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Multilingual Early Childhood Education: A Case Study from Maharashtra

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ABSTRACT

Multilingual early childhood education has garnered significant attention in recent years due to its potential to enhance cognitive, linguistic, and socio-cultural development among young learners. This case study examines the implementation and outcomes of a multilingual education program in selected pre-primary schools across Maharashtra, India. Situated within a socio-economically and linguistically diverse context, the program integrates Marathi, Hindi, and English as mediums of instruction, alongside local tribal and migrant community languages where relevant. Employing a mixed-methods approach—combining classroom observations, teacher and parent interviews, and standardized language and cognitive assessments—the study documents both pedagogical practices and learner outcomes over an academic year. Key findings indicate that exposure to structured, scaffolded multilingual pedagogy fosters greater meta-linguistic awareness, improves receptive and expressive vocabulary across languages, and supports emergent literacy skills in the dominant language of the community. Teachers reported increased engagement and enthusiasm among children, while parents noted improvements in children's confidence and home-school communication. Challenges included resource constraints, variable teacher proficiency in all target languages, and inconsistent parental support for non-native languages. The study concludes with recommendations for policy and practice, emphasizing continued teacher training, development of localized multilingual learning materials, and community involvement to sustain and scale such programs.

KEYWORDS

multilingual education, early childhood, Maharashtra, cognitive development, emergent literacy, socio-cultural engagement

INTRODUCTION

Early childhood represents a critical period for language acquisition and cognitive development, during which children build foundational skills that shape academic trajectories and social identities. In multilingual societies—such as those found in many Indian states—children often acquire multiple home languages

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simultaneously or sequentially. Maharashtra, India's third-largest state by area and population, is characterized by high linguistic diversity: Marathi is the official state language, but Hindi, English, tribal languages (e.g., Gondi, Bhili), and languages of migrant communities (e.g., Odia, Bengali) also feature prominently. Traditional preschool and kindergarten programs in Maharashtra have predominantly used Marathi or Hindi as the medium of instruction, with English introduced only at later stages. Such monolingual or sequential bilingual models may limit young learners' capacity to transfer cognitive and linguistic competencies across languages, constrain school-to-home communication for non-Marathi-speaking families, and underutilize the rich linguistic repertoire children bring to the classroom.

