



BILINGUAL READING PROGRAM

ദ്വിഭാഷ വായന പരിപാടി

FINAL REPORT ON
BILINGUAL READING PROGRAM
IN TRIVANDRUM
2025-26



vmft

Vakkom Moulavi
Foundation Trust

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The Pilot Bilingual Reading Program commenced in mid-September 2025 and ended in January 2026.

FINAL REPORT

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EXECUTIVE SUMMARY

This report documents the design, implementation and outcomes of the Pilot Bilingual Reading Program, a structured reading intervention implemented by the Vakkom Moulavi Foundation Trust (VMFT) for Grade 5 students in two disadvantaged coastal communities of Thiruvananthapuram, Kerala.¹ The program, grounded in Cummins' (1981) interdependence hypothesis and a translanguaging pedagogy, set out to strengthen the enjoyment of reading and reading comprehension in both Malayalam (L1) and English (L2) among 60 children, using levelled storybooks, expert-designed lesson plans, and facilitators who received continuous support and feedback. Facilitators were guided on how to use both languages, including using Malayalam in English reading classes in a deliberate manner. The program ran from 15 September 2025 to the end of January 2026 (four and a half months). It was delivered at two sites in coastal Trivandrum, both of which serving relatively disadvantaged communities; Ambalathara, a private unaided English-medium school, and Perumathura, a community-based after-school education project drawing children from government, aided and unaided schools.

The report is organized around the three core objectives of the program. The key findings, summarized below, draw on the full range of evidence collected, which include student attendance, formative assessments recorded by teachers in the fortnightly Student Progress Reports, parent feedback, the baseline and progress reading assessments, and a final grade-level benchmark assessment at the end of the program.

OBJECTIVE 1 - improving engagement and reading comprehension

We provide evidence that the bilingual reading program improved children's engagement with and enjoyment of reading. Facilitators' fortnightly Student Progress Reports recorded a steady improvement in engagement with reading amongst most children in both languages over the first three months. Parents independently reported that children were talking about the reading classes at home and bringing storybooks back to read aloud or silently. 72% of children across both sites did

so. At the start of the program, only 20-30 percent of students across the two sites reported reading anything regularly, apart from their textbook. On the comprehension side, assessments administered at baseline and after three months, at comparable difficulty levels, showed measurable gains in each of the four tests² and at both sites, with the strongest gains at the more disadvantaged Perumathura site, with English Narrative scores improving by 6.5 percentage points and Malayalam Narrative improving by 5.8 percentage points. Gains in Malayalam comprehension were especially robust and were sustained even when children were later assessed against a much harder benchmark. The Student Progress Reports also indicate improvements in reading comprehension to different degrees. Nevertheless, it should be noted that the few students who had limited skills in decoding letters and words (including in Malayalam) at the beginning of the program could not, for obvious reasons, show improvement in reading passages.

Objective 2 - providing evidence on bilingual teaching

The data are consistent with the central premise of the program, that strengthening the home language supports the simultaneous development of reading in both languages. The correlation between Malayalam and English comprehension in the assessment using expository texts was positive and statistically significant at baseline and remained positive through the progress assessment, and at Ambalathara a relationship that was essentially absent at baseline became positive. For the assessment using narrative texts, the relationship between the two languages was also positive but weaker. While we did not have an explicit control group and therefore cannot establish causation, the pattern of mutually reinforcing progress in the two languages, together with facilitator observations on the improvement in both languages, supports the view that the bilingual approach facilitated learning. Facilitators also noted that initial improvements in Malayalam led to later improvements in English reading, as students gained confidence in using various reading strategies and in expressing their ideas.

¹Grade 5 refers to Standard V in the Kerala school system. We use the term "grade" throughout the report.

²English Narrative, English Expository, Malayalam Narrative and Malayalam Expository

Objective 3 - developing a scalable model

Through concrete empirical evidence, a small scale bilingual pilot reading program demonstrated that a structured, relatively low-cost, story-based model to improve can be delivered in severely under-resourced settings and can produce appreciable change even within a short cycle, and even where facilitators begin with modest qualifications, but are provided with decent training and ongoing support. Structured lesson plans are also critical to the model, as well as reading materials that engage students while gradually

increasing in complexity. The model can be implemented by schools and community organizations with periodic technical support. The central qualification is that, for early reading gains to consolidate and grow, children need to keep reading with support. A longer cycle (at least six months or even a full academic year or more), more consistent attendance, and sustained teacher development would be expected to deepen the gains, particularly in English. Further, adopting a systematic and research-based approach to integrating bilingual reading in the regular classes in school would reinforce students learning.

LESSONS FOR IMPROVEMENT

1. Variations within the group: Even with the group of “struggling readers”, there was substantial variation, with some students who are unable to decode words and could not make much progress. The pilot program was based on the assumption that all students could read words and sentences. For this sub-group, a different strategy would need to be adopted by schools or they may require more intensive support.

2. Reading materials: divergence between linguistic proficiency and cognitive readiness for more complex content. Overall, students found the selected stories very interesting and engaging. However, at the beginning of the program, many students demonstrated English reading proficiency only at approximately foundational (Level 1/A1) levels. But the stories/texts written at this level are for early primary readers and were often not cognitively engaging for Grade 5 learners. Students appeared to require materials with simplified language but age-appropriate themes, content, and conceptual demands aligned with their age and experiential maturity. The lack of easily available texts of this kind is a problem in developing reading proficiency amongst older struggling readers. Investment in developing such materials may be required.

3. On-going training and recording student progress and class observation: The regular training proved invaluable in supporting the facilitators but the variation in their training needs was not anticipated at the beginning and required considerably more effort than originally planned. The student progress reports and coordinator observation schedules provided invaluable feedback as well as encouragement to the facilitators themselves. However, simplification and improvement in these tools is required to enable more objective recording and timely feedback to facilitators.

4. Type of texts to be used in the assessments. The pilot program showed a stronger cross-language relationship in the expository assessment, compared to the narrative assessment, suggesting that expository assessment may be a more stable indicator of bilingual reading development in this context. In the next phase, expository texts could be used in the assessment, which would lower the time and resources required for development, administration, data entry and analysis of tests. Although the intervention uses narrative texts as the instructional vehicle, the intended outcome is broader reading comprehension, including students’ ability to transfer reading strategies to expository texts used in textbooks. If time and resources permit, narrative text assessment could also be used.

INTRODUCTION

1.1 Background and Rationale

This report documents the complete journey and final outcomes of the approximately four-month long pilot Bilingual Reading Program, a structured reading intervention, designed and implemented by the Vakkom Moulavi Foundation Trust (VMFT) for Grade 5 students in two disadvantaged coastal communities of Thiruvananthapuram district, Kerala. The program was designed to address the critical gaps in foundational language literacy that persist in Kerala despite its celebrated record in school enrollment and basic literacy. The data from the Annual Survey of Education Report (ASER) shows that 33 percent of Grade 5 rural students in Kerala cannot read a simple Grade 2 level text (VMFT, 2024)³. These statistics are particularly concerning for a state known for educational achievement, especially because they relate only to reading proficiency and not comprehension. If a significant proportion of children cannot read a simple text, comprehension proficiency is likely to be even much lower.

The consequences of poor reading and comprehension skills among children are enormous. Not being able to read and understand text means that most text-based learning across subjects is inaccessible. Inability to read and comprehend texts also inhibits the development of higher-order skills like reasoning and expression. Over time, this results in a persistent form of educational exclusion, where children physically remain enrolled in school but are fundamentally unable to understand the curriculum in a meaningful way. This leads to poor academic achievement and ultimately limited employability and blocks the way to meaningful participation in society and public debate.

This is not a problem unique to Kerala; it is well documented across low- and middle-income countries. The Global Education Evidence Advisory Panel (GEEAP, 2025) concludes that the learning crisis is driven largely by a failure to use effective pedagogical methods. In India, additional factors compound the difficulty. English is often treated as a superior language and taught in isolation, instead of

using the language the child already knows to build understanding (Agnihotri, 2014); where teachers are themselves not fluent in English, classroom practice can reduce to dictating questions and answers, leaving children to copy and memorize without meaning, what Jhingran (2009) calls “silencing by English.”

The pilot Bilingual Reading Program builds on this evidence to develop a replicable model that improves reading comprehension using relatively modest resources. Its pedagogy is grounded in Cummins’ (1981) interdependence hypothesis, which holds that proficiency in the first language provides the cognitive foundation that accelerates second-language acquisition. The program uses stories of graded language complexity to engage children and to teach comprehension strategies explicitly, taking advantage of children’s existing repertoire in Malayalam to develop complementary reading skills in both Malayalam and English.

1.2 Program Objectives

The program has three primary objectives:

- 1. Improve student engagement and reading comprehension:** specifically, to enhance the enjoyment of reading, reading fluency and comprehension of selected Grade 5 students in both Malayalam and English in the selected sites.
- 2. Provide evidence:** to produce and analyse quantitative and qualitative data to assess whether and to what extent bilingual teaching can help improve learning for children in the local language and English simultaneously.
- 3. Create a scalable model:** to develop and document a cost-effective program that can be replicated and scaled to other schools and disadvantaged communities with limited human resources and educational materials.

³The report uses data from ASER (2018) to avoid misinterpretation of the effects of Covid-19, which may have resulted in some learning losses.

1.3 Pedagogical Approach

The intervention is designed on the principle of Cummins' (1981) interdependence hypothesis, which states that proficiency in a second language is partly a function of proficiency in the first language. This approach has support in the Indian context. The National Curriculum Framework (2005) argues that the mother tongue is the best medium of instruction, as it provides the cognitive-linguistic foundation upon which other languages can be built (NCERT, 2005). Mother Tongue-Based Multilingual Education (MTB-MLE) programs, particularly in tribal communities in states such as Odisha and Andhra Pradesh, have shown that children who receive initial literacy in their home language achieve better outcomes in the regional language and English in later grades (Mohanty, 2006; Jhingran, 2019).

In practice, however, a significant proportion of students across India, and the majority in Kerala, are enrolled in “English medium” classes, whether in private unaided or government funded schools. English is the medium of instruction to teach all subjects, although students have not gained sufficient competence in their native language. Time spent on the latter in fact significantly diminishes over time, leaving students with limited language skills in both the native language and English.

As a result, many children develop surface-level conversational skills without acquiring the deeper proficiency needed for academic success, the distinction Cummins (1979) draws between Basic Interpersonal Communicative Skills (BICS) and Cognitive Academic Language Proficiency (CALP). Bridging the gap between BICS and CALP requires intentional cross-support of academic registers, not merely exposure to conversational English.

This program focuses on improving students' ability to read a variety of narrative texts, all told in the form of stories, even though some covered mathematics and science topics. By strengthening a child's home language (Malayalam) and using it deliberately even while learning English, the program seeks to accelerate English acquisition while strengthening cognition in the local language. It moves away from “subtractive models” that exclude the mother tongue, towards helping children become proficient in both languages – which, as Cummins (1979) argues, is necessary to unlock the cognitive benefits of bilingualism. The approach is centred on translanguaging (Garcia & Wei, 2015), which views a multilingual speaker's linguistic resources as a single integrated repertoire rather than separate compartments. In the Indian classroom, where children and teachers naturally draw on more than one language to make meaning, translanguaging is an existing reality (Kumar, Nukapangu & Hassan, 2021), though it is not used systematically to promote students' learning.



PROGRAM DESIGN AND IMPLEMENTATION

2.1 Overview of the Intervention

The intervention is a structured reading program for Grade 5 children in two disadvantaged communities in coastal Thiruvananthapuram. It was originally designed to deliver 60 lessons of 60 minutes each, but, owing to a late start, holidays, weather and other interruptions, 45 lessons were delivered in this pilot. The lesson plans are centred on level-based storybooks in English and Malayalam. Each lesson plan provides detailed guidance to facilitators, who received initial training and periodic follow-up support throughout the program. The design integrates multiple components into a coherent support system for learning Malayalam and English as complementary languages, including the systematic collection of data on learning, student and household background, classroom interactions, attendance, and teacher-reported student progress. Table 1 summarizes the components.

Table 1 - Summary of Program Components

Component	Description
Class schedule and structure	20-week program; 45 lessons total (60 mins each); 3 lessons per week.
Learning materials for students	Pratham storybooks (Levels 1-3), printed texts, flashcards and stationery.
Expert-designed lesson plans	Structured bilingual pedagogy focused on enjoyment and fidelity.
Trained facilitators	Two per class (English/Malayalam), paid for teaching and preparation time.
Ongoing teacher training and support	Initial training plus recurrent mentoring based on classroom observations.
Rigorous Monitoring & Feedback System	Independent coordinator observes every lesson; structured feedback provided.
Data Collection and Analysis	Experts design assessments; qualified researchers manage data and analysis.
Project Manager	To oversee all operations, finances, hiring, and reporting.

2.2 Duration

The pilot commenced on 15 September 2025 and concluded at the end of January 2026. The baseline reading assessments and the student background questionnaire were administered at the start of the program in September; the progress assessment was administered in early December 2025, approximately three months into delivery; and the grade level benchmark assessment was administered on completion of the program.

2.3 Facilitator Training and Support

Facilitators, who teach the students, are central to the program. There were two facilitators per class, one leading English and one leading Malayalam. Both facilitators were present during all classes, irrespective of the language of the story. They received initial training from an expert teacher trainer before the program began, including a demonstration class, and continuous support, feedback and training throughout

delivery. Their role was to implement the planned pedagogy and to create an engaging classroom in which children build confidence and skills in both languages.

The ongoing professional development was driven directly by feedback from regular classroom observations conducted by independent coordinators at each site, as well as videos of classes. Notes from these observations were used to provide targeted feedback and to improve teaching continuously. To recognize the time involved, facilitators were paid for each lesson and for an additional hour per lesson to prepare and to complete student progress reports and a reflection journal.

2.4 Lesson Plans

Each lesson is built around a storybook and follows a structured plan that sequences listening and speaking, reading with explicit comprehension strategies, and some writing and drawing. The lesson plans give facilitators detailed, step-by-step guidance on how to use each storybook and how to teach specific reading skills, while keeping enjoyment, motivation and sustained interest at the centre. They were developed by education experts and experienced practitioners and were refined during delivery.

2.5 Materials Used

A carefully chosen set of materials, which included illustrated storybooks prepared by Pratham, graded from Level 1 (beginner) to Level 3 (more complex), formed the core of the program.⁴ The progression reflects not only increasing linguistic complexity—including vocabulary, syntax, and text length—but also increasing demands on comprehension, inferencing, and independent reading. The texts, which included some poems, were primarily narrative (with characters, events and sequence of actions), even when mathematics and science concepts were covered. Narrative texts were selected because they are engaging and well suited to developing foundational reading skills.

