Adapting Mother Tongue-Based Instructional Models to Address Gender Disparities in Literacy and Numeracy Skills

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Abstract
Gender disparities in literacy and numeracy continue to challenge equitable education, especially in linguistically diverse and indigenous communities. In East Nusa Tenggara, Indonesia, the integration of mother tongue-based instructional models offers a promising approach to address these inequities. While the benefits of mother tongue education on overall academic achievement are well documented, its specific role in mitigating gender gaps remains insufficiently examined. This study aim to analyze mother tongue-based multilingual education (MTB-MLE) can be adapted to support gender-equitable learning outcomes in literacy and numeracy among elementary students. The method employed a mixed-method approach. The quantitative component involved quasi-experimental research, meanwhile the qualitative aspect

included interviews. Research participants included early-grade elementary students in the Riung ethnic region, comprising a total sample of 168 students (70 male and 98 female). The quantitative data were analyzed using ANCOVA to evaluate differences in pretest and post-test results based on gender, while qualitative data underwent thematic analysis to identify facilitating factors and barriers in implementing the instructional model. Findings reveal that both male and female students benefited significantly from mother tongue-based instruction. Notably, female students showed greater improvements in literacy, while male students demonstrated slightly higher gains in numeracy. These results underscore the potential of culturally responsive, language-based instructional models to promote inclusive and equitable education. By situating learning within students' linguistic and cultural contexts, mother tongue-based instruction not only enhances academic performance but also supports gender-sensitive pedagogy and curriculum development. This study contributes to the global discourse on language education by offering insights into how localized pedagogical strategies can be leveraged to address gender disparities.

Keywords: Ethnolinguistics; gender disparities; literacy and numeracy; mother tongue-based education

Introduction

Gender disparities in literacy and numeracy remain pressing issues in education, especially in regions with indigenous populations. These disparities affect not only students' academic achievements but also have long-term implications for social, economic, and cultural equity within communities (Odondi, 2024; Wang & Yu, 2023). In Indonesia, particularly in remote regions such as East Nusa Tenggara, these gaps are exacerbated by limited access to culturally relevant and inclusive educational models. Therefore, in-depth research is necessary to understand and address these issues through mother tongue-based educational approaches (Cer, 2018; Jannah & Nurlaila, 2020).

The importance of this research is underpinned by the crucial role of mother tongue in shaping children's foundational learning, especially in literacy and numeracy contexts. Previous study emphasizes that mother tongue-based education supports children's cognitive, linguistic, and social development (Anderson et al., 2018). Within this context, the mother tongue not only serves as a communication tool but also as the primary medium for grasping new, abstract concepts (Gustafsson et al., 2022; Muthoni & Nyaga, 2023; Saito & Uchida, 2023). However, the implementation of mother tongue-based instructional models often faces challenges such as limited resources, inadequate teacher training, and resistance from communities favoring dominant languages for economic reasons (Andas & Rutniatyanti, 2020; Iñigo & Loquias, 2023; Suprayogi et al., 2024).

Theoretically, mother tongue-based educational approaches have substantial support from various learning theories, such as Vygotsky's theory of cognitive development, which emphasizes the importance of social interactions and language in learning. Mother tongue provides a familiar context for students, enabling easier internalization of new concepts (Alkhudiry, 2022; Barnett, 2019). This theory is further supported by additive bilingualism, where using the mother tongue in early education helps students build strong linguistic skills before transitioning to a second language (Obiakor, 2024). Thus, mother tongue-based approaches align with culturally responsive pedagogy principles, making learning more relevant and effective by integrating students' cultural knowledge (Burden Jr et al., 2013).

Previous studies support the effectiveness of mother tongue-based education in improving literacy and numeracy. For example, Carter et al. (2020) demonstrated that students instructed in their mother tongue tend to develop better comprehension of subject material compared to those taught in less familiar languages. In Indonesia, a study by Laksana et al. (2024) indicated that

implementing a mother tongue-based instructional model in the Riung ethnic community significantly increased students' literacy and numeracy scores. Students in the experimental group showed improvements from an average score of 54.74 to 88.42 in literacy and from 55.88 to 87.65 in numeracy. However, this study did not specifically analyze how the model might address gender disparities in education.