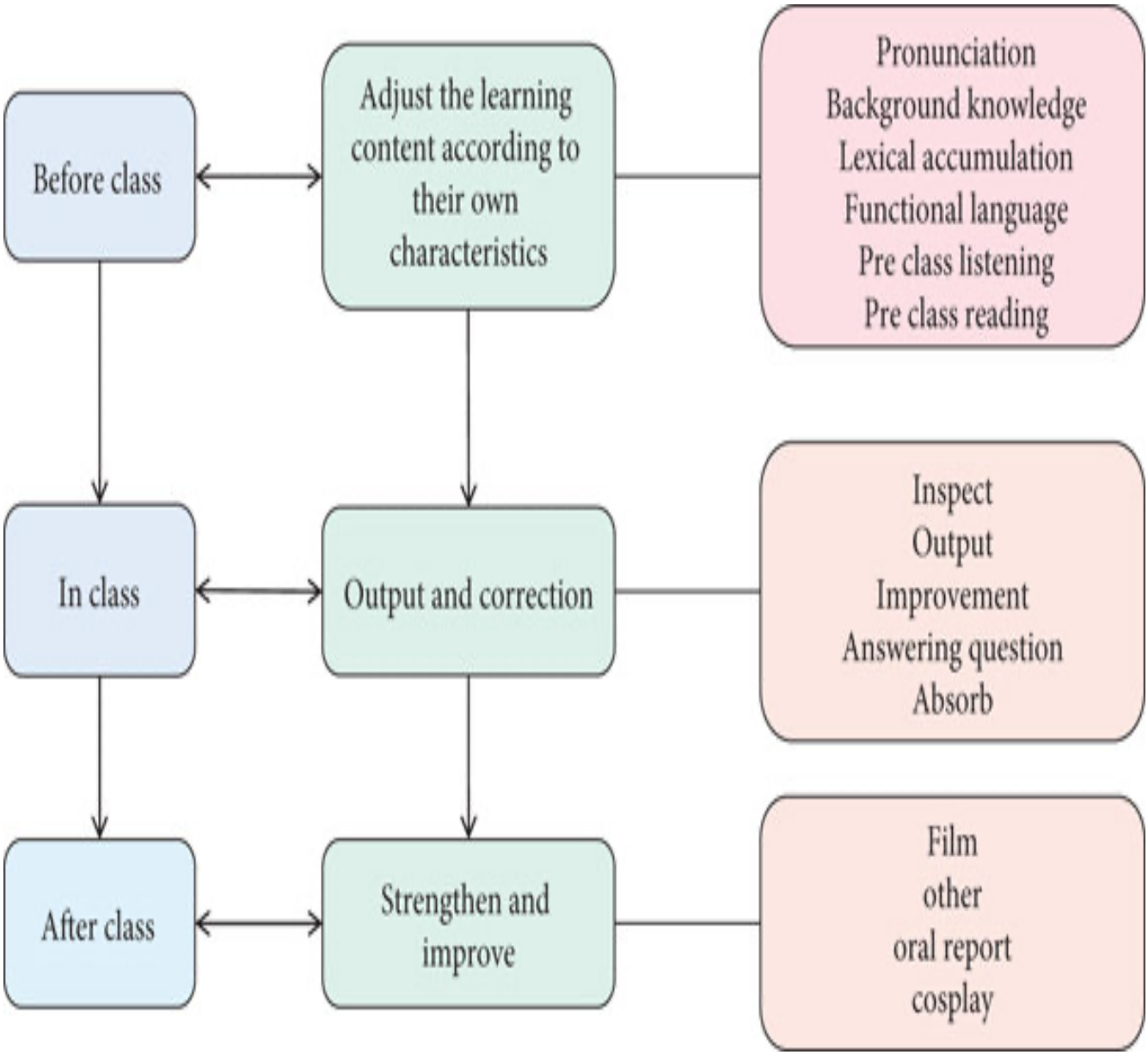

Fig.1 multilingual education, Source:1

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Recent pedagogical theories and empirical studies suggest that simultaneous exposure to two or more languages—including through translanguaging practices—can strengthen meta-linguistic awareness, executive function, and emergent literacy skills, provided that instruction is systematic and responsive to learners' needs. However, large-scale implementation of multilingual early childhood education remains limited in India, owing to policy inertia, resource challenges, and concerns about potential confusion or cognitive overload among young children. This case study seeks to address this gap by examining a pilot multilingual education program implemented in selected pre-primary settings across urban, semi-urban, and rural areas of Maharashtra.

The objectives of the study are threefold: first, to document instructional practices and materials used in the program; second, to assess the linguistic, cognitive, and socio-emotional outcomes among participating children; and third, to identify facilitators and barriers to program implementation. By situating the analysis within both global research on multilingual pedagogy and the specific socio-cultural context of Maharashtra, the study aims to generate actionable insights for educators, policymakers, and community stakeholders interested in scaling effective early childhood language programs.

LITERATURE REVIEW

The theoretical underpinnings of multilingual education rest on the principle that languages constitute complementary cognitive and socio-cultural resources. Cummins's interdependence hypothesis posits that proficiency in one language can support development in another, as skills such as phonological awareness, vocabulary depth, and narrative competence transfer across linguistic boundaries. Translanguaging frameworks further argue that bilingual and multilingual speakers draw upon an integrated repertoire—rather than siloed languages—to communicate meaningfully, learn new concepts, and negotiate identities. In early childhood settings, supportive translanguaging practices may include allowing children to express ideas in their home language before refining in the target instructional language, co-teaching by bilingual educators, and using home-language stories to introduce new content.

Empirical studies from Europe, North America, and parts of Asia have documented benefits of early multilingualism: for instance, children in dual-language immersion programs exhibit superior performance on standardized reading and cognitive flexibility tasks compared to monolingual peers. In contexts similar to Maharashtra, a study in Gujarat found that incorporating Gujarati—alongside Hindi and English—in pre-primary classrooms improved narrative skills and home-school engagement among tribal children. Research from Uttarakhand indicates that mother-tongue instruction in remote Himalayan villages boosts school readiness and parental involvement. However, the evidence also underscores challenges: teacher proficiency

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in multiple languages often lags, high-quality multilingual materials are scarce, and systemic support (e.g., curriculum guidelines, assessment tools) is typically designed for monolingual instruction.

