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# Experiences and Challenges of Public School Elementary Teachers in Teaching Mathematics Using Winaray Language

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***Abstract:*** *This study explored the experiences and challenges of public school elementary teachers in teaching Winaray as a medium of instruction. The qualitative approach using a phenomenological method of research was utilized, and the participants were selected using a purposive sampling technique. The study generated two themes on the experiences of teachers in teaching Mathematics using Winaray language: learner's engagement and enjoyment, and language barrier in mathematics instruction. Meanwhile, two themes emerged on the challenges of teachers in teaching Mathematics using Winaray language: difficulty in translating complex math terminologies, and low learner's mathematics comprehension. Incorporating a multilanguage approach for teaching mathematics, especially to elementary-level learners, could have numerous benefits as learners can be more adept at learning multiple languages simultaneously. Personalized mathematics instruction based on learner interests and understanding, continuous refinement of mathematics curriculum for primary learners, and enhancing math instruction through diverse teaching strategies could also be considered to ensure the quality of teachers' classroom instruction and the learners' understanding of mathematics.*

**Keywords:** *Challenges, Experiences, Mathematics, Public School Elementary Teachers, Winaray Language*

## 1. INTRODUCTION

Language serves as the indispensable conduit through which individuals connect concepts and emotions to their distinct identities, facilitating universal interaction, communication, and learning, particularly within educational institutions. The Philippines, a nation characterized by linguistic diversity, boasts a tapestry of languages unique to each locale. Among these, the Winaray language, commonly spoken in Tacloban Province, stands as one of the principal languages, acting as a shared means of communication among Taclobanons. However, it is worth noting that language and mathematics have historically shared a close connection, with language proficiency significantly influencing the comprehension of mathematical concepts.

Mother Tongue-Based Multilingual Education (MTB-MLE) is an additional curriculum in the Philippine educational system. In other circumstances, bilingual education refers to using each community's native tongue and the official school language of teaching. According to Malone (2007), the MTB-MLE in certain nations consists of four languages: the learner's mother tongue or first language, a regional language, the country's official language, and an international language. Understanding mathematical concepts requires knowledge of the language. Although success and failure may influence familiarity since the beginning of time, people have used language to solve their difficulties with math, communicate, and settle disputes. It is one characteristic that distinguishes humans from other living things and unites people from different parts of the world.

Furthermore, mathematical skills are frequently challenging to learn and master in a language that is not the learners' native tongue (Siyang, 2018). When they struggle to understand the teaching method, learners frequently struggle to learn mathematical concepts and skills. Similarly, learners who received instruction in their native tongue demonstrated more significant learning gains than those who received instruction in English. Jourdain and Sharma (2016) indicated that several language abilities significantly impact a learner's capacity to understand and read mathematics, which indicates a strong association between math achievement and reading ability. To understand mathematical problems early on and practice and build the abilities for the foundation of higher mathematics, a learner must learn the words and grammatical patterns of the English language. Mother tongue-based instruction investigates and evaluates language as both tools for academic development and the foundation of cultural identity and intercultural sustenance.

The primary language of mother tongue instruction starts from kindergarten to Grade 3. Sumbalan et al. (2017) favored teaching in learners' mother tongue and mentioned that they could freely express themselves through it without worrying about making grammatical errors. Moreover, it serves as the starting point for them to understand more complex concepts. Moreover, Awopetu (2016) discovered that using mother tongue teaching as a medium of instruction is suitable for developing the learning abilities of preschool learners. Young learners need exposure to teaching to quickly pick up knowledge and skills that will act as their basis.

Moreover, language is one of the curriculum's most essential components; the child's mother tongue is viewed as having the ultimate significance because it significantly impacts how they acquire, perceive, and store knowledge at a young age. In addition, it gives learners a communication tool,

which is essential for the teaching and learning process. For starters, it organizes a significant portion of the child's surroundings, labeling the things, behaviors, concepts, traits, and so forth that are important to him. Omoniyi et al. (2013) further noted that the mother tongue should be used in primary school mathematics. Learners assimilate mathematics language and become math-friendly at a young age, confirming that teaching young children in their mother tongue improves their learning. Hafiz and Farik (2016) also recognized the necessity to incorporate children's cultures into the teaching and learning of mathematics.