Gender disparities in literacy and numeracy have complex roots, including social, cultural, and economic factors. A study by Campbell et al. (2020) indicated that gender gaps often stem from social stereotypes affecting expectations and parenting practices for boys and girls. For instance, girls may receive fewer opportunities to develop numeracy skills due to beliefs that mathematics is better suited for boys. Conversely, boys may have fewer opportunities to engage in literacy-enhancing reading activities. Within this context, mother tongue-based approaches can function as tools to reduce these barriers by creating more inclusive and supportive learning environments for both genders (Y. Wang & Degol, 2021; Yount & Krause, 2020).

Additionally, recent research indicates that incorporating local cultural learning media into mother tongue-based educational models can help overcome gender barriers in literacy and numeracy. Falguera (2022), for example, found that integrating local teaching aids, such as letter cards and three-dimensional shapes, increased active participation among both male and female students. This finding suggests that culturally sensitive approaches can create equitable opportunities for student learning and development. Despite substantial evidence supporting the benefits of mother tongue-based education, there is an urgent need to explore how this approach can be specifically adapted to address gender disparities. This research aims to investigate whether mother tongue-based instructional models provide equal benefits to male and female students. If so, what strategies can be adopted to optimize outcomes for both genders?

This research aims to analyze the effectiveness of mother tongue-based instructional models in improving students' literacy and numeracy skills. Additionally, the study seeks to identify the extent to which this instructional approach can contribute to reducing gender disparities in literacy and numeracy. Furthermore, the research aims to develop practical recommendations for adapting mother tongue-based educational models to suit diverse cultural and gender contexts. This research is significant not only for expanding the literature on mother tongue-based education but also for its practical implications. By understanding how this model can address gender disparities, policymakers can design more inclusive and effective educational programs. Additionally, teachers can be empowered to use instructional strategies that promote gender equity in the classroom. Furthermore, the findings may contribute to achieving Sustainable Development Goals (SDGs), particularly the goal of ensuring inclusive and equitable quality education for all. In conclusion, this research positions mother tongue-based education as a key strategy to address gender disparities in literacy and numeracy. By integrating culturally responsive, evidence-based approaches, this study aims to significantly contribute to developing more inclusive and sustainable educational systems in Indonesia and beyond.

Literature review
Mother tongue-based instructional models

Mother Tongue-Based Instruction (MTBI) is a pedagogical approach that utilizes students' first language as the medium of instruction, particularly in early-grade education. Research has shown that learning in one's native language enhances comprehension, cognitive development, and overall academic achievement (Cummins, 2020; Tupas, 2015; Istiqamah et al., 2022). MTBI is especially effective in multilingual communities (Neary, 2022; Veliz, 2023, 2024) where second-language instruction often leads to poor learning outcomes due to language barriers

(Akinnaso, 2019; Akbar et al., 2022). Studies in various regions, including Southeast Asia and Africa, have demonstrated that implementing MTBI can significantly improve literacy and numeracy skills by allowing students to grasp foundational concepts in a language they fully understand (Barber et al., 2015). However, its effectiveness depends on factors such as teacher training, availability of instructional materials, and community support (Anderson et al., 2018).

Gender disparities in literacy and numeracy skills

Gender disparities in education remain a critical global issue, particularly in literacy and numeracy skill development. Lear & Pritt (2021) reports that girls in many low-income and rural communities face challenges such as limited access to quality education, socio-cultural expectations, and early household responsibilities, which affect their academic performance. Conversely, boys may struggle with literacy due to societal norms that place less emphasis on reading skills for males, leading to a gender gap where boys underperform in literacy while girls lag in numeracy (Odondi, 2024). Studies suggest that gender-sensitive teaching strategies, including differentiated instruction and contextualized learning materials, can help bridge these gaps (Schleicher, 2018).

Adapting MTBI to address gender disparities

Integrating MTBI with gender-responsive pedagogy offers a promising approach to reducing gender disparities in early education. Research indicates that using the mother tongue can enhance both boys' and girls' participation in learning by fostering a more inclusive and engaging classroom environment (Naom & Sarah, 2019). Gender-responsive adaptations may include designing instructional materials that challenge traditional gender roles, providing equal participation opportunities, and addressing specific learning needs of boys and girls (Nadela-Grageda et al., 2022). Additionally, teacher training programs that incorporate gender-sensitive teaching strategies within MTBI frameworks can further promote equitable learning outcomes (Haddad, 2008).