Typical week in the program

A typical week in the program consisted of three lessons of around 50 minutes each, with each story usually covered over one to three sessions. The lessons began by drawing students into the story through simple questions and conversation. In the English sessions, Malayalam was also allowed whenever it helped students participate more freely or understand the story better. Facilitators first narrated the story orally, without opening the book, using questions to generate curiosity and interest. .

The lessons then moved into activities focused on vocabulary, comprehension, and reading practice. Students read both independently and in groups, while facilitators encouraged discussion and participation throughout the session. Children were also encouraged to prepare drawings and develop their own questions based on the stories they had read. The same overall process was followed in both English and Malayalam sessions.

Each student had an individual storybook to be used in the classroom, so as to be able to read at their own pace. Printed versions of the story text (without illustrations) were given to each student to encourage independent reading at home. Additional materials included flashcards, chart paper, crayons, writing paper and related stationery. Each student was given a folder to keep their stories for re-reading at home or sharing with parents. All students began at Level 1 and the group moved up together as the program progresses.

⁴These levels correspond roughly to A1, A2 and early B1 in the Common European Framework of Reference for Languages (CEFR). This is an internationally recognized framework that describes language proficiency across six levels, from beginner (A1) to proficient (C2), based on what learners can understand and do in reading, writing, listening, and speaking.

2.6 Assessing Teacher Implementation of Lesson Plans

The fidelity and quality of delivery were tracked through several complementary instruments, which together allowed the team to understand how lessons were actually taught and to feed observations back to facilitators.

1. Review of student progress reports: Facilitators maintained a record for each child and make a qualitative judgement every fortnight on engagement and comprehension of the child.

2. Teacher journals: Facilitators kept a reflection journal, recording what worked, where children struggled, and any adaptations made to counter that.

3. Coordinator observation schedule: An independent coordinator observed every lesson using a structured schedule covering punctuality, preparedness, student engagement and use of materials. Coordinators received the same training as the facilitators.

4. Short videos of each class: Short video recordings of lessons supplemented the observation notes and were used in feedback and training.

2.7 Assessing Student Progress

Children's progress was assessed through a combination of attendance records, continuous formative assessment by teachers, and three sets of reading assessments. Student attendance was recorded by facilitators at the start of every lesson and is used both as a measure of participation and as a proxy for the dose of the intervention each child received. Formative assessment by teachers was recorded fortnightly in Student Progress Reports, capturing each child's engagement and comprehension level in each language.

Reading assessments were administered at three points, a baseline assessment at the start, a progress assessment after about three months, and a final, more difficult grade level benchmark assessment at the end. These are described below:

2.7.1 The reading assessments

Three sets of four tests were used. These include English Narrative, English Expository, Malayalam Narrative and Malayalam Expository, designed by faculty at the English and Foreign Languages University (EFLU), Hyderabad. Although the texts used in the program were mainly narrative in nature, an expository assessment was also included to assess students' ability to apply these skills to the informational texts that predominate in school curricula.

Baseline and progress assessments

These were designed at comparable levels, corresponding to CEFR level A2. Comparison of the baseline and progress assessments indicates measurable improvement in students' reading performance over the first three quarters of program implementation. Because the two assessments were designed at comparable levels of difficulty, score changes can be interpreted as evidence of learning progress.

Benchmark assessment

The final assessment was deliberately more difficult, aligned to approximately CEFR level (low) B1 proficiency. The low B1 level assessment was administered as an external validation exercise to gauge student performance against a higher-order English reading benchmark. While not designed as a directly comparable endline assessment, it provided useful information on students' ability to engage with more advanced texts.

Because it differed in difficulty and alignment, its results are interpreted descriptively rather than as a directly comparable measure of progress.

2.8 Implementation Problems

Several challenges that are characteristic of education programs in resource-constrained settings, were encountered in the implementation of the program. The most significant was the compression of the schedule from the planned 60 sessions to 45, owing to a late start, holidays, and weather-related interruptions, primarily heavy rains. Attendance fluctuated across both sites, with some children missing multiple lessons because of family circumstances, illness or travel. These attendance variations are examined later in the report as part of the analysis of participation and learning.

INSTITUTIONAL ENVIRONMENT, STUDENTS, FAMILIES AND TEACHERS

This section describes the setting in which the program operated, including the description of the two sites, the children and their households, patterns of attendance, and the facilitators who delivered the lessons. A fuller statistical profile of the students and households is provided in Annex 1.

3.1 Site Description

The program is being implemented at two sites within the coastal region of Thiruvananthapuram. The two sites are an unaided private school in Ambalathara and a community-based after-school education initiative in Perumathura. A total of 60 Grade 5 students were initially enrolled in the program at baseline, with 30 students at each site.

Site 1 - Ambalathara is a private unaided school where all students study in English medium. Students here come from comparatively more affluent backgrounds, with substantial ownership of higher-value assets like four-wheelers (40.0%) and computers (23.3%). Half of the parents at this site report helping their children regularly with homework. All students at this site attended kindergarten.

Site 2 - Perumathura is a community-based after-school project where students are drawn from different government, aided and unaided schools, with a mix of English medium (76.7%) and Malayalam medium (23.3%) students. Families at this site face deeper economic vulnerability, with higher prevalence of fathers working in manual fishing trades (46.7%) rather than the service sector. High-value assets like computers and four-wheelers are entirely absent from this sample. Only 16.7% of parents report helping their children regularly with homework, and nearly three-quarters of students report that their parents are never present while they do homework.

The deliberate selection of these two distinct sites ensures that our cohort includes children from a wide variety of socio-economic backgrounds and schools. This diversity is crucial for assessing the program's effectiveness across different learning contexts and for establishing a replicable model. Table 2. summarize the two sites:

Table 2 - Summary of two sites

	Ambalathara (Private School)	Perumathura (Community Centre)
No. of Students	30	30
School Type	Private unaided	Govt, aided & unaided
Medium of Instruction	100% English	77% English, 23% Malayalam
Father's Occupation	53% service sector	47% fishing
Own a Computer	23%	0%
Own a Four-Wheeler	40%	0%
Parents Help with Homework	50% regularly	17% regularly
Parents Present During Study	100%	Only 27%
Average Attendance	73%	63%

3.2 Student Background

The 60 children, across two sites come from a variety of school types, languages of instruction and curricula, which is reflective of the school system in Kerala and elsewhere in India. All Ambalathara students were in an unaided English-medium school, while at Perumathura, 50% are enrolled primarily in government schools, 43.3% in aided schools and 6.7% in unaided schools, with most in English medium and the remainder in Malayalam medium. . All students in government and aided schools follow the Kerala State syllabus, while some students in unaided schools follow the State syllabus and others the CBSE syllabus. At both sites, male children slightly outnumber female children, though Perumathura has a higher proportion of girls (43.3% in Perumathura against 36.7% in Ambalathara). Children at Perumathura are also marginally younger. Malayalam is the primary language at home for all children at both sites. A fuller demographic and household profile, including age, household size, migration, asset ownership, parental occupation and schooling history, is presented in Annex 1.

3.3 Family Background and Support for Education

Beyond socio-economic status, the level of family involvement in a child's learning is an important factor), shaped by parents' beliefs about their role and their confidence in being able to help. A household survey conducted during the program reached 55 of the 60 enrolled families (26 at Ambalathara and 29 at Perumathura), with most respondents (87%) being mothers. Together with the children's own responses, it provides a rich picture of the home learning environment.

Direct support with homework differs sharply between sites. At Ambalathara, half of children report that their parents help regularly, nearly three times the rate at Perumathura (16.7%), and all children report that a parent stays with them while they do homework.

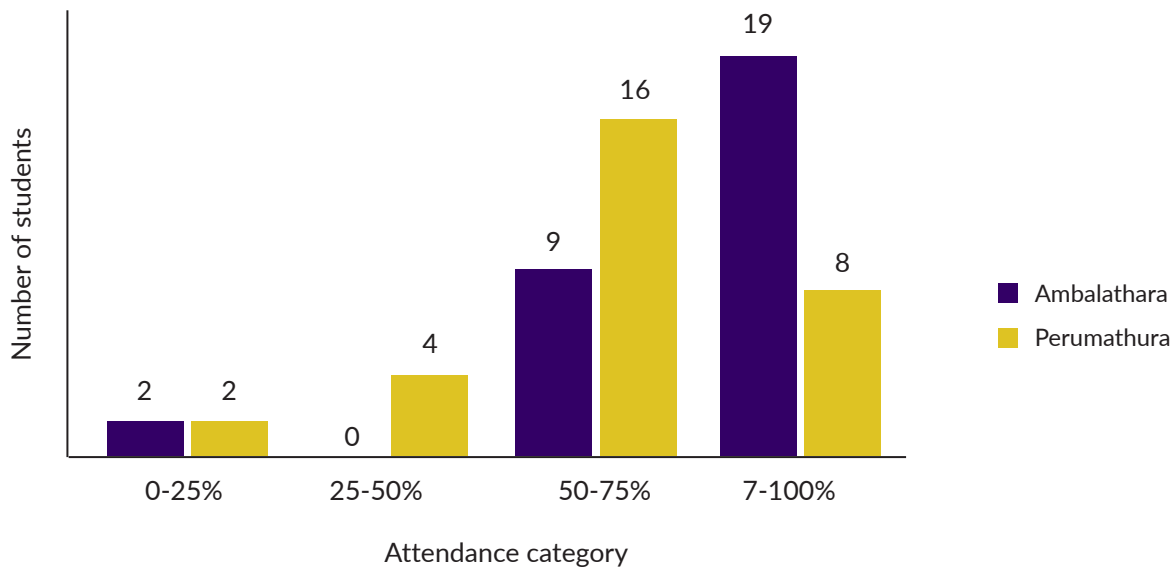
At Perumathura, by contrast, nearly three-quarters of the students report that a parent is never present. This points to higher levels of direct monitoring and academic support at home for Ambalathara children. (See Annex 1.)

Aspirations, however, are high and remarkably similar across both sites. Almost all parents (98%) consider strong English skills very important for their child's future, and 61% hope their child will study "as much as they want," with a further 18% aspiring to a professional degree and 15% to a postgraduate degree. Confidence in helping with English homework is more unequal. 42% of Ambalathara parents feel very confident, against 21% at Perumathura, a gap that underlines why a classroom-based bilingual intervention matters most for Perumathura children, who are least likely to receive effective English support at home. Exposure to English-language media is limited in both communities, which reinforces the classroom as the main source of structured English.

3.4 Student Attendance at the Two Sites

Attendance was recorded at the start of every lesson. Mean attendance across both sites was 68.3%, meaning that on average children attended about two-thirds of lessons delivered. There was substantial variation between and within sites. The mean attendance was 73.4% at Ambalathara (median 78.1%) and 63.3% at Perumathura (median 62.0%). At Ambalathara, 19 of 30 children attended at least three-quarters of lessons, against 8 of 30 at Perumathura. This difference is consistent with the broader structural disadvantage at Perumathura, where economic pressures and the after-school nature of the program create additional barriers to regular attendance.

Figure 1 - Attendance distribution by site



The standard deviation of roughly 20 percentage points at both sites indicates that the factors driving attendance are largely individual (family circumstances, health, motivation) rather than purely site-level; the highest attendance recorded (98.0%) was in fact achieved by a child at Perumathura. Detailed attendance analysis is provided in **Section 7**.

3.5 Facilitators' Background

Four facilitators delivered the program, two at each site, one English and one Malayalam lead, but the people who taught at the two sites were different. Firstly, all four facilitators were women, all belong to Other Backward Classes, and all are comfortable using smartphones and computers and have reliable internet at home. Neither had received any specialized training in early-grade reading, bilingual methods or English-

language teaching before the program began, a gap the program's own initial training and continuous on-the-job support were designed to fill. Beyond these shared traits, the two sites differ in formal education and classroom experience of the facilitators.

At Ambalathara, the two facilitators were experienced, formally trained teachers. Both hold post-graduate degrees and a Bachelor of Education, and between them they brought two and five years of classroom experience across upper-primary, high-school and higher-secondary grades.

At Perumathura, the two facilitators were two young women, aged eighteen and twenty-two, whose highest qualification was higher secondary, who held no teacher-training degree, and who had barely any prior teaching experience at all, except some at pre-primary level.

Table 2 - Facilitator background by site

Characteristic	Ambalathara (Site 1)	Perumathura (Site 2)
Age (years)	27 and 34	18 and 22
Highest education	Post-graduate (both)	Higher secondary (both)
Formal teacher training	B.Ed. (both)	None
Teaching experience	2 and 5 years	None (0 years)
Specialized reading/bilingual training	None	None
Malayalam proficiency	Full (speak, read, write)	Full (speak, read, write)
English proficiency	Reading and writing	Full (speak, read, write)
Comfort with smartphones / computers	Very comfortable	Very comfortable
Reads for pleasure	Regularly; enjoys reading	Rarely; enjoys reading

All four facilitators across the two sites were fully literate in Malayalam, able to speak, read and write it, and all confirmed they could write a short essay in the language if required, so the home-language side of each classroom rested on secure ground. English was more uneven. Three of the four rated themselves as fully proficient in English, while one of the trained Ambalathara facilitators reported reading and speaking but not writing proficiency, and was the only facilitator who said she could not write a short essay in English.

Asked what they found hardest about teaching these children, the facilitators at Perumathura pointed to where the children were starting from, that “*majority of the students don’t have any basic idea of language,*” as one put it, another simply noting a “*lack of basic knowledge.*” The more experienced Ambalathara facilitators pointed instead to the work of managing a classroom: children who get distracted or are difficult to settle, the struggle to move some of them from speaking to reading and writing, and the need, as one observed, to “rely on Malayalam to explain to a certain extent” because the children could not yet follow sustained English. These insights map closely onto the patterns in the assessment data, a wide spread of starting levels, a small group of genuine non-readers, and some excellent learners.

The facilitators who delivered the program were not, in general, highly trained specialist reading teachers. This was especially the case at Perumathura, where the community after-school setting drew on facilitators with relatively modest formal qualifications and limited prior experience of structured reading instruction. They were supported throughout by initial training, a demonstration class, fortnightly engagement with progress reports and reflection journals, and continuous feedback from lesson observations.

This starting point is important for interpreting what follows. That appreciable change in children’s reading, particularly in Malayalam, and particularly at Perumathura, was achieved with facilitators of this profile is itself a notable result. It suggests that the combination of well-designed lesson plans, levelled materials and sustained on-the-job support can enable teachers who are not specialists to deliver an effective reading program, which is central to the question of whether the model can be scaled.

