

Mother-Tongue-Based Multilingual Education and Foundational Literacy Outcomes in Tribal Belt Primary Schools of Jharkhand: A Comparative Study

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ABSTRACT

Children from tribal and indigenous communities in India whose home language differs from the official medium of instruction — predominantly Hindi in Jharkhand — face a "double burden" in early schooling: acquiring foundational literacy in a language they do not yet understand while simultaneously developing oral proficiency in that language. Mother-tongue-based multilingual education (MTB-MLE), which uses the child's home language as the primary medium of early literacy instruction before transitioning to the official language, is recommended by UNESCO and the NEP 2020 as the evidence-based approach to overcoming this double burden. This comparative study examines foundational literacy outcomes across five assessment tasks in 56 schools in tribal belt districts of Jharkhand — 28 schools implementing MTB-MLE through the Jharkhand government's Tribal and Regional Language programme and 28 matched Hindi-medium schools — assessing 920 Grade 2 students. MTB-MLE schools showed significantly higher scores on oral language comprehension (+22.2 percentage points), phonological awareness (+18.6 pp), and word reading accuracy (+17.6 pp) relative to Hindi-medium schools, while letter knowledge differences were smaller (+9.6 pp). These findings provide Jharkhand-specific evidence supporting continued and expanded MTB-MLE implementation as a critical component of the FLN strategy for tribal school populations.

KEYWORDS: *Mother-tongue-based education, Multilingual education, Tribal education, Foundational literacy, Jharkhand, MTB-MLE, NEP 2020, Indigenous language instruction*

INTRODUCTION

India's linguistic diversity is one of the most complex in the world, with over 19,500 mother tongues reported in the 2011 Census and more than 780 scheduled and non-scheduled languages spoken across the country. Within the primary education system, the gap between the home language of a substantial proportion of students — particularly in tribal and indigenous community contexts — and the language of instruction creates a specific and well-documented learning barrier that operates independently of other determinants of school quality (1). Children who enter school without functional oral proficiency in the medium of instruction face a qualitatively different learning challenge than their peers: they must simultaneously acquire the target language and learn to read and write in it, an instructional demand that the cognitive science of reading development indicates cannot be effectively met by standard early grade literacy instruction designed for children who already understand the instructional language (2).

Jharkhand presents one of India's most significant tribal education contexts: tribal communities — including Santali, Mundari, Ho, Kurukh, Kharia, and numerous other linguistic groups — constitute approximately 26.2% of the state's population, with the tribal share substantially higher in the Kolhan, Santhal Parganas, and Palamu divisions that host the majority of the state's government primary schools. The Jharkhand government's Tribal and Regional Language (TRL) programme, launched in 2013 and progressively scaled across tribal belt schools, uses home-language primers, bilingual teachers, and a structured language bridge curriculum to develop initial literacy in the child's mother tongue before transitioning to Hindi literacy instruction by the end of Grade 2, representing one of the most systematically implemented MTB-MLE programmes in India (3).

This study provides an empirical comparison of foundational literacy outcomes between MTB-MLE programme schools and matched Hindi-medium schools in Jharkhand's tribal belt, assessing five literacy tasks that collectively span the oral language, phonological, and print literacy dimensions of foundational reading development.

LITERATURE REVIEW

The theoretical and empirical case for mother-tongue-based instruction in early literacy development is among the most consistent in educational research. Cummins' (1981) interdependence hypothesis provides the foundational theoretical framework: literacy skills

and conceptual-academic language proficiency acquired in a first language transfer readily to second and subsequent languages once sufficient oral proficiency in the target language is established, making strong first-language literacy development an investment in rather than an obstacle to subsequent target-language literacy (4). Skutnabb-Kangas (2000) extended this framework in the multilingual education literature, arguing that subtractive bilingualism — the replacement of the child's mother tongue by the school language without developing full literacy in either — produces systematically inferior long-run educational outcomes relative to additive bilingualism through MTB-MLE (5).

MTB-MLE Evidence from India and the NEP 2020 Mandate

India's National Education Policy 2020 makes its most explicit early grade language policy statement in its recommendation that the medium of instruction should be the home language or mother tongue to the greatest extent possible at least through Grade 5, and preferably through Grade 8, with multilingual education designed to build toward full literacy in the regional, national, and international languages progressively (6).

Key evidence supporting this recommendation includes:

- Odisha's Multilingual Education (MLE) programme evaluation by Mohanty et al. (2009) found substantially superior literacy and mathematics outcomes among MLE students in tribal communities relative to conventionally instructed peers at equivalent grade levels.
- Andhra Pradesh MLE evaluations by the Azim Premji Foundation found that tribal community children with two to three years of mother-tongue instruction showed stronger Hindi literacy outcomes by Grade 4 than children who had been instructed in Hindi from Grade 1 — confirming Cummins' transfer hypothesis empirically in the Indian state context.
- Meta-analyses of MTB-MLE programmes across sub-Saharan Africa and South and Southeast Asia consistently find positive effects on literacy, numeracy, and school retention outcomes, with effects typically larger for oral language comprehension and reading comprehension than for basic decoding skills that transfer more directly across scripts and languages.