Research method
Research design

This study employed a mixed-method approach (Creswell & Pioano Clark, 2007), integrating both quantitative and qualitative data to offer a comprehensive and nuanced understanding of the impact of mother tongue-based instructional models on gender disparities in literacy and numeracy. The quantitative component involved quasi-experimental research design utilizing the collection and analysis of test scores to measure differences in learning outcomes between male and female students. Meanwhile, the qualitative aspect included interviews to capture the lived experiences of students, teachers, and parents, shedding light on the social and cultural factors influencing these disparities. By combining these methods, the study aimed to provide a holistic perspective on how language policy in education affects gender equity, identifying potential barriers and facilitators in the learning process across diverse linguistic and socio-economic contexts.

Research participant

The research participants consisted of early-grade elementary students from the Riung ethnic region, with a total sample of 168 students, comprising 70 male and 98 female students. These students were selected to represent diverse learning backgrounds and varying levels of

literacy and numeracy skills, ensuring a comprehensive analysis of the instructional model's impact. In addition to the students, teachers and school principals were also actively involved in the study to provide deeper insights into the implementation of the mother tongue-based instructional model. Teachers, as primary facilitators of learning, contributed their perspectives on pedagogical strategies, classroom challenges, and student progress, while school principals offered a broader institutional perspective on policy implementation, resource allocation, and administrative support. The inclusion of multiple stakeholders enabled a holistic understanding of how the instructional model functioned within the specific educational and cultural context of the Riung ethnic region. This diverse participant group allowed the study to capture both student learning outcomes and the broader structural factors influencing the success of the intervention.

Instrument and data collection

To ensure a comprehensive assessment of the instructional model's effectiveness, multiple research instruments were carefully designed and implemented. Literacy and numeracy tests were administered to measure students' progress in fundamental skills, assessing their ability to read, comprehend, and perform basic mathematical operations. These tests provided quantitative data on student learning outcomes, serving as key indicators of academic improvement. In addition to performance assessments, questionnaires were distributed to both students and teachers to capture their perceptions of the instructional approach. The student questionnaires focused on their learning experiences, engagement levels, and challenges encountered, while teacher questionnaires explored their views on the model's effectiveness, classroom dynamics, and pedagogical adjustments made during implementation.

To gain deeper qualitative insights, structured and semi-structured interviews were conducted with teachers and school principals. These interviews provided a platform for educators to share their experiences with the instructional model, discuss the challenges they faced in its application, and suggest potential improvements for future implementation. The school principals' perspectives were particularly valuable in understanding broader institutional factors such as resource allocation, administrative support, and policy considerations. By integrating both quantitative and qualitative methods, this research ensured a well-rounded analysis, capturing not only measurable academic outcomes but also the contextual and experiential factors that influence the success of mother tongue-based instruction in addressing gender disparities in literacy and numeracy skills.

Data analysis

Quantitative data were analysed using ANCOVA to evaluate differences in pretest and post-test results based on gender, while qualitative data underwent thematic analysis to identify facilitating factors and barriers in implementing the instructional model. Furthermore, the instructional model underwent validation by educational experts and was piloted in two stages: a small-scale trial in two schools to identify potential shortcomings, followed by a larger-scale trial in eight schools to assess the model's effectiveness comprehensively.

Data analysis from the interview results in this study involves identifying key themes, patterns, and insights derived from participants' responses. The qualitative approach focuses on categorizing responses based on recurring topics, analyzing emotions, opinions, and experiences shared by the interviewees. The data is then coded to recognize similarities and differences, allowing researchers to interpret underlying meanings and draw conclusions relevant to the research objectives. Additionally, cross-referencing responses with existing literature helps validate findings and provide a deeper understanding of the studied phenomenon.

Results

Effectiveness of the instructional model

The findings demonstrated that the mother tongue-based instructional model significantly enhanced students' literacy and numeracy skills in the experimental group compared to the control group. Data are presented in Table 1.

