

Contextualized Education and Mother Tongue-Based Multilingual Instruction in Indonesian Indigenous Communities: A Systematic Literature Review

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Abstract

Indonesia's multilingual complexity, comprising over 700 regional languages, contrasts sharply with the monolingual bias prevalent in formal primary education. While existing literature explores bilingual classroom dynamics, it often overlooks the systemic friction between national policy and localized implementation. This systematic literature review synthesizes 59 peer-reviewed studies to map how rural and indigenous schools negotiate this pedagogical environment. The findings reveal a structural bifurcation, where remote regions utilize mother tongues for cognitive survival, whereas western regions emphasize cultural preservation. Critically, the analysis identifies widespread organizational decoupling, wherein progressive decentralization policies are undermined by centralized, monolingual assessment metrics. To address this, the study introduces the Multi-Level Ecological-Contextual Model, an evidence-based conceptual blueprint designed to synchronize macro-policy, meso-community, and micro-classroom dimensions. While this framework requires subsequent empirical validation, it provides a novel systemic roadmap for institutionalizing linguistic equity. This review contributes a rigorous mapping of policy-practice decoupling, demonstrating that mother tongue instruction is a fundamental cognitive right rather than a cultural luxury, and establishes a foundation for restructuring primary education toward additive, resource-oriented multilingual frameworks.

Keywords: Mother tongue-based multilingual education, Indigenous communities, Systematic literature review, Curriculum contextualization, Policy-practice decoupling

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1. INTRODUCTION

1.1 Background of the Research

Indonesia is home to one of the most complex multilingual networks on earth, spanning over 700 distinct regional languages (*bahasa daerah*) spoken across its thousands of islands (Hanafi, 2022). While Bahasa Indonesia serves as the unifying national language, it is not the native language (*bahasa ibu*) for millions of children residing in rural, remote, and indigenous (*masyarakat adat*) communities. When children enter primary school, they are confronted with a double linguistic and cognitive burden: mastering academic content while simultaneously acquiring fluency in an unfamiliar national language. This pedagogical mismatch leads to high early-grade dropout rates, persistent learning poverty, and severe cognitive disengagement (UNESCO, 2025).

This educational crisis is particularly acute in remote regions such as Papua and East Nusa Tenggara (NTT) (Dhiu et al., 2023; Elopere & Giban, 2024). In these areas, schools often operate on a "sink-or-swim" model where children are introduced to abstract scientific and mathematical concepts in an unfamiliar national language. This premature linguistic submersion breeds classroom anxiety, cognitive disengagement, and academic alienation, as children struggle to construct meaning out of sounds that carry no personal or cultural resonance.

Despite constitutional rhetoric advocating the preservation of regional languages, the centralized administration of curriculum design and standardized national examinations has

historically maintained a monolingual bias (Arifuddin, 2025). The introduction of the Kurikulum Merdeka in 2022 and regional piloting programs like the Innovation for Indonesia's School Children (INOVASI) program represent tentative steps toward decentralization, explicitly allowing schools to dedicate up to 20% of their instructional frameworks to local content (muatan lokal). However, translating these permissive national guidelines into viable classroom practices remains a major operational hurdle.

On the other hand, the educational challenges facing indigenous languages are inextricably linked to wider socio-cultural shifts driven by globalization, urbanization, and digital integration. Younger generations increasingly opt for the national language at the expense of their ancestral linguistic heritage, viewing regional languages as economically non-viable. This language shift represents not just a loss of vocabulary, but an erosion of cultural identity, indigenous knowledge systems, and historical memory (Inriani & Fiddienika, 2024). When the formal school system fails to integrate the local mother tongue into its curriculum, it inadvertently validates the narrative that indigenous languages possess no utility in modern, globalized Indonesia.

Prior studies on bilingual education in Indonesia have frequently treated linguistic barriers as isolated, technical classroom difficulties (Arifuddin, 2025; Biantoro & Setiawan, 2021). Scholars have focused on localized classroom metrics or practical teaching guides without integrating these observations into broader systemic frameworks. For instance, studies on classroom language choice often overlook the macro-level policy-to-practice decoupling, while policy evaluations frequently fail to capture the lived experiences of indigenous educators. What is missing is a systemic, country-wide mapping of how remote schools actually negotiate progressive, decentralized curricular policies against centralized, monolingual testing metrics. Consequently, the field lacks a unified framework that balances local language revitalization with national language acquisition, leaving daily classroom implementation to lean heavily toward a monolingual bias.

To address this critical gap, this study conducts a Systematic Literature Review (SLR) analyzing 59 peer-reviewed empirical articles and policy evaluations. By mapping empirical findings, geographical locations, and pedagogical designs, this review constructs an integrated, systemic-pedagogical model that synthesizes localized empirical evidence with national policy evaluations. The primary scientific contribution of this SLR is to clarify the structural friction points where top-down policies clash with bottom-up practices, offering a Multi-Level Ecological-Contextual Model as a practical, evidence-based blueprint for educational equity.

1.2 Language-as-Resources Orientation

The orientation of language policy toward linguistic diversity determines the institutional value assigned to minoritized and regional tongues within formal educational spaces. Language planning scholarship typically contrasts the dominant language-as-problem paradigm with the transformative language-as-resource orientation, showing how underlying language ideologies directly shape classroom practice (Aktürk-Drake, 2024; Groff et al., 2023). In many national educational architectures, regional mother tongues are discursively framed as cognitive impediments to national integration, academic achievement, and second-language acquisition. This deficit-based perspective, characterized by a persistent monolingual habit, assumes that the retention of native home languages subtracts cognitive capacity from standard national language mastery (Groff et al., 2023). However, modern bilingual research reframes multilingualism as a rich intellectual, social, and economic asset.

