Read Along™

Read Along
Impact Assessment Study Report

SATTVA Delivering High Impact. Google KAIVALYA EDUCATION FOUNDATION Pratham Room to Read Saajha

Contents

List of Tables and Figures

Acknowledgement

We would like to thank the young people who participated in the study along with their parents and guardians who welcomed us into their homes and provided us with information. We would also like to thank the on-ground team of the implementation partners, Kaivalya Education Foundation, Pratham, Room To Read, and Saajha and their leadership for facilitating these interaction with the parents. This study would not have been possible without their cooperation.

While it is difficult to mention the names of all the field investigators who worked with us in this study across the sampled locations, we express our gratitude to them for conducting the field work in the manner required and with efficiency. Without their support and cooperation, collecting data at this scale would not have been possible. We would also like to take this opportunity to extend our deepest gratitude to the study implementation team at Sattva who managed field operations and ensured that the study maintained its rigor and quality.

Last but not the least, this study would not have been possible without the support of Google©. We thank Nitin Kashyap and Souradeep Ghosh who participated in the initial discussions around the design and methodology of the study. We would also like to thank Nikita Bharadia, Raunaq Rupani and Melanie Chacko for their continuous encouragement and patience all through the implementation of the study.

Credits

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Foreword

With gross enrolment ratio of 97% in elementary and 80% in secondary school, are we on track to 'ensure inclusive and equitable quality education and promote lifelong learning opportunities for all' by 2030?

According to the World Development Report 2018: 'Learning to Realise Education's Promise' released in 2017, India ranks second after Malawi in a list of 12 countries where a grade two student could not read a single word of a short text. Imagine the ramifications of this a couple of decades into the future. There is an urgent need to create a strong foundation today, to harness the value of education to its full potential and for education to have its true impact for tomorrow's generation.

Given this context, what role can technology play to improve teaching and learning processes and move the needle towards achieving the Sustainable Development Goals?

According to a recent report from RedSeer and Omidyar Network India, the Education technology (EdTech) market will touch $3.5B by 2022. Despite the size of the market in India however, the power of EdTech, is still to be harnessed to its full potential. It does not occupy an important place in peoples' minds – as individuals, schools, or at a policy level. A recognition of its role can do wonders for the growth and scale of various programmes. And as the size of the pie increases, so too will the reach and impact of technology in education.

EdTech has demonstrated significant potential for increasing learning outcomes for students globally and in India. Even more so, in the light of the recent COVID-19 pandemic, with many schools around the world closed, and schools moving to online and tech-enabled methods. Technology solutions therefore have an opportunity now to increase adoption at every level – from grassroots, all the way up.

Google believes that technology can be leveraged in bridging these learning gaps. Read Along (previously known as Bolo), Google's AI-enabled app is one such solution that can play an important role. The app, which is aimed at elementary school students, uses speech recognition and text-to-speech, to help children learn to read. The app includes a reading buddy, “Diya,” who encourages and corrects the child when they read aloud. As they read, Diya can respond with feedback. The app also works offline — a critical requirement in India, where several regions do not have 24/7 access to the internet. These features make the app engaging, while also being accessible and scalable – factors that can lead to wider adoptions and increasing reading levels of children.

At Sattva Consulting, we are honoured to partner with Google to evaluate the impact of Read Along. We conducted the study in five phases, in seven regions across India. In most of the households, parents want their child to learn English and we were happy to note that the assistance from Diya, the reading buddy, was appreciated and found useful. Overall, the platform was seen as engaging and this study has provided some valuable insights into how programmes such as Read Along can make a difference to reading levels, and therefore confidence levels, especially among children in rural and peri-urban communities.

This is a journey. It will take all of us – individuals, schools, corporate partners and government – some years to realise the returns we make on critical technology investments in education. But I have no doubts that it can be done.

Srikrishna Sridhar Murthy
CEO and Co-founder
Sattva Consulting

Foreword

The ability to read builds the foundation for education and a better life. Yet according to the United Nations, 617 million children and adolescents worldwide are not acquiring basic literacy skills.

At Google, we believe technology can help kids around the world learn how to read and can move us closer to the goal of basic universal literacy. Over the years, we've invested in this goal through our products, partnerships, and funding. Google.org granted $50M and technical expertise to nonprofit innovators using technology to close education gaps. These organizations have reached more than 30 million students and are improving student outcomes and teacher effectiveness. They are ensuring technology improves everyone's education experience, no matter their location or learning environment. And given the advancements in speech technology and AI, we believe there is room to do more.