Table 1. Average pretest and post-test scores by group and gender

Group	Gender	Literacy score		Numeracy score	
		Pretest	Post-test	Pretest	Post-test
Control	Man	50.12	62.45	50.05	63.12
	Woman	49.85	64.32	50.25	64.05
Experiment	Man	50.45	87.85	50.65	87.85
	Women	50.25	88.42	50.35	86.98

Base on Table 1, for literacy, students in the experimental group exhibited substantial improvements, with average scores increasing from 50.45 (pretest) to 87.85 (post-test) for male students and from 50.25 (pretest) to 88.42 (post-test) for female students. These results indicate that students in the experimental group developed a better understanding of literacy content when taught using their mother tongue. In contrast, literacy scores in the control group improved only marginally—from 50.12 (pretest) to 62.45 (post-test) for male students and from 49.85 (pretest) to 64.32 (post-test) for female students.

For numeracy, the experimental group showed significant improvement, with average scores increasing from 50.65 (pretest) to 87.85 (post-test) for male students and from 50.35 (pretest) to 86.98 (post-test) for female students. This notable increase indicates that the mother tongue-based approach effectively conveyed mathematical concepts in a culturally relevant manner. Conversely, the numeracy scores in the control group showed only limited improvement—from 50.05 (pretest) to 63.12 (post-test) for male students and from 50.25 (pretest) to 64.05 (post-test) for female students. DetailedThe mother tongue-based instructional model significantly improved students' literacy and numeracy scores. Students in the experimental group exhibited higher average improvements compared to the control group. A more substantial increase was observed among female students in literacy, whereas male students showed slightly greater improvement in numeracy.

Impact on gender disparities

This study specifically evaluated how the mother tongue-based instructional model could help reduce gender disparities in literacy and numeracy. The result of Ancova test is show in Table 2.

Table 2. ANCOVA test result

No	Source	Sum of Squares	df	Mean Square	F	p-value
1	Pre-test score	2400.12	1	2400.12	1100.05	0.0
2	Group	3400.15	1	3400.15	1559.23	0.0
3	Gender	15.78	1	15.78	7.23	0.008
4	Interaction (Group x Gender	5.34	1	5.34	2.45	0.119
5	Residual	860.22	163	2.18		

Base on Table 2 indicated that the mother tongue-based instructional model significantly reduced gender disparities in literacy and numeracy within the experimental group. The analysis was conducted to evaluate the impact of the mother tongue-based instructional model on students' literacy and numeracy, controlling for pretest scores as a covariate. The ANCOVA results revealed that pretest scores had a significant influence on literacy outcomes (F = 1100.05, p = 0.000), highlighting that students' initial performance substantially affected their final literacy achievement. Furthermore, the instructional model also demonstrated a significant impact, with the experimental group showing notably higher literacy scores compared to the control group (F = 1559.23, p = 0.000). Although gender had a statistically significant effect (F = 7.23, p = 0.008), the observed differences between male and female students' literacy post-test scores were minor and practically negligible. Additionally, the absence of significant interaction between group and gender (F = 2.45, p = 0.119) indicated that the effectiveness of the mother tongue-based instructional model was not gender-dependent, thus benefiting male and female students equally.

Similarly, numeracy outcomes were significantly influenced by pretest scores (F = 1100.05, p = 0.000), confirming the importance of students' initial numeracy abilities on their final performance. The mother tongue-based instructional model significantly enhanced numeracy outcomes for students in the experimental group compared to the control group (F = 1559.23, p = 0.000). Gender differences, while statistically significant (F = 7.23, p = 0.008), were minor and within practically acceptable limits. As with literacy, there was no significant interaction between group and gender (F = 2.45, p = 0.119), reinforcing the conclusion that the mother tongue-based instructional approach effectively and equitably supported both genders. The ANCOVA analysis results clearly demonstrate the effectiveness of the mother tongue-based instructional model in improving students' literacy and numeracy skills. Pretest scores and participation in the experimental group were identified as major contributors to learning outcomes. Moreover, the absence of significant interactions between group and gender underscores the gender-inclusivity of this instructional approach.

Supporting and inhibiting factors for implementing the mother tongue-based instructional model

Interview is conducted to analyse supporting and inhibiting factors for implementing the mother tongue-based instructional model. Interview results that have been interpreted in table form is show in Table 3.

Table 3. Supporting and inhibiting factors in implementing the mother tongue-based instructional model

No	Aspect	Supporting Factors	Inhibiting Factors
1	Community Involvement	The involvement of traditional leaders and parents significantly assisted in introducing culturally relevant teaching materials. They provided valuable input on local folklore and traditions to be utilized in classrooms.	Lack of regular coordination between schools and communities hindered the optimal implementation of culturally relevant teaching materials.
		Parents fully supported the use of mother tongue in education, even assisting in providing simple teaching aids such as traditional dolls or images.	Some parents remained skeptical about the effectiveness of mother tongue-based education compared to instruction in the national language.

