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1   Executive Summary

In 2009 the Philippines Department of Education issued Order No. 74, "Institutionalizing Mother Tongue-Based Multilingual Education (MTB-MLE)," calling for the use of the learners' mother tongues (MTs) in the early primary grades for improving learning outcomes. In 2012, the MTB-MLE policy was rolled out nationally in all Grade 1 (G1) classrooms. By the 2014–2015 school year, all public schools were expected to be using one of 19 mother tongues as the medium of teaching and learning (MoTL) from Kindergarten (KG) through G3.

The objective of this study was to provide insight into the relationships between the teachers' and students' language usage, the MTB-MLE policy implementation, and student reading outcomes, especially in areas with linguistically heterogeneous populations. It sought to examine how language usage in the classroom conforms to or diverges from the MTB-MLE policy after six years of implementation, which factors are associated with higher policy implementation, and how language usage by teachers and students relates to student learning outcomes.

Building on previous studies from other contexts in the Philippines, the present study was conducted in February and March 2019 in four grades (KG–G3) in 160 schools with Bahasa Sug, Chavacano, Magindanawn, or Mëranaw as the designated MT. The study asked the following research questions:

1. How do the KG–G3 teachers use language during school, in speaking, reading, and writing, across subjects and activities? (Which language(s) do they use, how, when, and how much?)

2. How do the KG–G3 students use language during school, in speaking, reading, and writing, across subjects and activities? (Which language(s) do they use, how, when, and how much?)

3. How do the KG–G3 teachers' language background and comfort levels teaching in the school-designated MT relate to their language usage at school?

4. How do the KG–G3 teachers' attitudes and beliefs regarding teaching and learning in MT, Filipino, and English relate to their language usage at school?

5. Which language(s) do the students speak at home? How does their home-language use compare with the language(s) they use in school and with the official MoTL?

6. For G2 and G3 students only, how does the teacher's and students' language usage relate to the students' literacy outcomes in the designated MT for their school?

Findings

On the whole, the study found that the **teachers' choice of language in class** conformed highly to the policy, especially in KG, and in G1–G3 MT, Filipino, and English subject classes. In G1–G3 mathematics, social studies, and science subject classes, a majority of teachers' language choices still conformed to the policy but at lower rates. However, language usage patterns differed sometimes substantially by MT group.

Regarding **the assignment of teachers proficient and trained in the MT**, in every MT group, a majority of teachers considered the school MT to be their "native language," but the percentage varied widely between MT groups, ranging from 98 percent in schools with Mëranaw as a MoTL schools to 56 percent in Magindanawan as a MoTL schools. Magindanawn MT school teachers were the most likely to report challenges in speaking the school MT and discomfort in using it as the MoTL. Overall, only 36 percent of teachers reported having received training to teach reading in the school MT.

The **degree of linguistic homogeneity of the student body and of class sectioning** varied considerably by MT group, with Mëranaw MT schools having the most linguistically homogeneous populations and Chavacano MT schools the least.

The availability and use of teaching and learning materials (TLMs) in the prescribed MoTL varied greatly by type, grade, subject, and MT group. Teacher's guides were much more prevalent than student textbooks. Overall, approximately 69 percent of teachers had a teacher's guide for the lesson they were teaching, and roughly 29 percent of teachers consulted the guide during the lesson. Students had a textbook in only 16 percent of the lessons observed, though when they had them, they were highly likely to use them. In general, the availability and usage of TLM was the highest in G3. TLMs written in the MT were especially lacking in mathematics, science, and social studies.

Furthermore, and possibly as a partial consequence of low textbook coverage, **teachers dedicated only a small percentage of class time to students' reading or writing text** in any language, including in the MT.

With regard to **managing student multilingualism in class**, teachers appeared to be conscious of their students' lower language abilities in English but not as aware of any comprehension obstacles in MT and Filipino. Explicit vocabulary instruction was nonetheless frequent. Teachers were generally supportive, both in principle and in practice, of the use of multiple languages in the classroom by both teachers and students when necessary. However, engaging volunteers from the community (or classmates) to support students in the MT was rare.

Overall, teachers demonstrated generally positive **attitudes toward the MT itself and toward the MTB-MLE policy**. Approximately half of the teachers agreed with the policy that children should learn to read first in the MT, and 71 percent considered MT literacy acquisition as beneficial to their students' eventual acquisition of English. A slight majority of teachers considered the MT to be the most important language for their students to know well, and a strong majority supported speaking it at home. However, Magindanawn MT school teachers displayed a preference for Filipino over the MT. In general, teachers believed that their students would be ready to transition to Filipino and English as MoTL by Grade 4 or sooner.

Several factors were associated with higher teacher implementation of the MTB-MLE policy. Teachers tended to use the MT in class more often, in conformity with policy, under the following conditions:
- when the school MT matched their own MT and/or when they felt highly comfortable in the school MT;
- when they believed that the best language for initial literacy acquisition was the MT;
- when their student populations were more linguistically homogeneous; and
- when their students possessed textbooks written in the MT.

Linear regression analysis was performed to examine **the relationship between the language usage variables and G2–G3 student reading outcomes** in the MT. The analysis found a statistically significant positive relationship between the students' home-school MT match and their reading comprehension accuracy. The nature of the data and lack of variation in some of the variables may have hindered the model's ability to identify other significant factors.

A workshop was convened in August 2019 for key government officials and education stakeholders to review and contextualize the results of this study and offer **recommendations** for improving policy implementation. Their recommendations included:
- regular linguistic mapping of students, including strengthening and annually updating the Learner Information System (LIS);
- increased efforts to assign teachers to schools where they speak the MT;

- more training for teachers in best practices for teaching literacy and content in the MT and for teaching in multilingual classrooms;
- continued development and quality assurance of TLMs in the respective MTs;
- systems strengthening in book procurement and distribution;
- greater allocation of class time to direct literacy instruction and practice reading and writing;
- continued advocacy and awareness-raising on the benefits of the MTB-MLE policy; and
- increased monitoring of and accountability for policy implementation.

The findings of the study and recommendations by researchers and participants seek to provide DepEd with insight into the current state of policy implementation in these MT contexts and guidance as to ways in which the implementation can continue to be strengthened in the Philippines.

2   Introduction

2.1   Background on the MTB-MLE Policy in the Philippines

The Philippines is home to approximately 105 million people and 183 living languages.[1] This dense multilingualism is a rich sociocultural asset but presents logistical challenges when it comes to the selection of languages for the governing of regional, national, and international affairs. Filipino, derived from the indigenous language Tagalog, is enshrined by the 1987 Constitution as the "national" language and, along with English, as the "official" language for "purposes of communication and instruction."[2] Regional languages are also accorded status as "auxiliary official languages in the regions and … auxiliary media of instruction therein." The education system is charged with the dual tasks of maximizing student learning, which is facilitated through teaching in a language familiar to the students in each locality, while at the same time building their proficiency in the common national and international languages.

For decades the Philippines Department of Education (DepEd) tested various models aimed at balancing these two goals.[3] The results of these and other international studies[4] have generally supported the use of the learners' mother tongue (MT or first home language [L1]) as "the most effective way to bridge learning in all subject areas including the development of future languages."[5] By beginning learning in a language that they already understand, students can advance in their content knowledge and literacy skills while laying the foundation for learning in additional languages. Additionally, early reliance on the MT as the primary medium of teaching and learning (MoTL) been shown to reduce grade repetition, increase retention, and lead to greater educational attainment.[6]

In 2009 DepEd issued Order No. 74, "Institutionalizing Mother Tongue-Based Multilingual Education (MTB-MLE)," prescribing the use of the learners' MTs for improving learning outcomes. A Strategic Plan was developed in 2010 delineating all the activities to be undertaken for the implementation of the new policy, including advocacy, teacher training, materials development, policy development, resource mobilization, and assessment, monitoring and evaluation. In the 2011–2012 school year (SY), the first 900 schools begin

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[1] Eberhard, Simons, & Fennig (eds.), 2019
[2] 1987 Constitution, Article 14(6, 7).
[3] For example, First Iloilo Experiment (1948–1954); the Cebu Experiment (pre-1960s); the Antique Experiment (1952); the First Rizal Experiment (1953–1959); another Rizal experiment (1960–1966); the First Language Component Bridging Program (FLC-BP) Pilot Project in Ifugao (1986–1993); the Lubuagan Multilingual Education Program (1998–); the Lingua Franca Project (1999–2001); the Culture-Responsive Curriculum for Indigenous People–Third Elementary Education Project (2003–2007); the Double Exposure in Mathematics Initiative of Region IV-B (2004–2007); and others.
[4] See Dutcher, 1995; Cummins, 2000; Baker, 2001; Benson, 2002
[5] Ocampo, Diaz, & Padilla, 2006, p. v
[6] Smits, Huisman, & Kruijff, 2008

using 1 of 12 MTs as the MoTL in Grade 1 (G1), followed by all G1 classrooms nationally in SY 2012–2013. Another seven languages were added as MoTL in SY 2013–2014 for a current total of 19 school-designated MT languages. By SY 2014–2015, all public schools were expected to be using an MT as the MoTL from Kindergarten (KG) through G3.

Specifically, the current policy prescribes the MT as the sole MoTL for all themes in KG and as the primary MoTL in G1 through G3, except for Filipino and English subject classes. In G1, students are taught to read in the MT. In schools where neither Filipino nor English is the MT,[7] Filipino is introduced orally as a second language (L2) in the second quarter of G1, and oral English as a third language (L3) in the third quarter. Students are introduced to reading and writing in Filipino in the fourth quarter of G1, and in English in the second quarter of G2. In G4, there is a transition to English as the MoTL for math and science and to Filipino for other content subjects. Additionally, the DepEd policy implementation guidelines note that "the MT shall be used for transition or bridging and/or as an auxiliary MoTL up to G6 as necessary."[8]

Schools are to determine and designate which language to use as the school MT in accordance with a set of guidelines.[9] The first requirement is for the language to have a working orthography and minimal set of materials. Then, if an MT is spoken by the majority of students in the school, it can be designated as the MoTL. The percentage of children who speak each language as a first language is ascertained through a mapping process. A second model comes into play in schools where there is no majority MT language. In these situations, the lingua franca spoken in the area can be designated as the MT if the majority of students understand it. However, this decision must be made in consultation and with the consent of the community through its leaders. Furthermore, if a lingua franca is chosen as the MoTL, DepEd Order 16 recommends that "special classes offering the children's MT … be held twice a week if a teacher is available for the development of oral fluency."[10] Another recommended form of assistance to bridge from the learners' MT to the lingua franca is classroom support from community volunteers who are proficient in both languages.

2.2   Previous Studies on the Implementation of the MTB-MLE Policy

Since the MTB-MLE policy began, several studies have been undertaken to study its effectiveness. For example, Alberto, Gabinete, and Rañola's 2016 study of Hiligaynon teachers,[11] Medilo Jr.'s 2016 study of Southern Leyte teachers,[12] Aliñab, Prudente, and Aguja's 2018 study of G3 mathematics teachers,[13] De Los Reyes' 2018 study of G3 ESL classrooms, among others, all suggest that using the MT as a medium of instruction is beneficial for both teachers and students. In these studies teachers reported that they could explain lessons with more ease when using the MT. The researchers also found that students obtained a deeper understanding of the lesson, participated more in classroom discussions, improved communication with teachers and peers, and developed higher-order thinking skills when using the MT.