In 2019, we took a step forward with the release of Read Along (previously known as Bolo), an AI-enabled Android app to help kids improve reading skills. We designed Read Along to act as a personal reading tutor to help any student whenever and wherever they need it. It uses speech-based technology to provide personalized assistance in a student's reading journey, correcting them when they need help and encouraging them when they get it right. The app even works completely offline on low-cost phones, which means children who need it the most also have access to the app.

Read Along is now available in over 180 countries and in 10 languages including English, Spanish, Portuguese, and Hindi. We would like to thank our content partners - Pratham Books Storyweaver, Global Digital Library, Global Book Alliance, African Storybook, Bookdash, and more for providing high-quality content across languages. We would also like to commend our distribution partners - Kaivalya Education Foundation, Central Square Foundation, Saajha, Pratham, Room to Read, and more for enabling access to the children who need it the most.

Lastly, we are immensely grateful for the partnership with Sattva Consulting in conducting this assessment study to help us understand various implementation models, test hypotheses, and share product efficacy insights with us and the ecosystem.

We are committed to our mission of helping children learn to read and will continue to work on this feedback going forward.

Shantanu Sinha
Director, Product Management
Google for Education

Executive Summary

Google's Read Along Program

As India advances on the goal of achieving primary education, achievement of foundational reading competencies continues to pose challenging questions. Programs initiated by successive governments have tried to solve this learning gap, but with limited success. Over several years, ASER Report has thrown light on the state of reading fluency in India. The ASER 2018 report stated that only 50 percent of children in Class V in rural India could read a Class II-level text, a figure that worsens for English. This brings up the pertinent question: How do we solve this at scale?

Recognizing the problem, Google set out to impact reading fluency around the world. Through its AI-enabled mobile application, Read Along (formerly Bolo), Google aims to enable every child in the age of 5-12 years to read fluently. Developed over a span of four years, Read Along has evolved as a formidable tool that can enable children to read fluently through an in-app buddy called Diya.The application was piloted in partnership with 4 NGO partners across India. Each NGO partner adopted an implementation model to pilot the program - Direct-to-home model (activation of the device at a household level through a facilitator), Indirect model (facilitator informs the teacher/learner in the school and the app is activated at home) and Community-based model (app is activated at a community level through a facilitator).

Impact Assessment Study

As an assessment partner to Read Along, Sattva conducted a non-equivalent group research study with over 6000 learners across all partner locations to understand the impact of the application on their reading fluency levels, confidence and interest in learning a new language.

This report can be considered as a guide for any EdTech initiative that aims to penetrate rural India, particularly to impact reading fluency. The recommendations outlined can be leveraged to build upon the progress made by Read Along, towards solving India's learning challenge. It is hoped that the insights and recommendations in this report would be useful to EdTech implementers, grass-root organizations, and the larger ecosystem towards solving India's reading crisis.

Objectives

Baseline and Midline assessment to measure the impact of Read Along on learner's

- Reading fluency levels in Hindi, English, and Marathi
- Perceived increase in the confidence
- Perceived interest in learning a new language
- Perceived increase in academic grades in schools

Provide insights and recommendations on

- Factors contributing to the adoption of the app and increase in reading fluency levels of learners
- Improving the implementation models to drive adoption and usage
- Useful aspects of the application and areas of improvement

Research Design

Non-equivalent group design

To understand the impact of Read Along on learner's reading level, a non-equivalent group design was adopted for the study with non-random assignment of Case and Control group

Case-control study

Adopted to create a counterfactual for the Read Along learners to understand the difference in the improvement in reading levels for a learner who uses Read Along vs. one who doesn't

Mixed-method approach

Quantitative and qualitative data was collected using primary and secondary approaches

Approach

A five step implementation process was outlined and adhered to, to ensure study rigour

Discovery

Design

Execution

Analysis

Reporting

Sample size*

Chattisgarh
Treatment: 262 | Control: 108

Delhi
Treatment: 1224 | Control: 239

Haryana
Treatment: 305 | Control: 161

Maharashtra
Treatment: 492 | Control: 196

Rajasthan
Treatment: 1684 | Control: 503

Uttar Pradesh
Treatment: 720 | Control: 200

* From the sample frame of 6094 children during Baseline, 5012 children were successfully tracked to Midline

Study Framework

Sattva defined a four step implementation pathway for Google's Read Along when penetrating the challenging rural and peri-urban context.

Access

Installation of Read Along app on smartphones in target households or tablets in Community model

Orientation

Creation of awareness and knowledge among the beneficiaries regarding the app and its features

Activation

Profile activation for the learners on the Read Along app

Usage

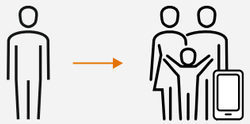
Sustained Read Along usage over time

Impact

The short and medium term positive and negative changes in actual and perceived learning outcomes of the learners

Implementation Models

Three implementation models were identified for the delivery of Read Along to households.