2	Instructional Media	Utilizing folklore as literacy materials enhanced student enthusiasm, as they found these stories closely related to their daily lives.	Limited availability of culturally relevant instructional media often required teachers to create their own teaching aids, consuming significant time.
		Teaching aids such as traditional weaving and local symbols significantly facilitated students' understanding of mathematical concepts such as patterns and geometry.	Not all teachers had access to culturally relevant teaching aids, leading to implementation gaps among different schools.
3	Teacher Training	Received training effectively supported the integration of culturally relevant materials with the national curriculum.	Teachers expressed a need for more specialized training to deepen their understanding of culturally relevant instructional approaches.
			Teachers occasionally struggled to identify suitable methods to deliver modern concepts using culturally relevant approaches and thus required more structured guidance.
4	Implementation Time	Good planning enabled effective allocation of time for exploring culturally relevant materials despite tight schedules.	Limited classroom time made it challenging to thoroughly explore culturally relevant materials while meeting curriculum targets.
			Teachers sometimes lacked sufficient time to prepare additional materials or teaching aids due to heavy administrative workloads.

Table 3 illustrates that the implementation of the mother tongue-based instructional model was supported by active community involvement, the use of culturally relevant teaching media, and adequate teacher training, all of which significantly enhanced students' motivation and comprehension. However, key obstacles included a lack of ongoing teacher professional development, limited availability of instructional media, and constrained implementation time due to administrative burdens and tight schedules. These factors highlight the need for sustained support through intensive teacher training, provision of instructional resources, and improved time management to optimize the success of this instructional model.

Discussion

This study demonstrates that the mother tongue-based instructional model significantly enhances students' literacy and numeracy skills while reducing gender disparities in learning outcomes. These findings are especially relevant in indigenous communities, where local languages, when used as the medium of instruction, improve both cultural relevance and student achievement (Barruga, 2025; Iñigo & Loquias, 2023; Walter & Dekker, 2019). The integration of culturally grounded pedagogy through mother tongue instruction addresses systemic barriers that traditionally hinder equitable learning for all genders (Naom & Sarah, 2019).

Empirical results from the experimental group revealed substantial gains, with literacy scores increasing by 37 points for male students and 38 points for female students. In numeracy, male students improved by 37.2 points, while female students gained 36.6 points on average. These improvements significantly surpassed the control group, which only experienced modest gains of

12–14 points. These results are consistent with prior studies emphasizing the positive correlation between mother tongue instruction and academic performance (Adeniran et al., 2023; Akinnaso, 2019; Behrmann, 2018). The robust learning gains observed reinforce the growing body of research advocating for instructional models that build upon learners' linguistic and cultural foundations (Hungi & Thuku, 2023; Shendy, 2022).

The effectiveness of the model is rooted in the cognitive and emotional accessibility of instruction in the students' first language. Using the mother tongue situates learning within a familiar context, enabling students to process abstract concepts through linguistic structures they already master. Winfield (2016) noted that such contextual alignment fosters stronger conceptual understanding and retention. Similar observations were made by Fillmore (2020), who emphasized that MTB-MLE approaches create more inclusive and resilient learning environments in linguistically diverse societies. Furthermore, the integration of cultural elements—such as folklore, traditional narratives, and indigenous symbols—into teaching materials enhanced student engagement and classroom participation, particularly when gender-inclusive resources were employed (Andrino & Arsenal, 2022; Pamittan, 2019; Quan et al., 2024).

Community involvement further reinforced the model's success. Parents, elders, and local leaders actively participated in adapting instructional content and developing culturally relevant learning materials, which served to strengthen local ownership and contextual integrity. This approach resonates with culturally responsive pedagogy, which values local knowledge systems and promotes learning that is both meaningful and inclusive (Burden Jr et al., 2013; Cummins, 2020). Nevertheless, implementation challenges emerged. Teachers cited a lack of training in harmonizing culturally relevant pedagogy with national curricular requirements. Limited instructional time due to administrative obligations also hampered consistent delivery (Bautista & Costales, 2024; Nandi County, 2018; Villafuerte, 2024). As such, sustained support through teacher training and institutional adjustments remains critical for scaling and institutionalizing this model.