The Philippines education system is highly centralized with a top-down approach to policy decisions. The success of the MTB-MLE policy, however, depends heavily on context-sensitive implementation. Communities vary widely in the number of languages spoken by their populations. Additionally, there may be issues with the different statuses of languages and their domains of use. Other factors that need to be considered include the degree of overlap between the school-designated MT and the language(s) used most frequently at home; the degree of training and comfort of the teachers in teaching in the MT; the availability of teaching and learning materials (TLM) in the MT; and social attitudes and

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[7] None of the schools in this study had Filipino or English as the MT.
[8] Republic of the Philippines Department of Education, 2019, p. 114
[9] Republic of the Philippines Department of Education, 2019, pp. 124-125, 129-132
[10] Republic of the Philippines Department of Education, 2019, p. 130
[11] Alberto, Gabinete, & Rañola, 2016
[12] Medilo, Jr., 2016
[13] Aliñab, Prudente, & Aguja, 2018

beliefs about the policy itself. A three-phase study of best practices in MTB-MLE implementation led by the Assessment, Curriculum and Technology Research Centre (ACTRC) noted that

> [t]here is no universally applicable single model of MTB-MLE that will be equally effective across the different contexts. The overarching localization principle … means that schools need to design all aspects of their implementation of the program with a clear understanding of the dynamics of their own context. This includes understanding the possibilities and limitations that apply in each school, and … understanding the context, the place of the selected MT(s) in the community, the way the MT is used and interacts with other languages …. It means understanding the best instructional practices for the children in each school to learn through their particular MT, using materials that are relevant and effective for that context. It means the program needs to be designed and supported to use the most appropriate MT(s) for the students, structured to meet the needs of the children and delivered with the staff and resources available, including the most appropriate ways of involving the community. [14]

In 2017, the Basa Pilipinas project completed a three-year longitudinal study following the learning trajectories of learners in three regions and MTs. [15] The study found that some characteristics such as student home language, teacher language choices in the classroom, and pedagogical practices were associated with higher literacy outcomes in some of the languages in some regions, but no factors were consistently significant across regions.

Inadequate teacher training in effective pedagogical practices using the MT is a common challenge to effective MTB-MLE implementation highlighted in the research literature in the Philippines. De Los Reyes touted the translanguaging observed in heterogeneous classrooms as a natural process that multilinguals use to "maximiz[e] their multilingual resources" and "mediat[e] the communicative functions that learners need to fulfil to succeed in their various tasks."[16] However, across multiple studies teachers have reported difficulty with teaching the four language skills (speaking, listening, reading, and writing), grammar, reading comprehension, and vocabulary.[17] In the case of vocabulary, teachers often lack sufficient academic vocabulary in the MT especially in mathematics and the natural sciences.[18] Furthermore, in some instances the teachers are not themselves fluent speakers of the school MT, or speak a different dialect of it, or lack training to use the MT for instruction.[19] The ACTRC study cautioned that translanguaging needs to be used strategically "to improve communication and instruction," and not as a coping mechanism for "inadequate academic register" or "low MT competence."[20]

Furthermore, a 2014 study of the implementation of the new policy in four MT languages revealed that the minimal "amount of time on reading and the nature of activities in reading, speaking, listening, and writing were the weakest aspects of MTB-MLE implementation."[21] Reading was the primary instructional focus for the majority of pupils less than 25% of the time in all languages. Many studies from different language contexts in the Philippines have highlighted the problem that teachers and students lack quality TLM in the MT language.[22]

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[14] Metila, Pradilla, & Williams, 2017, pp. 22-23
[15] Education Development Center, 2017
[16] De les Reyes, 2018, p. 13
[17] Cruz, 2015; Alberto, Gabinete, & Rañola, 2016; Aliñab, Prudente, & Aguja, 2018; Medilo, Jr., 2016; Metila, Pradilla, & Williams, 2016a
[18] Aliñab, Prudente, & Aguja, 2018; Medilo, Jr., 2016; Lartec, Belisario, & Bendanillo, 2014
[19] Alberto, Gabinete, & Rañola, 2016; Lartec, Belisario, & Bendanillo, 2014
[20] Metila, Pradilla, & Williams, 2016b, p. 4
[21] RTI International, 2014, p. 19
[22] Alberto, Gabinete, & Rañola, 2016; Metila, Pradilla, & Williams, 2016b; Fillmore, 2014; Lartec, Belisario, & Bendanillo, 2014; Medilo, Jr., 2016; Estremera, 2017; Eslit, 2017

Teachers' language attitudes can also influence their implementation of the policy. In Burton's 2012 study in one school district at the launch of the MTB-MLE policy implementation,[23] teachers reported both satisfaction with students' increased understanding when learning in MT as well as worries about delaying their learning in English. Burton noted that teachers "overtly supported the policy in terms of complying with the requirements, yet covert resistance was observed in their words and actions."[24] In a 2016 study, Medilo, Jr. found that while teachers in Southern Leyte perceived that implementing the MTB-MLE policy made them globally competitive 21st century teachers, they still continued to consider "English as a preferred language and symbol of intellectual and material superiority."[25] Parba's 2018 study of teacher attitudes also revealed that the teacher participants were initially antagonistic toward the MTB-MLE policy, but that their attitude gradually shifted as they realized the learning benefits of MT instruction. [26] However, Parba notes that the English-only ideology "has continued to challenge the legitimacy and value of MTB-MLE,"[27] as learning English is often deemed by some teachers as the sole means of participating in a global world and competing internationally. Schell found similar attitudes among parents in her case study of a Central Sama community in Davao City.[28]

While schools in all contexts face a number of common challenges in implementing the MTB-MLE policy, the ACTRC study found that schools in linguistically diverse contexts faced a considerably greater number of challenges than those in other contexts, beginning with the selection of an MT for instruction.[29]

2.3   Objective of the Current Study

The objective of the present study was to provide insight into the relationships between the teachers' and students' language usage, the MTB-MLE policy implementation, and student reading outcomes, especially in areas with linguistically heterogeneous populations. The study was conducted at the end of SY 2018-2019 in four regions with Bahasa Sug, Chavacano, Magindanawn, or Mëranaw as the school-designated MT languages. The study was designed to elucidate how, six years into the MTB-MLE policy implementation, language usage in the classroom in these contexts conforms to or diverges from the policy. What factors influence policy implementation, for better or for worse? Also, how does classroom language usage relate to student learning outcomes? The insights gained from this study will assist DepEd to better understand how the linguistic context interacts with policy implementation and, perhaps, how to increase the policy's effectiveness across contexts.

3   Research and Sample Design

3.1   Research Questions

In order to examine how teacher and student language usage relates to the MTB-MLE policy and student reading outcomes in these contexts, the study asked the following research questions:

1. How do the KG–G3 teachers use language during school, in speaking, reading, and writing, across subjects and activities? (Which language(s) do they use, how, when, and how much?)

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[23] Burton, 2013
[24] Burton, 2013, p. v
[25] Medilo, Jr., 2016, p. 72
[26] Parba, 2018
[27] Parba, 2018, p. 27
[28] Schell, 2018
[29] Metila, Pradilla, & Williams, 2016b

Table 1.   Classroom, lesson, teacher, and student sample, by MT group

Data Point	Bahasa Sug MT Schools	Chavacano MT Schools	Magindanaawn MT Schools	Mëranaw MT Schools	All Schools
Number of classrooms observed (KG–G3)	160	160	158	160	**638**
Number of 30-minute lessons observed (KG–G3)	776	803	714	754	**3,047**
Number of teachers interviewed (KG–G3)	160	160	158	160	**638**
Number of G2 students assessed	403	398	390	403	**1,594**
Number of G3 students assessed	401	402	398	401	**1,602**

Table 2.   Number of classrooms observed and average enrollment and attendance, by grade

Data Point	KG Mean [CI]	Grade 1 Mean [CI]	Grade 2 Mean [CI]	Grade 3 Mean [CI]	All Grades Mean [CI]
Number of classrooms observed	159	160	159	160	**638**
Percent of classrooms that were multi-grade	5.2 [±5.9]	8.0 [±6.2]	7.1 [±6.7]	7.1 [±5.9]	**6.9 [±4.7]**
Number of students enrolled	35.6 [±2.6]	36.8 [±2.1]	36.4 [±2.2]	35.0 [±2.2]	**36.0 [±1.8]**
Percent enrolled girls	50.8 [±1.6]	50.2 [±1.7]	49.1 [±1.6]	52.9 [±2.1]	**50.7 [±0.0]**
Number of students present	23.9 [±2.2]	25.3 [±2.0]	24.8 [±2.0]	23.8 [±1.8]	**24.5 [±1.5]**
Percent present girls	51.4 [±2.0]	51.6 [±1.9]	51.0 [±2.7]	54.2 [±2.6]	**52.0 [±1.3]**

Table 3.   Number of lessons observed, by grade and subject

Subject	KG	Grade 1	Grade 2	Grade 3	All Grades
Kindergarten (All Themes)	678				**678**
MT		160	160	167	**487**
Filipino		157	159	140	**456**
English		155	154	138	**447**
Mathematics		159	155	150	**464**
Social Studies		160	154	65	**379**
Science				133	**133**

Table 4.   Teacher demographics, by grade

Data Point	KG Teachers Mean [CI]	Grade 1 Teachers Mean [CI]	Grade 2 Teachers Mean [CI]	Grade 3 Teachers Mean [CI]	All Teachers Mean [CI]
Number of teachers interviewed	159	160	159	160	**638**
Percent women	96.3 [±4.8]	97.1 [±3.0]	95.5 [±4.2]	93.2 [±4.7]	**95.5 [±2.3]**
Percent regular teachers	92.2 [±5.2]	87.8 [±7.8]	91.3 [±6.5]	91.1 [±5.8]	**90.5 [±3.9]**
Number of years teaching KG–G3	5.2 [±0.8]	8.6 [±1.3]	8.3 [±1.5]	5.8 [±0.9]	**7.0 [±0.7]**

4   Findings: Language Usage vis-à-vis Policy

4.1   Teacher MoTL by Grade and Subject

How well is teachers' language usage in the classroom conforming to the MTB-MLE policy with regard to the prescribed MoTL for each grade and subject?

> On the whole, the teachers' choice of language in class conformed highly to the policy, especially in KG, and in G1–G3 MT, Filipino, and English subject classes. In G1–G3 mathematics, social studies, and science subject classes, a majority of teachers' language choices still conformed to the policy but at lower rates. Language usage patterns differed sometimes substantially by MT group.

The MTB-MLE policy[32] prescribes the MT as the main MoTL in KG through G3. Depending on the grade and subject, an additional language is sometimes allowed as an MoTL, as noted below. Specifically, the teachers' conformity to the policy by grade and subject was as follows.

- **KG classes** are not organized by subject; the MT is the sole prescribed MoTL for all themes. KG teachers generally showed a high rate of fidelity to the policy by using the MT as the MoTL on average 79 percent of the time. Their second most frequent language was Filipino (13 percent).

- **In MT subject class**, the MT is the sole prescribed MoTL. Teachers generally demonstrated a high rate of conformity to the policy in this subject as well, using the MT on average 82 percent of the time. The rest of the time they overwhelmingly used Filipino (16 percent).

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[32] Republic of the Philippines Department of Education, 2009; Republic of the Philippines Department of Education, 2019

- **In Filipino subject class**, the policy prescribes Filipino as the primary MoTL but allows the use of the MT. In line with the policy, teachers used Filipino about 75 percent of the time. The rest of the time they overwhelmingly used the MT (23 percent).

- **In English subject class**, the policy prescribes English as the primary MoTL but again allows the use of the MT. The teachers' use of English averaged 60 percent of the time, beginning at 56 percent in G1 and increasing to 69 percent in G3. The rest of the time they used mostly the MT (28 percent) and a little Filipino (12 percent).

- **In mathematics subject class**, the policy prescribes the MT as the sole MoTL in G1–G2, and as the primary MoTL in G3, allowing some use of English in G3 "if academic language (i.e., terminologies) are in English."[33] Across the three grades teachers used the MT on average 62 percent of the time. In G1, teachers' MT usage was at 68 percent of the time with the remainder shared almost evenly between Filipino (18 percent) and English (14 percent). In G2–G3, teachers decreased their use of the MT to 58–60 percent, and for the rest of the time favored English (25–26 percent) slightly over Filipino (14–15 percent). That is, teachers appeared to be implementing the G3 language policy a year early, in G2, and continued in G3 with almost the same allocations among the languages.

- **In social studies subject class**, the policy prescribes the MT as the sole MoTL in G1–G2, and as the primary MoTL in G3 but allows some Filipino to be used alongside the MT in G3. Teachers used the MT the majority of the time, 61 percent on average across all grades, but Filipino was the heavily favored second choice at 37 percent of the time, starting as early as G1, rather than in G3 as indicated by the policy. The use of English was negligible in social studies.

- **Science subject class** is offered beginning in G3. Like for mathematics, the policy prescribes the MT as the primary MoTL but allows English "if academic language (i.e., terminologies) are in English."[34] Teachers used the MT the majority of the time (64 percent), followed by Filipino (21 percent), followed by English (14 percent). In other words, teachers relied more on Filipino than English to supplement the MT in science class, contrary to policy.

In short, the school MT dominated teacher language choices across all grades and subjects except for Filipino in Filipino subject class and English in English subject class. This is all in line with the policy.