STUDENT ENGAGEMENT AND ENJOYMENT OF READING

The central aim of the program (Objective 1) was to make reading enjoyable and to draw children into it. Two independent sources of evidence speak to this: 1) the engagement judgements teachers recorded fortnightly in the Student Progress Reports, and what parents reported about how reading showed up at home. Both are outcomes of the program in their own right, distinct from the comprehension assessments discussed later.

4.1 Teacher Feedback from Student Progress Reports

The fortnightly Student Progress Reports provide consistent evidence that children became more comfortable participating in reading activities over the course of the program. Across both sites, Ambalathara and Perumathura, facilitators repeatedly noted growing willingness to listen, answer questions, participate in discussions, and read aloud, particularly among students who had initially been hesitant or shy.

At the Ambalathara site, several reports describe students gradually becoming more active and confident in English reading sessions. One facilitator observed that a student who had initially needed prompting later *“Shows improved interaction during reading activities”*, while another was described as showing *“shows improved concentration while reading stories”*, while initially the observation was *“Less participation. Attempts to correct himself when confused with similar phonemes”*.

In another case, the teacher noted that a child who was initially hesitant had *“gradually gained confidence and now participates more comfortably in activities and discussions.”* These records suggest that the story-based sessions, with their emphasis on oral discussion and shared reading, helped reduce fear and increase participation over time.

The Malayalam progress reports from Ambalathara show a similar pattern, though engagement was

generally stronger from the beginning. Facilitators frequently described children as *“active in class,” “participated really well in class discussions,”* and *“very attentive in class.”* One teacher noted that a student *“participates actively in reading classes”* and demonstrated *“skill in asking creative questions,”* indicating that children were not only listening passively but engaging imaginatively with the stories.

At the Perumathura site, where children came from more educationally disadvantaged backgrounds and attendance was less regular, the reports nevertheless point to the same broad trajectory. Teachers repeatedly described students as listening attentively, enjoying stories, and gradually participating more. One English facilitator wrote that a student was *“initially shy”* but later *“volunteered to read aloud in class, showing improved confidence and participation.”* Another report noted that a student who struggled with reading still *“shows interest in classroom interactions and responds actively during oral discussions.”* In Malayalam sessions too, facilitators frequently recorded that students *“listen attentively and enjoy listening,” “respond orally,”* and *“can retell a story in their own words,”* even where decoding skills remained weak.

These reports suggest that engagement developed earlier and more consistently in Malayalam, reflecting children's greater comfort in their home language, while confidence in English emerged more gradually. However, the overall direction is similar across both sites.

Children who were initially reluctant increasingly participated in discussions, attempted reading tasks more willingly, and appeared to enjoy the stories and classroom activities. The qualitative nature of the reports makes them difficult to summarize numerically, but the consistency of teacher observations across fortnights and across both sites strongly supports the conclusion that the program succeeded in making reading a more engaging and enjoyable activity for many children.

Facilitators nevertheless note that a small group of students, especially in Perumathura, who could not decode words or even read some letters (including in Malayalam) could not make much progress. The program was not designed for students at this very low level of literacy. Strategies for such students need to be developed even for a supplementary reading program intended for struggling readers.

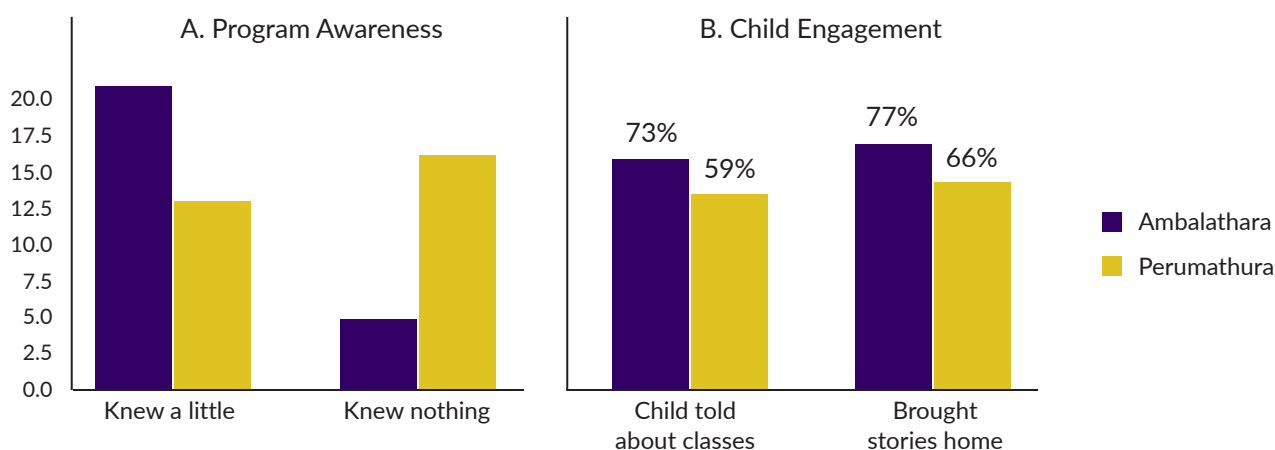
4.2 Parent Feedback on Program outcome(s)

The household survey, conducted in early-to-mid December, captured how the program reached into the home. Regarding awareness of the bilingual reading program, the two sites show a notable difference. At Ambalathara, 81% of parents reported knowing a little about the program, with only 19% reporting they knew nothing. In contrast, at Perumathura, 55% of parents reported knowing nothing about the program before the survey, while 45% knew a little

(Figure 2). This awareness gap may reflect the institutional structure of the two sites. At Ambalathara, where the program operates within a school, information flows more naturally through school-parent channels. At Perumathura, the community-based after-school setting may lack these established communication pathways.

Despite the awareness gap, the program appears to be reaching into the home environment through the children themselves. Across both sites, 72% of children told their parents about the reading classes, and 72% brought stories home to read, either aloud or silently. At Ambalathara, 73% of children told parents about the classes and 77% brought stories home; at Perumathura, the figures are 59% and 66% respectively. This spill-over into the household with children choosing to read aloud to parents, or to talk about the stories, is among one of the several signs that the program achieved its aim of making reading enjoyable.

Figure 2 - Awareness about the program



STUDENT READING COMPREHENSION

5.1 Baseline and Progress Assessments

In this section, we compare the baseline and progress assessment test scores to get an understanding of how beneficial the program has been in improving the comprehension of our cohort across two sites at Ambalathara and Perumathura. Table 3 compares the baseline and progress assessment average scores of 60 enrolled students across two sites. Since some students were absent and therefore, missed some of the tests, we do not treat their scores as zeros, as that would unfairly pull down all averages. Instead, we treat them as missing observations. As such against each test, specific “n” (number of observations) is mentioned. These are the total number of students who appeared in that particular test.

In addition to this, the baseline test scores are out of a maximum of 12 whereas progress assessment test scores are out of maximum 20 marks. Therefore, simply comparing mean scores across two tests is not feasible. We convert these scores to percentages and compare those instead. Column (6) shows growth in scores across two tests in percentage points.

The first major finding from the progress assessment data is a visible improvement in mean percentage scores across both language domains. This is a preliminary signal that the structured program is effectively reaching the student cohort. This is also

confirmed by various qualitative feedback from the teachers who individually report that most children have shown visible signs of improvement (as described in the previous section).

In the English language assessments, which recorded the lowest performance at baseline with mean percentage scores of 52% , the progress assessment results indicate a positive upward shift by 2 percentage points to 54%. . This growth is particularly encouraging in the narrative domain, where the baseline deficit was most acute. Similar gains are observed in English Expository tests, where mean percentage scores grew by 1.5 percentage points to 63.7%.

In the Malayalam assessments, students continue to show a more robust foundation compared to English, maintaining the linguistic asymmetry observed at the project's start. At baseline, students achieved mean percentage scores of 76% and 75.6% in Malayalam Narrative and Expository tests respectively, and the Progress assessment data shows that this functional L1 base has been further strengthened. Malayalam Narrative scores have grown by 3.8% while Expository scores have grown by 1.3 percentage points. These gains in L1 scores are crucial for our theoretical framework, as it builds the cognitive foundation necessary to accelerate L2 acquisition. By strengthening comprehension in the home language, Bilingual Reading Program is providing the Cognitive Academic Language Proficiency (CALP) that helps students bridge the gap into English literacy.

Table 3 - Baseline and Progress assessment Average Scores

Test Category	Baseline (N)	Baseline %	Progress (N)	Progress %	Growth (% pts)
(1)	(2)	(3)	(4)	(5)	(6)
English Narrative	58	52.0%	55	54.0%	+2.0
Malayalam Narrative	59	76.0%	49	79.8%	+3.8
English Expository	59	62.1%	49	63.7%	+1.5
Malayalam Expository	58	75.6%	55	76.9%	+1.3

Source: Author's calculation based on Test data

5.2 Site-Level Disparities and Structural Disadvantage

The performance gap between Ambalathara and Perumathura continues to remain a central feature of our data, though the progress assessment suggests that the intervention is reaching both contexts effectively. At baseline, Ambalathara students consistently outperformed those at Perumathura. This disparity is rooted in the deeper economic vulnerability of the Perumathura families. Our baseline report shows that Perumathura families are on average poorer than Ambalathara families, have lower educational attainment of parents and less proportion of formal employment.

Despite these structural challenges, the Perumathura site showed meaningful progress under the intervention. While Ambalathara students benefit from significantly higher levels of direct parental monitoring and academic support, with half of Ambalathara parents helping with homework regularly compared to only 16.7 % at Perumathura (please see our baseline report for details), the structured classroom lessons are providing some leveling effect. The progress assessment scores seem to suggest that the disadvantage is not homogenous; rather, the intervention is successfully providing the academic support necessary for students at both sites to improve their reading comprehension in both languages simultaneously. Table 4 shows site-level variations across all test types.

In fact, Table 4 shows a small divergence in the learning trajectories between the two sites, which warrants a deeper analysis of how pedagogical interventions interact with existing socio-economic structures. While Ambalathara maintains a higher overall proficiency level, particularly in Malayalam where scores consistently exceed 81%, the Progress assessment data indicates slight regression in English scores. For instance, English Narrative and English Expository scores at Ambalathara saw marginal declines of -2.9 and -1.1 percentage points respectively. This could suggest a ceiling effect for students who already possess a functional literacy base, or perhaps a temporary saturation point as the curriculum shifts from basic decoding to more complex thematic comprehension.

In contrast, Perumathura shows more robust growth across every assessment, despite the structural disadvantages documented at baseline. The most notable gains are seen in Narrative tests, with an increase of 6.5 percentage points in English and 5.8 points in Malayalam. This is a highly significant gain. This is indicative of the fact that the students coming from households with lower educational attainment and minimal formal academic support can indeed benefit from a well-structured bilingual environment. The fact that Perumathura students are narrowing the gap and moving from a 43.9 % baseline in English Narrative to over 50% at Progress assessment, indicates that the effect of their economic vulnerability is being actively countered by the project's classroom support. Similar gains are seen across both Malayalam tests in Perumathura.

Table 4 - Site Wise differences in Baseline and Progress assessment Scores

Site	Test Category	Baseline (N)	Baseline %	Progress (N)	Progress %	Growth (% pts)
((0))	(1)	(2)	(3)	(4)	(5)	(6)
Site 1	Eng Narrative	28	60.7%	27	57.8%	-2.9
	Mal Narrative	29	80.5%	25	82.0%	+1.5
	Eng Expository	29	75.9%	25	74.8%	-1.1
	Mal Expository	28	81.0%	27	81.1%	+0.2
Site 2	Eng Narrative	30	43.9%	28	50.4%	+6.5
	Mal Narrative	30	71.7%	24	77.5%	+5.8
	Eng Expository	30	48.9%	24	52.1%	+3.2
	Mal Expository	30	70.6%	28	72.9%	+2.3

Source: Author's calculation based on Test data

5.3 Student-Level Heterogeneity and Distribution of Learning

The aggregate scores we saw in the previous sections, indeed, show that there have been significant learning gains, but they mask a more heterogeneous reality of the classrooms. While the mean scores show overall improvement, the score distributions across both sites, for both baseline and Progress assessment, show that students learn at different speeds. Indeed, different students absorb material and lessons during intervention differently. Figure 3 shows the Kernel density plots for all four tests across baseline and Progress assessment and across two sites.

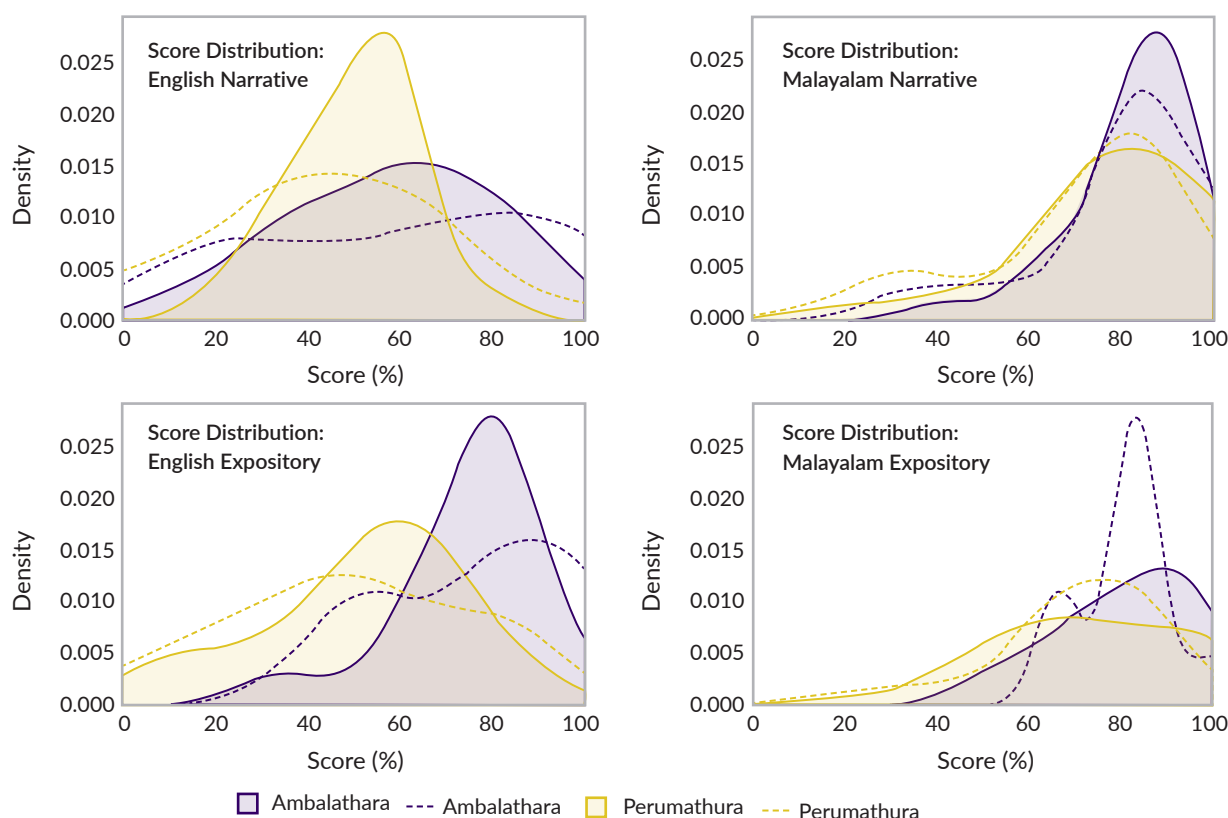
Firstly, we can see that in Perumathura, the entire distributions for Progress assessment across all tests have moved to the right. That shows an improvement. In Ambalathara, however, the distributions are wide, and in the English tests, the Progress assessment peak has actually stalled, failing to show the clear rightward movement seen in Perumathura.

