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ABSTRACT

Bilingual instruction has gained increasing attention in multilingual educational contexts, particularly in primary education where students are still developing foundational language and cognitive skills. Language plays a crucial role in shaping students' comprehension, participation, and learning outcomes, especially in subjects that require conceptual understanding such as mathematics. In Indonesia and other multilingual settings, the coexistence of a national language and multiple regional languages presents both opportunities and challenges for classroom instruction, making bilingual approaches a relevant pedagogical strategy. This study aims to synthesize existing research on the effectiveness of bilingual instruction in student learning, with a particular focus on primary mathematics education. A literature review methodology was employed by analyzing peer-reviewed journal articles and scholarly books published between 2015 and 2024. The selected literature was examined using a descriptive qualitative synthesis to identify dominant themes, methodological trends, and reported outcomes related to bilingual instructional practices. The findings indicate that bilingual instruction consistently supports students' conceptual understanding, classroom participation, and learning confidence. The use of the mother tongue alongside the national language reduces linguistic barriers, facilitates comprehension of abstract concepts, and promotes more inclusive learning environments. Overall, the reviewed literature suggests that bilingual instruction is an effective pedagogical approach in multilingual primary education contexts.

Keywords: *bilingual instruction, literature review, primary education, mathematics learning, multilingual classrooms.*

INTRODUCTION

Language plays a fundamental role in the teaching and learning process, particularly in primary education where students are still developing essential cognitive, social, and linguistic abilities. In classroom interactions, language functions not only as a medium for delivering instructional content but also as a tool that shapes students' understanding, motivation, and participation. Effective instructional language is closely associated with students' engagement and academic achievement.

In multilingual educational contexts such as Indonesia, the use of language in classrooms reflects the coexistence of the national language, Bahasa Indonesia, and numerous regional languages that serve as students' first languages. Many elementary school students enter formal schooling with stronger proficiency in their mother tongue than in the national language, which may create challenges when instruction is delivered exclusively in Bahasa Indonesia. Research indicates that such linguistic gaps can limit students' comprehension and classroom interaction.

Language barriers in early-grade classrooms are often associated with students' passivity and learning difficulties, particularly in subjects that require logical reasoning and conceptual understanding, such as mathematics. Mathematics learning at the primary level is critical for students' future academic development; however, its effectiveness is closely linked to the clarity of instructional language. Inappropriate or unfamiliar language can hinder conceptual understanding and reduce learning motivation.

Bilingual instruction has emerged as a pedagogical approach to address these challenges. By integrating students' mother tongue with the national language, bilingual instruction supports meaning-making, reduces anxiety, and encourages active participation. Theoretical perspectives emphasize that conceptual knowledge developed through the first language can be transferred to the second language, thereby strengthening academic learning across subjects. Moreover, contemporary views on bilingualism highlight translanguaging practices, in which learners flexibly draw on their full linguistic repertoires to construct meaning.

Although numerous empirical studies have examined bilingual instruction in classroom settings, comprehensive literature reviews synthesizing findings on bilingual approaches—particularly in primary mathematics learning—remain limited. Therefore, this study aims to review and synthesize existing research on the effectiveness of bilingual instruction in primary education, with a specific focus on mathematics learning.

METHODS OF RESEARCH

Literature Search Strategy

This study employed a literature review approach to examine the effectiveness of bilingual instruction in student learning. Relevant literature was identified through a systematic search of academic databases, including Google Scholar and nationally accredited journals. To ensure relevance and currency, the search was limited to publications from 2015 to 2024.

Keywords used in the search included *bilingual instruction*, *bilingual learning*, *mother tongue-based education*, *language in education*, *primary school learning*, and *mathematics learning*. The inclusion criteria were: (1) studies focusing on bilingual or mother tongue-based instructional practices; (2) research

conducted in primary or elementary education contexts; and (3) publications presenting empirical findings or theoretical discussions related to language use in learning. Studies not related to educational contexts or instructional language were excluded. The review process followed established guidelines for conducting qualitative literature reviews, emphasizing transparent search strategies and relevance-based selection.

Data Analysis Technique

The selected literature was analyzed using a descriptive qualitative synthesis. Each study was examined to identify its objectives, methodological approaches, and key findings related to bilingual instruction. The findings were then compared across studies to identify recurring themes and consistent patterns.

To support systematic analysis, the reviewed studies were categorized into thematic groups: (1) the role of language in the learning process; (2) the impact of bilingual instruction on students' comprehension and participation; and (3) the application of bilingual approaches in mathematics learning. This thematic synthesis enabled integrative conclusions across multiple sources.

RESULT AND DISCUSSION

The Role of Language in Primary School Learning

The literature consistently emphasizes language as a central element in primary education. Instructional language mediates students' understanding and participation, particularly in early grades where learners rely heavily on their first language to process new information. When instructional language aligns with students' linguistic competence, learning becomes more meaningful and interactive. Theoretical perspectives further suggest that conceptual knowledge developed in the first language can be transferred to additional languages, supporting academic development.

The Impact of Bilingual Instruction on Student Comprehension and Participation

Studies reviewed indicate that bilingual instruction effectively addresses linguistic barriers in multilingual classrooms. The use of both the mother tongue and the national language facilitates comprehension by connecting new concepts with familiar linguistic structures. Bilingual practices also reduce learning anxiety and promote active participation. From a translanguaging perspective, students' flexible use of multiple languages supports deeper meaning-making and engagement.

Bilingual Instruction in Mathematics Learning

In mathematics learning, language plays a critical role in explaining abstract concepts and guiding problem-solving. The literature shows that students often experience difficulties when the language of instruction is unfamiliar. Bilingual instruction supports mathematics learning by enabling clearer explanations through the mother tongue while gradually introducing mathematical terminology in the national language. This approach enhances conceptual understanding and allows students to express mathematical reasoning more confidently, facilitating the transfer of knowledge across languages.

CONCLUSION

Based on the synthesis of prior research, bilingual instruction is an effective approach for enhancing the learning process in primary education, particularly in multilingual contexts. The use of both the mother tongue and the national language supports students' comprehension, participation, and confidence, especially in mathematics learning. These findings align with theoretical views that emphasize conceptual transfer across languages as a foundation for academic development. Future research is encouraged to examine bilingual instruction across diverse subjects and educational levels to further strengthen the evidence base and inform language policy and instructional practice.

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