Aktürk-Drake (2024) demonstrates how Sweden's mother-tongue instruction (MTI)

policy has endured for nearly half a century by leveraging both intrinsic values which foster personal empowerment and positive identity development among minority children, and extrinsic values which treat linguistic plurality as a national resource for global trade, diplomacy, and societal cohesion. When policy frameworks recognize languages as dynamic assets to be conserved and developed, educational systems can transition from an assimilationist, subtractive model toward an additive bilingual paradigm (Baker & Wright, 2021; Groff et al., 2023).

In the Indonesian context, this resource-oriented framework has prompted a significant shift in language planning. Historically, national language preservation efforts were restricted exclusively to critically endangered indigenous languages, leaving high-vitality regional languages without structured support. In recent years, there has been a profound paradigm shift in Indonesian language policy, wherein language revitalization has expanded from a minority-only focus to encompass all local languages across the archipelago (Budiono et al., 2024). This inclusive resource-oriented model asserts that every regional language, regardless of demographic strength or vitality, has a fundamental right to active preservation and institutional integration. Repositioning regional mother tongues as valuable cognitive and cultural assets underpins contemporary decentralized curriculums, transforming what was once perceived as an administrative obstacle into a foundational pillar of early-grade literacy and academic development (UNESCO, 2026). By dismantling the monolingual bias that historically equated nation-building with linguistic homogenization, this resource-oriented approach establishes a more democratic and linguistically equitable educational landscape (Aktürk-Drake, 2024; Groff et al., 2023).

1.3 Linguistic Interdependence and Cognitive Development

The relationship between a child's first language (L1) and their subsequent acquisition of additional languages (L2 or L3) is governed by the principles of linguistic interdependence and common underlying cognitive proficiency. Conceptualized by Cummins, the Common Underlying Proficiency (CUP) theory posits that while the surface features of different languages vary, they are supported by a shared set of cognitive-academic and linguistic skills (Fegher, 2023). According to this framework, cognitive-academic language proficiency (CALP), which involves abstract, high-level reasoning and conceptual mapping, is highly transferable across languages once established, whereas basic interpersonal communicative skills (BICS) are more context-dependent and linguistically specific (Fegher, 2023). Consequently, developing academic literacy in the mother tongue (L1) provides the essential cognitive scaffolding that facilitates the acquisition of a second language (L2). Forced educational submersion in an unfamiliar language before a child reaches a critical threshold of L1 development disrupts this conceptual transfer, resulting in subtractive bilingualism and academic disengagement ((Fegher, 2023).

In multilingual environments, this cross-linguistic transfer involves complex processes of transfer and interference. Purba (2022) analyzes how students' first language (e.g., Batak Toba) and second language (Indonesian) actively interfere with and transfer to their acquisition of a third language (English) at phonological, morphological, and syntactic levels. This linguistic interaction is not a sign of confusion, but rather an indicator of a dynamic "interlanguage" system (Octaberlina, 2022).

Furthermore, the cognitive mechanics of this linguistic navigation are reflected in bilingual code-switching behaviors. Code-switching among primary school students is not a sign of linguistic deficit or lack of proficiency, but rather a sophisticated cognitive and pedagogical strategy. The primary cognitive drivers for code-switching illustrate how bilingual

children dynamically leverage their complete linguistic repertoire to facilitate comprehension, resolve lexical gaps, and optimize working memory during academic tasks (Effendie et al., 2025).

1.4 Culturally Sustaining Pedagogy

Culturally sustaining and culturally responsive pedagogies in multilingual classrooms is necessary to facilitate students' L1 and L2 in learning. Standardized, urban-centric curricula often alienate remote learners by presenting abstract concepts decoupled from their daily lives, essentially treating regional mother tongues as cognitive interference. In contrast, culturally sustaining pedagogies assert that classroom instruction must actively validate and build upon students' diverse identities and home languages, transforming local assets into essential pedagogical scaffolding (Hornberger & Link, 2012). The language bridge strategy operationalizes this approach by using the mother tongue as an initial cognitive platform, ensuring that local wisdom and indigenous knowledge systems are recognized as legitimate media of formal academic discourse (Biantoro & Setiawan, 2021; Phyak, 2018). By establishing a structured transition from the familiar first language to the target national language, educators can prevent the academic alienation and cognitive disengagement typically caused by monolingual submersion.

This systematic bridging is empirically justified by the positive developmental and cognitive outcomes observed in classrooms that reject subtractive assimilation models. Children's developing syntactic and morphosemantic abilities are heavily modulated by the pragmatic context of natural conversations and cross-linguistic influence from the home language (Al Akromi, 2026). Rather than enforcing a rigid monolingual standard that suppresses these natural variations, culturally sustaining educators accommodate these developmental trajectories as essential resources for subsequent second-language learning. This perspective is further validated by the implementation of the Contextual Language Adaptation Model (CLAM) in highly complex, rural multilingual environments (Nugraheni & Hasan, 2026). In trilingual settings characterized by Madurese, Javanese, and Indonesian, the systematic application of a language bridge, which systematically introduces abstract academic concepts in regional languages before transitioning to Indonesian equivalents, resulted in a 27% increase in vocabulary retention and a 37% improvement in students' linguistic confidence (Nugraheni & Hasan, 2026). Consequently, the language bridge strategy does not merely facilitate linguistic transition; it serves as the ultimate pedagogical justification for culturally sustaining practices by proving that validating a child's linguistic ecology directly enhances academic achievement and cognitive empowerment.

1.5 The Decoupling of Policy and Practice

The successful implementation of multilingual and contextualized education is frequently obstructed by structural contradictions within educational governance. In institutional theory, organizational decoupling occurs when an institution adopts progressive, decentralized policies to secure external legitimacy while maintaining rigid, centralized daily practices that actively undermine those policies (Henderson et al., 2022). In the Indonesian context, this policy-practice decoupling is highly prevalent. While the *Kurikulum Merdeka* authorizes schools to dedicate up to 20% of their curriculum to local content, the centralized, monolingual administration of national examinations (*Asesmen Nasional*) continues to operate exclusively in Bahasa Indonesia, creating a powerful disincentive for local language integration (Henderson et al., 2022; Pusat Standar dan Kebijakan Pendidikan, 2023).