Direct To Home

Activation of the app at the household level through a facilitator who informs the learner/parent on how to use Read Along

Indirect

Facilitator informs the teacher/learner/school about the Read Along app. The app is activated at home when the learner/parent/guardian downloads it and creates a profile on it

Community

Facilitator activates Read Along app at a community level. The app is used on a central community tablet provided by the NGO partner

Reading Levels

Sattva built on the existing ASER tool to create the ASER plus tool with the following levels and transition rules.

Beginner

No foundational reading competency

Letter

Rule: Correctly read more than 3 letters

Word

Rule: Correctly read more than 3 words

Paragraph

Rule: Read a std.1 paragraph fluently with 3 or less than 3 mistakes

Story

Rule: Read a std.2 level story fluently with 3 or less than 3 mistakes

Story Plus

Rule: Read a std.3 level story fluently with 3 or less than 3 mistakes

Impact Insights

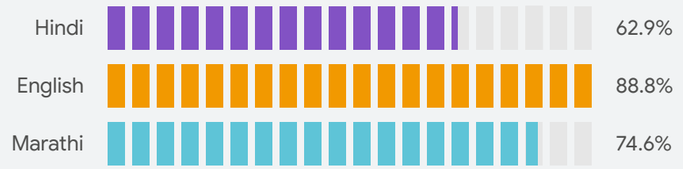
1. The Baseline assessment of reading abilities reconfirmed the learning gap amongst the participants. 62.9% children in Hindi, 88.8% children in English and, 74.6% children in Marathi were reading below their grade level#.
2. 42.0% learner in Hindi, 40.6% in English and, 20.0% in Marathi improved** by at least one reading fluency level.
3. The improvement in reading fluency of learners in statistically significant models represents a delta of nearly 113.7% in Hindi, 43.5% in English and, 119.8% in Marathi over its respective Control cohort*
4. A higher proportion of Beginner & Letter readers using Read Along reported an improvement in their reading fluency levels

Expected grade is grade 2 for children at grade 2+, grade 1 for children in grade 1

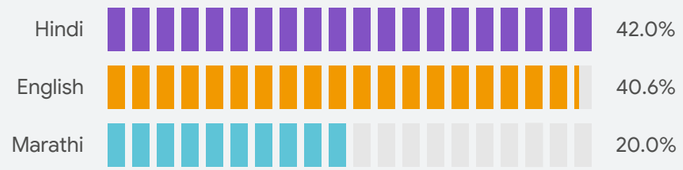
* Not all implementation models delivered statistically significant levels of reading fluency improvement. The Direct to Home model being effective for Hindi and Marathi while the Community model was effective for improving reading fluency in English. The given result has been presented for models that delivered a statistically significant improvement

** The proportion of children improving by atleast one reading fluency level has been presented only for learners retained from Baseline to Midline

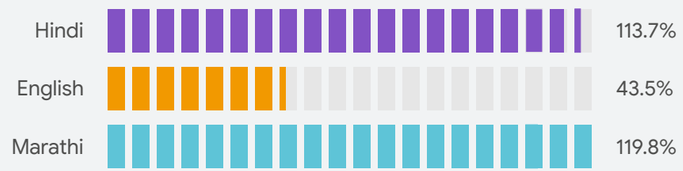
1 % learners reading below grade level# during Baseline



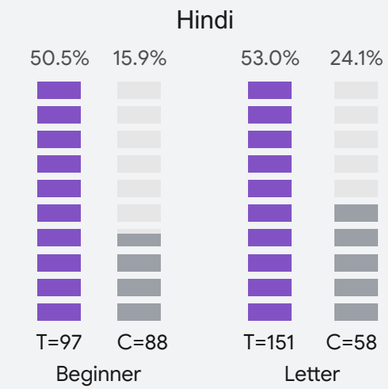
2 % learners improving their reading fluency levels from Baseline to Midline



3 Model-wise proven result for learner's reading fluency improvement over its Control sample



4 % early learners (Beginner or Letter level during Baseline) improving by atleast one level in Midline



94.0%
retained learners recommended Read Along

62.7%
parents felt their child had become more confident after reading on Read Along

86.3%
parents observed an increased interest in learning a new language

Usage Enablers

Usage enablers were studied to understand the key factors affecting Read Along usage among the learners

- Access to smartphone and internet
- Awareness of the learners and parents about the app and its features
- Role of parents in enabling usage of the app among the learners
- External agents of motivation and support such as facilitators, parents and, other stakeholders
- In-app features driving motivation among the learners to sustain usage
- Social biases such as gender stereotypes

Accessibility to smartphones and internet

Access to smartphone, internet, and activation sources are paramount to enable dissemination and installation of the Read Along app.

