
Abstract

With the establishment of the Mother Tongue-Based Multilingual Education (MTB-MLE) in 2009 and its implementation in 2011, math and science have been taught in nineteen official mother tongues in the Philippines. To investigate how the use of the mother tongue (MT) as medium of instruction (MOI) affected math and science teaching and learning in the early grades, the study posed the following questions: 1) What challenges do teachers face in teaching math and science under MTB-MLE? 2) What strategies do they use for teaching math and science in the MT? and 3) What are the perceived effects of the use of MT as MOI in math and science classes? Schools representing four different language contexts were visited for class observations, interviews with school personnel, and focus group discussion with parents. Data gathered showed that:

1) challenges related to translation of math and science terms, pupils' unfamiliarity with math and science MT vocabulary, and the perception that the use of MT for science and math is for low-achieving pupils only; 2) teaching strategies included the use of double exposure through the MT and English, use of English for number terms, use of MT-based informative television shows, standardizing MT number terms for teaching, using demonstration for teaching math concepts, and giving of assignments about number terms, 3) the perceived effects of the use of MT as MOI are faster learning, less re-teaching, and the pupils' preference for the use of MT in classes. Math teachers shared about easier teaching in the MT and pupils' better comprehension, faster learning, higher index of mastery, and better grades. The study concludes that the use of MT as MOI in math and science benefits pupils and teachers alike. However, teachers should be provided training that will particularly address the challenges cited.

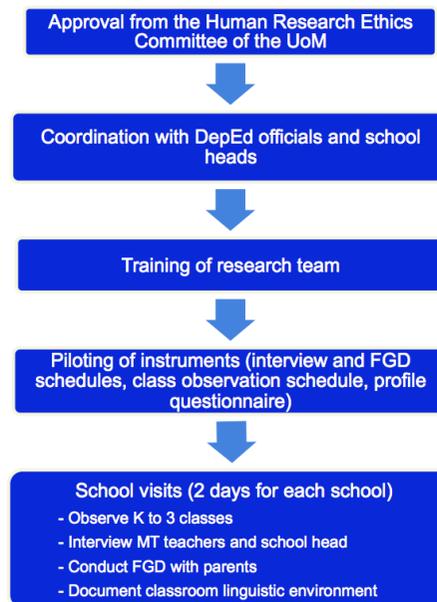
Research Questions

1. What **challenges** do teachers face in teaching math and science under MTB-MLE?
2. What **strategies** do they use for teaching math and science in the MT?
3. What are the **perceived effects** of the use of MT as MOI in math and science classes?

Phases of the Study



Data Gathering



Findings

Challenges

A. Translation

- TG in math and science are in English
- Some math/science terms have no translation equivalents in the MT
- Finding translation equivalents in Filipino or MT for math/science terms

B. Unfamiliarity with MT science and math terms

- Pupils are familiar with Tagalog math terms
- Tagalog terms are longer compared to the English counterparts
- Non-MT speaking transferees
- Pupils are used to counting in English even before kindergarten

Why prefer English?

- Use of English for academic competitions (elementary mathematics)
- Longer MT terms for numbers and math terms
- Use of English can be more efficient and easier for teaching
 - Difficulty in understanding technical/academic terms in the MT
 - Confusion on the MT (Minasbate) terms to be used in class

C. Perception that MT for science and math are for slow or low-achieving pupils only

- The use of MT (Minasbate) in teaching math and science is perceived to be beneficial only to pupils from the bracket C.

Findings

Strategies

- Double exposure due to low grades in the subject
- Use of English number terms
- Film viewing (Sineskwela)
- Convening about the terms to use in class
- Using demonstration for teaching math concepts
- Giving of assignments about number terms
- Translation to a language the pupils understand best

Perceived Effects of MT use in Math

Teachers

- Teachers' ease in relaying information to pupils
- Less re-teaching and remedial classes

Pupils

- Pupils learn faster in math with the use of MT in the classroom especially with addition
- Pupils' prefer the use of MT in classes
- Pupils' better comprehension of learning content (especially for word problems)
- Pupils' faster learning,
- Pupils' higher index of mastery
- Pupils' better grades
- Pupils' ease in self-expression

Recommendation

- Teachers should be provided training that will particularly address the challenges cited.

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***Teaching Math and Science in the Mother
 Tongue: Challenges, Strategies, and
 Perceived Effects***

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