This gap between national policy authorization and classroom reality is heavily mediated by teachers' perceptions and institutional readiness. The effective implementation of

language policy on Indonesian instruction, is severely hindered by a critical lack of professional training, administrative support, and localized pedagogical resources. When teachers feel unsupported, their perceptions of policy mandates shift toward skepticism, resulting in a fragmented and inconsistent application of bilingual practices (Hukubun & Wariunsora, 2024).

This decoupling of progressive rhetoric and conservative practice is a global phenomenon. In Sweden, although mother-tongue instruction is legally guaranteed, its structural implementation has been persistently devalued by local budget cuts, teacher training shortages, and political shifts toward economic utility (Aktürk-Drake, 2024). Similarly, in the Netherlands, teachers' best intentions are often constrained by a dominant, unexamined monolingual ideology that enforces a "Dutch-only" norm, treating students' home languages as deficit-based obstacles rather than valuable resources ((Groff et al., 2023). Ultimately, this decoupling shifts the entire systemic burden of educational equity onto individual educators. Teachers in rural primary schools must perform daily, uncoordinated acts of pedagogical resistance to bridge the gap between national curriculum expectations and local trilingual realities (Nugraheni & Hasan, 2026). Without synchronized, multi-level structural support that aligns national assessment metrics with local linguistic needs, progressive language policies remain empty administrative rhetoric, leaving underpaid and overworked teachers to navigate systemic inequities alone (Henderson et al., 2022; Nugraheni & Hasan, 2026).

2. RESEARCH METHODOLOGY

This study employs a Systematic Literature Review (SLR) design. Unlike traditional narrative reviews, which often lack explicit criteria for study selection and risk introducing subjective bias, a systematic approach provides a transparent, replicable, and rigorous mechanism for identifying, evaluating, and synthesizing a comprehensive body of empirical evidence (Smela et al., 2023). This research design is deeply grounded in qualitative research paradigms that emphasize the importance of systematic mapping and structural synthesis. By framing the systematic review process within qualitative inquiry principles, the study ensures that the synthesis is not merely a quantitative tabulation of findings but a deep conceptual critique of the sociolinguistic and pedagogical dynamics present in remote classrooms (Carrera-Rivera et al., 2022; Smela et al., 2023).

The data collection process was guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) protocol to guarantee systematic selection and minimize publication bias (Alvarez-Tinajero et al., 2026; Page et al., 2021). Google Scholar was selected as the primary bibliographic database for this review. While international indexes such as Scopus or Web of Science offer high academic prestige, their coverage of local educational realities in developing regions is systemically limited. In other words, since the topic of the research is very specific on Indonesian indigenous community, the search on those indexes yielded no result. The vast majority of Indonesian empirical research on indigenous, rural, and remote early-grade classrooms is published in national, peer-reviewed journals indexed in SINTA (Science and Technology Index) or compiled within university institutional repositories. Using Google Scholar as the primary bibliographic engine ensures that localized studies, contract teacher reports, and remote regional pilots are fully captured, preventing systemic geographical bias in the final corpus.

The literature search targeted peer-reviewed empirical studies, curriculum evaluations, and primary educational reports published within a five-year window spanning from January

1, 2022, to December 31, 2026. The search utilized a bilingual search string designed to capture both international publications and local Indonesian-language journals. To ensure precision, Boolean operators and metadata field constraints were applied to target titles and core metadata. The search query was executed exactly as follows: (intitle:"bahasa daerah" OR intitle:"bahasa ibu") AND ("bahasa pengantar" OR "medium of instruction") AND ("sekolah dasar" OR "SD"). This initial search query yielded a broad corpus of N = 121 records.

To distill this broad corpus into a highly reliable and thematic database, we applied a systematic multi-phase selection flow. An automated deduplication check removed overlapping entries, reducing the corpus to N = 98 unique records. These remaining records were then subjected to a manual evaluation against explicit inclusion and exclusion criteria. For inclusion, studies had to be situated within the geographic borders of Indonesia, focus on primary school-aged children (Grades 1 to 6) or early-grade educators, and actively evaluate regional mother tongues (L1) as a medium of instruction, transition language, or pedagogical scaffold. Studies were excluded if they focused on non-target educational levels such as early childhood education without transition data or secondary schools, focused on English as a Foreign Language without local language integration, or consisted of pure linguistic analyses lacking classroom relevance.

Applying these criteria resulted in the exclusion of 39 records. Specifically, 21 studies were excluded due to their focus on secondary or higher education, while 18 records were removed because they did not examine an active local-language medium of instruction or transitional variable. This rigorous filtering process yielded a final, highly synthesized study corpus of N = 59 primary publications for deep thematic synthesis.

To address concerns regarding research validity and coding reliability, a double-blind screening procedure was applied to a random 20% subset (N = 12) of the retrieved publications. Two independent coders evaluated these papers against the eligibility parameters. Discrepancies during this phase were resolved using a consensus-seeking Delphi method. This process achieved an inter-coder agreement rate represented by a Cohen's kappa coefficient of 0.86, indicating outstanding reliability.