Continuous facilitator support for learning a non-native language

Community model leads to a higher level of support necessary for a second language as a result of continued support from a facilitator.

Interactive learning with inbuilt reading buddy, Diya

Interaction with Diya, the in-built reading buddy, was reported as the learner's favorite feature on the app.

Parental nudges for encouragement and motivation

Higher parental nudges enabled higher average weekly usage observed for the learners.

Gender biases with respect to access to phone

Gender stereotypes affect the usage of the app with lower average weekly Read Along usage reported for girls as compared to boys.

Recommendations

The impact assessment exercise has revealed valuable insights that have been catalyzed in the previous chapter. While the insights inform the reader and the larger ecosystem of the impact that can be created by an AI powered mobile application on a learner's reading fluency, the study has also enabled an understanding of the challenges, nuances and best practices that need to be undertaken to ensure that an Ed-Tech solution of similar nature can succeed in comparable geographies. Over the course of the assessment exercise, Sattva spoke to 5000 adults, over 6000 children and observed implementation processes that were executed to a varying degree of rigor. Naturally, some models were more successful than the other, some processes were more relevant and some practices emerged that are critical to the success of the application. This section outlines some key recommendations that would be useful to governments and organizations that plan to penetrate rural and peri-urban geographies to improve reading fluency levels through a mobile application.

Implementation Process

- Improvement in reading fluency in a non-native language should be accomplished by providing a higher level of support to the child e.g. Community (facilitator-driven) model
- Adopt a data-driven approach to select the right implementation geographies for any EdTech solution that aims to improve the reading fluency levels of the learner
- The success of Indirect implementation model hinges on the implementors ability to onboard school teachers and administrators on the application as its core advocacy base and support system at the school level
- The orientation process forms the bedrock of the implementation models. A step-by-step process should be defined and codified to enable effective implementation
- A robust monitoring mechanism to provide periodic feedback on activation and usage for the technology solution is a must for the rural/peri-urban locations. This enables the on-ground implementation team to provide further support
- Create community champions/community leader board to enable institutional sustainability for driving consistent usage of the app

Ecosystem

- Leverage effective on-ground partnerships and build synergies with government schemes to scale the outreach process
- Evolve an ecosystem implementation model in partnership with other EdTech players to offer the application as an API layer on existing platforms to enable organic usage and wider applicability
- Onboard influencers and key stakeholders at different levels to complement the implementation with a campaign approach, uniting the community towards solving the learning crisis

Limitations of the study

- While the study was designed to undertake three waves of data collection (Baseline, Midline and Endline), owing to extraordinary circumstances resulting from Covid-19, the Endline phase of data collection was not undertaken. However, the pre-post nature of assessment results hold as Midline phase was conducted approximately 45-60 days after Baseline

- The study findings can be understood keeping in mind the community context as evidenced by the socio-demographic distribution. It would not be prudent to generalize the study findings for an urban context as the sample was primarily drawn from a rural and peri-urban population

- A significant proportion of the Baseline sample (21.6%) could not be tracked to the Midline due to reasons like migration, refusing consent and the sampled child or the adult not being available in the household at the time of the survey

- Quality of the collected data was ensured through spot-checking, concurrent checking, daily de-briefs and back-checking. However, despite our best efforts, some errors invariably appear in the final dataset. These errors were handled using standard data pre-processing procedures

- Lastly, while the survey was administered 1-1 to each adult and child in the household, data beyond weekly Read Along usage and reading fluency assessment was self-reported. The research agency cannot take responsibility for cases where the adult or the child may have misreported information

Ethical considerations of the study

As part of data collection, team members ensured ethical data collection by explaining the purpose of the study to the stakeholders and ensured informed consent from the participants.

