon, 2010; Azurin, 2010; Limjap, 1999; Reyes, 2000; Luz, 2010; Nolasco, 2010; Licuanan, 2010) would support the idea that the use of the first language creates a smoother path for the young learner to understand and acquire basic math concepts, knowledge and skills.

In the Philippines, 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 under section 4: Enhance basic education program, basic education should be delivered in languages understood by the learners as the language plays a strategic role in shaping the formative years of learners. For kindergarten

and the first (3) years of elementary education, instruction, teaching materials and assessment shall be in the regional or native language of the learners. (<http://www.officialgazette.gov.ph/2013/05/15/republic-act-no-10533>)

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 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, Waray is one of the nineteen (19) mother tongue languages offered as a learning area and utilized as a language of instruction in Samar and some part in Leyte province.

Oyzon VQ, et al. (2014) in their study "Teaching Geometrical Figures in Waray" the use of indigenous Waray concepts in teaching geometrical figures is as effective as the use of borrowed terms in English and other languages. The results prove that Waray indigenous concept can be utilized in teaching science and mathematics.

Espada, J. (2012) in her study entitled "The Native Language in Teaching Kindergarten Mathematics", the result of the study implies that the kindergarten pupils exposed to the native language performed better in mathematics than those who were exposed to English. The study concludes that the use of the native language in teaching kindergarten mathematics results in a higher mathematics performance than the use of a foreign language as a medium of instruction.

Up to this date, no research had been conducted to explore the primary grade school teachers lived experiences in teaching waray as a medium of instruction in primary grade mathematics subjects.

Objective of the study

The main objective of the study can be answered on the following questions:

1. What is the prepared language of instruction in teaching mathematics of the primary grade teacher in Catbalogan 2 district?
2. What are the challenges encountered by the teacher in teaching math using warayas a medium of instruction in primary grade mathematics?

II. Methodology

Research Design

This qualitative study utilized descriptive phenomenological approach. It aimed to investigate the lived experience of the primary grade teachers teaching grade 1 to grade 3 in mathematics subject using waray language. Qualitative research study according to Mills and Birks (2014) "aimed to examine phenomena that impact on the lived reality of individuals or groups in a particular cultural or social context." Phenomenology aimed to accurately describe the phenomenon without a pre-existing knowledge to a framework, but remaining truth to the facts (Groenewald, 2004). According to Creswell (2007) phenomenological studies examined human experiences through the detailed descriptions of the participants. This method involves studying a small number of participants through extensive and prolonged engagement to develop patterns and relationships of meaning. More so, using a qualitative research, the researcher would be able to connect with their participants and to see the world from their viewpoints (Corbin & Strauss, 2015). The researcher found this method most applicable to the inquiry in order to provide a comprehensive analysis on the lived experiences of the primary grade teachers of Catbalogan 2 teaching mathematics subject grade 1 to grade 3 using waray language.

Participants

Participants of the study were identified using purposive sampling. Using purposive sampling, the researcher can choose their participants that will be fit for the study (Dever & Frankel, 2000). Twenty two (22) primary teacher teaching grade 1 to grade 3 mathematics of Catbalogan 2 district participated in the study. Participants are primary grade school teachers teaching mathematics in grade 1 to grade 3 using waray as a language of instructions as mandated by the Department of Education (DepEd) through the implementation of the k to 12 curriculum.

III. Data Collection

In gathering the pertinent data for the study, the researcher used semi-structured, face-to-face interviews which was conducted using a pre-prepared interview guide. Participants were encouraged to talk freely and to tell their stories using their own words. Each interview lasted from 45 minutes to one-hour and all

of them were conducted by the researcher. (Wimpenny and Gass, 2000; Coalizzi, 1978, and Creswell, 1994). The role of the researcher's is to act as facilitator and let the informants to talk freely. This type of interview was the most familiar strategy in collecting qualitative data (Bloom & Crabtree, 2006), which helped the researcher to obtain all the necessary information needed and to allow the researchers to asked follow-up questions for clarification. The content of the interview guide were validated through a pilot testing conducted in Catbalogan 1 Elementary School prior to the actual conduct of the study by three professionals who were expert in the field of Mathematics and teaching primary grades using waray language as a medium of instruction in teaching mathematics. The researcher also provided an agreement that included obtaining informed consent, ensured confidentiality, time and place commitments, and permission to record and publish, delineating the ethical principles of research. As to data storing methods, the researcher used note taking and dialogic form interview to reach deeper the responses of the respondents. The level of data saturation was determined by the researcher. In eventual, the transcripts were double-checked by the independent researcher who has experience in qualitative research.