The data was then analyzed using qualitative thematic analysis, which facilitates the systematic identification, categorization, and synthesis of patterns across diverse qualitative studies (Marshall et al., 2022). The qualitative coding process was conducted in an iterative manner, allowing for the organic emergence of thematic clusters while maintaining alignment with the conceptual frameworks of qualitative inquiry (Marshall et al., 2022). First, structural coding logged each study across five core descriptors: geographic location, target regional language, research methodology, empirical classroom findings, and proposed solutions. Second, an inductive thematic coding was applied to group patterns through constant comparative analysis, which consolidated the literature into four distinct, structural thematic dimensions: early-grade pedagogical scaffolding (L1 bridging versus L2 submersion), sociolinguistic language shift, macro-to-micro policy-practice decoupling, and teacher agency in local curricular adaptations. Finally, these consolidated themes served as the empirical foundation to build the proposed Multi-Level Ecological-Contextual Model, ensuring that the conceptual framework remains directly anchored in empirical evidence (Carrera-Rivera et al., 2022; Marshall et al., 2022; Smela et al., 2023).

3. RESULTS

3.1. Demographic and Methodological Profile of the Primary Studies

The screening process distilled a total of $N = 59$ primary publications examining the operational use of regional mother tongues in Indonesian primary classrooms. When mapping these studies geographically, a sharp structural split emerges across the archipelago (Figure 1).

Geographic Distribution of Primary Studies ($N = 59$)

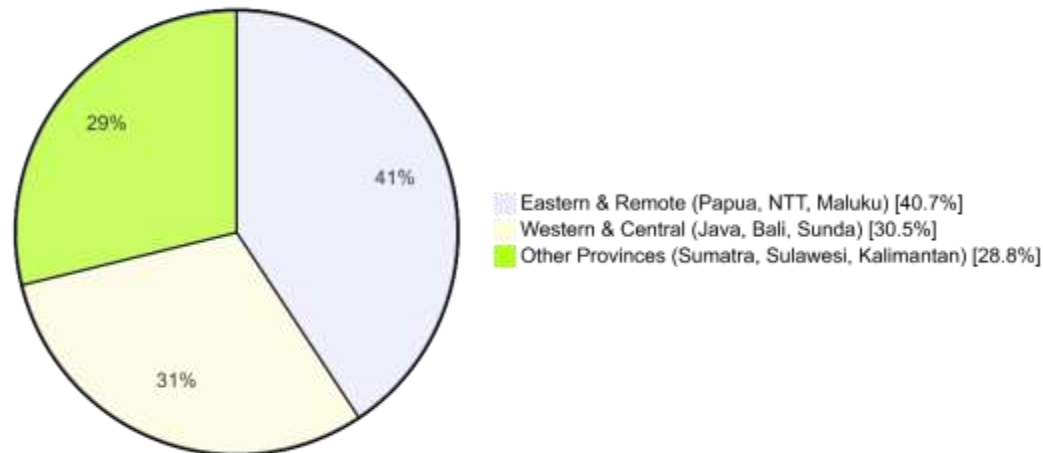


Figure 1. Geographic Distribution of Primary Studies

The under-resourced Eastern and remote provinces, specifically Papua, East Nusa Tenggara (NTT), and Maluku, form the largest research concentration, accounting for 40.7% ($n = 24$) of the corpus. Research in these regions focuses almost exclusively on basic literacy survival, early-grade learning poverty, and the immediate linguistic shock children experience when entering a school system that operates in an unfamiliar national language.

Conversely, studies situated in Western and Central Indonesia, primarily the highly institutionalized systems of Java, Bali, and Sundanese-speaking West Java, represent 30.5% ($n = 18$) of the corpus. Here, the research shift moves away from basic literacy acquisition toward the cultural preservation of high-vitality regional languages, the development of localized digital learning platforms, and the formal implementation of local content (*muatan lokal*) frameworks. The remaining 28.8% ($n = 17$) of the literature spans other provinces, including Sumatra, Sulawesi, and Kalimantan, where researchers trace the ongoing socio-cultural language shift and complex multilingual code-switching dynamics in semi-rural settings.

Methodologically, the collected corpus reflects the localized, qualitative nature of research in indigenous and remote educational spaces. Qualitative designs, such as classroom ethnographies, phenomenological studies, and descriptive case studies, represent 54.2% ($n = 32$) of the empirical literature, providing deep insights into the lived experiences of remote educators and students. Mixed-methods evaluations, which pair classroom language mapping with localized early-grade literacy diagnostics, make up 25.4% ($n = 15$) of the studies. The remaining 20.4% ($n = 12$) consists of conceptual, policy, or curricular analyses that evaluate systemic frameworks at national or regional levels (Figure 2).

Methodological Profile of Primary Studies (N = 59)

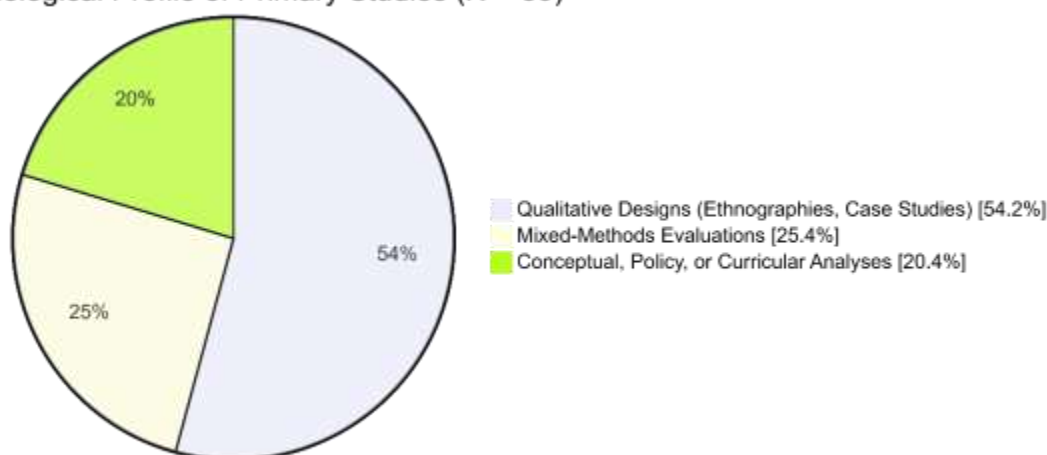


Figure 2. Methodological Profile of Primary Studies

3.2 Thematic Synthesis of the Primary Corpus

The qualitative coding and pattern-matching analysis of the primary publications reveal that the operational, sociolinguistic, and administrative challenges of regional language instruction are organized around four primary thematic axes. Far from being isolated educational difficulties, these themes represent an interconnected, systemic cycle where macro-policy decoupling directly drives micro-level instructional mismatches, accelerates generational language loss, and shifts the entire reform burden onto under-supported teacher agency. This systemic relationship serves as the direct empirical foundation for constructing each corresponding layer of the proposed Multi-Level Ecological-Contextual Model.