More importantly, when we look at the spread of students across these distributions, we see that progress is not uniform. In Malayalam, the curve is

tightly clustered toward the top; very few children are left at the bottom, meaning almost every student has a solid foundation in Malayalam. English has a much more scattered plot. Here, the distributions have a longer lower performance tail. While some students have pushed ahead, a significant number still score low. This unevenness turns the classroom into a difficult space for any teacher. In Malayalam, the facilitator can speak to a group that is largely on the same page, but in English, they are essentially teaching several different classes at once.

This wide gap in ability has serious consequences for how we think about teaching. A standard, lock-step curriculum, where every child is expected to move through the same lesson at the same time, simply cannot work in this environment. It would likely leave the struggling students even further behind while failing to challenge those at the top who are ready for more. This is why, Bilingual reading program uses level-based materials, like the Pratham storybooks. These findings show that using levelled readers is in fact a necessity. We have to meet children where they actually stand, rather than where the grade-level syllabus says they ought to be. Ultimately, the goal of this program is to ensure progress among all students.

Figure 3 - Score Distributions across sites and Languages



5.4 Combined Language Proficiency Improvement

To get a more complete picture of how students are progressing, we combine the results from the narrative and expository tests for each language into a single composite score for each language. This approach prevents the analysis from becoming too fragmented and allows us to see how a child's general proficiency in Malayalam or English is shifting. The combined score for each student was calculated by taking the sum of their scores in both tests, narrative and expository, and converting that total into a percentage based on the maximum possible marks for that test.

At baseline, where each test was out of 12, the combined percentage was calculated out of 24. For the Progress assessment, where the tests are graded out of 20 each, the combined percentage was calculated out of 40.

It is important to note that these averages only include students who were present for both the narrative and expository tests of the test in a baseline and Progress assessment. If a child missed one of the two tests at baseline or Progress assessment, they were excluded from the combined average for that test to ensure the data remains a fair reflection of full-language performance. This is why the number of students (N) varies between the baseline and Progress assessment assessments. Table 5 shows the results.

The results show positive learning gains from baseline to Progress assessment in both languages. In English, the average combined score rose from 56.9 % to 58.1 %, a modest but positive gain of 1.2 percentage points. Malayalam showed a more pronounced improvement. Average scores rose from 75.3 % at baseline to 77.6 % at Progress assessment, a growth of 2.3 percentage points.

This growth in Malayalam is particularly significant for our project's goals. It suggests that as students become more comfortable with structured reading and comprehension tasks in their home language, they are building a stronger foundation that we expect will eventually accelerate their English acquisition. The fact that the scores are rising across the board, even as the Progress assessment tests introduced more complex vocabulary and inferential questions, indicates that the students are beginning to internalize the reading strategies taught in the program.

Table 5- Comparison of Combined Average Scores

	Baseline English	Progress English	Growth
No. of students	57	48	
Average Score	56.9%	58.1%	+1.2 pp
	Baseline Malayalam	Progress Malayalam	Growth
No. of students	57	48	
Average Score	75.3%	77.6%	+2.3 pp

5.5 Teacher feedback on Reading Comprehension

The quantitative gains observed in the reading assessments are reinforced by the qualitative evidence on reading comprehension recorded in the fortnightly Student Progress Reports. Across both Ambalathara and Perumathura, facilitators consistently documented improvements not only in students' willingness to participate, but also in their reading fluency, comprehension, vocabulary recognition and ability to engage with stories independently. These observations are particularly important because they capture dimensions of learning that standardized assessments cannot fully measure, such as confidence, classroom participation, responsiveness to questioning and the gradual development of reading habits.

A consistent pattern across the facilitator reports is that many children who initially struggled with decoding or oral participation became progressively more comfortable engaging with texts. In the English sessions, facilitators frequently noted improvements in pronunciation, sentence reading and confidence in oral responses. Several children who were initially described as "hesitant," "less participative," or "confused with similar phonemes" were later recorded as "showing improved interaction during reading activities," "reading with greater confidence," or "responding more actively during discussions." These reports suggestive of the fact that the repeated exposure to structured reading tasks, combined with oral storytelling and guided discussion, gradually reduced fear of English reading among many students.

The reports also indicate that comprehension skills improved alongside fluency. Facilitators increasingly described students as being able to answer inferential questions, retell stories in their own words, identify central themes and respond creatively to texts. In Malayalam particularly, teachers frequently observed that children were not merely decoding passages but engaging meaningfully with the content. Comments such as "participates actively in class discussions," "asks creative questions," and "can narrate the story independently" appear repeatedly across the reports. This is significant because it suggests that the

program was helping children move beyond surface-level reading towards active comprehension and interpretation.

Malayalam engagement and comprehension were generally stronger from the outset, because it is the children's home language and the language in which they possess greater everyday communicative competence. English progress appears more gradual and uneven. Yet the reports suggest that improvements in Malayalam comprehension may have helped students participate more confidently in English sessions as well. Facilitators often noted that children who became more expressive and participatory in Malayalam later showed greater willingness to attempt English reading and discussion. This pattern is broadly consistent with the theoretical framework underlying the intervention, namely that strengthening literacy in the first language can support the development of second-language comprehension.

The reports from Perumathura are especially noteworthy in this regard. Despite greater socio-economic disadvantages, lower attendance rates and weaker academic support at home, facilitators repeatedly documented visible improvement among students over the course of the intervention. Children who were initially described as *"unable or unwilling to read aloud"* were later observed *"attempting sentences independently"*, *"answering comprehension questions orally"* and *"participating in group activities"*. The qualitative evidence therefore aligns closely with the Progress assessment results discussed earlier, where Perumathura students showed some of the strongest gains across several tests.

At the same time, the reports also reveal important limits and continuing challenges. Progress was not uniform across all students. Facilitators continued to identify a subset of children, particularly in English, who struggled with basic decoding, concentration or sustained participation. The reports emphasize differences in learning pace within the same classroom, with some children progressing rapidly while others required continuous individual support. Like any other classrooms, these classes also contain substantial heterogeneity in reading ability, making rigid grade-level instruction ineffective for many children.

In short, the Student Progress Reports, thus, provide qualitative support for the conclusion that the intervention generated meaningful changes in classroom learning behavior.

5.6 Benchmark assessment

On the harder benchmark assessment, which is at CEFR low B1 level (reported fully in Section 8), Malayalam comprehension held up strongly. Students' average scores were high on both Malayalam tests (68 percent in expository and 79 percent in narrative), even though the material was at the more demanding level of texts used in the program. In English, at this much higher level of difficulty, the average scores were 42 percent in expository and 31 percent in narrative. The higher score in English expository (which was also true for baseline and progress assessments) suggests that students are more familiar with the academic register and informational text structures encountered in textbooks than with narrative discourse.



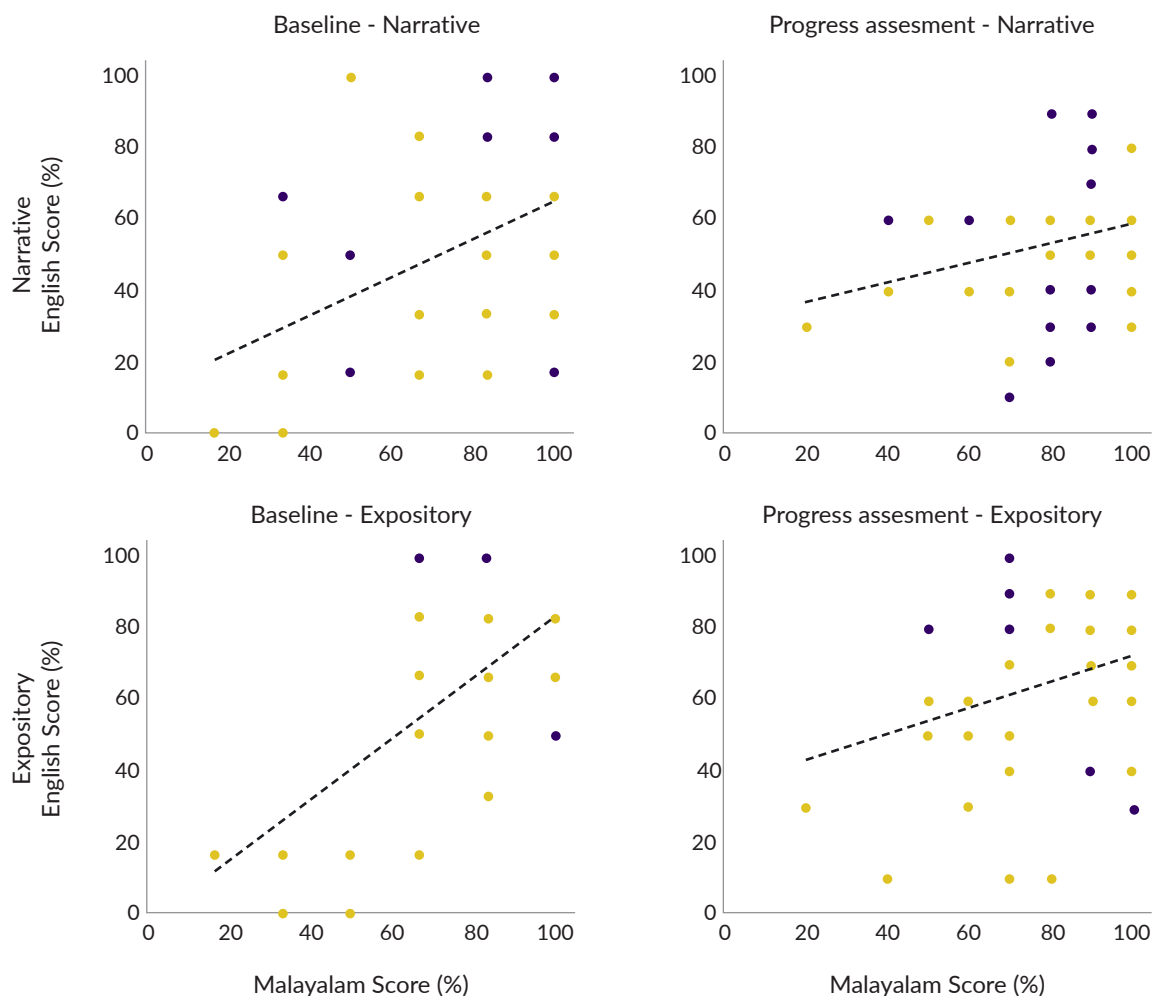
EVIDENCE ON BILINGUAL TEACHING- CROSS LANGUAGE RELATIONSHIPS BETWEEN MALAYALAM AND ENGLISH READING

6.1 Baseline and Progress Assessments

To examine whether literacy skills in Malayalam are associated with English reading performance, we estimated the relationship between students' Malayalam and English reading scores. This analysis provides a test of Cummins' Interdependence Hypothesis, which proposes that literacy skills acquired in the first language support literacy development in a second language through a common underlying proficiency.

The analysis was conducted on the same cohort of 45 students who completed every assessment in both languages, both text genres (narrative and expository), and both assessment phases (baseline and progress assessment). Restricting the analysis to this cohort ensured that all comparisons were based on the same students. Scores were converted to percentages to account for differences in the maximum scores of the baseline (12 marks) and progress (20 marks) assessments. Figure 4 presents the scatter plots, fitted regression lines and Pearson correlation coefficients for Malayalam (horizontal axis) and English (vertical axis) reading scores.

Figure 4 - Cross Language relationship across tests



For expository texts, the relationship between Malayalam and English reading was consistently positive and stronger than for narrative texts. At baseline, the correlation was moderate ($r = 0.498$, $p < 0.001$), declining somewhat at the progress assessment but remaining statistically significant ($r = 0.314$, $p = 0.030$). Students who performed well in Malayalam expository reading generally also performed well in English expository reading, consistent with the view that comprehension of informational texts draws on literacy skills that transfer across languages.

For narrative texts, the relationship was also positive but weaker. The correlation declined from $r = 0.377$ ($p = 0.004$) at baseline to $r = 0.258$ ($p = 0.077$) at the progress assessment. Although the relationship remained positive, it was less robust than for expository texts and was no longer statistically significant in this sample.

The stronger cross-language relationship observed for expository texts may reflect the nature of the literacy skills being assessed. Expository comprehension depends heavily on students' ability to comprehend the academic register—the explanatory and informational language commonly used in textbooks and classroom instruction—as well as on general cognitive processes such as identifying main ideas, making logical inferences, and integrating factual information. These are the kinds of literacy skills that Cummins' theory predicts should transfer across languages. Although the intervention used primarily narrative texts for instruction, it explicitly taught transferable reading strategies, including comprehension monitoring, inference-making, and the use of contextual cues, which can be applied across text genres. In addition, students are regularly exposed to expository language through school textbooks, providing opportunities to apply these strategies in familiar academic contexts.

By contrast, narrative comprehension places additional demands on understanding story structure, character motivations, and implied meaning. These discourse-specific features may weaken the observed association between first- and second-language reading performance, resulting in more modest cross-language correlations. Overall, the findings suggest that cross-language transfer was evident for

both genres but was more consistently observed for expository texts.