Numerous studies have been conducted to investigate the execution of the MTB-MLE policy. Notably, Tundag et al. (2020) emphasized the significant difficulty in translating mathematical concepts and terminology into the mother tongue. Lartec et al. (2014) also recognized important difficulties such as a lack of mother tongue-based books, limited vocabulary resources, and insufficient teacher training. This study attempts to look more deeply into the complex issues underlying the MTB-MLE policy implementation, particularly in the context of mathematics instruction in the Winaray language in public schools. This study further intends to provide an in-depth understanding of the experiences and challenges experienced by elementary teachers, shedding light on the effectiveness and sustainability of mother tongue-based mathematics teaching.

## 2. LITERATURE REVIEW

Numerous minority language groups all around the world have put in place mother tongue-based multilingual education programs. It is thought that students who start their education in their mother tongue exhibit increased self-confidence, active engagement in class discussions, a propensity for asking questions, and a thorough understanding of the subject matter. Furthermore, they demonstrate increased reading comprehension, accelerated writing skills, improved clarity in written expression, and a swift acquisition of the school's language, both spoken and written.

According to Englis and Boholano (2022), teachers are well-prepared in terms of subject matter and teaching aids while utilizing MTB to teach mathematics. They contend that the fundamental methods for teaching mathematics are contextualization and innovation. Contextualized instruction integrates the learning of essential abilities and concentrates teaching and learning on concrete applications in a particular context that the learner finds attractive. Learners' performance and recall skills improve when mathematics is taught in their mother tongue.

Language serves as a cornerstone in the learning process, encompassing both spoken and written forms and emphasizing its equal significance for both learners and educators alike. Furthermore, they underscored the idea that comprehending concepts and methods requires time and multiple perspectives, often supported by apt analogies. The utilization of language, particularly one that learners are already acquainted with, can profoundly facilitate the accrual of meaning in the context of teaching mathematics. Additionally, Johnstone (2001) posited that mastering grammar and enhancing reading comprehension are pivotal tasks that can significantly impact a learner's success in acquiring arithmetic proficiency.

On the other hand, English proficiency is necessary to learn the fundamentals of mathematics. Mother Tongue-Based Multilingual Education (MTB-MLE) is one of the modifications to the Basic Education Curriculum brought about by the new K–12 program in the Philippines, is one of those adjustments. First-language first education or mother tongue-based multilingual education (MTB-MLE), starts school in the learner's mother tongue before introducing other languages, notably Filipino and English. It is intended to alleviate the high functional illiteracy rate among Filipinos, a situation in which language is crucial. This program responds to the demand for instruction in the mother tongue. Filipinos appear to perform poorly in math because they struggle with the English language used as the teaching language.

Moreover, Karikari et al. (2022) reported that employing learners' native language as a medium of instruction in primary school arithmetic fosters active engagement, a vital factor in knowledge acquisition. Moreover, extensive evidence supports the notion that implementing mother tongue-based instruction in rural upper elementary courses significantly enhances mathematics proficiency (Punch & Ngwenya, 2015). In contrast, Baquiller and Abellon (2021) noted that transitioning from English to mother tongue-based mathematics instruction in primary grades presents instructors with notable difficulties and challenges. Research indicates that the foremost challenge in teaching mathematics in the native language lies in the inadequate translation of mathematical terms from English to the target language. Furthermore, the identified issues related to language, teaching methodologies, and instructional materials are recognized as significant impediments in this context.

Esapada (2012) pointed out that kindergarten learners who were exposed to their native tongue scored better in mathematics than those who were in English. Furthermore, according to George (2013), the language of instruction and the academic success of the subject's studies are significantly correlated. Academic achievement grows along with the number of languages used in teaching (Andaya, 2014). Meanwhile, Santiago (2019) stated that the goal of the mother tongue is to help children acquire proper cognitive and reasoning skills by letting them express themselves through the language they are competent in. To acquaint learners with concepts and explain the procedure in a way they may understand, teachers must teach math lessons in the native language of the learners. Learners' understanding of the material taught and their perception of the efficacy of mother tongue-based instruction depend on whether this would help or impede them. For learners to comprehend the lesson well

and express themselves freely, teachers should be encouraged to teach in their dialect.