IV. Data Analysis

The following steps represent Colaizzi process for phenomenological data analysis (cited in Sanders, 2003; Speziale & Carpenter, 2007) this was used in this study. 1. Each transcript should be read and re-read in order to obtain a general sense about the whole content. 2. For each transcript, significant statements that pertain to the phenomenon under study should be extracted. These statements must be recorded on a separate sheet noting their pages and lines numbers. 3. Meanings should be formulated from these significant statements. 4. The formulated meanings should be sorted into categories, clusters of themes, and themes. 5. The findings of the study should be integrated into an exhaustive description of the phenomenon under study. 6. The fundamental structure of the phenomenon should be described. 7. Finally, validation of the findings should be sought from the research participants to compare the researcher's descriptive results with their experiences.

Data analysis was done through hand-coding analysis due to unavailability of qualitative data analysis software. Hand-coding analysis involves a read and re-read methods, categorizing and coding similar response in order to generate themes. In phenomenology, the steps for data analysis are less structured and more open to alternative procedures (Creswell, 1994). Dukes (1984) as mentioned by Creswell (1994) suggested that in phenomenological analysis, one look for —structural invariants of a particular type of experience—the patterns—and then submit the patterns to a different researcher for confirmation. Through hand-coding analysis the lived experiences of the primary grade school teachers teaching mathematics were uncovered and the findings are presented through thematic approach.

Uncovering the meaning and essences in the lived experiences of the primary grade school teachers teaching mathematics was the ultimate product of this phenomenological study. Moreover, the analysis of data provides rich, in depth, descriptive and interpretive information that promotes greater understanding of a particular phenomenon. Findings of this study provide information for future interventions, policies, and serve as baseline to generate further research and enhance theory development towards teaching and learning process.

V. Results and Discussions

Based on the information collected from the teachers from the researcher observations and interviews with the teachers three themes were generated and used to explicitly uncover the lived experiences of the teachers. The following themes are as follows: (1) It easier to teach math using waray language (2) Waray language of instruction make the lessons or discussion more interactive and easier to students (3) The challenges encountered by the primary grade teachers in teaching mathematics using warayas a medium of instruction.

It easier to teach math using (mother tongue) waray language

During interview with the teachers', they were ask their experiences in teaching mathematics using waray language, their personal perceptions and feelings being a primary school teacher teaching mathematics using mother tongue or waray language as a medium of instructions as mandated of the k to 12 curriculum. Almost all of the participants feel happy and satisfied of being a teacher teaching mathematics using the waray language. According to their responses on the interview, teaching math become easier for the teacher because the students can easily understood the lessons and discussions during the math classes for the reason that the language of instructions that primary teacher used is already known and the students understood and pupils participate actively in the discussions. Unlike if the language of instruction is in English that most of the students don't understand the teacher need to interpret the lessons to the students so that it will be appropriate to the student.

The teachers agree that the use of mother tongue or waray in Mathematics is effective in bridging processes, in explaining the concepts to the pupils and in facilitating discussions, and during group activities.

This positive experiences of the teacher are illustrated in the following statements:

1. "It is easier to teach math in waray because the students easily learn the lessons, it is easier to give examples because the students understand the teachers language of instructions because the language used in teaching is the familiar language used at home"
2. "For me, it is better to teach now using waray language as medium of instruction compared before that I am using English because it is easier to the children or pupils to understand in their lessons, they are attentive, they listen to the discussion because they can understand, it is effortless for me and I am happy because it's not difficult to explain things because they already know what I am talking about".

Waray language of instruction make the lessons or discussion more interactive and studentscentered.

The participants also shared their positive experiences with regards to the students' attitudes towards the usage of waray language in teaching mathematics as a medium of instruction. Almost all of the participants also responded that because the students understand the discussion in the class the students interact with the lessons of their teachers, the students have the confident to answer and give their own examples to the lessons because per observation of the teacher participant they encounter the words the teacher used in their daily live even in their home so the students did not hesitate to give what they think and learn because they speak up through their own words and understanding using their home language thewaray. The lessons become free flowing and it became a student centeredlessons using the new method of teaching employed by the teacher because the students can comprehend what to do because they understand the lesson and they can express it by using their own language the waray so the rule of the teacher is just a facilitator for the teaching and learning activity.

The pupils enjoy doing the activities and solving the problems, they became cooperative, learning is noticeable. Pupils are eager to participate in class discussions. Most of the teachers responded that they observe that even slow learners understand mathematics concepts easily when explained in waray.