6.2 Evidence from Student Progress Reports

The relationships observed above were also visible, in more subtle ways, within the classrooms themselves. Although the Student Progress Reports were not designed as formal linguistic instruments, facilitators repeatedly documented patterns showing that improvements in Malayalam comprehension often coincided with greater confidence and competence in English reading activities. These observations are important because they capture the lived classroom experiences through which bilingual learning actually unfolded.

One of the patterns across the reports is that, in many cases, facilitators first observed improvement in Malayalam discussion, comprehension and oral expression before seeing comparable changes in English sessions. Students who initially struggled to engage with English texts were often described, at an earlier stage, as becoming more active in Malayalam storytelling, more willing to answer questions, or better able to explain ideas from the text in their own words. Over time, these same students were increasingly recorded as *"attempting independent reading," "responding more confidently,"* or *"participating actively during English discussions."*

Facilitators noted that students who became capable of identifying central ideas, answering inferential questions or narrating stories coherently in Malayalam showed improvement in similar English activities. The transfer was most visible at the level of reading behavior, listening attentively, making sense of unfamiliar passages, predicting meaning from context, and responding analytically to questions. In other words, what appeared to transfer across languages were the underlying cognitive processes involved in comprehension.

At no point do the qualitative records suggest that the use of Malayalam reduced children's engagement with English. If anything, the opposite appears true.

The strategic use of Malayalam during explanation, discussion and comprehension activities seems to have lowered the psychological barrier surrounding English reading, particularly for weaker students. Facilitators described children becoming less fearful of making mistakes and more willing to attempt English reading once they had understood the broader meaning of the story through bilingual discussion. Thus, the classroom observations align closely with the quantitative evidence presented above.



TREATMENT INTENSITY AND DOSAGE EFFECTS

One of the most important new analytical dimensions available for this report is the daily attendance data, which allows us to examine the relationship between how much of the program a student actually

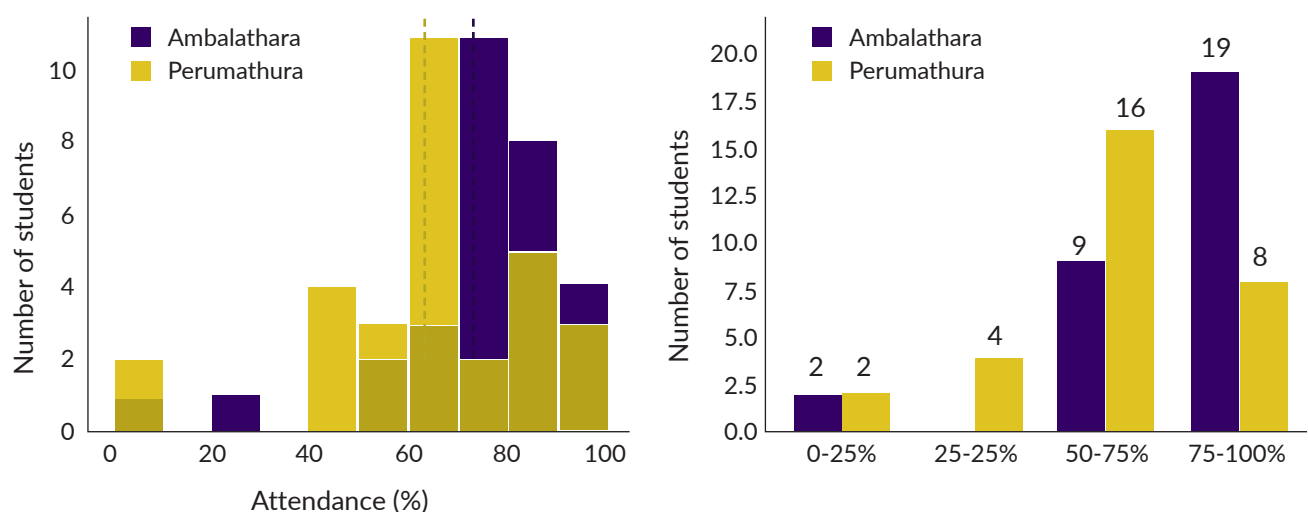
7.1 Attendance Patterns

Attendance was recorded by facilitators at the start of every lesson. Across both sites, mean attendance was 68.3%, meaning that on average children attended a little under two-thirds of the lessons delivered. This headline figure, however, conceals substantial variation both between and within the two sites. At Ambalathara, mean attendance was 73.4% (median 78.1%), against 63.3% (median 62.0%) at Perumathura, a gap of about 10 percentage points. The difference is consistent with the broader pattern of structural disadvantage at Perumathura, where economic pressures on families and the after-school nature of the program there created additional barriers to regular participation.

The dispersion within each site is just as important as the gap between them. The standard deviation of attendance was roughly 20 percentage points at both sites, indicating that the factors driving attendance were largely individual, family circumstances, health, the distance children travelled, and motivation, rather than purely a function of site. Indeed, the single highest attendance recorded across the program (98.0%) was achieved by a child at Perumathura, even as that site recorded the lower average. Figure 5 shows the full distribution of attendance and the breakdown of children into attendance bands.

At Ambalathara, 19 of 30 children (63.3%) attended at least three-quarters of the lessons, compared with only 8 of 30 (26.7%) at Perumathura. At the other end, Perumathura had six children who attended fewer than half the lessons, against just two at Ambalathara, and accounted for every child in the 25-50% band. This distribution carries a clear implication for interpreting the program's results: Perumathura children, on average, received a meaningfully lower dose of the intervention, and this must be borne in mind when comparing outcomes across the two sites.

Figure 5 - Distribution of attendance and attendance bands, by site

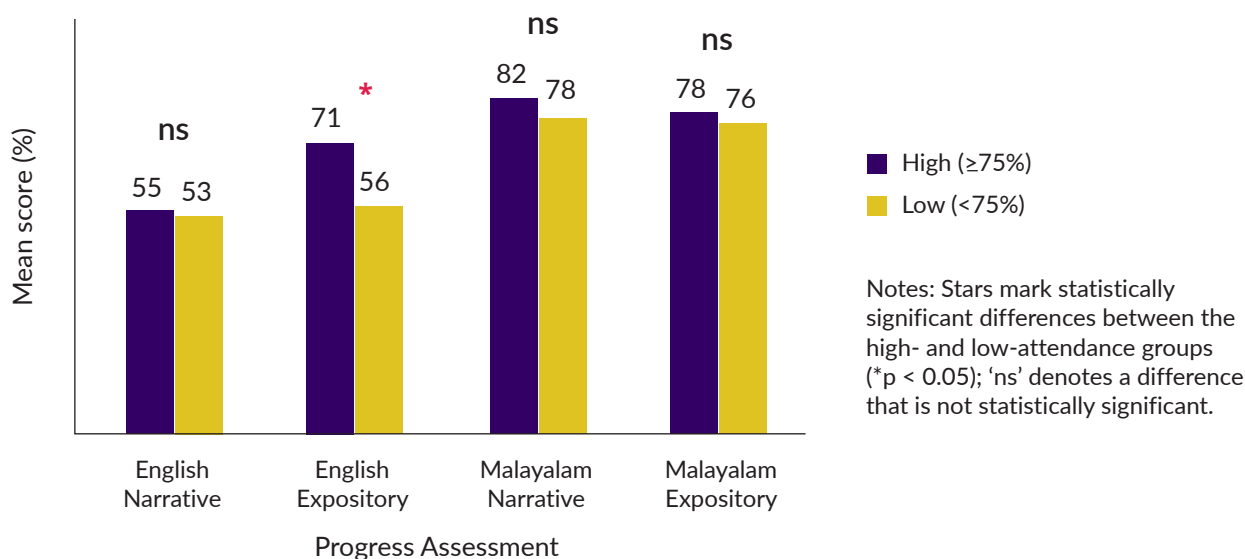


7.2 Attendance and Score Levels

To examine whether children who attended more also scored higher, we group children into a high-attendance group (those attending at least 75% of lessons) and a low-attendance group (below 75%), and their mean scores are compared at both the progress assessment. Figure 6 presents this comparison across all four reading tests.

These patterns indicate that attendance is positively associated with reading attainment, most visibly in English expository reading, where regular exposure to the program's structured comprehension work appears to matter most. The qualitative records from the Student Progress Reports provides some evidence in favor of the relationship between attendance and learning visible in Figure 6.

Figure 6 - Mean reading scores by attendance group at the progress assessment



In every test, the higher-attendance group scored higher than the lower-attendance group. In English Expository, the high-attendance group scored 71% against 56% for the low-attendance group, a difference of about 15 points that is statistically significant ($p < 0.05$), the only individual comparison to reach significance. The remaining tests continued to show the high group slightly ahead, but by margins that were small and not statistically distinguishable from zero, especially in Malayalam, where both groups scored highly (in the high-70s to low-80s) and there was correspondingly little room to separate. This is consistent with Malayalam being the children's stronger home language, in which even less regular attenders were already comparatively fluent.

Children who attended more regularly were often the same children for whom facilitators documented the clearest gains in confidence, participation and independent reading behavior over time. In several cases, teachers explicitly linked regular participation to improved classroom engagement and comprehension. One English facilitator noted that a student who attended consistently had *"become more fluent and confident in reading aloud and now answers comprehension questions independently,"* while another child was described as having *"shown steady improvement through regular participation in classroom discussions and reading practice."* While these classroom-level observations do not establish a causal relationship between attendance and learning, they do reinforce the broader pattern visible in the assessment data, that more regular students performed slightly better.

BENCHMARK ASSESSMENT

8.1 Why This Was Done and the Type of Test

At the end of the program, children were given a final reading assessment that was deliberately more difficult than the baseline and progress assessments. Rather than re-testing children at the easy level on which they had begun, which would only confirm that they could do what they were already starting to do, the program management chose to test whether children could now stretch to more demanding material.

The benchmark was aligned to approximately CEFR low B1 proficiency. The final benchmark assessment was aligned approximately to CEFR B1 proficiency. Although this level is significantly above the typical reading proficiency expected of Grade 5 learners in many Indian school contexts, including Kerala, it was included to provide a stretch benchmark and to validate student performance against a more advanced standard associated with high-performing English-medium environments, such as richer private schools.

For context, this B1 level is normally not reached until Grade 8-9 in most Indian schools, and only around Grade 5 in high-quality English-medium schools.⁵ The benchmark is therefore best understood as a validation exercise. It asks how far children could reach beyond the program's working level, not how much they gained relative to baseline. For this reason, its results are reported here on their own terms and are not compared with the earlier assessments.

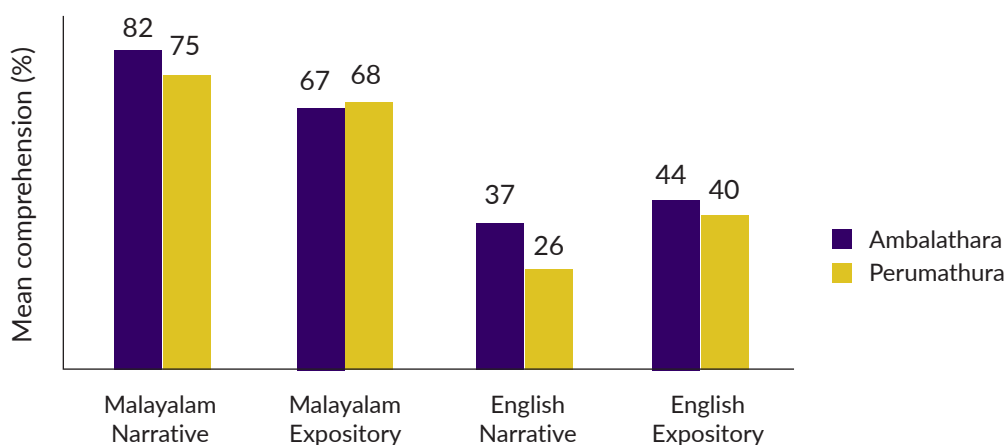
8.2 Test Results

Because the benchmark set a deliberately high bar, its results are best read as a measure of how far children could reach, rather than as a pass-or-fail examination. Read in that spirit, the performance of these Grade 5 children, drawn from two disadvantaged coastal communities and tested against a standard pitched several grades above their own, is encouraging. The key message is that comprehension in the home language is firmly established, and that the foundations of reading in English are visibly in place even on material far beyond the level at which the children had been working.

Figure 7 shows the mean comprehension score on each of the four reading tests, at each site. In Malayalam, children scored average of 78.6% on the narrative passage and 67.9% on the more cognitively challenging expository passage. These are high marks on a B1-level text, and they were achieved at both sites, indeed, on Malayalam expository reading the two sites are virtually indistinguishable (67% and 68%).

In English, a language these children are still acquiring and one in which the benchmark sat farthest above their working level, they nonetheless showed substantial comprehension, averaging 42.3% on expository and 31.4% on narrative passages, with the strongest scores at Ambalathara reaching into the mid-40s as a group average.

Figure 7 - Mean comprehension score on the grade-level benchmark, by reading test and site



⁵Although no systematic review was done of the textbooks used in schools, an informal assessment of the language complexity of Standard 5 textbooks in science and social science suggests that the language used is at high A2 level.

The averages, however, understate how widely the children succeeded. Figure 8 reframes the same results as the share of children who cleared meaningful comprehension thresholds (these include half and two-thirds of full marks).

In Malayalam, the 50% benchmark was within comfortable reach of almost every child. 93% of those assessed answered at least half of the expository questions correctly and 89% did so on the narrative tests, while three-quarters cleared the demanding two-thirds mark on the narrative text. More than half the children (51%) answered every Malayalam narrative question correctly, achieving a perfect score on a passage well above their grade. This is the signature of comprehension that is secure and transferable, not tied to the particular storybooks used in class.

The English results, however, must be interpreted cautiously. On a test of an unfamiliar second language, aligned to a standard typically not expected until Grade

8 or 9 in most Indian schools, essentially every child engaged with the text and registered measurable comprehension. On the expository tests, close to half the children (48%) reached at least half marks and roughly one in four (26%) cleared two-thirds of the full score, with the best readers scoring above 80%. That children at this stage of English acquisition could extract this much meaning from material pitched years ahead of them speaks to a developing ability to approach unfamiliar English text strategically rather than abandon it. (Table 7 summarizes it more clearly).

The strength in Malayalam is shared evenly across the two sites. The more advantaged Ambalathara cohort and the more disadvantaged Perumathura cohort both perform well in the home-language benchmark test with confidence, which suggests that secure first-language comprehension is something the program was able to consolidate broadly, irrespective of a child's starting advantages. Thus, the benchmark validates the quality of the comprehension the children have built. They can read challenging Malayalam texts with the fluency of much older or more advantaged learners, and they can already make real headway in English texts set well beyond their grade. For a short pilot working in resource-constrained settings, reaching this far up a stretch standard is a clear and positive indication of what the children are now able to do.