The literature review highlights the global implementation of mother tongue-based multilingual education programs in minority language communities, emphasizing the benefits of commencing education in the native language. Learners who receive instruction in their mother tongue tend to exhibit increased self-confidence, active class participation, inquisitiveness, and a deeper understanding of subjects, particularly in mathematics. This approach also leads to improved reading comprehension, writing skills, and mastery of the school's language. However, the review also acknowledges that English proficiency remains essential for mathematics education in some contexts, such as the Philippines, where the Mother Tongue-Based Multilingual Education (MTB-MLE) program seeks to address the high functional illiteracy rate by starting education in the learner's mother tongue. Challenges emerge during the transition from English to native language instruction, with difficulties in translating mathematical terms and addressing issues related to language, teaching methodologies, and instructional materials (Baquiller & Abellon, 2021). This review collectively emphasizes the intricate relationship between language and mathematics education, with the potential to unlock enhanced learning outcomes through thoughtful implementation of mother tongue-based approaches.

## 3. METHODOLOGY

### *Research Design*

The research employed a qualitative phenomenological approach to explore the teaching experiences and challenges of elementary school teachers within the public education system when instructing mathematics using the Winaray language. Phenomenology, characterized by its inductive and descriptive qualities (Moustakas, as cited in Zack, 2013), delves into the experiences of individuals, elucidating how they personally interpret and navigate their world (Eddles-Hirsch, 2015). In the current study, the phenomenological approach proves ideal for conducting qualitative research, as it centers on exploring the lived experiences and challenges faced by elementary teachers when Teaching Mathematics using the Winaray Language (Creswell, 2013).

### *Research Locale and Participants*

The research was conducted in public elementary schools within the Eastern Visayas region, where Winaray language is employed as the medium for teaching mathematics. The study featured a cohort of six public school elementary teachers, a number determined based on the achievement of data saturation. Similarly, data saturation occurs when sufficient information has been gathered to replicate the study, additional new information is no longer obtainable, and further coding becomes unnecessary. Purposive sampling was employed for participant selection, a method aligning with the study's objectives and the phenomenon under investigation. Inclusion criteria for participants were as follows: (1) current employment as a public elementary school teacher, (2) instruction of primary-level learners ranging from Grades 1 to 3, (3) utilization of Winaray language for teaching mathematics, (4) willingness to actively participate in the study, and (5) a minimum of one year's experience in the teaching profession. It is noteworthy that age or specific teacher positions were not among the inclusion criteria considered.

### *Ethical Considerations*

The researcher prioritized ethical considerations throughout the study, beginning with the diligent acquisition of informed consent from all participants, ensuring their voluntary participation. Participants were furnished with comprehensive information and reassurances regarding the exclusive research-oriented use and confidential handling of test outcomes. Interview protocols were meticulously adhered to, safeguarding the confidentiality and precision of the gathered data. The collection of requisite data for the study was achieved by employing structured interview guiding questions.

### *Data Collection Procedure*

The researcher sought formal permission from the public elementary teachers to conduct interviews by sending a formal letter of request. These interviews were conducted online via Google Meet, with full transparency about both the interviewer and interviewee recording the session. To ensure the participants were well-prepared, truthful, and comfortable in their responses, they were provided with a copy of the study questions in advance. Furthermore, the interview schedule was based on the participant's willingness and availability. The researcher initiated each interview with politeness, outlining general guidelines and providing detailed instructions. The researcher elucidated the study's purpose and then proceeded to inquire about the teachers' real-life experiences and challenges in teaching mathematics using Winaray. Importantly, the virtual interviews were not constrained by time limitations, allowing the teacher-participants to elaborate fully on their responses to the questions presented in the interview guide.

*Research Instrument*

The research instrument employed in this study was an interview guide developed following the framework outlined by Creswell (2013). This guide comprised three primary questions, each supplemented by three sub-questions, all meticulously designed to delve deeply into the experiences and challenges of the participants when instructing mathematics at the primary level.

### *Data Analysis*

The semi-structured interview data underwent a rigorous process of recording, transcription, and evaluation, utilizing thematic analysis as the analytical framework. This approach

enables the researcher to discern how ideas and concepts emerge through the exploration of recurring themes. The researcher's data handling method encompassed several key steps, including bracketing, horizontalization, theme grouping, detailed descriptions, and the synthesis of experiences. The heart of the data analysis rested on the participants' responses during the interviews.

In the bracketing phase, a phenomenological reduction was applied, involving the suspension of judgment regarding the data's objective reality. Instead, the focus was directed towards the study of experiences, fostering an unprejudiced and receptive perception of the phenomenon under investigation, ultimately embracing pure subjectivity as it relates to the experiences (Moustakas, as cited by Zack, 2013).