One participant was cited "At first, I hesitate to use waray language in teaching my math class because I am worried about how mathematical concepts and terminologies could be translated to waray However, this concern of mine was negated because I observed that my students are actively participated in the class compared before that I am using English as the medium of instruction, I noticed that the children became more confident in conceiving and explaining content, and more articulate in expressing their ideas. I experienced that using the waray language enables learner to immediately construct ideas, explain without fear of making mistakes, and add new concepts to those they already know'. The positive testimony of a teacher in Grade 3 for 17 years from Barangay IbolCalbalogan City.

Another participants response as cited "Teacher Nemia, a Grade 3 math teacher of 12 years in barangay GuinsurunganCatbalogan City, had the same apprehensions.

Participant 3: "It was a very unwelcome idea to use the waray in teaching mathematics. It seemed difficult. I also thought of the extra effort I might need to exert in using terms that would match the exact translation of mathematical terms in waray". "However, when we started teaching in the waray or the mother, we were surprised by how effective it was. The pupils were more attentive in class discussion. They are also able to explain their answers well when responding to questions. Furthermore, it makes them more confident to converse," added Teacher Nemia.

This is also confirmed from the observation conducted by the researchers, that is, it was evident that all the learners were very participative in the discussion.

This result was also confirm by the testimony of a Pilipino parent as cited;

"Since MTB-MLE (mother tongue language) came to our community, most of the children in Grade 1 are now very participative in the class. They now easily understand the words they read because it's all written in our language. ... They are not afraid of being called on by their teacher because they are so confident that they can give the correct answer by using our language." (4th International Conference on Language and Education, 'Multilingual Education for All in Asia and the Pacific: Policies, Practices and Processes', held in Bangkok, Thailand in November 2013.)

This finding suggests that in using a language the pupil understood well, the Waray language the pupil was able to gain superior mathematics literacy faster than using the foreign language (English). Wong and Snow (2000: 5) found that children develop oral proficiency first in their native language which functions as foundation for literacy and means of learning in school. Using their home language in interacting with math, the pupils may have understood the concepts without much effort. This confirms the notion that "as competency in a language increases, deductive reasoning skills in mathematics also increases" (Baker, 1996, in Dekker, 2003:45).

Challenges encountered by the primary grade teachers in mathematics using waray language.

Contrary to the positive experiences of the teacher in using waray as a medium of instructions in mathematics in teaching there are also challenges they encounter in teaching mathematics this are; a.) Difficulty in teaching numbers and shapes, b.) In adequacy of instructional materials written in waray language and c.) evaluation tool instruments for the student's performance are not in mother tongue or waray during the divisions, regional and even national test.

Instructional materials are the basic channel of communication in the classroom for the purpose of bringing about effective teaching and learning.

Sub – theme A: Difficulty in teaching numbers and shapes

Based on the analyses of data from the participants responses on their lived experiences in teaching mathematics using waray (mother tongue) one theme that emerged is the difficulty in teaching numbers and shapes because most often pupils are though in numbers and shapes at home in English so when these students enter in school what they know about numbers are in English language rather than in waraylanguage. Even in the market this numbers and shapes are used using English language pupils become confused because of the language used in the classroom with regards to the terms used and in some cases this resulted to pupils' loss of interest due to language confusion.

Another reasons in this challenge in the difficulty in teaching shapes in waray because there is no exact translation of shapes in waray so the teacher are usually instead of teaching this concept in waray, it is discussed in English the pupils' familiarity with math terms is greater in English than in waray.

As mentioned by the participant;

Participant 11: "Makurikay ha irabalaygintutduanhirahan number ha English pag – abot ha school tututduanlugodhirahinwaray – waraynga math so nagkakaadahirapagkalipong kun anogud it irasusundon. ("It so hard because the pupils' are taught at home in English but when they go to school they taught in waray so the pupils' became confused on what they should be followed")

Participant 8:

"Oomakurihiyakay ha merkadoliatkasagaran it iraliwatginagamit may English ghablabikundagkonanganumero,labina an mgageometric figures ky English gud. Sugad hit usa la liboito ha waray or mil, ha English 1,000, an iba pa ngakantidadanshapes namansugadhantriangle ky ha waraykaykalasagman itodire man itoginagamitpirme ha balayngan ha merkadokay triangle man gudito, waray man hiya usually translation ha waray – warayso makurihiyalawat" (Yes, it hard because even in the market English was even used in determining the amount especially if the amount is already big like 1,000 and more, with regards to the shapes must commonly English terms is used like the triangle not in waray – waray.)