Filipino was a strong second choice in social studies from G1 to G3, and, less frequently, in science in G3. English was the second choice in mathematics in G2 and G3. The use of these additional MoTL is permitted by the policy for G3 but in practice began earlier. The highest incidence of non-conformity to the policy was the heavy use of Filipino in G1–G2 social studies (33–39 percent) and of English in G2 math (26 percent). With the exception of Filipino in G3 science (21 percent), teachers used a non-prescribed MoTL less than 20 percent of the time in the remaining grades and subjects.

Whenever teachers used a language that was not prescribed by the policy, that language was nonetheless overwhelmingly the MT, Filipino, or English, which are all MoTL under the policy, just not at the particular grade or subject in question. In other words, teachers were *not* frequently using languages other than the three prescribed by the policy, and when they did, the incidents were extremely brief; all non-MoTL languages combined represented less than 1 percent of teacher language use on average. Even in KG, which had the highest rate of non-MoTL language use, teachers used these other languages only 3 percent of time, compared to less than 1 percent in G1–G3.

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[33] Republic of the Philippines Department of Education, 2019, p. 127
[34] Republic of the Philippines Department of Education, 2019, p. 127

language. This was in fact the case; in the overall sample, the TLMs, when available, were overwhelming in the respective L2 and L3 target languages. This is not surprising given the long history of the use of Filipino and English in the education system.

In mathematics, social studies, and science classes, while English is allowed as an auxiliary MoTL in mathematics and science classes in G3, and Filipino in social studies in G3, the MT is nonetheless the primary MoTL across all three grades. For optimal learning, therefore, the TLMs would also be written in the MT, facilitating access to academic vocabulary and content concepts in a familiar language. In practice, this was not the case. The teacher's guides in mathematics and science, when available, were much more frequently written in English than in the MT, and for social studies, in Filipino. For example, in both mathematics and science, 57 percent of G3 teachers had a teacher's guide written in English, compared to only 16 percent in the MT. The relative proportion of student textbooks written in the MT versus Filipino or English fared slightly better, but overall coverage rates were so low that very few students were benefitting from access to textbooks in any language.

The data for the availability of TLM by subject and grade are in **Appendix D.**

4.4.3   Differences in TLM Availability by MT group

Each MT group undergoes its own process of TLM development and contextualization, and languages vary in their degree of dialectal variation, status of orthographic standardization, etc. Unsurprisingly, therefore, TLM availability varied by MT group. For example, in Mëranaw MT schools, the KG teacher had a teacher's guide in only 53 percent of the lessons observed, compared to 93 percent in Chavacano MT schools. As another example, for the MT subject class, only one third of G1 Magindanawn MT school teachers had a teacher's guide written in the MT, compared to two thirds of teachers in the other MT groups.

While student textbooks were rare across the board, G3 students in Bahasa Sug MT schools had exceptionally high access to textbooks–in over 40 percent of the G3 lessons observed across all subjects except for social studies, compared to an average of 26 percent. Grade 3 students in Magindanawn MT schools, on the other hand, had exceptionally high rates of supplementary materials use in class. In 40 to 50 percent of the G3 lessons observed, depending on the subject, compared to an average of less than 25 percent.

The data for TLM availability by MT group are in **Appendix E**.

4.5   Lesson Time Dedicated to Reading and Writing in the MT

A main tenet of the MTB-MLE policy is that learning to read and write first in a familiar language (i.e., the MT) optimizes the child's potential for learning both literacy and content in any language. In a multilingual society where children are inevitably called upon to function and learn content in multiple languages, initial literacy acquisition in the MT is believed by DepEd to be the best way to build a strong foundation that will eventually transfer gains into other domains. It is necessary, therefore, when examining the implementation of the MTB-MLE policy, to note not just how much teachers and students use the MT, but how much time students spend directly engaged with the text in the MT.

How much class time is dedicated to reading and writing in the MT?

In general, students spent only a small percentage of class time reading or writing text in any language, including in the MT.

Overall, across all grades and subjects, students spent an average of 27 percent of class time directly engaged with text in any language: 12 percent reading and 15 percent writing. These overall times were allocated among the three MoTL; reading specifically in the MT accounted for 5 percent of class time overall and writing in the MT for just under 9 percent.

In the MT subject class in G1–G3, literacy acquisition in the MT is one of the primary curricular goals. Indeed, students were observed reading or writing in the MT more

frequently in the MT subject class than in any other subject. In the MT subject class, reading and writing in the MT comprised 11–15 percent of the observation points each, for a total of approximately 22–28 percent of class time dedicated to one or the other, depending on the grade (**Table 17**). In contrast, the most frequent student activity both in the MT subject class and across all subjects was "only listening," though in some classes the frequency of listening was within the confidence intervals of that of speaking. [43]

In terms of actual time, for an MT subject class period lasting 50 minutes, G1 students would spend on average just under 6 minutes reading and just under 6 minutes writing in the MT, for a combined total of 11.8 minutes with eyes on text. They would also spend just over 8 minutes speaking in the MT, and 25 minutes just listening to the teacher without any direct engagement with text.

Table 17. **Percentage of lesson time students spent in each language mode in the MT, in MT class and overall, by grade**

Subject	Student Language Mode	% [CI] of Time during Lesson Observations and Equivalence in Minutes Given a 50-minute Lesson								
		G1			G2			G3		
		%	CI	minutes	%	CI	minutes	%	CI	minutes
MT	Reading in MT	11.7	[±2.4]	5.9	9.5	[±1.9]	4.8	13.6	[±2.9]	6.8
	Writing in MT	11.7	[±2.9]	5.9	10.7	[±2.7]	5.4	14.9	[±2.9]	7.5
	Speaking in MT	16.5	[±2.7]	8.3	22.9	[±5.7]	11.5	21.9	[±3.0]	11.0
	Only Listening	49.3	[±4.5]	24.7	36.9	[±4.6]	18.5	29.7	[±4.2]	14.9
All Subjects	Reading in MT	4.6	[±0.9]	2.3	3.8	[±0.7]	1.9	5.1	[±1.0]	2.6
	Writing in MT	8.3	[±1.9]	4.2	7.6	[±1.9]	3.8	9.7	[±1.7]	4.9
	Speaking in MT	13.5	[±2.0]	6.8	14.6	[±3.6]	7.3	17.3	[±2.0]	8.7
	Only Listening	48.0	[±4.6]	24.0	36.4	[±3.4]	18.2	31.9	[±2.5]	16.0

In addition, whenever students were observed reading or writing, the observers specified whether they were doing "original" reading and writing or not. Original reading meant that students were decoding text on their own, versus a phenomenon dubbed "repeat reading" when someone (usually the teacher) reads text aloud for them and they repeat it immediately after the model. Original writing meant that the students were encoding language into letters, words, or sentences on their own versus copying from a written model, such as copying notes from the board. Across all grades and subjects, approximately half of the time that students spent reading or writing was classifiable as "original" and the other half was "repeat reading" or "copying."

In general, the relatively low amount of class time dedicated to reading and writing may be related to the low availability of student textbooks and reading materials, as described in the previous section.

The data for the amount of time students in each MT group spent in each language mode in MT subject class are in **Appendix F**.

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[43] Observers coded the student activity as "speaking" if any one or more students was speaking; they coded "only listening" when the teacher was speaking and no students were speaking, reading, or writing. That is, any time students' eyes were on text, this activity was coded as either reading or writing. For example, if the teacher were reading aloud text on the board and the students were following along silently, the student activity would be coded as reading, not "only listening."

4.6   Teacher Application of Strategies for Managing Student Multilingualism in Class

Given that some linguistic heterogeneity is inevitable in the system, the policy guidelines provide several strategies to enable teachers to effectively manage multilingualism in the classroom, such as supporting comprehension through explicit vocabulary instruction, translation (in moderation), encouraging students to express themselves in different languages in class (with follow-up by the teacher in the target language), and engaging volunteers from the community who speak the students' MT(s). [44]

How do teachers perceive their students' linguistic barriers to comprehension and which strategies are they using to manage multilingualism in the classroom?

Teachers were conscious of their students' lower language abilities in English but not as aware of any comprehension obstacles in MT and Filipino. Explicit vocabulary instruction was frequent. Teachers were generally supportive, both in principle and in practice, of the use of multiple languages in the classroom by both teachers and students when necessary. However, engaging volunteers from the community (or classmates) to support students in the MT was very rare.

4.6.1   Teacher Perception of Student Comprehension Issues in Each MoTL

How seriously teachers see language as a barrier to their students' comprehension may influence how motivated they are to apply strategies for facilitating their comprehension. Teachers were asked to rate their students' ability to understand them in each MoTL (**Table 18**). On average, teachers reported believing that their students' ability to understand them in the MT was strong—53 percent rated it as "very good" and another 32 percent as "good," for a combined 85 percent positive. Teachers' ratings of their students' comprehension of Filipino were also positive, with 37 percent "very good" and 47 percent "good," for a combined 84 percent positive. Not surprisingly, teachers rated their students' abilities in English the lowest of the three languages. Still, on average, 55 percent of teachers rated their students' abilities in English positively.

Despite Magindanawn MT school teachers' relatively low self-ratings in MT, their ratings of their students' ability to understand them in MT were close to average. However, 10 percent of Magindanawn MT school teachers did not rate their students' MT abilities, indicating that they (the teachers) "never or almost never teach in the MT." Magindanawn MT school teachers also had a noticeably higher than average confidence in their students' abilities in Filipino and English compared to the teachers at other MT schools. On the other hand, Chavacano school teachers were the most circumspect about their students' language abilities in all three languages; they gave the most "poor" ratings and the fewest "very good" ratings across the board (though in some cases with overlapping CIs with another group). Bahasa Sug school teachers also gave their students more negative ratings than average for MT and English. The contrast between Magindanawn and Chavacano MT school teachers' perceptions of their students' abilities is interesting since both of their student populations have a high degree of linguistic heterogeneity compared to the other two groups.

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[44] Republic of the Philippines Department of Education, 2019, pp. 126-129

respectively), and the lowest in Mëranaw MT schools (53 percent). Note that of the four MT groups, Chavacano and Magindanawn MT schools have the highest percent of students who do not speak the MT at home, and Mëranaw the lowest.

4.6.3 Translation and Code-Switching

According to the guidelines for the policy implementation,

> [t]he teacher should consistently use the MT as the MoTL; translation is not advisable unless this forms part of the learning objectives and is used as a teaching strategy in bridging. … The learners may use their MT in expressing their answers if they find it difficult to use the target language (e.g., in Filipino or English subjects). The teacher can then subtly translate the learners' answer to the target language.[46]

As noted earlier, several researchers have advocated the intentional and strategic use of code-switching, or translanguaging, to harness the full power of the students' linguistic assets for learning.

In the teacher interview, when teachers were asked to list what they do when a student does not understand something in the language that they are using for instruction, 50 percent mentioned "translate it into a language that the student understands better." In addition, 89 percent indicated that they believed that "it is sometimes appropriate for teachers to use more than just the official language of instruction in class."

In addition to asking the teachers to self-report their strategies during the teacher interview, the observers also noted how frequently teachers actually used code-switching in class.[47] Overall, roughly a third of teachers rarely or never code-switched, a third did it occasionally, and a third did it somewhat or very frequently. Chavacano school teachers were outliers in their low frequency of code-switching compared to the other MT groups; 57 percent rarely or never code-switched versus 19 percent who did it somewhat or very frequently.

4.6.4 Encouragement of Student Multilingualism in Class

In addition to their own use of code-switching, the teachers were asked about their stance on their students' use of multiple languages in the classroom. In the teacher interview, 83 percent of teachers indicated that they believed that "children should be allowed to use their home language in class when necessary, even if it is not the official language of instruction for that subject" compared to only 17 percent who believed that "children should only use the official language of instruction for each subject in class."

In addition to gauging teacher attitudes through the interview, at the end of each lesson observation, the observer marked whether the teacher had "actively encouraged students to express themselves in another language" at any time during the observation period. In approximately 46 percent of the observations, the teacher was observed to actively encourage multilingualism in the classroom, with no major differences across MT groups, grades, or subjects.