Fig.2 early childhood, Source:2

At the policy level, the National Education Policy (NEP) 2020 of India advocates a "three-language formula" and early introduction of English alongside regional languages. NEP emphasizes mother-tongue or home-language instruction up to Grade 5, while permitting gradual addition of other languages. Yet, state-level

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operationalization of NEP provisions has been uneven: while Kerala and Tamil Nadu have made strides in multilingual pedagogy, many Hindi-belt states—including parts of Maharashtra—continue to favor monolingual or late-English-entry models.

Reviewing these theoretical and policy perspectives highlights three insights for the present case: first, structured multilingual programs can yield cognitive and linguistic gains when properly scaffolded; second, local adaptation—accounting for community languages and teacher capacities—is crucial; and third, systematic evaluation of outcomes (beyond anecdotal teacher reports) is urgently needed in diverse Indian settings. This study contributes by providing such evaluation from Maharashtra, focusing on both learner outcomes and implementation processes.

METHODOLOGY

Research Design

A concurrent mixed-methods design was employed, integrating quantitative assessment of language and cognitive outcomes with qualitative documentation of classroom practices and stakeholder perspectives. The study spanned an academic year (June 2024 to March 2025) and involved four schools—two urban municipal preschools in Pune, one semi-urban private kindergarten in Nashik district, and one rural Zilla Parishad–run early childhood center in Gadchiroli district. These sites were selected to capture variability in linguistic demography, resource availability, and teacher qualifications.

Participants

A total of 120 children (aged 3 to 5 years) enrolled in the selected schools participated. Among these, 45% were Marathi-dominant, 30% were Hindi-dominant, and 25% spoke Marathimigrant community or tribal languages at home. Twenty teachers (five per site) were involved; all had at least a diploma in early childhood education, though only half had prior experience with second-language instruction. Additionally, 60 parents (15 per site, representing the linguistic diversity) participated in semi-structured interviews.

Intervention

The multilingual program integrated three core languages: Marathi (the state language), Hindi (the pan-Indian lingual bridge), and English (as the global language). In sites with significant tribal or migrant populations, home languages were also incorporated through weekly story sessions and parent-led cultural activities. Key features included:

- Shared story time: stories read alternately in two languages, followed by child-led retelling in home language.
- Language corners: dedicated classroom spaces with labeled objects in all instructional languages.

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- Scaffolding protocols: teachers introduced new vocabulary in one language, then revisited in the second language with pictorial supports.
- Translanguaging pair work: children paired strategically to model cross-language interaction.

Data Collection

Quantitative measures included:

- Peabody Picture Vocabulary Test (PPVT) adapted for Marathi, Hindi, and English to assess receptive vocabulary.
- Emergent Literacy Assessment (ELA)—letter recognition, phonemic awareness—in Marathi and English.
- Dimensional Change Card Sort (DCCS) task to measure cognitive flexibility.

Assessments were administered at baseline (June 2024) and endline (March 2025) by trained bilingual researchers.

Qualitative data comprised:

- Classroom observations (twice monthly) using a standardized checklist for multilingual pedagogical practices.
- Teacher focus-group discussions (beginning, midline, endline) exploring experiences, challenges, and perceived learner progress.
- Parent interviews (midline and endline) documenting home support for multilingual learning and perceptions of child engagement.

Data Analysis

Quantitative scores were analyzed using paired-sample t-tests to detect pre-post changes within languages and between language groups. Effect sizes (Cohen's d) were calculated. Qualitative data were coded thematically, employing NVivo software to identify recurring patterns around implementation facilitators and barriers. Triangulation across data sources strengthened validity.

Ethical Considerations

The study received approval from the Institutional Ethics Committee of [University Name]. Written informed consent was obtained from all parents and assent from children. Anonymity and confidentiality were maintained throughout data handling and reporting.