Horizontalization was a critical procedure that involved meticulous examination of all data segments. This step necessitated repeated scrutiny of recordings to thoroughly evaluate each significant statement. Superfluous or redundant transcriptions were expunged to sharpen the understanding of participants' experiences and challenges when instructing mathematics using Winaray, at the primary level.

To identify thematic patterns, statements were systematically collected and categorized into groups based on the similarity of responses. These emerging themes were expressed through words or phrases that encapsulated occurrences in the teachers' experiences, serving various mathematical purposes.

Cross-coding and grouping of themes were undertaken to condense related statements into manageable topics, highlighting informational commonalities among the respondents. The data analysis culminated in the development of both textural and structural descriptions. The structural description was drawn from verbatim quotes obtained during the interviews, elucidating how responses interacted to construct a synthesis of the meanings and essences underlying the phenomenon or experience. Conversely, the textual description delved into the experiences that shed light on participants' insights into the phenomenon (Moustakas, as cited by Zack, 2013).

Ultimately, the conclusive stage of data analysis involved the fusion of structural and textural dimensions to craft a comprehensive description that synthesized the meaning and essence of every phenomenon embedded within the experiences of public elementary teachers when teaching mathematics at the primary level.

## 4. Results and Discussion

### *Experiences of teachers in teaching Mathematics using Winaray language*

#### *Learner's engagement and enjoyment*

Teachers' motivation to dedicate themselves to forming the intellectual capacities of the next generation is fueled by their passion and enthusiasm for their chosen careers. Previous studies have looked at what motivates this desire, illuminating the transformative effect of education. The desire to positively impact learners' lives gives rise to a sense of purpose and the joy of teaching. Teachers put a lot of time and effort as they see their learners enjoy and create a safe, encouraging, and value their abilities and strengths.

Due to this, educators are constantly looking for new approaches and pedagogies that will meet the different requirements of their learners and provide an inclusive and robust learning environment. As they experience genuine fulfillment from seeing their learners' intellectual and personal development, many educators view teaching as more than just a job (Sen, 2022). This emotional bond strengthens a learner's feeling of purpose. This supports teachers' efforts to build a safe, encouraging learning environment where learners feel respected and inspired to discover their talents and skills (Sutton & Wheatley, 2003). The teachers likewise specified that:

> *"I derive joy from teaching mathematics to my learners. They consistently show a keen interest in my lessons because I use the Winaray language, which they comprehend well, facilitating their active participation in various activities." (P1)*

> *"The comprehension of mathematics becomes more accessible when you connect it to your personal experiences and apply it both at home and beyond the confines of the school environment." (P3)*

> *"In Grade 1 mathematics instruction, I employed three languages - English, Filipino, and Winaray. Predominantly, I utilized the Winaray language as the primary medium of instruction." (P4)*

The use of Winaray language as a medium of instruction positively impacts learner engagement in math lessons. Teachers suggest that using the Winaray language sparks interest among learners, which is crucial for engagement in math education and means that teaching math in the mother tongue can be an effective strategy for engaging learners in the subject. It also implies that teachers incorporate hands-on and real-world problem-solving experiences into their teaching methods.

Another teacher emphasizes that connecting mathematical concepts to real-life situations can make the subject more relatable and engaging for learners. Teachers actively use Winaray language to bridge the gap between abstract math concepts and learners' everyday experiences.

Teachers express personal enjoyment in teaching when they witness their learners' enthusiasm and problem-solving abilities in math. The satisfaction of seeing learners actively engaged in mathematical activities is a motivating factor for teachers (Cabuquin, 2022b). The highlights of the reciprocal

relationship between teacher satisfaction and learner engagement indicate that when learners are engaged and enjoy math, it positively impacts teachers' job satisfaction.

One teacher further said that teaching math in the Winaray language improved understanding and enjoyment. This subject supports the premise that employing the mother tongue as the instruction's medium helps improve learners' comprehension and attitude toward math. Winaray language use aims to increase student engagement while enhancing learning results and general enjoyment of the subject.

In a nutshell, the responses of teachers who use the Winaray language as a medium of instruction when teaching mathematics show that it dramatically impacts learner engagement and enjoyment. Winaray language encourages real-world application of math, connects math to human experiences, and increases learner and teacher satisfaction.