4.6.5 Engagement of Community Volunteers who Speak the MT

The guidelines for the policy implementation recognize the vital role that communities play in the success of the policy at multiple levels, including

> parents or community volunteers who can provide support to teachers who are not speakers of the community's MT but are the only teachers available. … If teachers are not familiar with the learners' MT, the schools are encouraged to engage parent and community volunteers to help the teachers. …Teachers can work together with

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[46] Republic of the Philippines Department of Education, 2019, p. 126
[47] Note that code-switching itself is pedagogically neutral, but when used strategically, it can promote learning in multiple languages. In this study, the observers did not evaluate the quality or pedagogical effectiveness of the teachers' code-switching, but only the frequency.

parent or community volunteers via team teaching. The teacher takes the lead in lesson planning and works closely with parent or community volunteer in implementing the lessons in MT during class hours. [48]

Some communities have been receptive to this strategy. In her study of a non-dominant language community in Davao City, Schell (2018) found that this was a favored solution by parents and community members, though they also felt that volunteers deserved a modest remuneration, and funds were not always readily available.

When asked during the interview to report what they did when a student did not understand something in the MoTL, very few teachers reported bringing in parents or volunteers who speak the student's language (4 percent), or even having a classmate explain in a language the student understands better (9 percent). Despite the policy implementation guidelines, these were evidently not common practices.

The above findings indicate that teachers used various linguistic and non-linguistic pedagogical approaches to support the learning of their multilingual students. They used explicit vocabulary instruction, code switching and the use of multiple languages in the classroom to scaffold their instruction.

4.7   Teacher Attitudes and Beliefs vis-à-vis the MT and the MTB-MLE Policy

As mentioned earlier, several studies have highlighted the importance for successful policy implementation of local stakeholder buy-in, including that of teachers. Previous studies have noted some ambiguity in teachers' feelings toward the MTB-MLE policy, appreciating the benefits that communication in a familiar language bring to the children's understanding while at the same time worrying about possibly negative consequences for their learning Filipino and English. [49]

How do teachers view the MT and the MTB-MLE policy?

Overall, teachers demonstrated generally positive attitudes toward the MT itself and toward the MTB-MLE policy. Approximately half of the teachers agreed with the policy that children should learn to read first in the MT, and 71 percent considered MT literacy acquisition as beneficial to their students' eventual acquisition of English. Overall, a slight majority of teachers considered the MT to be the most important language for their students to know well, and a strong majority supported speaking it at home. However, Magindanawn MT school teachers displayed a consistent preference for Filipino over the MT. In general, teachers believed that their students would be ready to transition to Filipino and English as MoTL by Grade 4 or sooner.

The teacher interview contained several questions to ascertain teachers' attitudes and beliefs that might influence their teaching practices with regard to language. In order to gauge the teachers' attitudes toward the MTB-MLE policy of initial literacy acquisition in the MT, the teachers were asked, "If it were up to you to decide, in which language would you want your students to learn to read first?" On average, about half (51 percent) of the teachers indicated that they would choose the current policy, i.e., that the students learn to read first in MT (**Table 19**). About a third said they would prefer Filipino, and only 12 percent said they would rather their students learn to read in English first. Magindanawn MT school teachers were the least likely to prefer that initial literacy acquisition take place in the MT (38 percent) and the most likely to prefer it in Filipino (49 percent).

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[48] Republic of the Philippines Department of Education, 2019, pp. 123, 129, 131
[49] Burton, 2013; Medilo, Jr., 2016; Parba, 2018; Schell, 2018

this section we examine the language-related variables that were associated with higher fidelity of implementation.

Which factors are associated with higher rates of teacher fidelity of implementation of the MTB-MLE policy?

The degree of teacher MT usage in conformity to the policy appeared to be vary in association with the following factors: the teachers' own linguistic background and comfort level in the MT, the teachers' beliefs about the best language for initial literacy acquisition, the linguistic composition of the student body, and the availability of student textbooks in the MT.

For this analysis, we examined the frequency of teacher MT use for the grades and subjects where the policy prescribes the MT as the sole MoTL, i.e., all KG and MT subject classes, and in G1–G2 math and social studies classes. The following patterns emerged.

Teacher MT usage may be influenced by their own linguistic background and comfort level in the MT. Teachers who considered the school MT as their own MT tended to the use the MT more in the classes for which it was the sole prescribed MoTL (**Table 20**). Similarly, teachers who expressed greater ease speaking the MT (either informally and/or for teaching) used it in class on average more frequently than those who said they spoke it "with effort." Teachers' use of the MT in class also trended in the same direction as their self-reported comfort level using the MT as the MoTL in that, on average, the higher their reported comfort level, the more they used the MT.[50]

Table 20.   Patterns in frequency of teacher MT use by teacher language background and comfort levels

Teacher Language Variable		% [CI] of Time KG Teachers Used the MT in Class	% [CI] of Time G1–G3 Teachers Used the MT in MT class	% [CI] of Time G1–G2 Teachers Used the MT in Mathematics and Social Studies Classes
Teacher MT / School MT Match	Teacher's MT matched the school MT	87.8 [±5.3]	93.2 [±2.0]	67.6 [±5.5]
	Teacher's MT did not match the school MT	55.4 [±12.7]	53.6 [±11.7]	33.8 [±9.2]
Teacher self-reported speaking ability in the MT[a]	At ease both speaking informally and teaching[b]	81.7 [±7.6]	90.9 [±3.2]	67.4 [±8.0]
	At ease speaking informally[c]	83.8 [±8.8]	89.4 [±4.6]	63.4 [±7.1]
	Speak with effort[d]	54.3 [±19.2]	71.2 [±10.3]	40.1 [±12.9]
Teacher self-reported comfort level using the MT as the MoTL	Very comfortable	84.1 [±7.2]	92.0 [±2.8]	69.5 [±61.9]
	Somewhat comfortable	77.1 [±9.5]	84.6 [±6.1]	56.6 [±7.9]
	Somewhat or very uncomfortable	61.8 [±23.7]	62.7 [±12.2]	38.0 [±13.2]

[a] The lowest ability level, i.e., "I do not speak this language," had too few responses to be reliable for this analysis.
[b] i.e., "It is easy for me to use this language both for informal conversations and for teaching."
[c] i.e., "It is easy for me to use in informal conversations, but I sometimes have challenges expressing myself when using it for teaching."
[d] i.e., "With some effort, I can speak and understand informal conversations."

Teacher MT usage may be influenced by teachers' beliefs about the best language for initial literacy acquisition. In general, teachers who believed that their students should

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[50] In some cases, especially in KG, the differences in frequency of MT use between groups reporting different levels of comfort lie within the confidence intervals.

ideally learn to read first in MT used the MT in class more often than those who believed the ideal policy would be to promote initial literacy in Filipino or English[51] (**Table 21**).

Table 21. **Patterns in frequency of teacher MT use by teacher belief about best language for initial literacy acquisition**

Teacher Belief		% [CI] of Time KG Teachers Used the MT in Class	% [CI] of Time G1–G3 Teachers Used the MT in MT class	% [CI] of Time G1–G2 Teachers Used the MT in Mathematics and Social Studies Classes
Teacher believes that ideally students should learn to read first in…	MT	83.7 [±7.3]	92.6 [±3.0]	67.1 [±6.8]
	Filipino	72.0 [±12.6]	73.2 [±7.8]	51.8 [±7.2]
	English	78.5 [±13.3]	65.7 [±27.1]	53.9 [±19.4]

Teacher variables that did not show any consistent patterns with the teachers' rate of MT use include the teachers' number of years of experience teaching at the KG–G3 level, whether or not they received training to teach reading in the MT, and their possession of a teacher's guide written in MT for the subject.

Teachers may also be influenced by and adapt their language choices to the relative linguistic homogeneity of the student body. In short, teachers with more linguistically homogeneous classes tended to the use the MT in class more frequently than those with relatively heterogeneous classes (**Table 22**).

Table 22. **Patterns in frequency of teacher MT use by linguistic homogeneity of student body**

% of Students in Class Who Spoke the School MT at Home	% [CI] of Time KG Teachers Used the MT in Class	% [CI] of Time G1–G3 Teachers Used the MT in MT class	% [CI] of Time G1–G2 Teachers Used the MT in Mathematics and Social Studies Classes
Greater than or equal to 50% (More homogeneous)	83.3 [±5.2]	85.9 [±4.0]	60.6 [±6.0]
Less than 50% (More heterogeneous)	55.3 [±15.5]	60.9 [±21.1]	44.8 [±13.0]

The lower use of the MT in more heterogeneous classes may be related to the teachers' beliefs about their students' ability to understand them in each language. The number of teachers rating their students' ability to understand them in the MT as "poor" was too low to be reliable for this analysis; however, the teachers' ratings of "fair," "good," and "very good" did not show any consistent pattern with their MT usage.

G1–G3 teacher MT usage may be influenced by the availability of student textbooks written in the MT. Teachers whose students had a textbook for that subject written in the MT tended to use the MT in class more often (**Table 23**). It is possible that having the subject content available in the MT in the form of the student textbook facilitates the teachers' use of the MT for covering that content because they do not have to navigate back and forth as much between languages, translating concepts from source material in another language of publication to the target MoTL (i.e., the MT). The trend of higher MT use in the presence of MT student textbooks was especially noticeable in the content areas of mathematics and social studies classes, where overall MT usage was lower, and where textbooks written in the MT were rarer. The pattern held across all MT groups but was especially pronounced in the Magindanawn MT group, where teachers were nearly 50

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[51] Note however the wide confidence intervals associated with the data on English use.

percentage points more likely to use the MT in the presence of a student textbook written in the MT.

Table 23.   Patterns in teacher frequency of MT use by availability of MT student textbooks

MT Group	Student Textbook Availability in MT	% [CI] of Time G1–G3 Teachers Used the MT in MT class	% [CI] of Time G1–G2 Teachers Used the MT in Mathematics and Social Studies Classes
Bahasa Sug	Have textbook	91.4 [±5.4]	87.6 [±6.7]
	Do not have textbook	72.6 [±11.5]	56.9 [±12.8]
Chavacano	Have textbook	98.0 [±1.1]	90.7 [±8.5]
	Do not have textbook	95.2 [±2.1]	82.8 [±5.6]
Magindanawn	Have textbook	78.3 [±8.9]	68.0 [±17.4]
	Do not have textbook	38.7 [±18.2]	21.5 [±9.1]
Mëranaw	Have textbook	96.3 [±2.0]	80.9 [±9.2]
	Do not have textbook	90.3 [±7.6]	60.1 [±11.0]

These general trends played out differently in the different MT groups. For example, as noted earlier, Magindanawn MT school teachers showed the lowest use of the MT and the highest use of Filipino across grades and subjects, and often contrary to policy. In line with the patterns described above, Magindanawn MT school teachers were the least likely group to report the school MT as their own MT and the most likely to report Filipino as their own MT,[52] though the other groups also reported using Filipino as a frequent home language at similar rates. Magindanawn MT school teachers reported the least ease speaking the school MT and using it as MoTL. In addition, Magindanawn MT school teachers' responses during the teacher interview often indicated attitudes favoring Filipino over Magindanawn.

On the other hand, Chavacano MT school teachers used the MT when prescribed for each grade and subject at the highest rate of the four MT groups, but contrary to the general trend, this practice was not obviously driven by either their students' or their own linguistic backgrounds. As noted earlier, the proportion of Chavacano MT school teachers reporting the school MT as their own was neither high nor low compared to the other groups.[53] Chavacano MT school *students*, on the other hand, reported the lowest rate of speaking their school MT at home, and their classes were highly heterogeneous.[54] Though the presence of an MT student textbook trended with higher teacher MT use in Chavacano MT schools, their MT use was still high without it. Incidentally, Chavacano MT school teachers also reported the highest rate of having been trained in teaching reading in the MT,[55] though this variable does not consistently track with MT usage in the overall data set. The Chavacano MT school teachers' practices suggest that none of these factors is inherently deterministic, e.g., that even teachers who did not consider the school MT as their own MT, even in heterogeneous classrooms, or even in classrooms with inadequate TLM, it is nonetheless still possible to implement the policy to a high degree.

[52] Fifty-six percent [±13.7] of Magindanawn MT school teachers reported the school MT (i.e., Magindanawn) as their own MT, compared to 68–98 percent for the respective MTs in the other groups, though the confidence intervals overlap with Bahasa Sug MT school teachers' rate (68.1 percent [±9.9]). Nineteen percent [±11.5] reported Filipino as their MT, compared to only 1–4 percent in the other groups. See Table 8.