- The surveys and interview sessions were conducted in an environment that ensured the privacy of the respondents as per their convenience and comfort

- Only the respondents who gave consent for being part of the study were considered i.e. the participation of respondents was voluntary and they were not compelled to answer any question

- The respondents were assured of the confidentiality of their information and the usage of data through consent which was documented for each respondent

- Sattva team has completed Collaborative Institutional Training Initiative (CITI) Certification in November 2019 (valid till November 2020) required for Human Subjects Research

01

Introduction

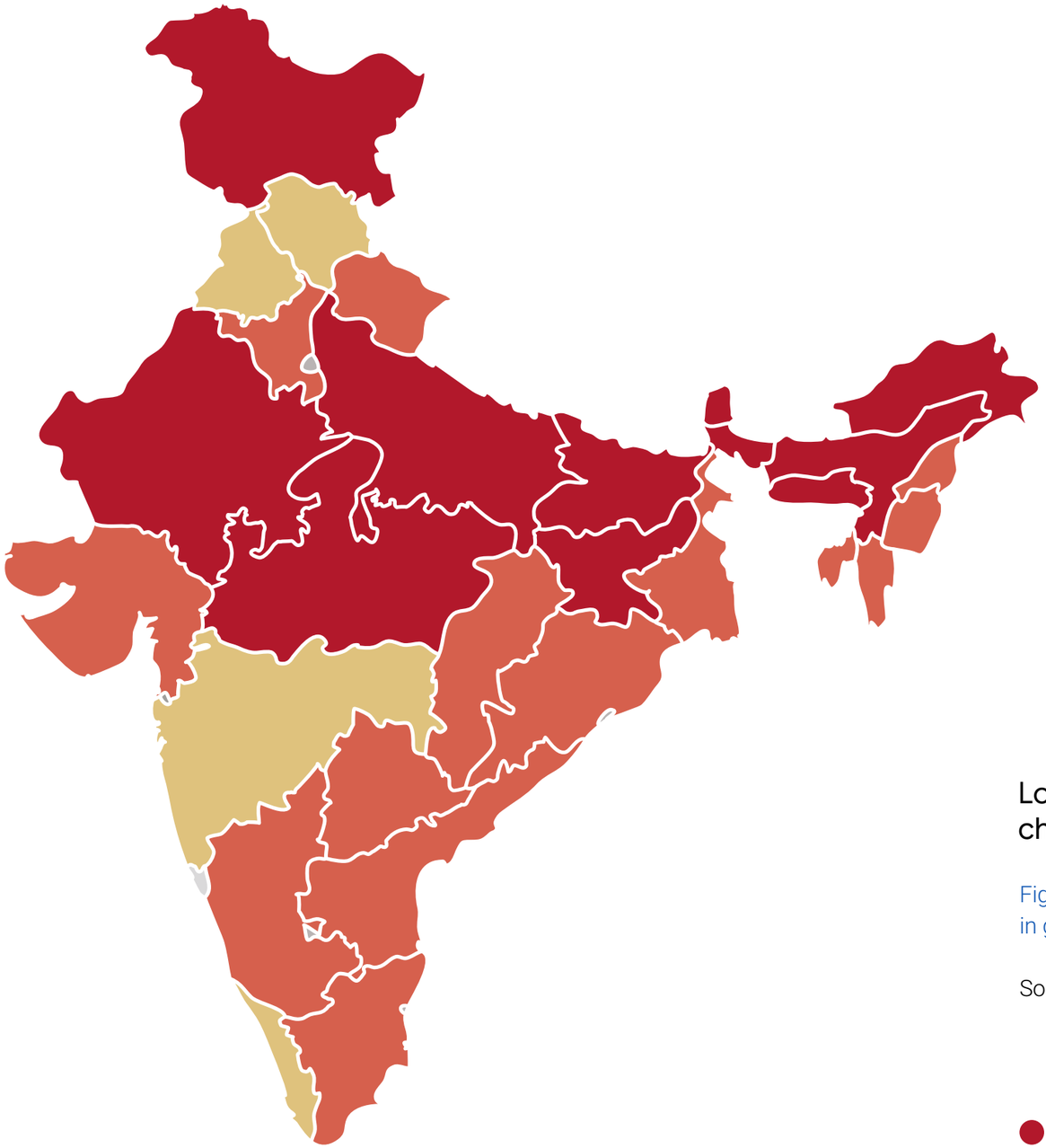
As India inches towards near-universal provisioning of primary school education, the achievement of grade-level learning competencies continues to remain an elusive dream. This chapter explores India's reading conundrum and a possible solution developed by Google.

The Problem

India has made great strides in universalising access to primary education, starting with the District Primary Education Programme (DPEP) in 1994 and the Sarva Shiksha Abhiyaan (SSA) initiative in 2000. With enrollment reaching at least 96% since 2009[1], the learning outcomes are yet to improve. According to the 'World Development Report 2018: 'Learning to Realise Education's Promise', India ranks second after Malawi in a list of 12 countries wherein a grade two student could not read a single word of a short text[2].