Figure 8 - Proportion of children reaching key comprehension thresholds on the benchmark, by reading test

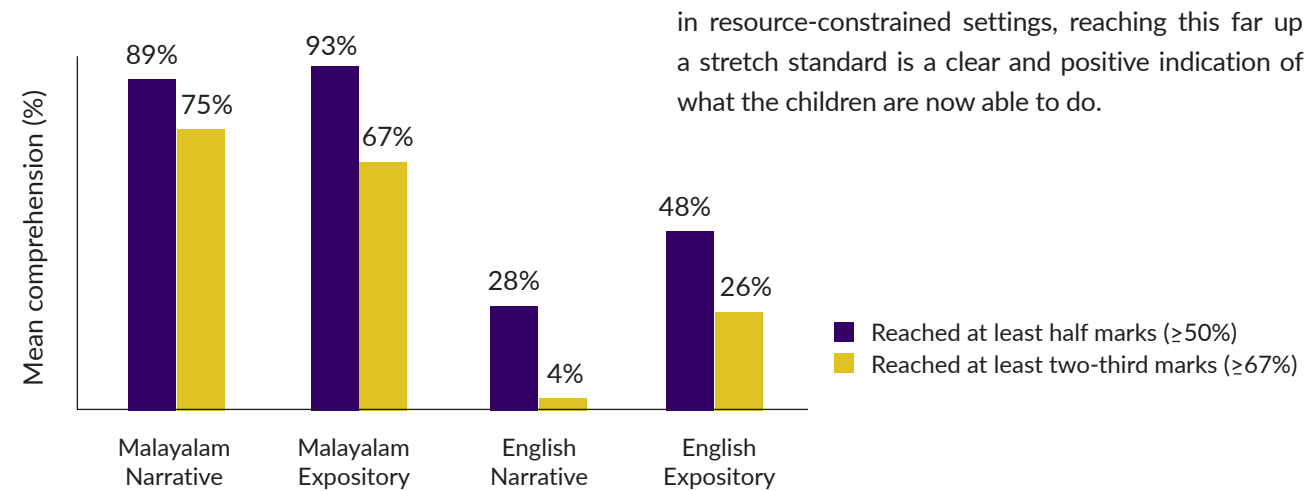


Table 7 - Attainment on the Grade-Level Benchmark Assessment

Reading test	Mean (%)	$\geq$ Half marks	$\geq$ Two-thirds
Malayalam Narrative	78.6	89%	75%
Malayalam Expository	67.9	93%	67%
English Narrative	31.4	28%	4%
English Expository	42.3	48%	26%

A SCALABLE MODEL - EVIDENCE

The third objective of the program was to develop and document a cost-effective model that could be replicated in other schools and disadvantaged communities. On the evidence of this pilot, that is an achievable aim, and it is worth being forthright about what the pilot actually demonstrates and what it does not.

The central finding is that the model is scalable, that it can be run in genuinely under resourced settings, by schools and by community organizations alike, provided periodic technical support is available. The qualification attached to that finding is equally important. Early reading gains are fragile, and they will only consolidate if children go on reading with support beyond a single short cycle. What follows sets out the design features that the pilot suggests are responsible for its results, and which any replication would need to carry with it.

The most basic lesson is that a short, imperfect cycle can still move children. This pilot was not delivered under ideal conditions. There was a late start that cut the planned sixty lessons to forty-five, attendance was irregular, and the facilitators were not specialist teachers. Even so, the program produced measurable change, most visibly in Malayalam and, encouragingly, at the more disadvantaged Perumathura site. The natural reading of this is not that the conditions did not matter, but that the design is robust enough to work through them. A fuller cycle of at least six months or more, with steadier attendance, would be expected to deepen the gains rather than merely repeat them, particularly in English where the distance still to travel is greatest.

Levelled storybooks, and the way they were taught using structured lesson plans, gave children something they wanted to follow, and the enjoyment was not incidental to the learning but the core of it. The children who are drawn into a story will work at understanding it. That is true for adults as well. The clearest external sign of this was that reading spilled out of the classroom and into the home, with children taking books back to read aloud or silently, engagement that no amount of drill could have manufactured. Around the story, the deliberate use of both languages did real work. Far from being a distraction, allowing Malayalam into the English lesson let children reach for meaning with the resources they already had.

Finally, the pilot is a reminder that training is not an event but a process. The initial workshop mattered, but what kept the teaching on course was the steady stream of feedback that followed it, built on classroom observation, lesson videos and the facilitators' own reflections. The independent coordinator who observed every lesson served two purposes at once, which include the observations fed directly into how facilitators improved, and the simple fact of being observed signaled to teachers and to the wider community that the program was taken seriously. Both of these are recurring costs, and a model that means to scale has to budget for them from the outset rather than treat them as optional.

LESSONS LEARNED FOR IMPROVEMENT

During the program, several constraints and strains had to be overcome, which offer the most useful lessons for the future program.

- The foremost among them is that even amongst “struggling readers” in Grade 5, there are substantial variations. A small number of children in both classes performed poorly, were unable to engage with the texts and read words. Because everyone worked from the same book and moved up the levels together, these children were being asked to comprehend text before they could decode it, and the design had no separate track to catch them. The group as a whole could be carried forward, but the children furthest behind could not be fully met where they were. This is the single most important thing to fix. A scaled version of the program needs an explicit route for non-readers, targeted small-group or one-to-one decoding work running alongside the main lessons, so that the children who most need foundational support are not left to fall further behind the group.
- The second important issue relates to the choice of stories. The challenge at the beginning phase of the program was that while the linguistic complexity of the texts was appropriate, the stories were cognitively less challenging for Grade 5 learners. This divergence became less of a problem as students were able to engage with Level 2 and Level 3 books, which had greater cognitive complexity as well. The lack of availability of reading texts with simplified language but age-appropriate themes, content, and conceptual demands is a major challenge for such a program. It may require investment in creating stories which engage older learners with limited language proficiency.
- Continuous training worked, but the needs of the facilitators could not be assessed beforehand and also varied between sites, as the background and experience of facilitators varied substantially. This required more time and effort from program managers than originally anticipated. In Perumathura, with relatively young and inexperienced facilitators, training sessions had to focus on classroom management. In both sites, games and group competitions were added to introduce variety into the lessons and engage students. Some of these ideas were initiated by the facilitators, and indicated their own growth. The student progress report provided valuable insights but needs further refinement to enable facilitators to make more reliable formative judgements without increasing their reporting workload.
- The pilot showed stronger and more consistent cross-language associations for expository texts, suggesting that expository assessment may be a more stable indicator of bilingual reading development in this context. In the next phase, assessment should prioritize expository texts in both Malayalam and English. This choice reduces testing burden while focusing on the genre most closely linked to academic reading and most consistently associated across languages in the pilot. Narrative texts remain central to instruction because they are engaging and effective for teaching comprehension strategies. The intended outcome, however, is broader reading comprehension, including students’ ability to transfer reading strategies to school-based academic texts. Expository assessment allows us to examine whether these strategies transfer to textbook-like reading, which is critical for school success.

CONCLUSION

Over a single short and interrupted cycle, the Bilingual Reading Program set out to achieve three objectives, namely, to make children more engaged readers and better comprehenders, to test whether teaching the two languages together helped, and to show that a model of this kind could work in places that have very little to work with. On all three counts this report provides positive evidence for these objectives.

The first result, which is a testament to the success of the program is the one the children themselves, who came to enjoy reading, they talked about the classes at home, carried storybooks back to read on their own, and worked at understanding stories rather than merely sounding them out. On the comparable assessments their comprehension improved in every test and at both sites over three months, with the largest gains at the more disadvantaged of the two. Their command of Malayalam, in particular, proved deep and durable. When finally set against a benchmark pitched years above their grade, they read demanding home-language texts with the assurance of much older or more advantaged learners, and they made real, if earlier-stage, headway in English on material set well beyond them. For a programme of this length and cost, in these settings, that is a substantial outcome.

The evidence on the bilingual approach is suggestive rather than conclusive, and it should be interpreted as such. The pilot had no control group, so the gains cannot be attributed to the program alone. What can be said is that several independent strands point the same way. These are simultaneous progress in both languages, a Malayalam–English relationship that strengthened over the program and emerged where it had been absent, and facilitators' own sense that drawing on Malayalam helped rather than hindered the English lessons. That convergence is consistent with the theory the program was built on, and consistent too with a wider literature in which second-language reading proficiency takes years to mature. A three-to-four-month window is best read as a promising beginning.

On the third objective the answer is the most practical. A structured, story-based, bilingual model can be delivered by ordinary schools and community organizations, with facilitators who begin with modest qualifications, provided they are given good lesson plans, time to prepare, and steady support and feedback once teaching is under way. None of these ingredients are expensive, but each is necessary, and a model that means to scale has to carry them necessarily. The pilot also showed where the design must grow up. It served the class as a group but could not yet reach the children at the very bottom who had not begun to decode, and it leaned on teachers' informal judgement where a simple assessment tool was needed. These are solvable problems and naming them is part of what makes the model ready to be tried at greater scale.

One important concluding point to note is that the early reading gains are fragile, and they will only consolidate if children keep reading with support. The most important thing this pilot establishes is that with a longer cycle, steadier attendance, an explicit plan for the children furthest behind, and continued investment in the people who teach, there is every reason to expect these beginnings to deepen, most of all in English, where the children have the furthest still to go and, on the evidence here, the capacity to get there.

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ANNEX A

A.1 Student Background and Household Characteristics

This section presents the analysis of the background data collected from 60 students participating in the program. The questionnaire was designed by the VMFT team, based on examples from other surveys but adapted to the needs of the pilot program and hypotheses regarding what might affect students' initial learning levels and progress during the program. The data was collected by the program coordinators under the supervision of program manager using an electronic tool. At each site, children were called one by one, made comfortable and then asked questions from a structured questionnaire in local language (Malayalam). Each response by the child was marked down by the program coordinator carefully in the electronic form, which directly fed data to a structured database. The data collected covers the demographic and educational profile of the students, key household characteristics and the socio-economic context proxied by parental occupation and asset distribution. In this section, we provide analysis of the data disaggregated by the two sites.

A.1.1 Demographic Profile of students

The total sample at two sites consists of 60 students. Each site has 30 students. Figure A1 shows the gender distribution of the two sites. At both sites, male students outnumber female students, but Perumathura has a comparatively higher proportion of female students (43.3%) compared to Ambalathara (36.7%).

Figure A2 shows the age distribution of the children at the two sites. We can see that children at Perumathura are slightly younger as compared to children at Ambalathara. The median age of children at Perumathura is 10 years and 3 months while as at Ambalathara it is 10 years and 9 months. While this difference in ages may not be huge in absolute terms, research suggests that age differences in early grades do matter for learning (Wigfield et. al., 1996; Rodriquez, 2016).

Figure A1. Gender Profile of students

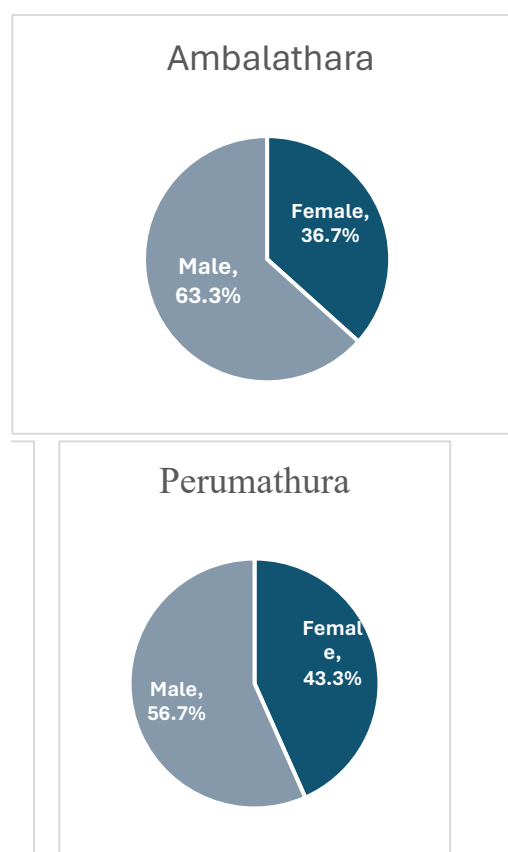
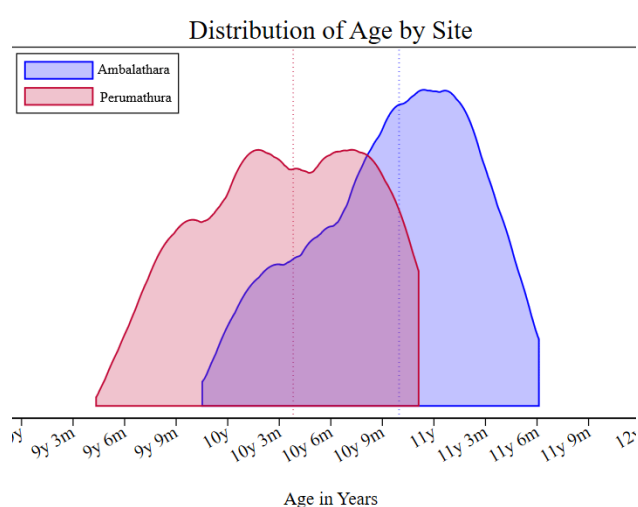


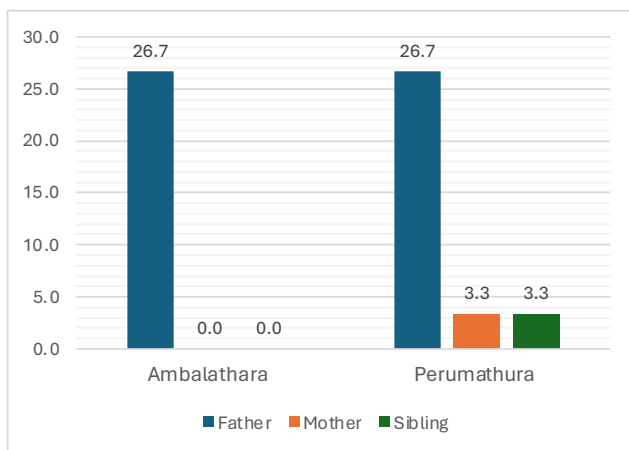
Figure A2. Age distribution by Site



In addition to age and gender, the students household and family structures also differ between two sites, albeit only slightly. The mean number of household members across the total sample is 5.05. Students at Perumathura come from slightly larger households with mean number of household members being 5.26, compared to students at Ambalathara with mean = 4.83 members per household. However, children at Ambalathara have marginally higher mean number of siblings (1.76 siblings) than students at Perumathura (1.56 siblings). Majority of siblings at both sites are also currently enrolled in school, 96.7% from Ambalathara and 93.3% from Perumathura. Additionally, all the students at Perumathura are OBC Muslims, compared to 80% Muslim students at Ambalathara, along with 10% Hindu and 10% Christian students. A majority of these students at Ambalathara are also OBC (93.3%), the rest are forward caste.