[53] Seventy-one percent of Chavacano MT school teachers reported the school MT (i.e., Chavacano) as their own MT, a rate similar to the Bahasa Sug MT school teachers (68 percent) but above Magindanawn (56 percent) and far below Mëranaw (98 percent). Moreover, the confidence intervals for the Chavacano MT group overlap with the other groups except for Mëranaw. See Table 8.

[54] Chavacano MT school students had the lowest rate of reporting speaking the school MT at home, at 65.3 percent, but the confidence intervals ([±7.0]) overlap with those for Magindanawn MT school students (79.4 percent [±10.5]). See Table 13.

[55] Chavacano MT school teachers had the highest rate of having received training to teach reading in the MT, at 52.3 percent, but the confidence intervals ([±5.6]) overlap with those for Mëranaw (39.5 percent [±9.2]). See Table 12.

Teachers language experiences, their ease with speaking and teaching the MT, their beliefs about initial instruction in MT, the heterogeneity of their students and the accessibility of student textbooks are all factors which appeared to influence teacher adherence to the MTB-MLE policy.

6   Findings: Language Usage vis-à-vis Student Reading Outcomes

This study on teacher and student language usage was conducted in the same schools at the same time as the regional EGRA. Students in G2 and G3 were assessed in five reading subtasks in the school-designated MT: letter sound identification, invented word decoding, oral reading fluency, reading comprehension, and listening comprehension. The results of the EGRA are reported in full in Betts, Punjabi, Pouezevara, & Cummiskey (2019) and summarized here in **Appendix G**.

As described in the full EGRA report, linear regression analysis on the EGRA data and student demographics found statistically significant positive relationships between student oral reading fluency (ORF) and student attendance, socioeconomic status, having reading materials at home, and having literate parents. Collecting the EGRA data at the same time as the language usage study also allowed for an examination of relationships between student reading outcomes and teacher and student language backgrounds and practices in class.

A linear regression analysis was conducted controlling for MT language group, grade, gender, student possession of reading materials at home, and student socioeconomic status. The results showed no statistically significant[56] positive relationship between either the students' ORF rate or their reading comprehension accuracy (number of questions answered correctly over number attempted) and the following variables from their respective MT lesson observations:

- their teacher's own MT background,

- the amount of time that the teacher or students used the MT in the MT subject class,

- the teacher's use of a teacher's guide written in MT, or

- the teacher's use of explicit vocabulary instruction.

There was not enough variation in the data to reliably analyze the relationship between the student reading outcomes and their use of textbooks because too few G2–G3 students had and used a textbook in the MT.

The only variable to show a statistically significant positive relationship with student outcomes was the students' own linguistic background. That is, students whose frequent home language matched the school MT slightly outperformed students whose home language did not match, by 7 percent on average in reading comprehension accuracy (p<0.01). There was no statistically significant relationship between the students' linguistic background and their ORF performance.

Linear regression models have limitations, and several assumptions must be met to use them confidently, including sufficient variation in the data. The lack of variation in some of the language usage data (e.g. low access to student textbooks, low time spent reading and writing, etc.) posed an obstacle to running linear regressions on all variables of interest. In addition, many of the variables in this study measured the amount (the "how much") of a particular phenomenon but not the nature (the "how"). For example, while the simple amount of time that the teacher and students used the MT in class did not show a statistically

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[56] Statistical significance was defined as *p*<0.05.

significant relationship to student outcomes, related but more meaningful variables may be what content the teacher and students discussed in the MT, how they discussed it, how well the content of the discussions supported the learning objectives of the lessons, and how strategically any bi/multilingual teaching approaches were used to promote learning, etc.

Finally, the slight advantage that students whose home language matched the school MT demonstrated in reading comprehension should come as no surprise. In fact, one of the premises of the MTB-MLE policy is that children learn better in a familiar language than in an unfamiliar one.

7   Insights and Recommendations

In August 2019, representatives from the BARMM Ministry of Higher and Technical Education, DepEd, local teacher training institutes, implementing partners, and other key stakeholders from each of the MT groups gathered for a workshop to collectively examine the findings of this study alongside the results of the concurrent regional EGRA. They offered contextual insights and made recommendations for strengthening policy implementation in each of their contexts. Their overall appraisal of the study results was that policy implementation is generally high, notwithstanding unique challenges in each of the MT contexts. Their recommendations focused on the following areas.

Teacher Proficiency in the MT

The study found that the more teachers were comfortable in speaking the school MT, the more they adhered to the policy in using it at the prescribed time. This is not surprising given the logical relationship between teachers' proficiency in a language and their confidence and ability to use that language for teaching. The workshop participants recommended increasing the efforts to align teacher assignments as much as possible with their proficiency and comfort level in the school MT. In accordance with the MTB-MLE policy guidelines, teachers' language expertise must be considered in hiring decisions.[57]

Where teachers proficient in the MT are not available, the policy guidelines recommend bringing in volunteers from the community who speak the MT to support the teacher. This was rarely practiced by the teachers in this study and is a strategy that may merit increased attention.

The workshop participants also recommended increasing efforts to ensure that teachers are adequately trained to teach beginning reading in the school MT, as only 36 percent of teachers in this study reported having received this training. The participants noted that in some contexts training on teaching reading in the MT has slowed or ceased for new hires, and even those who previously received training may need a refresher course. Another recommendation is to ensure that teachers who have been trained to teach reading in KG-G3 are not immediately reassigned to another grade level.

Class Sectioning

In this study, linguistic homogeneity in the classroom appeared to be advantageous in two ways: it was associated with greater teacher fidelity to the policy (i.e. more use of the MT when prescribed), and students who spoke the school MT at home scored slightly better on reading comprehension accuracy than those who did not. One recommendation therefore is to ensure accurate language mapping of students to aid in the determination of the most appropriate MT for each classroom. DepEd Order No. 21 S. 2019 gives extensive guidance in this process.[58] However, the process relies in part on the Learner Information System

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[57] Republic of the Philippines Department of Education, 2019, p. 122
[58] Republic of the Philippines Department of Education, 2019, pp. 129-131

(LIS), and some participants noted that the LIS needs to be strengthened and updated annually.

The political and sociolinguistic tensions in highly heterogeneous communities cannot always be easily resolved. As noted earlier, class sectioning by language group is controversial in some communities where stakeholders fear that it will result in discrimination and inequity. Some local government bodies (e.g. in Zamboanga City) have mandated the use of a single MT regardless of the students' home languages in order to promote unity. Again, as the ACTRC study on MTB-MLE implementation stressed, "the overarching localization principle … means that schools need to design all aspects of their implementation of the program with a clear understanding of the dynamics of their own context. This includes understanding the possibilities and limitations that apply in each school."[59]

The example of the Chavacano MT schools in this study demonstrates that teachers can implement the policy with a high degree of fidelity even in heterogeneous contexts; nonetheless, close attention must be paid to student outcomes and the provision of adequate support for students who do not speak the MT at home. If the political or sociolinguistic environment is not amenable to more homogeneous class sectioning, teachers will likely require extra training and support to implement effective pedagogical practices that promote equitable learning for linguistic minorities. For example, translanguaging, or the strategic and intentional use of the learners' full linguistic repertoire, has shown pedagogical benefits in multilingual classrooms, as has explicit vocabulary instruction and non-linguistic comprehension support (e.g. visual aides, etc.). Again, the strategy of bringing in parents or community volunteers who speak each MT is currently underutilized and merits further attention as a possible way to increase support to linguistic minority children in the classroom.

TLMs

The workshop participants duly noted the numerous gaps in the provisioning of TLMs in the MT, especially for student textbooks and materials in the content areas. All of the participants stressed the need for ongoing development of learning materials in order to achieve the minimum target of a one to one student to textbook ratio. Others suggested the School Learning Action Cells (SLAC) could also play a role in developing contextualized materials.

Many of the participants have been involved in the materials development process and are keenly aware of the challenges of contextualization in each context. For example, in Mëranaw, the process of orthographic standardization is ongoing and even the existing TLM require revision and refinement. Bahasa Sug group members mentioned the need to finalize, reproduce, and distribute the revised Bahasa Sug orthography to improve teachers' competence and confidence in using it. Several participants highlighted the challenge of accommodating dialectal differences, such as in Magindanawn, where speakers use different terms for the same object depending on the region. In general, the participants recommended that the existing TLMs be inventoried and evaluated for quality.

The workshop participants also pointed out that in some cases the materials exist, but the supply and demand of the TLMs are mismatched, or inefficiencies in distribution of the materials have contributed to the under provision found in the classrooms in this study. Data management and book procurement and distribution systems need to be strengthened to ensure that the right books get where they are needed in the right quantities and at the right time.

The Learners Resources and Materials Development System (LRMDS) is an electronic repository of quality-assured and approved materials owned by DepEd. Teachers can enroll in the portal in order to access the materials. However, the workshop participants noted that

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[59] Metila, Pradilla, & Williams, 2017, pp. 22-23

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Appendix A: Sample Methodology, Sample Weights, and Precision Estimates

This appendix discusses the details of the sample, the population that it is meant to represent, and how the sample is properly representative of that population. It also discusses the precision estimates for the major outcome variables from which the sample size was derived.

Population of Interest and Sample Frame

The population of interest includes all primary government schools in Region IX, Region X, Region XII, and the Autonomous Region in Muslim Mindanao (ARMM) that instruct in one of the four language groups of interest (Chavacano, Bahasa Sug, Magindanawn, or Mëranaw) and are not located in the Sulu division outside of Jolo City. The 2017–2018 Basic Education Information System (BEIS) Census data were used as the sample frame from which the sample was drawn. Those census data were kindly provided by the Department of Education.

Table A1 provides the total number of schools in the list frame along with the total number of schools excluded for the given reason. It also provides the total number of schools that make up the defined population. **Table A2** provides the population of schools by language group as well as the Grade (G)2 and G3 enrollment by gender.

Table A1.   Schools excluded from the list frame prior to sampling

	N Schools	Percent
Total number of schools in the sample frame	38,913	
Reason for Exclusion		
School is not located in Regions IX, X, XII, or ARMM	30,736	78.99
School does not instruct in one of the four languages (Chavacano, Bahasa Sug, Magindanawn, or Mëranaw)	5,487	14.1
School does not have primary G1–G6	1	0
School does not have KG	0	0
School was indicated as closed	22	0.06
School was located in Sulu division (except for Jolo City)	348	0.89
School is missing language information	370	0.95
Not Excluded [Defined Population]	**1,949**	**5.01**

Table A2.   Population counts of schools by MT group

MT Group	School Population	Grade	Student Population	Gender	Student Population
Chavacano	154	Second	14,547	Boys	7,428
				Girls	7,119
		Third	16,178	Boys	8,468
				Girls	7,710
Bahasa Sug	254	Second	13,840	Boys	7,047
				Girls	6,793
		Third	14,297	Boys	7,266
				Girls	7,031

Appendix C: Teacher Language Usage by Subject, Grade, and MT Group

Table C1.   Teacher language usage in MT subject class, by MT group

Language Used	% [CI] of Time in Bahasa Sug Lesson Observations			% [CI] of Time in Chavacano Lesson Observations			% [CI] of Time in Magindanawn Lesson Observations			% [CI] of Time in Mëranaw Lesson Observations		
Grade	G1	G2	G3	G1	G2	G3	G1	G2	G3	G1	G2	G3
N	40	45	39	40	41	40	40	37	58	40	37	30
MT	90.5 [±6.7]	81.5 [±8.5]	89.2 [±9.7]	98.2 [±1.4]	94.8 [±2.7]	97.7 [±1.8]	58.8 [±19.5]	60.5 [±16.2]	72.7 [±12.7]	97.0 [±2.7]	94.3 [±4.0]	93.7[±5.8]
Filipino	9.5 [±6.7]	13.1 [±8.5]	10.3 [±9.5]	1.4 [±1.3]	2.7 [±2.0]	1.1 [±1.5]	39.7 [±19.5]	39.2 [±16.3]	22.6 [±11.9]	1.5 [±1.7]	2.5 [±3.4]	5.1 [±4.9]
English	-	4.1 [±5.5]	0.5 [±0.6]	0.2 [±.3]	2.1 [±1.7]	1.2 [±0.9]	1.5 [±2.1]	0.4 [±.7]	4.7 [±3.8]	1.1 [±1.4]	1.1 [±1.2]	1.3 [±1.5]