ASER reported that the percentage of children in government schools in Std V who can read a std II level text in their native language in 2018 has declined by 8.9 percentage points from 53.1% to 44.8% since 2008[3]. Even the English reading level has remained unchanged since 2009, where only 24.5% of std V children could read simple English sentences according to the ASER 2016 report[4].

There is an urgent need to develop the reading levels of the students to "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all" as per sustainable development goal[5].



Low reading levels among the children in majority of the states

Figure 1: % of government school students in grade 5 who can read a grade 2 level text

Source: ASER 2018 Report

Below 40% | 41% - 60% | Above 60%

Impact of low reading levels

Inability to read fluently can significantly impact further education, ultimately impacting the child's ability to realise his full potential. A number of studies have demonstrated the link between reading competency and overall learning outcome attainment in school (literacy attainment and other outcomes). According to OECD's report on reading for change[6], Program for International Student Assessment (PISA): "Reading for pleasure is more important for children's educational success than their family's socio-economic status."

Reading fluency is not only a foundation for achievement in other subject areas within the educational system, but also a prerequisite for successful participation in most areas of adult life such as community interaction. An unlettered person faces great obstacles in terms of social insertion, not only at a personal level (social inclusion difficulties, precarious work, high rates of disease, etc.), but also within the family (child nutrition, hygiene, health and schooling, among others) and the societal level (lower productivity, high healthcare costs)[7].

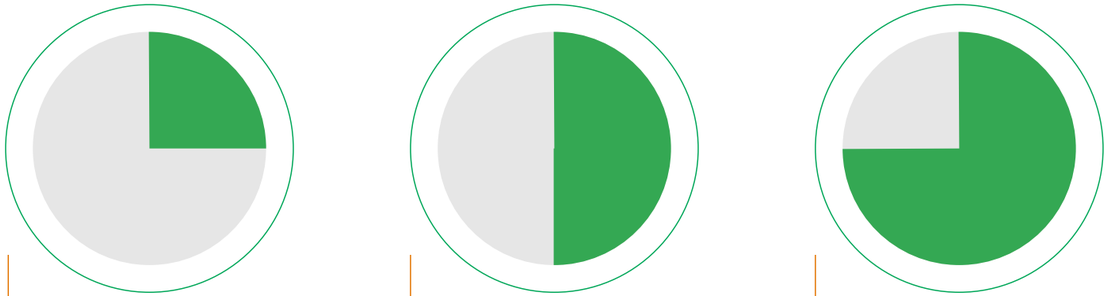


Figure 2: Impact of low foundational competencies on children

Factors affecting student learning

Child's learning is influenced by a complex set of social, economic, and structural factors. The major challenges with respect to these factors have been cited as:

- **Low involvement of parents in their child's education:** With most parents being unschooled, children lack parental guidance leading to a detrimental effect on their learning outcomes
- **Poor quality infrastructure in schools:** Many schools lack basic infrastructure, promote multi-grade teaching, and follow an unstructured pedagogy that affects student learning
- **Low motivation among teachers to teach:** Unstructured teacher training, teacher absenteeism, low accountability further adds to the challenges to student learning
- **Absence of a robust governance mechanism in schools and at administrative level**: At a systemic level, limited resources, absence of rigor in leadership, and ownership within the community leads to inefficient governance and low impact

These challenges are manifold and need interventions at multiple levels. Progress has been made through myriad interventions such as the capacity building of teachers, teaching at the right level (Pratham), integration of School Management Committees in school which involve parents, provision of interactive teaching-learning material and promotion of activity-based learning in classrooms.

Despite our best efforts, the ASER reports (2008-2018) a gloomy picture of declining reading levels among the children, in the last decade.

The current scenario establishes the need for a tech-based sustainable solution that addresses the challenge of inadequate access to resources among millions of children whose learning progress has been limited. With smartphone owners doubling to 859 million by 2022 and a 95% reduction in data tariffs since 2013[8], technology has been cited as an effective leveler in minimizing inequitable access and enabling an interactive and adaptive medium of learning for all the children across the world.