3.2.1 Early-Grade Pedagogical Scaffolding

The primary corpus documents a clear empirical consensus regarding the use of the mother tongue (L1) as an initial instructional scaffold. In early-grade classrooms, teaching children to read using familiar native phonemes and local vocabulary significantly accelerates phonics acquisition, boosts reading comprehension, and fosters active student participation (Dhiu et al., 2023; Elopere & Giban, 2024). Conversely, immediate educational submersion in the national language L2 before a child achieves basic developmental literacy in their home language causes severe academic alienation, high anxiety, and early-grade disengagement. Rather than viewing children's interlanguage variations, such as morphological transfers or phonological interferences, as cognitive deficits, the studies frame them as natural milestones of bilingual development (Octaberlina, 2022; Purba, 2022). Furthermore, systematic bilingual code-switching functions as a sophisticated cognitive and pedagogical tool, allowing young learners to leverage their entire linguistic repertoire to clarify complex instructions, resolve lexical gaps, and optimize working memory during academic tasks (Effendie et al., 2025). This micro-level cognitive load crisis directly justifies the Micro-Classroom Level of the proposed model, specifically the need for localized dual-language literacy diagnostics and phased phonics transference protocols.

3.2.2 Sociolinguistic Language Shift

The synthesized literature tracks a severe, ongoing shift where younger generations in diverse regions increasingly adopt the national language at the expense of their ancestral heritage (Inriani & Fiddienika, 2024). Multiple studies indicate that when the formal school system excludes the mother tongue from early-grade instruction, it inadvertently validates the

narrative that indigenous languages lack modern, economic, or academic utility. This institutional exclusion accelerates the erosion of ancestral vocabulary, indigenous knowledge systems, and cultural identity. In response to these worrying trends, contemporary educational and language planning has expanded. Revitalization efforts are transitioning from an exclusive focus on highly endangered minority languages toward the active preservation of all regional languages across the archipelago, seeking to integrate them systematically into school curriculums (Budiono et al., 2024; Maharani et al., 2023). This erosion of linguistic utility underpins the Meso-Community Level of our proposed model, establishing the urgent need for collaborative, school-to-community curriculum co-creation with traditional councils to restore indigenous languages as legitimate mediums of formal academic discourse.

3.2.3 Macro-to-Micro Policy-Practice Decoupling

A major theme emerging from the literature is the structural contradiction within educational governance, characterized by organizational decoupling. Under the Kurikulum Merdeka framework, schools are legally authorized to allocate up to 20% of their instructional frameworks to local content (*muatan lokal*). However, this progressive, decentralized authorization is actively undermined by centralized national examinations, which continue to operate exclusively in Bahasa Indonesia (Pusat Standar dan Kebijakan Pendidikan, 2023).

This misalignment creates a powerful administrative disincentive for local language integration, as schools prioritize standardized test preparation over contextualized, multilingual instruction (Henderson et al., 2022). Furthermore, primary school teachers across diverse regions report a critical lack of professional training, minimal administrative guidance, and an absolute scarcity of localized pedagogical resources, dual-language textbooks, or lesson plans designed for regional language instruction (Hukubun & Wariunsora, 2024). This systemic conflict highlights the necessity for the Macro-Policy Level of the proposed model, which demands the alignment of national assessments with decentralized language rules and the systematic funding of dual-language material publishing.

3.2.4 Teacher Agency in Curricular Contextualization

In the face of these structural barriers, the primary corpus documents widespread, uncoordinated acts of pedagogical resistance by individual classroom teachers. Educators in rural and remote schools frequently exercise their professional agency to bridge the gap between standardized, urban-centric textbooks and local multilingual realities (Biantoro & Setiawan, 2021; Phyak, 2018). Teachers design hand-written dual-language worksheets, create informal translation sheets, and integrate local cultural heritage (*kearifan lokal*) into daily lessons. These instructional adaptations are performed without formal district guidelines, specialized training, or state funding. The literature highlights that these survival practices are heavily dependent on individual, localized initiatives by overworked classroom teachers, particularly underpaid contract teachers, rather than systematic, district-wide coordination (Nugraheni & Hasan, 2026). While these adaptive practices are heroic, their isolated nature makes them structurally unsustainable. This operational fragility establishes the ultimate justification for our proposed Multi-Level Ecological-Contextual Model, which aims to formalize, validate, and structurally support these individual micro-level teacher adaptations by anchoring them in a synchronized macro-policy and meso-community framework.