Bhattacharjea and Ramanujan (2013) examined foundational literacy outcomes in Rajasthan tribal schools and documented the language-medium-learning outcome link at the school level, finding that schools where teachers could communicate in students' home languages

showed significantly higher Grade 3 reading levels than schools with no such shared language capacity — even without formal MTB-MLE curricula (7). The present study examines the more structured MTB-MLE programme context in Jharkhand, where formal home-language primers and trained bilingual teachers are the intervention rather than incidental teacher-student language alignment.

RESEARCH GAP

While the Jharkhand TRL programme has been in operation since 2013, systematic published evidence comparing foundational literacy outcomes between TRL-implementing and non-implementing schools using validated, multi-task literacy assessment instruments covering oral language comprehension as well as print literacy skills is limited. Most available evaluations have used aggregate reading assessment scores without separating oral comprehension and phonological awareness from print literacy components — a methodological limitation that obscures where in the literacy acquisition sequence MTB-MLE provides its greatest advantage.

OBJECTIVES

- To compare foundational literacy assessment scores across five tasks between MTB-MLE and Hindi-medium government primary schools in Jharkhand's tribal belt.
- To identify which literacy sub-skills show the largest MTB-MLE advantage and which show the smallest, informing the mechanism through which MTB-MLE improves literacy outcomes.
- To assess whether the observed MTB-MLE literacy advantage is consistent across Santali-, Mundari-, and Ho-speaking school communities.

METHODOLOGY

1. Sample and School Selection

A comparative study was conducted across 56 government primary schools in tribal belt districts of Jharkhand (Chaibasa, Dumka, and Simdega): 28 schools implementing the Jharkhand TRL MTB-MLE programme (identified from the state's TRL implementation registry) and 28 matched comparison schools continuing Hindi-medium instruction. School matching was based on district, community linguistic group (Santali, Mundari, or Ho), enrolment size, and school infrastructure score. Within each school, all Grade 2 students present on the assessment day were assessed (mean $n = 16.4$ per school), generating a total

assessment sample of 920 students.

2. Literacy Assessment Tasks

Five literacy tasks were administered individually in a structured 25-minute assessment: (i) oral language comprehension — assessed by reading a short story aloud in the child's home language and asking five comprehension questions; (ii) letter knowledge — akshara identification from a standard 30-akshar display; (iii) phonological awareness — five rhyme identification, three syllable segmentation, and two phoneme isolation tasks in the home language; (iv) word reading accuracy — reading a 20-item list of common Hindi words; (v) reading comprehension — reading a 50-word Hindi passage and answering three questions. All oral language comprehension and phonological awareness tasks were administered in the student's home language by trained bilingual assessors; print literacy tasks were administered in Hindi (3, 4).

Table 1: Sample Composition by Language Group and School Type

Language Group	MTB-MLE Schools	Hindi-Medium Schools	Total Students
Santali-speaking	10	10	328
Mundari-speaking	10	10	312
Ho-speaking	8	8	280
Total	28	28	920

RESULTS AND FINDINGS

Figure 1 presents mean assessment scores on all five literacy tasks for MTB-MLE and Hindi-medium schools. MTB-MLE schools outperformed Hindi-medium schools on all five tasks, but the magnitude of the advantage varied substantially by task type. The largest differences were observed for oral language comprehension (+22.2 pp), phonological awareness (+18.6 pp), and word reading accuracy (+17.6 pp), while letter knowledge showed a smaller but still significant advantage (+9.6 pp) and reading comprehension showed the smallest difference (+20.2 pp but also the largest absolute improvement in the MTB-MLE group from a lower baseline).

