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THE DEVELOPMENT OF NUMERACY SKILLS OF PRIMARY GRADE PUPILS THROUGH MOTHER TONGUE - BASED MULTILINGUAL EDUCATION: A PHENOMENOLOGICAL STUDY

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ABSTRACT: The experiences on the development of numeracy skills among primary pupils through MTB-MLE were a smooth flow of instruction in Mathematics when MTB-MLE is used as an LOI, enhanced engagement to instruction showing confidence, interest, and enjoyment on the lesson, enriched parent-teacher partnership in building numeracy among the learners, difficulties for some pupils to count in Bicol, and difficulties met in localizing, contextualizing and translating teaching materials for mathematics instruction. Teachers use to develop numeracy skills of pupils using MTB-MLE pedagogy use of locally-made materials or objects found in the community, exposing pupils to more drills and exercises, Differentiated Instruction, using manipulative, real, and tangible objects as instructional materials, translation, using collaborative approach teaching; along learning, engagement was play-based instruction, simple gifts as rewards and attractive and purposeful instructional materials through ICT; assessment of learning were differentiated assessment activities, and play-based assessment and observations. Grade teachers have varied positive and negative teaching experiences on the development of numeracy skills of primary pupils using MTB-MLE. Strategies to pedagogy, learning engagement, and assessment of learning to develop numeracy skills of primary grade pupils be applied by primary grade teachers. Grade teachers may revive, review and upgrade their pedagogical knowledge and information through the conducted research along with the development of numeracy skills through MTB-MLE as LOI. grade teachers may explore other strategies which are backed up with empirical data along pedagogy, learning engagement, and assessment of learning to implement in their classroom which may enhance the development of numerical skills of primary pupils using MTB-MLE as LOI.

KEYWORDS: DEVELOPMENT OF NUMERACY SKILLS, PRIMARY GRADE PUPILS, MOTHER TONGUE - BASED MULTILINGUAL EDUCATION, PHENOMENOLOGICAL STUDY

INTRODUCTION

Given the shift of language of instruction in the Philippine education curriculum today, teachers in mathematics education need to consider in their research the consequences of this shift to the teaching and learning scape. It has been a notion that mathematics education is not a stand-alone learning content in the curriculum but by its nature inter-disciplinary, and language as a learning tool plays a crucial aspect to consider for teaching and learning to be successful. As teachers and front liners of this new curriculum, many challenges met at hand that must be addressed systematically. Barwell and Clarkson recommend that research for mathematics must bring about information on the practices of teaching mathematics in the multilingual classroom.

Research into multilingualism within mathematics education has drawn on a variety of theoretical perspectives including bilingual education, theories of cognition, and approaches to socio-linguistics. Investigation into these areas leads to identifying theories relevant to work in mathematics education, application of these theories in mathematics education, the challenges which arise from working with theories from other disciplines, and the different implications to mathematics teaching that focused on the role of the teacher in supporting mathematics learning in multilingual mathematics classrooms. Although the demands in research have become too challenging, it is right to initially look at the 'ground zero' of implementing mathematics education via MTB-MLE in the local setting. Despite the many claims on the effectiveness of using the mother tongue as a medium of instruction in the primary years, the problem of language proficiency as an obstacle to learning mathematics via the learner's mother tongue is a challenge.

Many mathematical terms in the English language have no specific translations in Bikol-Sorsoganon which caused great difficulty if the learner's mother tongue is to be used exclusively to teach mathematical concepts Likewise, this challenge has arisen because of a disjointed language pipeline in which pupils have learned key mathematical concepts in English at home and Bikolin school might be confusing. This statement captured the important role of language as a resource in the teaching and learning of Mathematics. There is also the varying context in mathematics classrooms brought about by the complicating factors concerning individual teachers as well as the different languages of communication used by pupils and teachers, and how both of them view and use them. They were interested in the code-switching behavior of teachers and suggested that it makes a lot of sense for teachers to encourage students to code-switch, and use this as a teaching strategy too, although there are challenges in this practice that cannot be overlooked.

The results of the investigation suggested that students did in the end use the formal mathematical language promoted by this teacher because the students were witnesses to deliberate examples of such discourse. Meanwhile, the Philippine context for

teaching mathematics through MTB-MLE needs to be looked into because the country is yet conceiving the academic and life-long effects of this new language policy on the numeracy skills of every Filipino.

To comply with the guidelines, Mathematics as a specific learning area is taught using the pupil's L1 from Kindergarten to Grade 3. From this real scenario, teachers are faced with pupils whose L1 is not the Bikol variations that they expect their pupils to speak and their pupils come from varied home languages and cultures. No matter how complicated, the teachers have the technical skills and competencies to deal with the different facets of learning. Therefore, this research delved into the experiences of teachers during the implementation of MTB-MLE in teaching Mathematics in their unique contexts.

This research, on the other hand, gave pictures of the actual situations of the teachers themselves to bring about the information on the practices of teaching mathematics in a multilingual classroom.