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RESULTS

Quantitative Outcomes

Receptive Vocabulary

Children demonstrated significant gains in receptive vocabulary across all three core languages. Mean PPVT scores increased from 45.3 to 60.1 in Marathi ($t(119)=12.8$, $p<.001$, $d=1.17$), from 38.7 to 52.5 in Hindi ($t(119)=11.5$, $p<.001$, $d=1.05$), and from 30.2 to 45.8 in English ($t(119)=14.2$, $p<.001$, $d=1.30$). Subgroup analysis showed that non-Marathi-dominant children closed the gap in Marathi PPVT scores by 40% relative to baseline.

Emergent Literacy

Letter recognition improved markedly in Marathi, from an average of 8.5 to 12.3 letters correctly identified (out of 14; $t(119)=9.4$, $p<.001$, $d=0.86$), and in English, from 5.2 to 9.1 letters (out of 26; $t(119)=10.1$, $p<.001$, $d=0.92$). Phonemic awareness tasks showed moderate gains in both languages (average increase of 1.8 items correctly segmented; $t(119)=6.5$, $p<.001$, $d=0.59$).

Cognitive Flexibility

Performance on the DCCS task improved significantly, with correct rule switches increasing from 62% to 79% accuracy ($t(119)=8.7$, $p<.001$, $d=0.80$), suggesting enhanced executive control potentially attributable to navigating multiple language systems.

Qualitative Findings

Implementation Facilitators

Teachers highlighted that structured scaffolds—such as language corners and pictorial supports—made multilingual instruction manageable, even for those less proficient in all languages. Pairing children strategically fostered peer learning: stronger speakers in one language modeled for peers, reinforcing comprehension. Regular storytelling in home languages boosted parental engagement, as parents contributed stories and artifacts, enriching classroom culture.

Implementation Barriers

Resource constraints emerged as a major challenge: locally relevant picture cards and readers in tribal and migrant languages were scarce, forcing teachers to adapt generic materials. Teacher training in English was particularly weak, requiring external workshops mid-year to build confidence. Some parents prioritized Marathi or Hindi at home, expressing skepticism about early English exposure; this created uneven home support for English literacy activities.

Perceived Learner Engagement

Both teachers and parents reported heightened enthusiasm: children readily used two to three languages during

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free-play and presentational activities. Urban sites saw more rapid English uptake, whereas rural children displayed stronger progress in Marathi and tribal languages.

CONCLUSION

This case study demonstrates that a well-structured multilingual early childhood education program can yield robust gains in vocabulary, emergent literacy, and cognitive flexibility among young learners in Maharashtra. The integration of Marathi, Hindi, English, and home languages—anchored by scaffolding strategies and translanguaging practices—fosters both linguistic proficiency and executive function. Key success factors include teacher capacity-building, development of contextually relevant learning materials, and active parental involvement.

However, sustainable scale-up requires addressing resource gaps, particularly the creation and dissemination of high-quality materials in less-represented community languages. Furthermore, systemic support from educational authorities—through policy guidelines that operationalize NEP's three-language mandate at the preschool level—is essential. Teacher preparation programs must incorporate multilingual pedagogy modules, and district-level teacher networks can facilitate peer learning and resource sharing.

Ultimately, embracing children's full linguistic repertoires in early education not only aligns with cognitive science insights but also promotes cultural inclusion and social cohesion in Maharashtra's pluralistic society.

SCOPE AND LIMITATIONS

This study offers insights into multilingual pedagogy within a specific regional context, yet several limitations warrant attention. First, the sample—four schools and 120 children—limits generalizability; findings may not directly transfer to other Indian states with distinct linguistic ecologies. Second, the program ran for a single academic year; longer longitudinal research is needed to assess sustained impacts on reading comprehension, academic achievement, and identity formation. Third, assessments focused on quantitative gains in vocabulary, literacy, and cognitive flexibility; future studies should examine socio-emotional outcomes, such as self-esteem and peer relations, in more depth. Fourth, while parent interviews provided valuable perspectives, systematic home-language use diaries could yield richer data on out-of-school language ecologies. Finally, the absence of a control group constrains causal inferences; subsequent research employing randomized or matched-control designs would strengthen the evidence base.

By acknowledging these limitations and building upon the present findings, researchers and practitioners can advance effective multilingual early childhood education models that honor linguistic diversity and enhance learning opportunities for all children in Maharashtra and beyond.

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