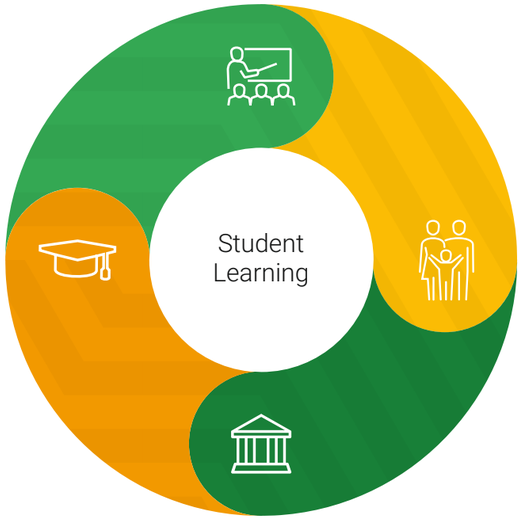


Figure 3: Factors affecting student learning outcomes

Solving for India's reading conundrum

Google believes that technology can help children around the world. In its mission to empower children between the ages of 5-12 years, Google, in 2019 took a step forward by releasing Bolo, now Read Along. Read Along is an AI-enabled android app to help kids improve their reading skills. It engages young children as they learn to read, helping them improve their reading skills while having fun with Diya, their in-app reading buddy.

Diya listens to them read aloud, offers support when they struggle and rewards them with stars when they do well - plus she inspires confidence and a love of reading in this child-friendly environment.

Google partnered with 4 NGOs to enable access to the Read Along application across 5 states and 1 UT in India. The NGO partners designed implementation processes to advocate Read Along to learners across India.

Personalised tutor for all

Learn to read with Diya

Diya - the reading buddy in the app can not only read out the text to the child, but also explain the meaning of English text in their mother tongue.

Variety of engaging stories

All the reading material on the app is completely free; There is a catalogue of over 700 stories; with more being added regularly.

Enjoy as they learn

Children can also play interesting word games and earn in-app rewards and badges, helping reading become both fun, and a daily habit.

Improve at their own pace

Multiple children can use the same device and track their progress separately. Over time the difficulty level of recommended stories adjusts to their reading skills.

Read without distractions (and without data too)

The app works even when offline, so children can just focus on reading, and is completely ad free.

Stay safe and secure

The app has been designed with children's safety and security in mind and all personal information always stays on device.

Figure 4: Features of Google's Read Along application

The Journey

August, 2017 - 18

Bolo conceptualized

October, 2018 - January, 2019

Pilot study and results

June, 2019

India rollout
with multiple partners

September, 2019

Expansion to 7 languages

May, 2020

Rollout in 180+ Countries

September, 2020

Available in 10 languages
(Hindi, English, Marathi, Bengali, Tamil, Telugu, Urdu, Arabic, Spanish and Portuguese)

Figure 5: Google's journey from Bolo to Read Along, improving learners' reading fluency

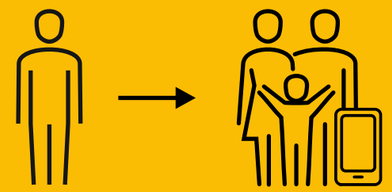
Implementation Models

Three implementation models were identified for the delivery of Read Along to learners. These implementation models fundamentally differ from each other in terms of access to a smartphone for Read Along installation, process of mobilization, and orientation to the households about the application.

KAIVALYA EDUCATION FOUNDATION

Saajha

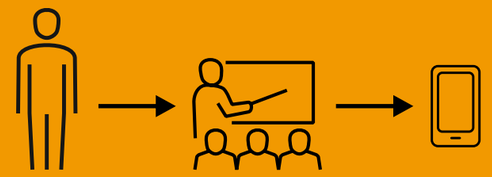
01
Direct to Home



- Activation of the device at the household level through a facilitator
- Facilitator informs the learner/parent/guardian on how to use Read Along
- Learner is informed of the profile creation process
- Implemented across Delhi and Rajasthan

Room to Read

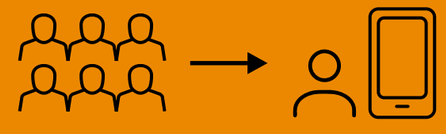
02
Indirect



- Facilitator informs the teacher/ learner/school about the Read Along app
- Read Along app is activated at home if the learner/ parent/ guardian downloads it
- The profile creation process is explained to the child
- Implemented across Rajasthan and Chhattisgarh

Pratham

03
Community-based



- Facilitator activates Read Along app at a community level
- Read Along is used on a community tablet provided by the implementation partner
- Children take home the tablet and share it within the community
- Implemented across Rajasthan and Uttar Pradesh

Figure 6: Description of the implementation models used for provisioning of Read Along at the household level

02

Study Methodology

Background

Google has collaborated with Sattva to conduct a reading assessment of children using Read Along application. To capture the change in reading levels over time, the assessment was conducted in two phases - Baseline, at the start of the intervention and Midline, after 45-60 days of Read Along installation.