Table C2.   Teacher language usage in Filipino subject class, by MT group

Language Used	% [CI] of Time in Bahasa Sug Lesson Observations			% [CI] of Time in Chavacano Lesson Observations			% [CI] of Time in Magindanawn Lesson Observations			% [CI] of Time in Mëranaw Lesson Observations		
Grade	G1	G2	G3	G1	G2	G3	G1	G2	G3	G1	G2	G3
N	39	40	34	40	40	36	38	41	32	40	38	38
MT	10.4 [±6.7]	12.4 [±4.7]	4.6 [±5.8]	4.6 [±4.8]	7.7 [±4.8]	2.8 [±2.5]	18.4 [±16.1]	10.1 [±7.0]	19.7 [±11.4]	49.3 [±11.7]	40.5 [±9.6]	36.8 [±14.5]
Filipino	88.7 [±7.5]	87.0 [±4.7]	95.4 [±5.8]	93.4 [±5.5]	90.4 [±5.8]	97.2 [±2.5]	80.6 [±16.2]	83.7 [±8.8]	77.1 [±11.3]	49.5 [±12.0]	57.7 [±10.0]	62.3 [±14.4]
English	0.9 [±1.1]	0.6 [±0.7]	0 [±0]	2.0 [±2.7]	1.5 [±1.4]	-	1.1 [±1.6]	6.2 [±7.0]	3.2 [±4.3]	1.1 [±1.2]	0.4 [±0.6]	1.0 [±1.8]

Table C3.   Teacher language usage in English subject class, by MT group

Language Used	% [CI] of Time in Bahasa Sug Lesson Observations			% [CI] of Time in Chavacano Lesson Observations			% [CI] of Time in Magindanawn Lesson Observations			% [CI] of Time in Mëranaw Lesson Observations		
Grade	G1	G2	G3	G1	G2	G3	G1	G2	G3	G1	G2	G3
N	40	40	37	40	40	35	37	36	28	38	38	38
MT	17.0 [±8.3]	22.7 [±8.9]	9.0 [±5.7]	12.5 [±8.2]	8.7 [±4.6]	7.2 [±5.3]	23.8 [±15.1]	19.3 [±9.5]	19.6 [±9.2]	50.7 [±10.1]	49.4 [±11.4]	34.7 [±12.4]
Filipino	13.6 [±5.6]	9.4 [±5.9]	5.3 [±3.2]	1.4 [±1.5]	6.1 [±3.8]	4.3 [±4.5]	23.7 [±7.7]	19.1 [±7.4]	14.5 [±8.8]	8.4 [±6.1]	9.1 [±5.0]	8.1 [±6.9]
English	69.4 [±8.9]	67.9 [±10.4]	85.7 [±6.4]	85.5 [±8.1]	84.9 [±5.2]	88.5 [±6.3]	52.5 [±14.8]	61.7 [±11.4]	66.0 [±10.2]	40.8 [±7.7]	40.9 [±10.2]	57.2 [±10.5]

Table C4. Teacher language usage in mathematics subject class, by MT group

Language Used	% [CI] of Time in Bahasa Sug Lesson Observations			% [CI] of Time in Chavacano Lesson Observations			% [CI] of Time in Magindanawn Lesson Observations			% [CI] of Time in Mëranaw Lesson Observations		
Grade	G1	G2	G3	G1	G2	G3	G1	G2	G3	G1	G2	G3
N	40	38	36	40	40	40	39	39	34	40	38	40
MT	86.5 [±7.8]	70.9 [±11.2]	78.8 [±11.4]	91.8 [±7.6]	79.5 [±8.4]	89.0 [±7.0]	44.1 [±16.5]	30.4 [±11.5]	39.6 [±15.0]	76.7 [±8.3]	72.6 [±9.9]	58.0 [±16.7]
Filipino	7.3 [±5.1]	17.1 [±9.1]	9.5 [±7.6]	5.5 [±7.0]	5.9 [±3.8]	2.1 [±2.5]	42.2 [±17.7]	25.5 [±10.7]	24.3 [±11.3]	1.0 [±1.0]	7.1 [±4.4]	11.4 [±7.7]
English	6.2 [±5.2]	11.7 [±4.9]	11.7 [±7.7]	2.4 [±2.3]	13.6 [±6.2]	8.9 [±6.0]	13.4 [±6.7]	44.1 [±12.3]	36.1 [±12.0]	22.3 [±8.4]	18.1 [±7.7]	26.1 [±10.6]

Table C5. Teacher language usage in social studies subject class, by MT group

Language Used	% [CI] of Time in Bahasa Sug Lesson Observations			% [CI] of Time in Chavacano Lesson Observations			% [CI] of Time in Magindanawn Lesson Observations			% [CI] of Time in Mëranaw Lesson Observations		
Grade	G1	G2	G3	G1	G2	G3	G1	G2	G3	G1	G2	G3
N[a]	41	38	18	41	39	10	40	38	12	38	39	25
MT	74.2 [±12.3]	70.6 [±11.3]	76.6 [±17.2]	86.9 [±8.8]	86.5 [±7.6]	100 [±0]	42.6 [±17.4]	31.5 [±14.2]	19.8 [±18.0]	81.4 [±7.9]	70.0 [±12.7]	64.0 [±13.8]
Filipino	25.8 [±12.3]	28.8 [±11.0]	23.4 [±17.2]	12.4 [±8.7]	9.3 [±7.2]	0 [±0]	57.1 [±17.4]	67.9 [±14.4]	75.6 [±22.8]	16.4 [±6.9]	27.1 [±11.7]	35.7 [±13.7]
English	0.1 [±.1]	0.2 [±.4]	-	0.3 [±.6]	3.1 [±2.3]	0 [±0]	0.3 [±.6]	0.6 [±.8]	4.6 [±8.7]	2.0 [±2.1]	0.2 [±0.5]	0.3 [±0.6]

[a] The number of social studies lesson observations were lower in G3 because observers were told to prioritize science over social studies in G3 when available.

Table C6. Teacher language usage in science subject class, by MT group

Language Used	% [CI] of Time in Bahasa Sug G3 Lesson Observations	% [CI] of Time in Chavacano G3 Lesson Observations	% [CI] of Time in Magindanawn G3 Lesson Observations	% [CI] of Time in Mëranaw G3 Lesson Observations
N	33	39	33	28
MT	69.8 [±14.1]	92.8 [±6.7]	51.4 [±16.7]	59.3 [±20.0]
Filipino	20.8 [±12.9]	3.3 [±4.4]	32.3 [±14.2]	20.3 [±17.9]
English	9.4 [±6.6]	3.9 [±4.4]	14.6 [±7.4]	20.5 [±11.3]

Subjec	TLM Availability and Use		% [Confidence Interval (CI)] of G1 Lesson Observations	% [CI] of G2 Lesson Observations	% [CI] of G3 Lesson Observations
Social Studies	*Number of lessons observed*		160	154	65
	TG availability	MT	**26.3 [±7.1]**	**23.9 [±7.6]**	**11.5 [±7.3]**
		Filipino	38.9 [±10.3]	29.9 [±8.2]	55.1 [±15.1]
		English	1.3 [±1.8]	0.5 [±1.7]	4.7 [±9.1]
		Other	-	0.8 [±1.4]	1.3 [±4.0]
		None	35.4 [±9.5]	45.3 [±9.6]	27.5 [±14.8]
	Teacher had a teacher's guide		64.6 [±9.5]	54.7 [±9.6]	72.5 [±14.8]
	Teacher consulted teacher's guide during lesson		24.9 [±8.3]	29.7 [±8.5]	48.1 [±15.0]
	Student textbook availability	MT	**15.8 [±7.4]**	**6.6 [±4.9]**	**6.6 [±6.1]**
		Filipino	4.6 [±4.4]	7.2 [±4.8]	15.0 [±16.2]
		English	-	0.4 [±1.1]	-
		Other	-	-	-
		None	79.6 [±7.9]	85.8 [±6.4]	78.4 [±15.5]
	Class had student book		20.4 [±7.9]	14.2 [±6.4]	21.6 [±15.5]
	Students used book		16.6 [±7.8]	14.2 [±6.4]	21.6 [±15.5]
	Students read additional materials in…	MT	**10.5 [±4.2]**	**11.2 [±5.8]**	**19.1 [±11.1]**
		Filipino	5.9 [±3.5]	9.2 [±6.2]	20.8 [±11.6]
		English	0.6 [±0.9]	2.1 [±5.2]	6.3 [±8.7]
		Other	-	-	-
		None	87.9 [±4.4]	83.2 [±6.9]	75.0 [±12.1]
Science	*Number of lessons observed*		-	-	133
	TG availability	MT			**16.0 [±6.5]**
		Filipino			0.8 [±2.7]
		English			57.4 [±10.2]
		Other			-
		None			25.8 [±9.9]
	Teacher had a teacher's guide				74.2 [±9.9]
	Teacher consulted teacher's guide during lesson				38.8 [±9.7]
	Student textbook availability	MT			**16.4 [±6.0]**
		Filipino			-
		English			6.3 [±10.3]
		Other			-
		None			77.3 [±9.2]
	Class had student book				22.7 [±9.2]
	Students used book				19.0 [±8.9]
	Additional reading materials students used	MT			**15.1 [±7.4]**
		Filipino			11.4 [±6.1]
		English			14.4 [±7.6]
		Other			2.1 [±6.3]
		None			77.9 [±8.4]

Appendix E: TLM Availability by Grade, Subject, and MT Group

Table E1. Teacher's guide availability and use in Kindergarten, by MT group

Teacher's Guide Availability and Use		% [CI] of Bahasa Sug KG Lesson Observations	% [CI] of Chavacano KG Lesson Observations	% [CI] of Magindanawn KG Lesson Observations	% [CI] of Mëranaw KG Lesson Observations
TG availability	MT	30.2 [±13.6]	14.9 [±7.7]	32.4 [±12.4]	29.5 [±12.3]
	Filipino	4.3 [±3.8]	3.8 [±6.4]	8.6 [±7.4]	1.0 [±1.9]
	English	50.0 [±15.2]	74.5 [±10.9]	44.4 [±14.8]	24.7 [±19.4]
	Other	0.7 [±2.2]	-	-	-
	None (i.e. teacher did not have a teacher's guide)	14.8 [±15.4]	7.3 [±9.0]	16.7 [±8.3]	47.3 [±16.9]
Teacher consulted teacher's guide during lesson		38.5 [±14.8]	45.7 [±11.8]	12.2 [±7.2]	2.6 [±4.7]