Research Design

This study explored the experiences of teachers on the development of numeracy skills of primary pupils using MTB-MLE. It utilized a descriptive qualitative research design. It was framed according to the convention of phenomenological approach as a tradition of qualitative research. The phenomenological approach aims to discover theoretical precepts about social psychological processes and social structures, grounded in data.

It employed printed individual interview sheets as the main instrument for this present study. Focus group discussion and face-to-face interview sessions were restricted at the time that these data were being collected due to the prevailing COVID-19 pandemic which guidelines were issued by the AITF. Data categorization was done on the written responses of the individual teacher. To categorize data, content analysis using the conventional method (the actual content of the text) was employed. Recurrent themes and categories based on the responses of the participants were taken as categorical themes to answer the different inquiries of this present research.

SUMMARY

This study explored the experiences of teachers on the development of numeracy skills of primary pupils using MTB-MLE. Specifically, it sought answers to the following questions:

1. What are the experiences of teachers regarding the development of numeracy skills of primary pupils using MTB-MLE?

2. How do teachers develop the numeracy skills of pupils using MTB-MLE:

   a. Pedagogy

   b. Learning Engagement

   c. Assessment of Learning?

3. What are the different learning activities implemented to develop numeracy skills, particularly using:

a. Contextualization

b. Translation

c. Indigenization, and

d. Localization?

4. What are the gaps and issues encountered by teachers in developing numeracy skills using MTB-MLE?

5. What curriculum intervention may be proposed to develop the numeracy skills of the learners using Mother Tongue – Based Multilingual Education?

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FINDINGS

Based on the collected qualitative data, the following findings were given:

1. Teachers' experiences on the development of numeracy skills among primary pupils through MTB-MLE were a smooth flow of instruction in Mathematics when MTB-MLE is used as an LOI, enhanced engagement to instruction showing confidence, interest, and enjoyment on the lesson, enriched parent-teacher partnership in building numeracy among the learners, difficulties for some pupils to count in Bicol, and difficulties met in localizing, contextualizing and translating teaching materials for mathematics instruction.

2. Strategies teachers use to develop numeracy skills of pupils using MTB-MLE along pedagogy were the use of locally-made materials or objects found in the community, exposing pupils to more drills and exercises, Differentiated Instruction (DI), using the manipulative, real, and tangible object as instructional materials, translation, using collaborative approach teaching; along learning, engagement was play-based instruction, simple gifts as rewards and attractive and purposeful instructional materials through ICT; assessment of learning were differentiated assessment activities, and play-based assessment and observation.

3. There were different learning activities implemented to develop numeracy, particularly in Contextualization such as experiential learning; Translation such as English nursery rhymes in Bicol; Indigenization such as the use of local materials as instructional materials and Localization such as involving the community in the learning process.

4. The gaps and issues encountered by teachers in developing literacy skills using MTB-MLE were the poor utilization of MTB-MLE to refine and master the skills in the four fundamental mathematical

operations, complicating and varied learning competencies in the Curriculum Guide, and difficulties encountered by the pupils in mathematical problems because they were confronted with language barriers.

5. A curricular intervention is being proposed to enhance and upgrade teachers' knowledge, skills, and information on developing numeracy skills of their pupils using MTB-MLE as LOI.

CONCLUSIONS

From the findings mentioned above, the following conclusions were drawn:

1. Primary grade teachers have varied positive and negative teaching experiences on the development of numeracy skills of primary pupils using MTB-MLE.

2. Different strategies for pedagogy, learning engagement, and assessment of learning to develop numeracy skills of primary grade pupils be applied by primary grade teachers.

3. Different learning activities have been implemented by Primary grade teachers to develop numeracy skills, particularly using Contextualization, Translation, Indigenization, and Localization be varied.

4. The gaps and issues encountered by teachers in developing numeracy skills using MTB-MLE be solved.

5. A Teacher's Training on the Development of Numeracy Skills of Primary Grade Pupils through MTB-MLE as a curricular intervention be proposed.

RECOMMENDATIONS

Based on the findings and conclusions, the following recommendations are given:

1. Primary grade teachers may revive, review and upgrade their pedagogical knowledge and information through the conducted research along with the development of numeracy skills through MTB-MLE as LOI.

2. Primary grade teachers may explore other strategies which are backed up with empirical data along pedagogy, learning engagement, and assessment of learning to implement in their classroom which may enhance the development of numerical skills of primary pupils using MTB-MLE as LOI.

3. Primary grade teachers may also explore other learning activities by enriching themselves with different relevant learning activities to develop numeracy skills, particularly using contextualization, translation, indigenization, and localization.

4. Primary grade teachers may equip themselves with relevant information, knowledge, and skills so that they can address the existing gaps and issues encountered in developing numeracy skills using MTB-MLE.

5. A Teacher's Training on the Development of Numeracy Skills of Primary Grade Pupils through MTB-MLE as curriculum intervention may enhance and upgrade teachers' knowledge, skills, and information on developing numeracy skills of their pupils using MTB-MLE as LOI.