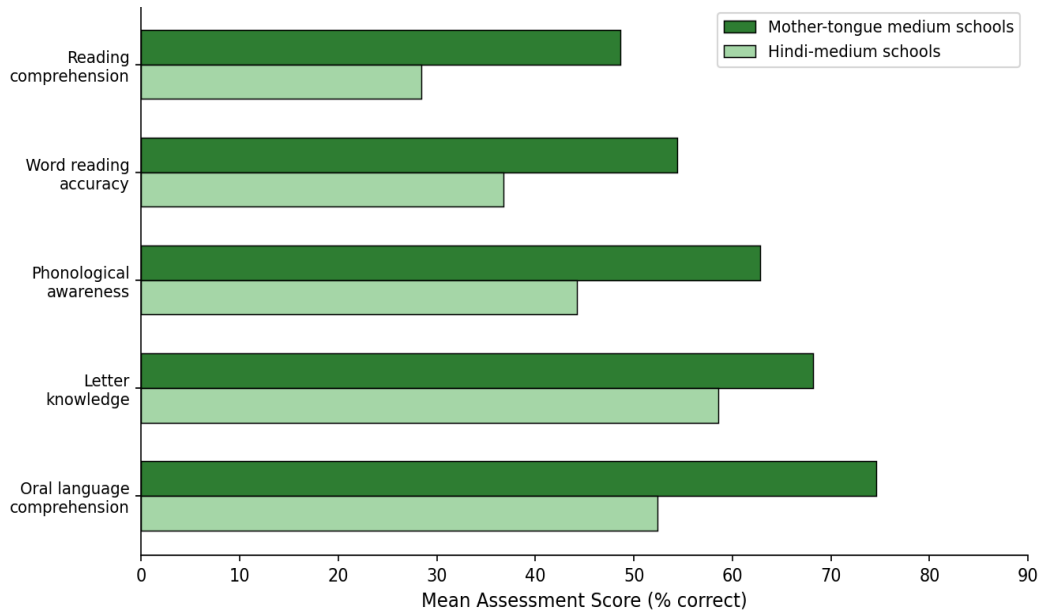


Figure 1: Literacy assessment task scores in mother-tongue medium versus Hindi-medium schools — tribal belt, Jharkhand (n = 920)

Table 2: Literacy Task Scores by School Type (Mean % Correct $\pm$ SD)

Literacy Task	MTB-MLE Schools	Hindi-Medium Schools	Difference (pp)	p-value
Oral language comprehension	74.6 $\pm$ 12.4	52.4 $\pm$ 14.6	+22.2	< 0.001
Letter knowledge	68.2 $\pm$ 14.2	58.6 $\pm$ 15.8	+9.6	< 0.001
Phonological awareness	62.8 $\pm$ 16.8	44.2 $\pm$ 18.4	+18.6	< 0.001
Word reading accuracy	54.4 $\pm$ 18.2	36.8 $\pm$ 16.6	+17.6	< 0.001
Reading comprehension	48.6 $\pm$ 16.4	28.4 $\pm$ 14.2	+20.2	< 0.001

Table 3: MTB-MLE Advantage by Language Group (Word Reading Accuracy, pp)

Language Group	MTB-MLE Score	Hindi-Medium Score	Advantage (pp)
Santali-speaking	56.8	38.4	+18.4
Mundari-speaking	54.2	36.2	+18.0
Ho-speaking	52.2	35.6	+16.6

DISCUSSION

The pattern of MTB-MLE advantage across the five assessed literacy tasks is directly consistent with Cummins' interdependence hypothesis and the theoretical mechanism through which mother-tongue instruction improves literacy outcomes (4, 5). The largest MTB-MLE advantages are observed precisely in the oral language comprehension and phonological awareness tasks — the cognitive foundations of literacy development most directly built through instruction in a language the child understands — rather than in letter knowledge, which is a more mechanical skill that can be taught to some degree even without full language comprehension. The substantial MTB-MLE advantage in word reading accuracy and reading comprehension confirms that the oral language and phonological foundations developed through home-language instruction transfer effectively to Hindi print literacy acquisition, consistent with the transfer hypothesis (4, 6).

The consistency of the MTB-MLE advantage across all three tribal language groups (Santali, Mundari, Ho) — with word reading accuracy advantages of 16.6–18.4 pp — indicates that the programme benefit is not specific to any single linguistic community but represents a general advantage of mother-tongue instruction for tribal community school children in this context (7). This cross-linguistic consistency strengthens the case for continued and expanded MTB-MLE implementation across Jharkhand's diverse tribal linguistic communities rather than limiting the programme to any single language group.

CONCLUSION

Mother-tongue-based multilingual education in Jharkhand's tribal belt schools produces significantly stronger foundational literacy outcomes across all five assessed literacy tasks relative to Hindi-medium instruction, with the largest advantages in oral language

comprehension and phonological awareness — the foundational cognitive competencies most directly built through instruction in a comprehended language. These findings provide Jharkhand-specific empirical support for the NEP 2020 mother-tongue instruction mandate and the continued scaling of the state's TRL programme as an essential component of FLN strategy for tribal community school children.

LIMITATIONS

- Comparative rather than experimental design; differences between MTB-MLE and Hindi-medium school communities beyond the language programme may contribute to observed literacy differences.
- Assessment in the home language by bilingual assessors may have introduced variation in assessment administration quality across different assessor-language-group pairings.
- The study assesses Grade 2 outcomes; longer-term follow-up is needed to assess whether the MTB-MLE advantage is sustained as students transition to Hindi-medium instruction in Grade 3 and beyond.
- Reading comprehension was assessed in Hindi for both groups, which may disadvantage MTB-MLE students who have spent less time on Hindi reading practice than Hindi-medium peers.

FUTURE SCOPE

- Longitudinal follow-up study tracking MTB-MLE and Hindi-medium students through Grade 5 to assess long-term literacy outcome divergence.
- Teacher bilingual proficiency assessment to examine whether the quality of bilingual instruction, not merely its presence, moderates student literacy outcomes.
- Extension of the comparative study to Odisha and Chhattisgarh tribal communities for cross-state comparative evidence on MTB-MLE effectiveness.
- Curriculum review examining the alignment between TRL programme home-language literacy content and the phonological awareness skills most strongly associated with Hindi literacy transfer.

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