Table E2. TLM availability and use in G1–G3 in Bahasa Sug MT schools, by Subject

Subject	Language of Publication	% [CI] of Lesson Observations in Which Teacher Possessed a Teacher's Guide for That Subject			% [CI] of Lesson Observations in Which the Class Possessed a Student Textbook for That Subject			% [CI] of Lesson Observations in Which the Students Read Materials Other than Textbook		
		G1	G2	G3	G1	G2	G3	G1	G2	G3
MT	MT	70.0 [±14.2]	28.9 [±16.9]	28.2 [±13.7]	10.0 [±10.2]	2.3 [±4.0]	43.9 [±15.7]	23.8 [±13.1]	4.6 [±8.9]	8.3 [±10.6]
	Filipino	-	5.9 [±6.9]	-	-	-	-	3.5 [±9.5]	-	3.4 [±5.8]
	English	-	8.2 [±10.3]	60.6 [±14.8]	-	-	-	5.0 [±8.6]	-	4.4 [±11.4]
	None	30.0 [±14.2]	51.9 [±16.1]	13.7 [±10.5]	90.0 [±10.2]	95.9 [±5.2]	56.1 [±15.7]	80.0 [±12.0]	95.4 [±8.9]	89.7 [±10.8]
Filipino	MT	-	-	1.9 [±5.6]	-	-	-	12.0 [±13.8]	-	-
	Filipino	60.6 [±15.5]	46.3 [±15.4]	88.2 [±10.2]	4.8 [±6.8]	4.9 [±12.5]	51.9 [±16.6]	29.8 [±15.3]	4.4 [±7.2]	2.8 [±8.1]
	English	1.8 [±5.5]	-	-	-	-	-	6.8 [±10.2]	-	-
	None	37.6 [±15.5]	53.7 [±15.4]	12.2 [±10.4]	95.2 [±6.8]	95.1 [±12.5]	48.1 [±16.6]	74.6 [±14.7]	95.6 [±7.2]	97.2 [±8.1]
English	MT	1.3 [±4.0]	3.3 [±8.7]	2.7 [±7.6]	-	-	-	-	-	2.5 [±7.1]
	Filipino	5.6 [±9.8]	-	-	1.5 [±4.5]	-	-	-	-	2.5 [±7.1]
	English	64.1 [±14.8]	36.1 [±14.1]	87.8 [±10.5]	9.6 [±10.6]	-	54.0 [±16.0]	16.4 [±11.4]	6.8 [±7.3]	8.8 [±11.0]
	None	29.0 [±14.1]	60.6 [±15.8]	9.6 [±9.7]	88.8 [±11.5]	100.0 [±0]	46.0 [±16.0]	85.7 [±11.0]	93.2 [±7.3]	91.2 [±11.0]
Mathematics	MT	55.0 [±15.6]	10.3 [±11.8]	18.3 [±13.7]	8.0 [±8.3]	2.5 [±3.4]	49.5 [±16.3]	12.3 [±9.5]	4.5 [±6.4]	1.7 [±5.2]
	Filipino	-	1.8 [±5.4]	-	-	7.9 [±12.4]	-	6.7 [±10.1]	2.2 [±6.5]	-
	English	13.1 [±10.8]	26.4 [±14.0]	64.0 [±15.5]	0.9 [±2.9]	-	-	6.0 [±8.8]	5.0 [±6.5]	4.8 [±12.3]
	None	31.9 [±14.9]	58.4 [±15.8]	17.7 [±11.7]	91.1 [±8.4]	89.6 [±11.7]	50.5 [±16.3]	78.9 [±12.4]	92.3 [±7.6]	93.5 [±11.2]
Social Studies	MT	52.4 [±15.7]	11.7 [±9.7]	18.2 [±19.0]	9.4 [±11.7]	0.5 [±1.6]	8.8 [±12.5]	14.5 [±10.8]	6.3 [±7.5]	-
	Filipino	22.9 [±13.9]	31.2 [±14.5]	48.7 [±21.1]	-	-	-	7.7 [±8.9]	2.6 [±7.4]	-
	English	-	-	-	-	2.6 [±7.4]	-	0.4 [±1.4]	-	-
	None	30.6 [±14.7]	54.5 [±16.0]	33.1 [±20.8]	90.6 [±11.7]	96.9 [±6.7]	91.2 [±12.5]	83.5 [±11.2]	91.1 [±8.7]	100 [±0]
Science	MT			21.8 [±13.6]			44.7 [±16.9]			8.4 [±12.9]
	Filipino			-			-			-
	English			65.1 [±15.4]			-			2.8 [±7.9]
	None			13.0 [±10.4]			55.3 [±16.9]			94.3 [±9.0]

Table E3. TLM availability and use in G1–G3 in Chavacano MT schools

Subject	Language of Publication	% [CI] of Lesson Observations in Which Teacher Possessed a Teacher's Guide for That Subject			% [CI] of Lesson Observations in Which the Class Possessed a Student Textbook for That Subject			% [CI] of Lesson Observations in Which the Students Read Materials Other than Textbook		
		G1	G2	G3	G1	G2	G3	G1	G2	G3
MT	MT	65.7 [±15.3]	36.4 [±13.4]	49.5 [±14.6]	32.0 [±15.0]	-	28.0 [±13.0]	36.0 [±13.6]	29.6 [±12.5]	17.0 [±10.8]
	Filipino	7.9 [±16.3]	-	-	-	-	-	-	-	-
	English	24.3 [±12.6]	5.2 [±7.5]	39.8 [±14.3]	-	-	-	4.2 [±10.0]	-	4.0 [±6.0]
	None	2.1 [±5.6]	58.4 [±13.9]	12.4 [±11.3]	68.0 [±15.0]	100.0 [±0]	72.0 [±13.0]	64.0 [±13.6]	70.4 [±12.5]	81.2 [±11.1]
Filipino	MT	-	-	-	-	-	-	8.3 [±9.6]	1.5 [±4.1]	-
	Filipino	96.1 [±5.9]	40.1 [±13.6]	93.2 [±7.8]	32.0 [±13.7]	-	38.5 [±14.7]	33.5 [±14.0]	31.0 [±13.2]	19.5 [±12.0]
	English	1.5 [±4.0]	-	-	1.5 [±4.0]	-	-	1.5 [±4.0]	-	-
	None	2.4 [±6.1]	59.9 [±13.6]	6.8 [±7.8]	66.5 [±14.0]	100.0 [±0]	61.5 [±14.7]	65.0 [±14.3]	67.5 [±13.3]	80.5 [±12.0]
English	MT	-	-	-	-	-	3.2 [±8.1]	5.7 [±8.3]	-	-
	Filipino	5.6 [±8.1]	-	-	-	-	-	-	-	-
	English	94.4 [±8.1]	39.5 [±13.7]	92.1 [±7.6]	27.8 [±13.6]	-	33.3 [±14.5]	35.3 [±14.0]	33.4 [±13.0]	23.9 [±13.2]
	None	-	60.5 [±13.7]	7.9 [±7.6]	72.2 [±13.6]	100.0 [±0]	63.4 [±14.8]	64.7 [±14.0]	66.6 [±13.0]	76.1 [±13.2]
Mathematics	MT	44.3 [±14.0]	27.1 [±11.9]	33.0 [±13.9]	25.2 [±12.8]	-	31.4 [±13.0]	26.9 [±13.4]	27.7 [±12.2]	16.6 [±10.2]
	Filipino	2.4 [±6.1]	-	-	-	-	2.7 [±6.7]	5.6 [±8.0]	-	-
	English	51.0 [±14.1]	13.4 [±10.2]	55.9 [±14.4]	4.2 [±10.1]	-	-	13.8 [±11.7]	2.1 [±5.5]	5.0 [±7.3]
	None	3.4 [±5.6]	59.6 [±13.6]	11.1 [±8.4]	70.5 [±13.6]	100.0 [±0]	63.2 [±14.4]	66.9 [±14.0]	72.3 [±12.2]	85.2 [±9.9]
Social Studies	MT	44.7 [±13.7]	32.1 [±12.8]	55.0 [±25.5]	29.1 [±13.7]	-	12.2 [±22.5]	33.1 [±13.9]	33.4 [±13.1]	14.8 [±25.1]
	Filipino	49.4 [±13.7]	13.0 [±10.0]	8.6 [±18.2]	-	-	-	8.9 [±9.4]	1.8 [±4.8]	-
	English	4.8 [±7.2]	-	-	-	-	-	4.0 [±6.2]	2.0 [±5.2]	-
	None	1.1 [±3.0]	54.9 [±14.1]	36.4 [±24.7]	70.9 [±13.7]	100.0 [±0]	87.8 [±22.5]	61 [±14.0]	66.6 [±13.1]	85.2 [±25.1]
Science	MT			24.8 [±12.4]			30.0 [±13.5]			12.2 [±9.7]
	Filipino			-			-			5.1 [±7.5]
	English			61.6 [±13.7]			2.6 [±6.6]			2.9 [±7.4]
	None			13.6 [±9.2]			67.5 [±13.7]			84.9 [±10.5]

Table E4.   TLM availability and use in G1–G3 in Magindanawn MT schools

Subject	Language of Publication	% [CI] of Lesson Observations in Which Teacher Possessed a Teacher's Guide for That Subject			% [CI] of Lesson Observations in Which the Class Possessed a Student Textbook for That Subject			% [CI] of Lesson Observations in Which the Students Read Materials Other than Textbook		
		G1	G2	G3	G1	G2	G3	G1	G2	G3
MT	MT	28.9 [±14.8]	36.8 [±16.9]	60.3 [±17.8]	4.6 [±8.1]	16.1 [±11.8]	16.8 [±15.1]	6.4 [±9.7]	16.1 [±13.9]	54.7 [±16.3]
	Filipino	22.2 [±20.7]	36.3 [±16.7]	17.2 [±12.9]	-	9.4 [±12.2]	-	6.1 [±9.9]	10.5 [±12.6]	44.2 [±16.8]
	English	4.5 [±8.0]	-	8.5 [±11.2]	-	-	-	3.6 [±10.1]	-	21.3 [±14.1]
	None	44.4 [±18.0]	28.0 [±15.3]	14.0 [±11.0]	95.4 [±8.1]	74.5 [±14.7]	83.2 [±15.1]	93.6 [±9.7]	77.8 [±15.0]	42.9 [±16.0]
Filipino	MT	2.2 [±7.0]	-	5.9 [±9.8]	-	-	-	4.4 [±6.5]	0.3 [±1.1]	23.9 [±16.5]
	Filipino	60.8 [±19]	60.3 [±15.1]	75.4 [±14.8]	2.5 [±7.9]	17.7 [±12.9]	10.8 [±13.2]	4.4 [±6.5]	12.5 [±12.4]	45.8 [±18.7]
	English	-	3.0 [±8.3]	2.5 [±8.0]	-	-	-	-	2.1 [±6.9]	4.7 [±7.9]
	None	37.0 [±18.9]	36.7 [±16.4]	16.2 [±13.2]	97.5 [±7.9]	82.3 [±12.9]	89.2 [±13.2]	95.6 [±6.5]	85.4 [±12.7]	50.7 [±18.6]
English	MT	-	-	-	-	0.4 [±1.3]	-	2.1 [±7.0]	4.5 [±12.7]	15.9 [±14.3]
	Filipino	1.1 [±4.0]	-	-	-	2.2 [±7.0]	-	3.9 [±7.1]	4.5 [±12.7]	25.7 [±16.5]
	English	66.6 [±18.9]	69.2 [±16.0]	85.7 [±13.0]	7.3 [±10.0]	21.6 [±14.3]	12.3 [±15.0]	3.9 [±7.1]	19.6 [±14.6]	33.9 [±18.6]
	None	32.3 [±18.9]	30.8 [±16.0]	14.3 [±13.0]	92.7 [±10.0]	75.9 [±14.6]	87.7 [±15.0]	96.1 [±7.1]	80.4 [±14.6]	63.8 [±18.7]
Mathematics	MT	23.9 [±14.3]	13.9 [±12.4]	15.7 [±12.4]	5.5 [±9.6]	7.1 [±10.4]	-	2.5 [±7.9]	10.1 [±12.7]	27.5 [±15.9]
	Filipino	4.7 [±9.1]	6.0 [±8.0]	10.2 [±13.5]	-	-	-	8.1 [±10.3]	6.1 [±10.9]	27.4 [±15.5]
	English	30.8 [±20.3]	52.6 [±16.5]	55.1 [±17.7]	1.4 [±4.6]	14.4 [±12.2]	4.1 [±12.0]	5.5 [±9.5]	11.3 [±11.8]	37.2 [±17.4]
	None	40.6 [±18.7]	27.5 [±15.2]	19.0 [±14.3]	93.1 [±9.5]	78.5 [±13.9]	95.9 [±12.0]	91.9 [±10.3]	84.9 [±12.3]	47.1 [±17.8]
Social Studies	MT	11.5 [±10.4]	13.1 [±13.2]	14.9 [±21.8]	2.4 [±7.6]	10.5 [±11.6]	-	2.0 [±6.5]	8.6 [±12.7]	21.0 [±15.0]
	Filipino	38.2 [±20.1]	50.1 [±16.9]	75.5 [±24.8]	5.6 [±9.6]	13.3 [±11.9]	-	2.0 [±6.5]	15.1 [±13.1]	27.9 [±16.0]
	English	1.6 [±5.5]	-	4.6 [±12.8]	-	-	4.2 [±7.5]	-	-	25.9 [±16.0]
	None	51.6 [±19.5]	36.9 [±16.3]	-	92.0 [±10.2]	76.2 [±14.5]	95.8 [±7.5]	98.0 [±6.5]	81.0 [±14.2]	62.7 [±17.6]
Science	MT			20.9 [±15.4]			13.3 [±20.0]			62.3 [±26.4]
	Filipino			2.5 [±8.0]			14.4 [±27.9]			62.4 [±26.4]
	English			50.8 [±18.3]			-			24.8 [±25.7]
	None			25.8 [±16.3]			72.2 [±26.8]			27.4 [±26.6]