3.3 Regional Comparative Analysis of Instructional Strategies

The primary corpus presents distinct instructional strategies, profiles, and logistical challenges across different geographic and cultural regions in Indonesia. These variations are summarized in Table 1 below:

Table 1
Comparison of Regional Instructional Strategies

Dimension	Papua Region	East Nusa Tenggara (NTT)	Western/Central Indonesia (Java/Bali)
Linguistic Profile	High-diversity non-Austronesian languages	Austronesian languages and regional Malay dialects	High-vitality Austronesian languages
Primary Instructional Focus	Basic linguistic transition and early literacy	Phonics acquisition and school attendance	Language revitalization and digital tool integration
Documented Pedagogical Strategy	Systematic oral storytelling and code-switching	Dual-language reading materials and reading corners	Structured <i>muatan lokal</i> classes and traditional arts
Primary Systemic Challenge	Extreme resource scarcity and lack of written orthographies	Limited teacher training and district administrative capacity	Digital divide and rigid standardization pressures

In the Papua region, studies document that students frequently enter Grade 1 with zero proficiency in the national language, requiring teachers to rely on oral translation, storytelling, and local vocabulary mapping. These settings face a critical lack of written orthographies and printed reading materials in local indigenous languages, forcing teachers to design hand-written worksheets.

In East Nusa Tenggara, the documented focus centers on phonics fluency and early-grade attendance using piloted dual-language materials and community-based reading corners, though programs are challenged by limited teacher training and district capacity.

In Western and Central Indonesia, the regional languages possess established written literatures, high societal prestige, and formal institutional status, with instructional strategies focusing on digital media, traditional arts, and structured language maintenance.

4. DISCUSSION

4.1 Sociolinguistic and Methodological Critique

The geographical bifurcation identified in the results reflects deep structural and socio-historical divides within the Indonesian educational landscape. The high concentration of research in Eastern and remote Indonesia (40.7%) highlights an urgent need to address basic cognitive survival and early-grade literacy deficits in marginalized regions (Eloper & Giban, 2024). In these settings, regional language integration is not an elective cultural luxury; it is a vital pedagogical intervention to mitigate severe learning poverty caused by the wide typological distance between non-Austronesian home languages and the standard Austronesian national language (Mohanty & Skutnabb-Kangas, 2022).

Conversely, the research agenda in Western and Central Indonesia (30.5%) is driven by language maintenance and digital preservation of highly institutionalized, historic regional languages like Javanese and Balinese (Budiono et al., 2024; Inriani & Fiddienika, 2024). This disparity shows that uniform, centralized language policies are fundamentally inadequate. Standardized national curricula that ignore these geographic and sociolinguistic realities impose a rigid model that privileges urban, native speakers of the national language, thereby exacerbating educational inequity in remote areas (Groff et al., 2023; Hukubun & Wariunsora, 2024).

Methodologically, the heavy reliance on qualitative and localized case studies (54.2%) demonstrates the challenges of conducting research in remote or marginalized educational contexts. Researchers must utilize situated, qualitative methodologies to capture fluid, non-standardized classroom language practices where rigid quantitative metrics fail to represent local realities (Marshall et al., 2022; Nugraheni & Hasan, 2026). Qualitative frameworks are essential for uncovering the subtle ways teachers adapt standardized curricula to local conditions, illustrating the impact of teacher positionality and community context on policy

delivery (Biantoro & Setiawan, 2021; Phyak, 2018).

However, the lack of longitudinal, large-scale quantitative evaluations creates an epistemic bottleneck. Without multi-year quantitative tracking of student cohorts, the long-term cognitive and academic benefits of mother-tongue-based instruction remain difficult to validate in the eyes of centralized policymakers. This lack of statistical validation leaves local bilingual programs highly vulnerable to shifts in administrative leadership or political pressures toward absolute national standardization (Henderson et al., 2022; Hukubun & Wariunsora, 2024; Pusat Standar dan Kebijakan Pendidikan, 2023).

4.2 Theoretical Interpretation of the Thematic Clusters

4.2.1 Cognitive Mechanics of Pedagogical Scaffolding

The empirical findings regarding early-grade scaffolding across the synthesized corpus expose a critical cognitive mismatch in standard monolingual schooling. Rather than supporting natural language acquisition, forcing immediate immersion in an unfamiliar national language (L2) before children reach a critical developmental threshold in their mother tongue (L1) actively disrupts the common underlying proficiency (Baker & Wright, 2021; Fegher, 2023). Under this model, cognitive development and cross-linguistic transfer must be understood as a sequential dependency:

$$C_{dev} = f(I_{L_1}) \rightarrow P_{L_2}$$

where cognitive development (C_{dev}) is a function of first-language instructional scaffolding (I_{L_1}), which structurally precedes and facilitates second-language proficiency (P_{L_2}).

Disrupting this sequence causes subtractive bilingualism, cognitive disengagement, and acute learning poverty (Mohanty & Skutnabb-Kangas, 2022). This structural disruption limits the natural cross-linguistic transfer of literacy skills, creating persistent developmental barriers where young learners struggle to navigate grammatical, lexical, and phonological interferences between their active language systems (Octaberlina, 2022; Purba, 2022).

Furthermore, student interlanguage variations and bilingual code-switching must not be pathologized as linguistic deficits or cognitive confusion (Al Akromi, 2026; Octaberlina, 2022). Instead, as demonstrated by the corpus, strategic code-switching is a sophisticated, adaptive cognitive strategy that young learners deploy to optimize working memory and negotiate abstract academic tasks (Effendie et al., 2025; Purba, 2022). This micro-level cognitive load crisis directly justifies the Micro-Classroom Level of our proposed model, establishing that early-grade diagnostic metrics must prioritize dual-language fluency over monolingual compliance, reframing the L1 as an active asset rather than a learning barrier.

4.2.2 Institutional Mechanics of Language Shift and Decoupling

The widespread documentation of language shift within the primary corpus exposes the violent, structural role that formal school systems play as active agents of linguistic homogenization when they systematically exclude regional mother tongues (Inriani & Fiddienika, 2024; Maharani et al., 2023). When schools exclude local languages, they reinforce a deficit narrative that treats indigenous languages as economic liabilities and markers of underdevelopment (Inriani & Fiddienika, 2024). To reverse this trajectory, language planning must shift from a purely preservationist model toward a universal resource-oriented paradigm that treats regional mother tongues as fundamental cognitive assets (Budiono et al., 2024; UNESCO, 2025, 2026).