One of the key features of Kerala in recent times has been large out-migration for work abroad. The families of students enrolled in the two sites in our program follow similar pattern. Figure A3 shows percentage of family members working abroad. The fathers of 26.7% of students from both sites are working abroad. However, at Perumathura, 3.3% of mothers of children and siblings were also reported to be working abroad.

Figure A3. Family members working abroad



A parent working abroad may not necessarily mean economic progress. There is a possibility of these migrant parents working in low-paying manual work jobs. In Figure A4, we measure the difference in economic status of families to which the students belong via ownership of different economic assets. The assets we chose are television, smartphone, computer, two-wheeler and four-wheeler. Ownership of these assets is taken as signal of the household's economic status.

Figure A4. Ownership of assets

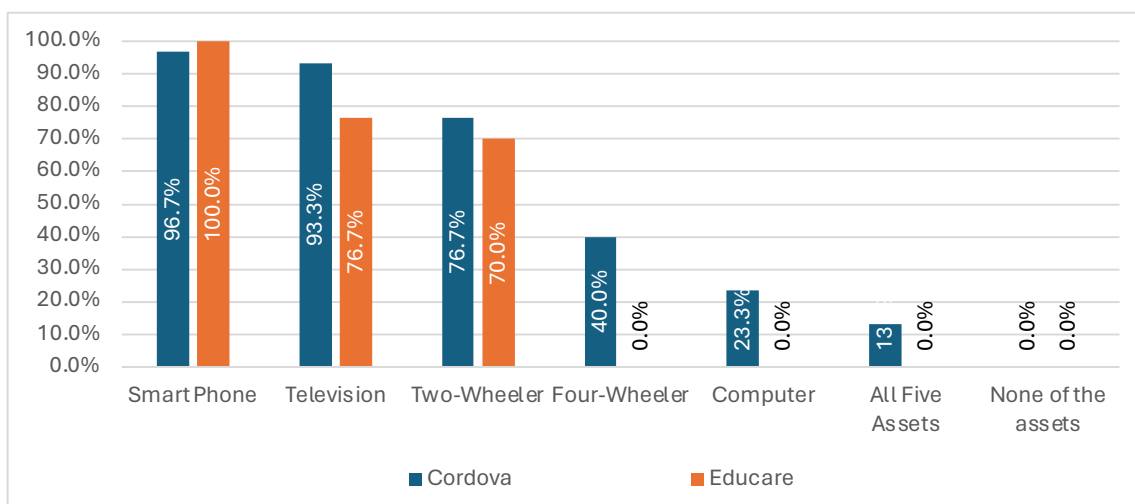
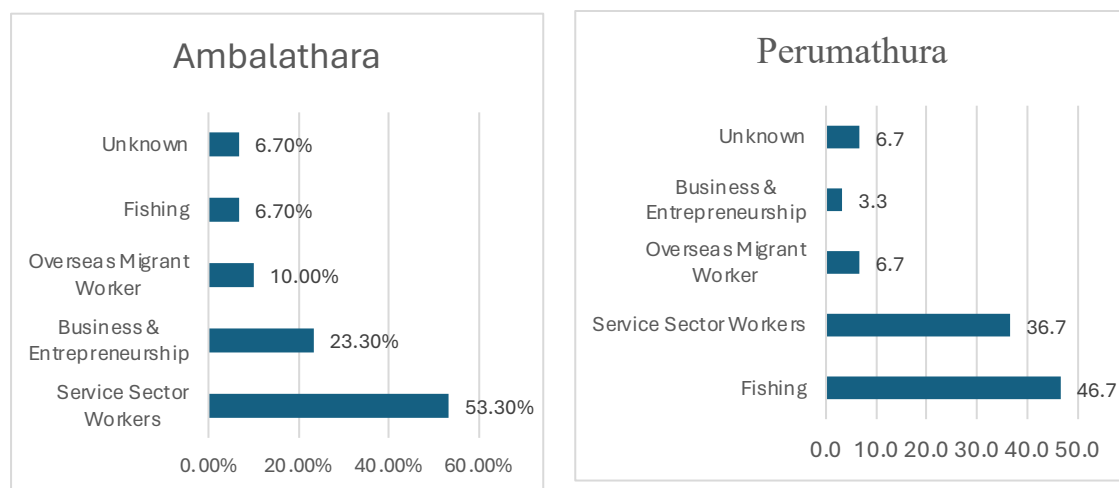


Figure A4 shows that while the ownership of common assets like smartphones and two-wheelers is high at both sites, a significant economic disparity exists in higher-value assets. Households at Ambalathara have substantial ownership of four-wheelers (40.0%) and computers (23.3%). These assets are entirely absent from the Perumathura sample. This is suggestive of the fact that the Ambalathara cohort comes from a comparatively more affluent background. Another evidence for this is that while 13.3% of Ambalathara families own all five assets, there is no household at Perumathura that owns all five assets.

Figure A5. Fathers main occupation

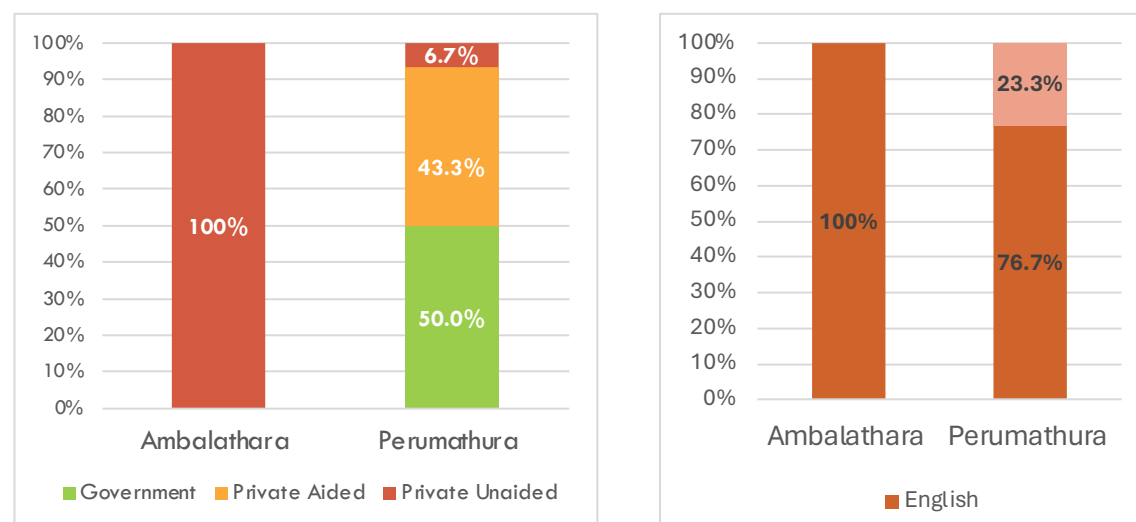


In addition to this, we have collected details on parental education and several other variables. Refer to Annex 2 for more details.

A.1.2 Educational Characteristics

The first difference between the two sites is that one of them is private unaided school (Ambalathara) and other is a community centre, which enrolls students from different schools. Figure A6 shows the nature of schools. While all the students at Ambalathara are from Unaided schools, 50% of students from Perumathura are primarily enrolled in government schools, 43.3% in aided schools and only 6.7% in unaided schools.

Figure A6. Type of School and Language of Instruction



There are also differences in the medium of instruction at the two sites. All of the students at Ambalathara are enrolled in English medium compared to 76.7% from Perumathura, the rest of whom are enrolled in Malayalam medium. In both sites, some students are studying in the Kerala syllabus while others are in the CBSE syllabus stream.

Hence, the sample of students are drawn from a variety of schools, differentiated by management, language of instruction and curriculum, reflecting the diversity of Kerala's school system.

Additionally, 100% of students from Ambalathara attended Kindergarten as compared to 93.3 % students from Perumathura. Only 2 students repeated the grades previously. Both of them are from Ambalathara. The primary language at home for communication is reported to be Malayalam for all the students at Ambalathara and Perumathura.

Not all of these students at the two sites have been studying in the same schools from the very beginning. 83.3% of students from Ambalathara report to have changed school previously as compared to 43.3% from Perumathura . Figure A7 shows the type of previous school attended by the children from two sites. It is interesting to see that 46.2% of students from Perumathura were, previously, attending a unaided school as compared to 32% from Ambalathara.

A.1.3 Parental engagement and involvement

Beyond socio-economic status, the level of direct parental involvement in a child's academic work is a crucial factor in the learning process. Research in education has established a link between parental involvement and student academic achievement (Fan & Chen, 2001). This involvement is often driven by the parents beliefs about their role in their child's education and their confidence in their ability to help (Hoover-Dempsey & Sandler, 2005).

In this sub-section we show two key dimensions of this engagement, one is direct and active help from parents with homework, and the other is their simple presence during the child's study time. Both of these factors are expected to make a difference in the child's learning . Figure A8 shows this data.

Figure A7. Type of School Previously attended

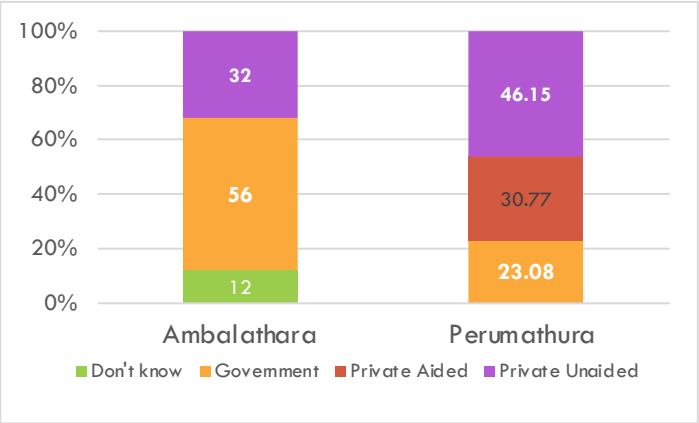
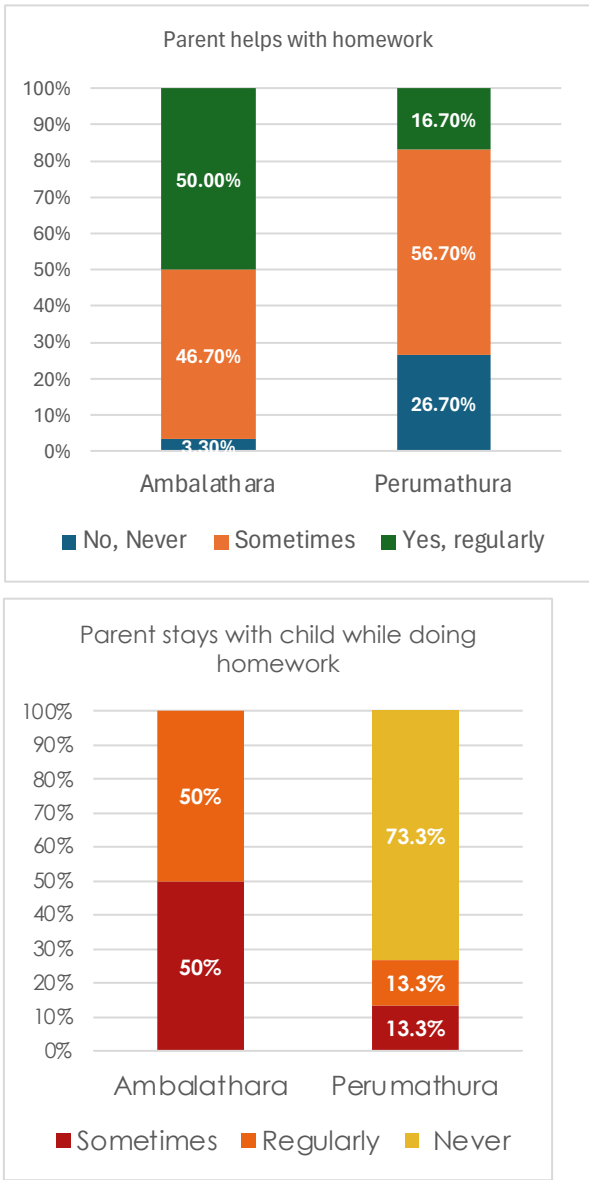


Figure A8. Parental Engagement and Involvement



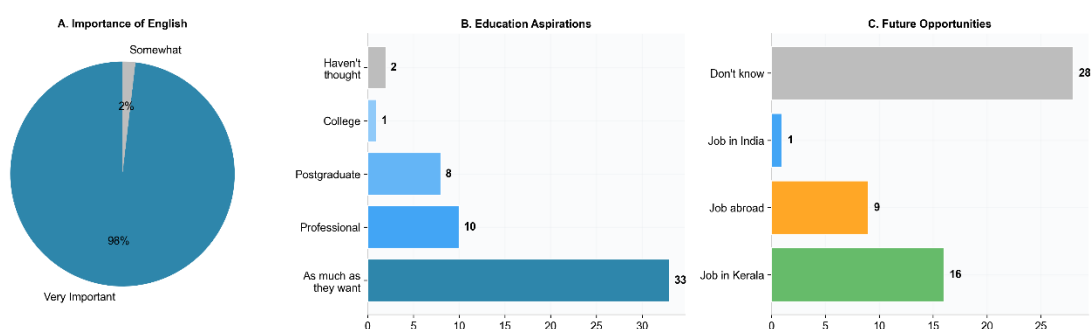
From Figure A8 , we can see that at Ambalathara, half of children report that their parents help them regularly. This is nearly three times higher than at Perumathura, where only 16.7% of the children report that their parents help them with their homework regularly. Similarly, the proportion of students who report that their parents never provide any help is negligible at Ambalathara (only 3.3%) but rises to over a quarter at Perumathura. There is sharper contrast in parental presence during homework. At Ambalathara, 100% of students report that their parents stay with them when they do the homework (split evenly between 50% sometimes and 50% regularly). At Perumathura, the situation is different. Nearly three-quarters of students report that their parents are never present while they do the homework. These figures are possibly indicative of higher level of direct monitoring and academic support in the home environment for children at Ambalathara.