Table E5.   TLM availability and use in G1–G3 in Mëranaw MT schools

Subject	Language of Publication	% [CI] of Lesson Observations in Which Teacher Possessed a Teacher's Guide for That Subject			% [CI] of Lesson Observations in Which the Class Possessed a Student Textbook for That Subject			% [CI] of Lesson Observations in Which the Students Read Materials Other than Textbook		
		G1	G2	G3	G1	G2	G3	G1	G2	G3
MT	MT	77.0 [±14.2]	67.2 [±17.1]	74.6 [±15.5]	29.2 [±17.6]	13.0 [±9.9]	27.5 [±17.5]	4.4 [±6.5]	3.7 [±6.8]	18.2 [±14.5]
	Filipino	1.7 [±5.8]	-	-	-	-	1.6 [±5.2]	2.9 [±9.2]	-	-
	English	-	5.2 [±14.5]	5.8 [±10.9]	-	-	-	-	-	3.0 [±9.5]
	None	21.2 [±14.0]	30.5 [±16.3]	23.9 [±15.4]	70.8 [±17.6]	87.0 [±9.9]	71.0 [±17.4]	95.6 [±6.5]	96.3 [±6.8]	81.8 [±14.5]
Filipino	MT	5.3 [±7.3]	-	-	3.5 [±6.5]	-	-	12.7 [±11.5]	4.8 [±8.5]	5.3 [±7.9]
	Filipino	55.6 [±18.2]	72.2 [±15.5]	66.9 [±18.6]	25.8 [±17.3]	8.5 [±8.4]	32.9 [±18.9]	10.9 [±10.1]	6.5 [±8.7]	10.1 [±10.1]
	English	-	-	-	-	-	-	-	-	-
	None	39.1 [±18.3]	27.8 [±15.5]	33.1 [±18.6]	70.7 [±17.4]	91.5 [±8.4]	67.1 [±18.9]	86.6 [±11.4]	93.5 [±8.7]	89.9 [±10.1]
English	MT	0.8 [±2.9]	-	2.6 [±8.2]	-	-	-	8.9 [±12.1]	5.1 [±14.2]	11.7 [±10.8]
	Filipino	-	-	-	-	-	-	4.2 [±8.0]	-	2.2 [±7.1]
	English	72.4 [±15.9]	47.9 [±18.0]	65.3 [±18.8]	29.5 [±17.9]	7.6 [±8.7]	28.6 [±19.1]	12.8 [±13.9]	6.8 [±12.8]	13.3 [±11.4]
	None	26.7 [±15.9]	52.1 [±18.0]	34.4 [±18.8]	70.5 [±17.9]	92.4 [±8.7]	71.4 [±19.1]	86.4 [±14.2]	93.2 [±12.8]	85 [±11.6]
Mathematics	MT	28.0 [±15.4]	28.3 [±16.0]	9.5 [±8.7]	30.7 [±17.3]	20.4 [±12.9]	4.5 [±8.2]	9.8 [±10.5]	2.1 [±7.0]	5.1 [±11.4]
	Filipino	-	-	-	-	-	-	2.7 [±8.6]	-	6.3 [±11.4]
	English	39.9 [±17.5]	30.7 [±15.9]	57.6 [±17.7]	-	-	22.6 [±18.6]	3.0 [±9.4]	3.6 [±6.7]	6.3 [±11.4]
	None	36.6 [±16.7]	41.1 [±18.6]	33.7 [±18.6]	69.3 [±17.3]	79.6 [±12.9]	72.8 [±18.5]	89.9 [±10.8]	94.3 [±7.8]	92.9 [±11.0]
Social Studies	MT	24.6 [±14.0]	35.4 [±16.6]	3.6 [±7.2]	28.1 [±18.1]	7.8 [±8.8]	2.4 [±7.9]	8.9 [±9.1]	7.5 [±12.8]	4.2 [±8.6]
	Filipino	41.9 [±18.1]	17.1 [±13.0]	52.2 [±22.4]	7.2 [±9.4]	6.8 [±7.8]	20.3 [±24.6]	8.3 [±8.6]	9.1 [±12.4]	8.7 [±11.3]
	English	-	1.4 [±4.8]	6.3 [±16.9]	-	-	-	-	4.9 [±13.9]	-
	None	33.5 [±16.5]	46.1 [±18.7]	37.8 [±22.9]	64.7 [±18.1]	85.4 [±10.8]	77.3 [±24.0]	89.6 [±9.4]	88.4 [±12.7]	90.0 [±11.4]
Science	MT			3.6 [±11.0]			11.9 [±14.3]			13.9 [±16.3]
	Filipino			-			-			3.8 [±11.6]
	English			58.0 [±21.6]			13.6 [±26.4]			14.5 [±16.7]
	None			38.4 [±21.8]			74.5 [±23.2]			81.7 [±17.3]

Appendix F: Student Language Usage in MT Subject Class by Language Mode, by MT Group

Table F1. **Student language usage in MT subject class by language mode in Bahasa Sug MT Schools**

Student Language Mode	% [CI] of Time in Lesson Observations and Equivalence in Minutes Given a 50-minute Lesson								
	G1			G2			G3		
	%	CI	minutes	%	CI	minutes	%	CI	minutes
Reading in MT	18.0	[±6.6]	9.0	14.0	[±4.3]	7.0	11.7	[±4.0]	5.9
Writing in MT	19.3	[±5.5]	9.7	9.5	[±3.5]	4.8	10.9	[±4.0]	5.5
Speaking in MT	17.5	[±3.8]	8.8	20.4	[±5.2]	10.2	23.8	[±6.9]	11.9
Listening in MT	30.6	[±6.9]	15.3	26.4	[±6.4]	13.2	40.6	[±8.5]	20.3

Table F2. **Student language usage in MT subject class by language mode in Chavacano MT schools**

Student Language Mode	% [CI] of Time during Lesson Observations and Equivalence in Minutes Given a 50-minute Lesson								
	G1			G2			G3		
	%	CI	minutes	%	CI	minutes	%	CI	minutes
Reading in MT	14.5	[±3.1]	7.3	15.2	[±3.3]	7.6	16.4	[±3.2]	8.2
Writing in MT	4.7	[±3.1]	2.4	9.2	[±3.2]	4.6	9.8	[±3.0]	4.9
Speaking in MT	23.9	[±6.7]	12.0	28.1	[±4.9]	14.1	25.0	[±2.5]	12.5
Listening in MT	48.4	[±6.8]	24.2	39.4	[±5.0]	19.7	42.6	[±4.5]	21.3

Table F3. **Student language usage in MT subject class by language mode in Magindanawn MT schools**

Student Language Mode	% [CI] of Time during Lesson Observations and Equivalence in Minutes Given a 50-minute Lesson								
	G1			G2			G3		
	%	CI	minutes	%	CI	minutes	%	CI	minutes
Reading in MT	7.4	[±3.9]	3.7	4.9	[±3.2]	2.5	23.0	[±5.4]	11.5
Writing in MT	12.2	[±5.7]	6.1	9.1	[±4.9]	4.6	15.9	[±5.7]	8.0
Speaking in MT	11.3	[±4.3]	5.7	11.4	[±4.9]	5.7	14.9	[±5.2]	7.5
Listening in MT	31.1	[±10.4]	15.6	24.7	[±10.3]	12.4	15.1	[±5.2]	7.6

Table F4. **Student language usage in MT subject class by language mode in Mëranaw MT schools**

Student Language Mode	% [CI] of Time in Lesson Observations and Equivalence in Minutes Given a 50-minute Lesson								
	G1			G2			G3		
	%	CI	*minutes*	%	CI	*minutes*	%	CI	*minutes*
Reading in MT	13.0	[±4.3]	*6.5*	9.5	[±3.7]	*4.8*	8.8	[±5.3]	*4.4*
Writing in MT	11.0	[±5.3]	*5.5*	13.4	[±6.4]	*6.7*	20.0	[±6.0]	*10.0*
Speaking in MT	18.7	[±5.3]	*9.4*	33.1	[±13.8]	*16.6*	17.0	[±5.0]	*8.5*
Listening in MT	34.1	[±9.9]	*17.1*	37.4	[±8.8]	*18.7*	32.0	[±6.1]	*16.0*

Appendix G: Summary of 2019 Regional EGRA Results, by MT Group

Table G1.   Overview of Bahasa Sug EGRA % zero and mean scores by grade

Subtask	N of items	% Zero Scores [Margin of Error]		Mean Scores [Margin of Error]	
		Grade 2 (n= 403)	Grade 3 (n= 401)	Grade 2 (n= 403)	Grade 3 (n= 401)
Listening Comprehension	5	3.3 [±1.9]	3.4 [±2.2]	68.9 [±5.4]	67.4 [±3.8]
Letter Sounds (correct letter sounds per minute)	100	36.6 [±8.9]	23.6 [±7.9]	12.1 [±2.9]	16.3 [±3.6]
Invented Words (correct invented words per minute)	50	42.0 [±7.4]	22.6 [±7.3]	10.2 [±2.0]	19.0 [±2.9]
Oral Reading Fluency - Passage 1 (correct words per minute)	47	44.0 [±8.3]	24.2 [±8.0]	17.8 [±3.7]	35.6 [±5.7]
Reading Comprehension - Passage 2 (percent correct)	5	55.5 [±8.4]	31.9 [±8.0]	27.4 [±5.6]	49.2 [±6.7]

Table G2.   Overview of Chavacano EGRA % zero and mean scores by grade

Subtask	N of items	% Zero Scores [Margin of Error]		Mean Scores [Margin of Error]	
		Grade 2 (n=398)	Grade 3 (n=402)	Grade 2 (n=398)	Grade 3 (n=402)
Listening Comprehension	5	40.7 [±6.9]	36.5 [±7.0]	26.8 [±4.6]	30.9 [±5.2]
Letter Sounds (correct letter sounds per minute)	100	21.3 [±6.5]	13.8 [±5.5]	19.1 [±3.1]	17.8 [±2.0]
Invented Words (correct invented words per minute)	50	28.3 [±6.5]	23.4 [±7.1]	14.7 [±1.8]	19.9 [±2.7]
Oral Reading Fluency - Passage 1 (correct words per minute)	60	24.1 [±6.0]	13.1 [±5.3]	34.0 [±4.2]	50.4 [±6.8]
Reading Comprehension - Passage 2 (percent correct)	5	36.7 [±6.6]	28.1 [±7.1]	45.0 [±6.0]	54.8 [±6.9]

Table G3.   Overview of Magindanawn EGRA % zero and mean scores by grade

Subtask	N of items	% Zero Scores [Margin of Error]		Mean Scores [Margin of Error]	
		Grade 2 (n= 390)	Grade 3 (n= 398)	Grade 2 (n= 390)	Grade 3 (n= 398)
Listening Comprehension	5	24.5 [±5.7]	15.7 [±4.8]	36.1 [±5.2]	44.1 [±4.0]
Letter Sounds (correct letter sounds per minute)	100	25.8 [±12.2]	12.1 [±5.2]	13.7 [±3.3]	17 [±3.4]
Invented Words (correct invented words per minute)	50	30.0 [±9.9]	15.2 [±6.5]	13.6 [±3]	21.7 [±3.1]
Oral Reading Fluency - Passage 1 (correct words per minute)	47	28.1 [±9.6]	13.7 [±5.9]	19.2 [±4.3]	34.5 [±5.2]
Reading Comprehension - Passage 2 (percent correct)	5	52.7 [±10.1]	26.9 [±8.1]	23.1 [±5.2]	38.6 [±6.3]

Table G4.   Overview of Mëranaw EGRA % zero and mean scores by grade

Subtask	N of items	% Zero Scores [Margin of Error]		Mean Scores [Margin of Error]	
		Grade 2 (n= 403)	Grade 3 (n= 401)	Grade 2 (n= 403)	Grade 3 (n= 401)
Listening Comprehension	5	1.4 [±1.3]	1 [±.9]	55.2 [±4.1]	55 [±4.0]
Letter Sounds (correct letter sounds per minute)	100	5.6 [±4.2]	2.5 [±1.8]	18.2 [±2.9]	23.2 [±2.6]
Invented Words (correct invented words per minute)	50	14.9 [±7.6]	4 [±2.5]	18.2 [±2.1]	28.5 [±2.4]
Oral Reading Fluency - Passage 1 (correct words per minute)	47	12.7 [±6.7]	3.5 [±2.2]	35.8 [±4.3]	55.6 [±5.0]
Reading Comprehension - Passage 2 (percent correct)	5	23.6 [±10.4]	7.8 [±3.5]	47.6 [±8.0]	62.3 [±4.5]