However, this transformation is structurally blocked by organizational decoupling within Indonesian educational governance (Henderson et al., 2022; Hukubun & Wariunsora, 2024).

This decoupling is not an accidental administrative oversight, but rather a deliberate structural mechanism of performative multiculturalism. The state adopts progressive, decentralized guidelines, such as the Kurikulum Merdeka which permits up to 20% local content, to secure social and international democratic legitimacy. Simultaneously, it maintains rigid, centralized, monolingual control through high-stakes national assessments like the *Asesmen Nasional*. This systemic conflict forces schools into a state of defensive monolingualism, where they voluntarily suppress local language instruction to focus limited instructional hours on preparing for monolingual state assessments (Henderson et al., 2022). Consequently, the progressive decentralized curriculum remains an empty administrative ritual, shifting the entire systemic burden of equity onto under-resourced local educators (Nugraheni & Hasan, 2026).

4.2.3 Teacher Agency as Unsustainable Resistance

The acts of pedagogical contextualization documented across the reviewed literature highlight the critical, yet deeply precarious, role of teacher agency in navigating restrictive monolingual structures. Educators in complex rural classrooms actively function as political arbiters, performing daily, uncoordinated acts of pedagogical resistance to convert urban-biased, standardized textbooks into locally meaningful concepts (Biantoro & Setiawan, 2021; Phyak, 2018).

However, celebrating this localized teacher agency as a success story of local curriculum contextualization is a major theoretical error. In reality, relying on individual, uncoordinated teacher initiative is a structural cop-out by the state, representing the responsabilization of marginalized educational workers. The state shifts the operational and ethical burden of achieving educational equity onto underpaid, highly unstable contract teachers who lack formal training, district guidelines, or dual-language textbooks (Hukubun & Wariunsora, 2024; Nugraheni & Hasan, 2026). Because this agency is highly individual and completely unsupported by district-level infrastructure, its long-term institutional sustainability is non-existent (Nugraheni & Hasan, 2026). Theoretical frameworks of culturally sustaining pedagogy emphasize that classroom instruction must actively sustain, rather than erase, the diverse linguistic identities and home languages of indigenous youth (Hornberger & Link, 2012). This structural fragility establishes the ultimate justification for our proposed model, which aims to formalize, validate, and structurally support these individual micro-level teacher adaptations by anchoring them in a synchronized macro-policy and meso-community framework.

4.3 Synthesis of the Multi-Level Ecological-Contextual Model

The proposed Multi-Level Ecological-Contextual Model provides a systemic framework designed to resolve the institutional decoupling and pedagogical tensions identified in the literature. The critical innovation of this model lies in its insistence on explicit structural synchronization across all three levels of educational delivery, ensuring that top-down policy mechanisms directly support bottom-up classroom interactions (Henderson et al., 2022).

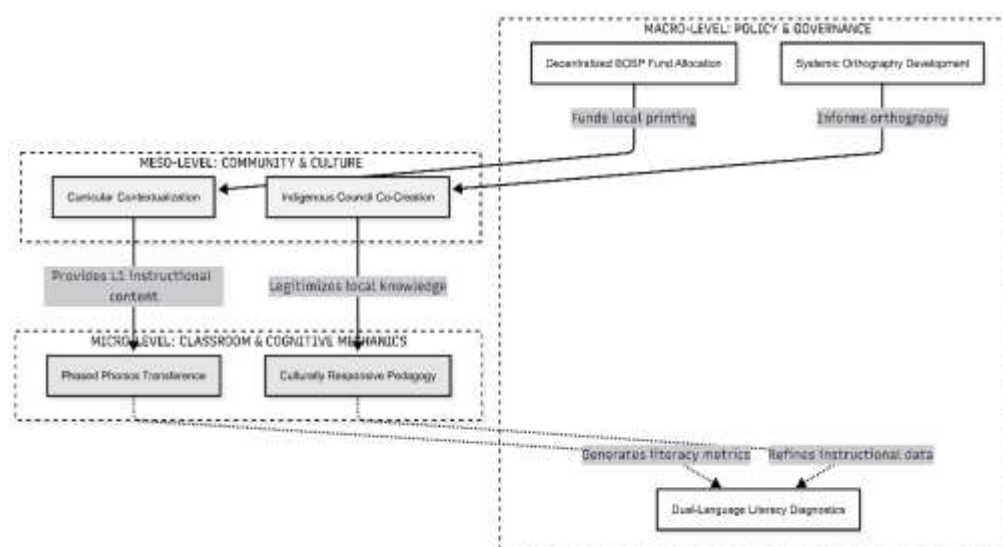


Figure 3. The Multi-Level Ecological-Contextual Model

This structural model contains three interconnected operational dimensions:

- Macro-Policy Level:** National and regional authorities must transition from passive permission to active structural support. This requires implementing systematic orthography development, where linguists and traditional leaders collaborate to create written systems and dictionaries for historically oral regional languages. Furthermore, decentralized textbook procurement must be achieved by explicitly directing national operational budgets (BOSP funds) toward printing localized, mother-tongue reading materials. Most critically, the model calls for the design of dual-language diagnostic assessment protocols (Pusat Standar dan Kebijakan Pendidikan, 2023). This ensures that early-grade literacy and numeracy evaluations are conducted in the student's primary language, preventing centralized mechanisms from confusing national language proficiency with underlying cognitive-academic capacity.
- Meso-Community Level:** The model builds upon the collaborative co-creation of curricula among school committees, local universities, and traditional councils (*Majelis Adat*) to formalize local knowledge within the 20% local content space authorized by the *Kurikulum Merdeka* (Biantoro & Setiawan, 2021). This integration reframes local wisdom from an exotic addition into a core element of academic discourse. For example, teaching geometry through traditional weaving (*tenun*) patterns or botany through indigenous medicinal classifications elevates the positionality of local teachers, shifting their role from distributors of foreign concepts to cultural facilitators who connect local knowledge with global academic systems (Biantoro & Setiawan, 2021; Phyak, 2018).
- Micro-Classroom Level:** These macro and meso dimensions directly support daily classroom interactions. Teachers receive systematic, targeted training in phased phonics transference and strategic code-switching methods (Baker & Wright, 2021; Phyak, 2018). This targeted training ensures that the mother tongue serves as a reliable cognitive foundation for acquiring the national language, rather than an impediment (Nugraheni & Hasan, 2026). By anchoring micro-level classroom