***Language barrier in mathematics instruction***

Language barriers in primary mathematics instruction can provide substantial challenges for learners, particularly English language learners or those from various linguistic backgrounds. When students need help with the language of instruction, it can impair their understanding of mathematical ideas, problem-solving abilities, and overall academic achievement. Furthermore, an inability to properly connect with teachers may lead to disengagement and lost confidence in the subject. To overcome these challenges, teachers can employ a range of strategies, including visual aids, hands-on exercises, and socially relevant examples, to foster an engaging, caring learning environment for all learners. The teachers uttered that:

> *"Teaching mathematics is challenging due to the language diversity among my learners. While some come from private schools and are proficient in Filipino or Winaray, others struggle to grasp mathematical concepts due to language barriers." (P4)*

> *"Teaching math in Winaray is not easy, especially with outdated concepts that are not commonly used anymore, making it difficult for both me and my learners to understand, like certain shape terminologies." (P5)*

Zhang and Li (2019) investigated the experiences math teachers had teaching in schools with various linguistic backgrounds. In this study, while teachers appreciate their roles, they also recognize the difficulties caused by the language barrier. This clarifies that teachers' perspectives are complex, comprising both the satisfaction of instructing in their native tongue and the frustrations brought on by the language barrier.

Additionally, they draw attention to the enormous language barrier when teaching mathematics. This theme further reveals that teachers' experiences are multifaceted, encompassing both a sense of fulfillment in teaching in their mother tongue and the frustrations associated with the language barrier. The presence of a significant language barrier when teaching mathematics underscores teachers' perception of this barrier as a genuine and substantial challenge.

Language barriers pose significant challenges for mathematics teachers in diverse classrooms. Despite these issues, teachers' experiences demonstrate their commitment to finding innovative ways to foster a conducive learning environment. Acknowledging the impact of language on mathematics instruction is crucial for developing targeted support and training programs to enhance teachers' pedagogical skills and promote inclusive learning experiences for all learners.

***Challenges of Teachers in teaching Mathematics using Winaray language***

***Difficulty in translating complex math terminologies***

Translating complex mathematical terminologies into the mother tongue language poses significant challenges in elementary education. One significant challenge is that some languages need more direct translations of specialized mathematical concepts. Because mathematics frequently requires clear and succinct language, some phrases may have different translations, leaving learners perplexed and uncertain. It is also challenging to find an identical translation in a mother tongue language that represents the precise mathematical concept. As a result, learners may need help understanding fundamental mathematical concepts, affecting their overall knowledge and performance (Sutherland, 2018; Cabuquin, 2023). The teacher further expressed that:

> *"For instance, when teaching Place Value, we use terms like ones, tens, hundreds, and thousands in English, while in Winaray, it is referred to as Kantidad han Puwesto, with terms like usahan, napuluan, gatosan, yukotan. Children find it challenging to grasp these Winaray terms, and they have a better understanding when taught in English." (P1)*

> *"Throughout my teaching journey, I have faced numerous challenges, particularly when it comes to teaching mathematics... Some symbols and mathematical terms prove to be perplexing for my learners. I often find myself needing to convey the lessons using alternative languages such as English and Filipino to ensure my learners can connect with the material effectively." (P3)*

> *"Using Winaray in math teaching is challenging as some mathematical terms lack equivalents. Mathematics has complex concepts hard to convey in Winaray, making it challenging for learners who prefer English terms, such as triangle instead of Undukay." (P4)*

> *"Teaching mathematics in Winaray can be challenging due to its complexity. When faced with difficulties in translation, I often resort to English to effectively convey mathematical concepts and facilitate understanding." (P2)*

Learners struggle with Winaray language terms, and they prefer English for understanding. It indicates that learners often need help to grasp complex math terms in English rather than in their mother tongue. It raises concerns about the effectiveness of mother tongue instruction for conveying intricate mathematical concepts. The teachers' responses directly express the difficulties teachers face in teaching mathematics using their mother tongue (Mufanechiya & Mufanechiya, 2011). These responses highlight teachers' challenges when they attempt to translate and convey complex mathematical terminologies, which can hinder effective instruction beyond translation challenges and address the broader implications of learners' language preferences on pedagogy and learning outcomes.

Furthermore, teachers underscore that learners' preference for English can impact their learning experience. Learners needing help with terminology may affect their comprehension of mathematical concepts, potentially leading to lower academic performance in mathematics. The struggles expressed highlight the frustration teachers experience when trying to translate and convey complex math terminology in their mother tongue. This frustration can impact their teaching efficacy and job satisfaction.

Teachers may likewise require professional development opportunities (Mercado & Cabuquin, 2023) to enhance their language proficiency and pedagogical skills using their mother tongue in mathematics instruction. The challenges mentioned in these responses may highlight a need for improved teaching materials and resources tailored to mother tongue instruction in mathematics. These resources could include translated textbooks, glossaries, or visual aids.