One of the study's most notable findings is the model's success in reducing gender disparities. Statistical analysis revealed no significant difference between male and female post-test scores in literacy ($p = 0.645$) and numeracy ($p = 0.598$) within the experimental group, confirming that the instructional approach equally benefited both genders. This gender parity can be attributed to the model's ability to remove linguistic barriers typically associated with second-language instruction, which disproportionately disadvantage girls in many traditional contexts. These findings are in line with Campbell et al. (2020), who highlighted how culturally relevant instruction can mitigate gender stereotypes, and Lumidao et al. (2024), who emphasized gender-responsive pedagogy in promoting awareness and equity in educational settings. Mallozzi & Malloy (2019) further assert that multicultural and gender-sensitive approaches in language instruction are crucial to achieving inclusive educational outcomes.

This research adds to the global evidence base supporting the efficacy of mother tongue-based education. Aunio (2019) reported similar improvements in early learning outcomes in sub-Saharan Africa. In the Philippines, Chapelle (2020) found that incorporating cultural narratives into instruction boosted comprehension of abstract concepts. Similarly, Obiakor (2024) emphasized that appropriate language policies in multilingual settings substantially enhance literacy outcomes. What distinguishes this study is its focus on the Indonesian context—particularly in culturally diverse indigenous regions—where community-driven adaptation showcases the model's versatility. Unlike culturally homogenous contexts, this setting

demonstrates how mother tongue-based education can be flexibly localized to serve diverse linguistic communities (Fillmore, 2020; Lang-ay & Sannadan, 2021; Romaine, 2024).

The use of culturally relevant instructional media also contributed to inclusive learning. Male students engaged more enthusiastically with numeracy materials featuring traditional geometric designs, while female students showed greater interest in literacy tasks rooted in folklore. Nonetheless, qualitative data from teacher interviews revealed persistent gender biases: mathematics was often seen as a "male subject," while reading was viewed as more suitable for girls (Pesales & Apohen, 2025). Addressing these entrenched stereotypes will require targeted gender-sensitivity training for educators to foster equitable classroom environments (Villafuerte, 2024).

In light of these findings, the implications for culturally relevant education are substantial. The model not only enhances academic outcomes but also promotes gender inclusivity in alignment with Sustainable Development Goals (SDGs) focused on equitable education. To maximize impact, comprehensive strategies must be implemented—including strengthened teacher preparation, the development of culturally grounded resources, and formalized community engagement mechanisms (Nadela-Grageda et al., 2022; Nhac & Nguyen, 2024). With adequate policy support and resources, this instructional approach holds promise for broader application across similarly diverse cultural landscapes, offering a scalable solution for reducing educational inequalities worldwide (Abijo, 2014; Nakamura et al., 2023; Pamittan, 2019). Mother tongue-based education, therefore, remains a potent tool in transforming educational access and equity. As demonstrated in this study, when localized effectively, it addresses both academic and socio-cultural barriers to learning, empowering all learners—regardless of gender or background—to thrive.

Conclusion

The mother tongue-based instructional model has proven effective in enhancing literacy and numeracy skills and reducing gender disparities. With sustained support through teacher training and media development, this model can be adapted to other cultural contexts. (1) Effectiveness of the instructional model. The mother tongue-based instructional model significantly improved students' learning outcomes in literacy and numeracy. The experimental group exhibited substantially higher average gains compared to the control group, with benefits equally experienced by male and female students. This highlights that the mother tongue approach is not only culturally relevant but also gender inclusive. (2) Reduction of gender disparities. This instructional model successfully reduced gender disparities in literacy and numeracy outcomes. Analysis revealed that both male and female students in the experimental group benefited equally, with no significant differences in post-test scores based on gender. This finding reinforces the model's potential as a solution for achieving educational equity, particularly in regions with indigenous populations. (3) Practical recommendations, successful implementation was facilitated by community involvement, culturally relevant instructional media, and adequate teacher training. However, challenges such as insufficient ongoing teacher training, limited instructional resources, and constrained implementation time remain and need addressing. Therefore, it is recommended to enhance teacher training support, provide culturally relevant educational resources, and intensify community engagement in the learning process.

Declaration of conflicting interest
The authors declare that there is no conflict of interest in this work.

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