A.1.4 Results from Household Survey

To complement the student-level data collected at the start of the program, a household survey was conducted during the program to capture parental perspectives on the intervention, household-level educational engagement, and aspirations for children. The survey reached 55 of the 60 enrolled families (26 at Ambalathara and 29 at Perumathura), with the vast majority of respondents (87%) being mothers.

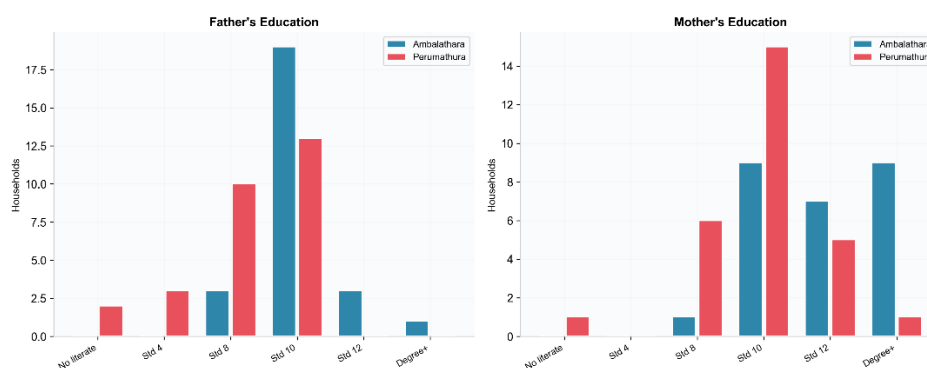
The most important finding from the household survey is the near-universal recognition of the importance of English. An overwhelming 98% of parents stated that strong English skills are very important for their child to achieve their education and future goals. This is consistent across both sites, despite the significant socio-economic differences between them. When asked about educational aspirations, 61% of parents expressed the hope that their child would study as much as they want, while 18% aspired specifically to a professional degree (MBBS, BTech etc.) and 15% to a postgraduate degree (Figure A9). These aspirations suggest that community is deeply invested in education, even where material resources are limited.

Figure A9. Parental Aspirations



The household survey also captured parental education levels. The data confirms the socio-economic gradient between sites. At both sites, the modal level of father's education is Standard 10, but Ambalathara has a higher proportion of fathers who completed Standard 12 or above (Figure A10). Mothers at both sites tend to be slightly more educated than fathers, with a larger proportion having completed Standard 10 or above. This finding is consistent with broader trends in Kerala where female educational attainment often exceeds that of males, even in disadvantaged communities.

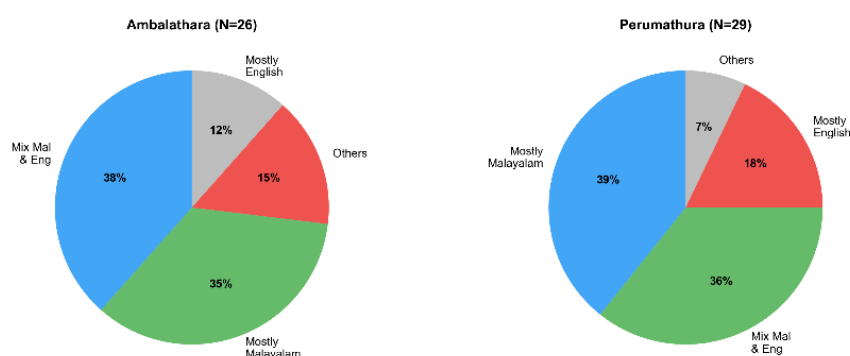
Figure A10. Parental Education



Parental confidence in helping with English homework also shows site-level differences. At Ambalathara, 42% of parents report being very confident in helping with English homework, compared to only 21% at Perumathura. Conversely, 24% of Perumathura parents report being not confident, compared to 15% at Ambalathara. This confidence gap mirrors the broader economic and educational differences between the sites and underscores why the classroom-based bilingual intervention is particularly important for Perumathura children, who are less likely to receive effective English support at home.

The language of media consumed at home provides additional context. At Ambalathara, 38% of families report watching content in a mix of Malayalam and English, 35% mostly Malayalam, and 12% mostly English. At Perumathura, 39% watch mostly Malayalam, 36% a mix, and 18% mostly English. The relatively low exposure to English-language media in both communities reinforces the finding that classroom-based instruction is the primary, and often only, source of structured English exposure for these children (Figure A11).

Figure A11. Media Language Consumption



ANNEX B: PROGRAM INTERVENTIONS

Below we list the most crucial elements of the Bilingual Reading Program:

Class schedule and structure. The program provides a structured learning experience for each student over a 20-week period. During this time, students receive a total of 45 lessons (originally planned as 60 lessons). Each lesson lasts 60 minutes. To ensure consistent progress, three lessons are delivered every week. The schedule is specifically designed to support the bilingual teaching method. Children read stories in English and Malayalam, linking learning across the two languages as complements to each other.

Learning materials for students. We use a rich set of materials that were carefully chosen after discussions with experts from the field of education. The core of the lessons is built around Pratham's illustrated storybooks, which go from Level 1 (beginner) to Level 4 (greater complexity). These storybooks are selected for their interest to students and illustrations help the students understand meaning. Each student has access to the storybook, so that they can learn at their own pace. In addition to storybooks, we use printed versions of the story text to encourage independent reading. Other required materials include flashcards, chart paper, student folders, crayons, writing paper and related stationery.

Expert-designed lesson plans. Each lesson is centred around the storybooks and is guided by a well-planned bilingual pedagogy to ensure a high-quality learning experience for all students. The lesson plans provide detailed guidance on how to use the storybooks and to explicitly teach different reading skills to students, while focusing on enjoyment, motivation and retaining interest. These lesson plans were developed in collaboration with education experts and practitioners with experience of several years. Facilitators use these structured, pre-designed lesson plans for each session. This structured approach ensures that the program is delivered with fidelity.

Trained facilitators. The lessons are delivered by trained facilitators who are central to the program's success. There are two facilitators per class, one

who leads the teaching of English classes, and the other who leads the teaching of Malayalam classes. However, both facilitators are present in each class. They receive initial training by an expert teacher trainer before the commencement of the program including a demonstration class by the expert teacher. Through the course of the program, they also receive continuous support, feedback and training to deliver the lessons effectively. In order to incentivize the facilitators, they are paid for each lesson as well as an extra hour per lesson to prepare and write reflection journals.

Ongoing teacher training and support. Our model includes a focus on teacher development. The initial training is complemented by recurrent training and mentoring sessions that continue while the program is in progress. This system of ongoing professional development is directly enabled by feedback from regular classroom observations.

Rigorous Monitoring and Feedback System. We use a rigorous monitoring system to ensure that the program is implemented effectively. An independent project coordinator is hired for each site and participates in each lesson. They use a structured questionnaire to take detailed notes on key aspects of implementation, such as teacher punctuality, lesson preparedness, the level of student engagement and the use of materials. These observations are supplemented by short videos of the classes.

Data Collection and Analysis. We use assessment experts to design the learning assessments, as well as a qualified researcher to design the data collection instruments and to analyse and present the results.

Project Manager. A dedicated Project Manager oversees the entire project from start to finish, coordinating all activities including experts, hiring and supervising the facilitators and site coordinators, managing the project's finances, and drafting the interim and final reports.

ANNEX C: ASSESSMENT DETAILS

C.1 Baseline Assessment Structure

The baseline assessments consisted of four distinct tests: English Narrative, English Expository, Malayalam Narrative, and Malayalam Expository. Each test included 6 fixed-response questions (each carrying a maximum of 2 points, total maximum score of 12) and 2 free-response questions. The free-response questions were excluded from quantitative analysis because the majority of students were unable to write any responses. The texts were approximately at the A2 level of the CEFR. The assessments were administered on two separate days by two trained personnel, in a student-friendly manner to reduce test-associated tension.

C.2 Progress Assessment Structure

The Progress Assessment assessments mirrored the baseline structure while introducing new thematic content. Each test consisted of 10 questions (a mix of multiple choice and True/False), with each correct

answer receiving 2 points (total maximum of 20). The tests assessed cognitive levels including factual understanding, propositional and local inference, global inference and internal state tracking, and lexical understanding. The difficulty level was maintained at the same level as the baseline.

C.3 Benchmark Assessment Structure

The benchmark assessments followed the same four-test structure but were deliberately designed at a higher difficulty level. The texts used more complex vocabulary, longer sentences, and required deeper inferential reasoning, appropriate to the CEFR low B1 level. This was a deliberate design choice to test whether students could handle more demanding material after completing the full intervention. All scores were converted to percentages to enable comparison across the three phases.

ANNEX D: DETAILED ATTENDANCE STATISTICS

Table D.1. Attendance Summary Statistics by Site

Statistic.....	Ambalathara	Perumathura	Overall
Mean Attendance.....	73.4%	63.3%	68.3%
Median Attendance	78.1%	62.0%	72.5%
Standard Deviation	19.9%	21.6%	21.3%
Minimum	0.0%	6.2%	0.0%
Maximum	91.7%	98.0%	98.0%
Students $\geq 75\%$	19 (63.3%)	8 (26.7%)	27 (45.0%)
Students $< 50\%$	2 (6.7%)	6 (20.0%)	8 (13.3%)

The attendance data reveals that consistent participation was a challenge at both sites, though more acute at Perumathura. Two students at Ambalathara and two at Perumathura had attendance below 25%. At the other extreme, the highest attendance rate of 98.0% was achieved by a student at Perumathura, indicating that regular attendance is achievable even at the more disadvantaged site when family circumstances permit. The standard deviation of approximately 20% at both sites indicates substantial within-site variation, suggesting that the factors affecting attendance are individual-level (family circumstances, health, motivation) rather than purely site-level.

ANNEX E: STATISTICAL NOTES

Treatment of missing data. Throughout this report, students who were absent for a particular test are excluded from the analysis for that test. Their scores are treated as missing observations, not as zeros. This approach ensures that the reported averages reflect genuine performance among students who took the test, rather than being artificially depressed by non-participation. The number of valid observations (N) is reported alongside every mean score to enable the reader to assess the representativeness of each estimate.

Percentage score conversion. Because the three assessment phases used different maximum scores (baseline: 12 points, Progress Assessment: 20 points, Grade Level Benchmark: varied), all raw scores were converted to percentage scores before comparison. This is essential for enabling valid comparisons across phases and is a standard practice in longitudinal assessment studies.

Consistent cohort analysis. For the consistent cohort analysis (Table 6), we identified students who were present for all twelve tests (four tests at each of three phases). This yielded a sample of 41 students (18 from Ambalathara and 23 from Perumathura). By tracking the same students across all phases, we eliminate the possibility that changes in mean scores are driven by changes in sample composition.

Correlation analysis. Pearson correlation coefficients are used to quantify the strength and direction of the linear relationship between Malayalam and English scores. The p-values reported are for two-tailed tests of the null hypothesis that the population correlation is zero. Given the small sample sizes, correlations should be interpreted as indicative rather than definitive.

Limitations of the dosage-response analysis. The attendance-based dosage analysis is observational, not experimental. Students who attend more sessions may differ systematically from those who attend less, in ways that independently affect learning. Causal claims about the effect of attendance on learning cannot be made from this analysis alone. The analysis should be interpreted as describing associations rather than causal effects.

ANNEX F: BENCHMARK ASSESSMENT SCORE DISTRIBUTION DETAILS

Table F.1. Quartile Distribution of Benchmark Assessment Scores

Test.....	25th Percentile	Median	75th Percentile	Mean
English Narrative.....	16.7%	33.3%	50.0%	31.4%
Malayalam Narrative.....	66.7%	100.0%	100.0%	78.6%
English Expository.....	33.3%	33.3%	62.5%	42.3%
Malayalam Expository.....	50.0%	66.7%	83.3%	67.9%

The quartile distributions of the Benchmark Assessment reveal the pronounced skewness of scores in different languages. In Malayalam Narrative, the median (100%) is substantially higher than the mean (78.6%), indicating that the distribution is left-skewed, most students achieve high scores, but a small number with low scores pull the mean down. Over half the students achieved the maximum possible score in Malayalam Narrative even on the harder Grade Level Benchmark test, a testament to the strong L1 comprehension developed through the program.

In English, the pattern is reversed. The mean for English Narrative (31.4%) is close to the median (33.3%), suggesting a relatively symmetric distribution but with high dispersion. The 25th percentile of 16.7% means that a quarter of students scored below one-sixth of the maximum, indicating that the most struggling English learners continue to face severe challenges even after the intervention. The inter-quartile range (25th to 75th percentile) is 33.3 percentage points for English Narrative, compared to 33.3 percentage points for Malayalam Expository and only 33.3 for English Expository, but the absolute levels differ dramatically.

These distributions confirm that the classroom environment remains highly heterogeneous in English and relatively more homogeneous in Malayalam. For facilitators, this means that English instruction requires considerably more differentiation than Malayalam instruction, and that the levelled reader approach is particularly important for English classes where students range from near-zero comprehension to moderate proficiency on the same test.

Table F.2. Number of Students Scoring Zero in Benchmark Assessment

Test.....	Students Scoring Zero	Total Students	Percentage
English Narrative.....	5	53	9.4%
Malayalam Narrative	0	53	0.0%
English Expository.....	4	54	7.4%
Malayalam Expository.....	0	54	0.0%

The persistence of zero scores in English but not in Malayalam in the Benchmark Assessment is a finding that mirrors the baseline pattern and underscores the depth of the English literacy challenge for the most disadvantaged students. These 5 students who scored zero in English Narrative in the Benchmark Assessment represent approximately 9% of the tested sample. They may require more intensive, individualised support beyond what a group-based reading program can provide. Identifying and providing targeted support for these most struggling students should be a priority in any future iteration of the program.



About VMFT

Constituted in the year 1986, Vakkom Moulavi Foundation Trust (VMFT) has been a powerful presence in the social and cultural landscape of Kerala. With the goal of advancing Kerala's overall development, it focuses on three broad thematic areas: Education for the Future, Inclusive Governance, and Science and Technology for Sustainable Development. As a memorial to Vakkom Muhammad Abdul Khader Moulavi (1879-1932), the Foundation publishes his works and promotes research on his contributions, to shed light on the historical forces that shaped Kerala's development in the early 20th century.

Core areas of work:

- Education for the Future
- Inclusive Governance
- Science and Technology for Sustainable Development
- Memorial of Vakkom Moulavi's Contributions

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