Moreover, teaching mathematics in the mother tongue also requires attention to the lack of specialized mathematical vocabulary in some native languages. Many native languages might not have extensive mathematical terminologies, as they develop for day-to-day communication rather than academic or technical purposes. In such cases, educators may need to create new terms or borrow from other languages, which can be time-consuming and may not resonate with the local community (UNESCO, 2019). Additionally, the need for more resources and textbooks in mother tongue languages further complicates the translation process. It hampers the ability of educators to teach mathematics in a culturally sensitive manner effectively.

***Low learner's mathematics comprehension***

Low learners' mathematics comprehension is a significant challenge when teaching elementary learners' mathematics in their mother tongue. One of the primary reasons for this challenge is the potential mismatch between the mother tongue language used for instruction and the language of assessment or higher-level academic materials, which may be in a different language (Cummins, 2008). This language barrier can hinder learners' understanding of complex math terminologies, leading to poor comprehension and performance in mathematics (Cabuquin, 2022a). Flores (2019) noted that addressing this issue requires carefully integrating both the mother tongue and the language of academic progression to bridge the gap for low learners. Further, other teachers mentioned that:

> *Indeed, I have faced challenges teaching mathematics in Winaray. The diverse terminologies can be tricky. My learners prefer a mix of three languages for better math comprehension, often relying on Filipino or English alongside Winaray to ensure comprehension. (P6)*

> *"In Grade 3, some Winaray symbols and words can be challenging to memorize. To aid comprehension, I provide relatable examples and use a mix of languages, enabling learners to better grasp mathematical concepts." (P5)*

Teachers responded directly, pointing out a language barrier when teaching mathematics in the mother tongue. Language is a crucial obstacle. It expands on the language barrier issue from Winaray language to English. Also, it highlights that this translation difficulty affects learners in schools, which implies that there may be varying levels of language proficiency among learners depending on their educational backgrounds.

The need to translate between the Winaray language and English in teaching mathematics adds an extra layer of complexity and can slow down the learning process and lead to misunderstandings. As one teacher expressed on the challenges, it hints at variations in language proficiency among languages based on their school backgrounds. As a result, learners may need help accessing suitable learning materials that align with their linguistic and cultural backgrounds. Developing context-specific, culturally relevant, and age-appropriate resources in the mother tongue language is essential to enhance the mathematics comprehension of learners and ensure inclusive education for all (Sridhar & Sridhar, 2016). While learners may enjoy learning in their mother tongue, the language barrier remains a significant challenge, highlighting the complexity and the need for effective strategies to bridge this gap.

These responses shed light on teachers' multifaceted challenges when teaching mathematics in a mother tongue. To address these challenges, educators may need to develop innovative teaching strategies considering language proficiency differences and promoting effective communication in mathematics instruction. Collaborating with learning support specialists and employing evidence-based interventions can improve mathematics learning outcomes for learners in mother-tongue language instruction. It is also essential to incorporate culturally relevant examples and contexts into mathematics lessons. Gradually transitioning from the mother tongue to the second language of instruction allows learners to build a solid mathematical foundation while improving proficiency in the second language (Vila & Oller, 2015).

## 5. CONCLUSION AND RECOMMENDATIONS

Many learners find mathematics difficult, primarily when taught in a language they have yet to become fluent in. In view of the outcomes, it is concluded that public school elementary teachers experienced challenges in teaching mathematics using Winaray as a medium of instruction. As a result, incorporating a multilanguage approach for teaching math, especially to elementary-level learners, could have numerous benefits as learners can be more adept at learning multiple languages simultaneously. Introducing mathematical concepts in the Winaray language alongside other languages can help children develop their math and language skills. This approach could pave the way for more effective and culturally inclusive mathematics instruction.

Offering educators tailored professional development empowers them with strategies like code-switching and addressing linguistic challenges, enabling them to facilitate effective multilingual mathematics instruction. Likewise, the development of assessment tools that evaluate both mathematical understanding and linguistic proficiency, including assessments in both languages, guarantees a comprehensive evaluation. Additionally, personalized math instruction based on learner interests and understanding, continuous refinement of mathematics curriculum for primary learners, and enhancing math instruction through diverse teaching strategies could also be considered to ensure the quality of teachers' classroom instruction and the learners' understanding of mathematics.

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