According to the study of Oyzon VQ, et al.(2014) "Teaching Geometrical Figures in Waray: The LNU-ILS Experience" Waray children are "unconsciously shifting from their mother language to English and/or Tagalog in their vocabulary use". English vocabularies are more familiar to Warayeducands of today than are the indigenous Waray terms, for instance, for geometrical figures, colors, numbers, et.

Sub - theme B. In adequacy of instructional materials written in waray language

The teachers view to the importance of the instructional materials in teaching mathematics. They believe that the instructional resources in teaching and learning make students learn more and retain better what they have been taught and that these instructional resources also promote and sustain students' interest. These resources also allow the learners to discover themselves and their abilities.

As mentioned by the participants:

Participant 6: "I use improvised materials like stories, songs, poems, and charts written in waray – waray like the song for counting numbers I translate it to waray.";

Participant 19: "My old Teacher-made IMs and big books written in English language I translated in waray so that I have my instructional materials for the student because as of now after five years of the implementation of the k to 12 in our district their non yet a text book which was written in waray there are IMs loaded from the Internet from the national but it is not in waray, it is written in talalog so the same I translate it to waray."

From the given responses of the participants, the materials are written in the learners' native languages to motivate students and for the learners to participate.

The responses paralleled the statement of Hall, (2010) as cited by Dekker, et al., (2008), that is, no teacher can teach effectively without appropriate materials that are based on two components: established government curriculum goals and pupil's prior knowledge, culture, and value systems. With few books available for most of the 170 languages of the Philippines, materials development appears a daunting task (Dekker, et al., 2008). Books are one of the most needed materials in the learning process of the pupils. Teaching and learning cannot be effective without adequate and relevant use of instructional materials (Grant, 1978 as cited by Sunday

& Joshua, 2010). One of the respondents emphasized that in order to effectively implement MTB-MLE, curriculum should be updated and textbooks and teaching materials should be made available in advance.

Sub - theme C: Assessment test/ Evaluation test not written in waray.

Another challenging experience of the teachers participants in using waray as a medium of instruction in teaching mathematics in the primary grade is in the assessment of the students in their performance because the assessment tool provided by the DepEd is sometimes not in the mother tongue language or the waray language, the students cannot understand the content of the test therefore they cannot answer, this often time the problem of the teacher specially if their student will joined the division contests and the like.

As stated by the participants

Participant 4: "Even the student learn better the lessons in their classrooms but the evaluation process used is not appropriate to the students for the reason that the language used in the construction of the test was not in waray - waray the students cannot answer correctly and it so sad because the interpretation of the people the students did not know mathematics"

Participant 21: "We prefer that the pupils in the primary grade will be evaluated by the mother tongue or waray since the language used in the classrooms is in waray".

VI. Conclusion

This study successfully provides a description of the lived experiences of the primary grade school teacher in teaching mathematics using waray as a medium of instructions. Primary grade teacher participants experienced favourable or positive experiences in teaching mathematics using waray language as a medium of instruction because their work become more easier in the sense that the students can easily understood the lesson, more attentive and cooperative to the teaching and learning process because the students has the confidence to express their thought and acquired skills by using their home language the waray which lead to a better performance in mathematics of the students. Although there are positive experiences there are also unfavourable experiences like the challenges and this is; of the lack of teaching materials written in the waray language such as text books and in the evaluation instruments that can help the primary grade school teacher in the implementation of the mandate of the k to 12 teaching using the mother tongue or the waray language in teaching mathematics. This study concluded based on the data analyses on the teachers lived experiences in teaching mathematics using waray language that waray language can be a good medium of instruction in teaching mathematics.

VII. Recommendation

- [1] The Department of Education (DepEd) make a program or conduct a training in construction of instructional materials written in waray (mother tongue) to help the teachers in the constructions of teaching materials that can be used in the classroom for the students and teachers.
- [2] During the division contest or test, regional contest and even national aptitude test the organizer of the test should be conscious on the students under the mother tongue curriculum that the language used on the construction of the test must have the translation into the mother tongue (waray).
- [3] The developed translation dictionary booklet of mathematical terms in waray dialect will serve as ready reference for the teachers teaching mathematics for grades 1, 2 and 3.
- [4] Another parallel research should be conducted for the validation of the results of this study.

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JOY B. ARAZA. " Waraylanguagemedium of Instruction in Primary Grade Mathematics." IOSR Journal of Mathematics (IOSR-JM) 14.4 (2018): 56-62.