practices within a supported macro and meso infrastructure, the model prevents the institutional decoupling that has historically undermined bilingual education reforms in Indonesia, transforming the classroom into a site of cognitive clarity and cultural empowerment.

To demonstrate the unique scientific novelty of the proposed Multi-Level Ecological-Contextual Model, it must be critically compared against two dominant global paradigms in bilingual education: Sweden's Mother Tongue Instruction (MTI) framework and standard Western Transitional Bilingual Education (TBE) models.

Sweden's MTI framework is highly regarded globally for legally guaranteeing mother-tongue instruction for immigrant and minority children. However, this model relies on a highly centralized, state-funded administrative architecture (Aktürk-Drake, 2024; Groff et al., 2023). The Swedish government directly manages teacher certification, provides standardized curricular materials, and funds specialized mother-tongue educators who travel across districts. In the Indonesian context, particularly in remote regions of Papua and East Nusa Tenggara, such a model is structurally and logistically impossible due to extreme geographic isolation, teacher shortages, and fiscal constraints (Henderson et al., 2022). The proposed Multi-Level Ecological-Contextual (MLEC) model addresses this reality by replacing centralized administrative support with a decentralized, co-creation approach at the Meso-Community Level. By formally integrating school boards with traditional councils (*Majelis Adat*) and local universities, MLEC framework leverages existing community cultural assets and indigenous knowledge to co-create reading materials and curricula, bypassing the need for massive state-driven teacher deployments (Biantoro & Setiawan, 2021).

Standard Western Transitional Bilingual Education (TBE) models likewise differ fundamentally from our proposed model. Western TBE frameworks are typically designed as subtractive transitional programs, where the child's native language is treated as a temporary scaffold, a crutch to be discarded as quickly as possible once standard national language proficiency is achieved (Baker & Wright, 2021). MLEC model, by contrast, rejects this subtractive orientation in favor of an additive, culturally sustaining paradigm (Hornberger & Link, 2012). At the Micro-Classroom Level, the model reframes the first language (L1) not merely as a temporary tool for literal translation, but as a permanent cognitive asset (Phyak, 2018). By integrating indigenous local wisdom, such as teaching mathematics through traditional weaving (*tenun*) patterns or biology through local medicinal classifications, the student's ancestral language remains a legitimate and active platform for formal scientific discourse (Biantoro & Setiawan, 2021).

Finally, the proposed model introduces structural synchronization across all three ecological levels. Unlike Swedish or Western models, which often treat classroom pedagogy and policy rules as separate tracks, MLEC model integrates the Micro-Classroom Level directly with the Macro-Policy Level through the implementation of localized, dual-language literacy diagnostics (Pusat Standar dan Kebijakan Pendidikan, 2023). This synchronization ensures that national testing frameworks do not mistake early-grade linguistic barriers for cognitive deficits, protecting the validity of student evaluations and structurally resolving the policy-practice decoupling that has historically compromised primary school reforms across the Indonesian archipelago (Henderson et al., 2022).

5. CONCLUSION

This systematic literature review synthesized 59 empirical studies to map the complex landscape of mother tongue-based multilingual education in Indonesian primary schools. The

findings demonstrate a systemic geographical bifurcation: remote Eastern provinces utilize regional languages primarily for basic cognitive survival and literacy acquisition, whereas Western regions utilize them for cultural preservation and digital revitalization. Furthermore, the review identifies a structural policy-practice decoupling, characterized by progressive national decentralization rhetoric that directly clashes with rigid, monolingual centralized assessment metrics. This systemic conflict forces remote schools into defensive monolingualism, where they suppress regional languages to ensure performance in state accountability metrics.

This study contributes the Multi-Level Ecological-Contextual Model, which is an evidence-based conceptual blueprint derived from empirical synthesis. The framework offers a systematic approach to synchronize macro-level policies, meso-level community integration, and micro-level classroom scaffolding. By framing mother tongue instruction as a cognitive right rather than a cultural luxury, the model provides a foundation for transitioning the Indonesian educational system from an assimilationist paradigm toward an additive, resource-oriented framework. It must be emphasized that this model is a theoretical derivation from existing literature and requires future empirical field validation to verify its longitudinal efficacy across diverse educational settings.

The scope of this review is inherently constrained by its reliance on Google Scholar, which, although uniquely positioned to capture regional SINTA-indexed journals and university repositories, may omit unpublished proprietary data. Additionally, the prevalence of qualitative and localized case studies (54.2% of the corpus) limits the statistical generalizability of these findings across the entire archipelago.

To advance this research field, future inquiry should prioritize three distinct directions. First, longitudinal, quantitative research is required to track student cohorts from early-grade mother tongue instruction through their transition to national language proficiency. Second, studies must investigate the specific training needs and professional well-being of the contract teachers who currently serve as the primary arbiters of multilingual instruction. Third, researchers should explore the logistical and economic feasibility of decentralized publishing models to sustain the production of local-language instructional materials, ensuring that linguistic diversity is treated as a foundational pillar of national intelligence and cognitive resilience.

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