Objectives

Baseline and Midline assessment to measure the impact of the Read Along on learner's

- Reading fluency levels in Hindi, English, and Marathi
- Perceived increase in the confidence
- Perceived interest in learning a new language
- Perceived increase in academic grades in schools

Provide insights and recommendations on

- Factors contributing to the adoption of the app and increase in reading fluency levels of learners
- Improving the implementation models to drive adoption and usage
- Useful aspects of the application and areas of improvement

Approach

Discovery	Exploration visit Exploratory data collection- FGDs, IDIs Consolidation of findings
Design	Methodology and sampling Assessment and survey framework Tool design Tool pilot
Execution	Operation strategy Operation plan Field team training Field team pilot Back/spot checking
Analysis	Data coding Data cleaning Descriptive analysis Detailed analysis
Reporting	Insights deck Final report

Figure 7: Sattva's approach to the Impact Assessment study

Study Design and Methodology

Non-equivalent group, Case-Control study was designed to ensure that the improvement in child's reading fluency levels after using Read Along could be understood over multiple comparison points.

A mixed-method approach ensured that quantitative and qualitative data was triangulated to arrive at comprehensive insights around each research question.

Non-equivalent group design

The study included non-equivalent groups, given the non-random assignment of Case and Control group for the study. The selection of children for the study depended on their availability and Google's partner outreach.

Case-control study

Two cohorts were identified to compare reading levels between the children who were exposed to the Read Along app (Case) and children who were not.

Mixed-method approach

Quantitative (survey and assessments) and qualitative research techniques (focussed group discussions, in-depth interview) using primary and secondary data collection methods.

Framework for the study

Sattva defined a four step implementation pathway for Google's Read Along when penetrating the challenging rural and peri-urban context. The framework captures the end-to-end process of app usage and its impact on the reading levels of the young learners. With myriad challenges plaguing successful delivery, the framework enabled the identification of correct action triggers at each step of the implementation process through quantitative and qualitative insights.

- **Access:** Read Along installed in a smartphone in the household
- **Orientation:** household made aware of Read Along usage and its different features.
- **Activation:** learner creates a profile on Read Along
- **Usage:** learner begins sustained usage
- **Impact:** Read Along usage enables improvement in reading fluency levels and increase in confidence of the learner

Figure 8: Framework to understand the impact of Read Along in improving learner's reading fluency

Areas of inquiry

Audience Impact

- Does the app help improve reading fluency of students?
- Does the app help improve aspects such as - confidence motivation, involvement and attitude towards learning a language using tech-based application?
- Does the adoption/performance of app vary across demographic segments - age, native language, gender, location and ethnicity?
- Does the adoption/performance of app differ based on educational and economic profiles of parents?
- Does the adoption/performance of the app differ based on initial reading fluency levels of the learners?

Product effectiveness and process enablers

- What are the features of the application that drive adoption and continued engagement?
- What aspects of product design drive improvement in reading abilities?
- Additional product features/functionalities that users would value?
- What are technical limitations that users would like to see addressed?
- Does the adoption/performance of the app vary substantially across different models of outreach?

Sampling Approach

- A multi-stage stratified random sampling approach was adopted to ensure the right representation of the population for the impact study at 95% Confidence level and 5% Margin of Error
- The population frame for the study was considered to be the number of Read Along learners for each partner

Sample Numbers

The sample size for the study was arrived after carefully balancing the statistical rigor required for a study of this nature and the logistic challenges that would have to be overcome to achieve the sample size. A defined sample size was arrived for each implementation partner. This sample size was further divided across states basis a Probability Proportion to size methodology.*

Table 1: Distribution of prescribed Sample size across implementation model and states

Implementation Model	Location	Treatment	Control
Direct-to-Home	Delhi	1224	239
	Maharashtra	492	196
	Rajasthan	692	158
	Haryana	305	161
Community-Based	Rajasthan	806	129
	Uttar Pradesh	720	200
Indirect-Home	Chhattisgarh	262	108
	Rajasthan	187	215
Total		4688	1406

Table 2: Sample coverage from Baseline to Midline

Study Phase	Treatment	Control	Total
Baseline	4688	1406	6094
Midline**	3795	1217	5012

* Probability proportional to size (PPS) sampling is a method of sampling from a finite population in which a size measure is available for each population unit before sampling and where the probability of selecting a unit is proportional to its size

** This includes children who did not give consent, learners who stopped/uninstalled Read Along

Field Execution Process

As part of the field execution process, a two day training was conducted to train field investigators for the data collection process across sample locations. The 1:1 data collection was conducted over a mobile application where survey as well as reading assessment data was recorded. For monitoring of the data, Sattva incorporated mechanisms like spot check and concurrent checking to ensure rigor in the data collection process.

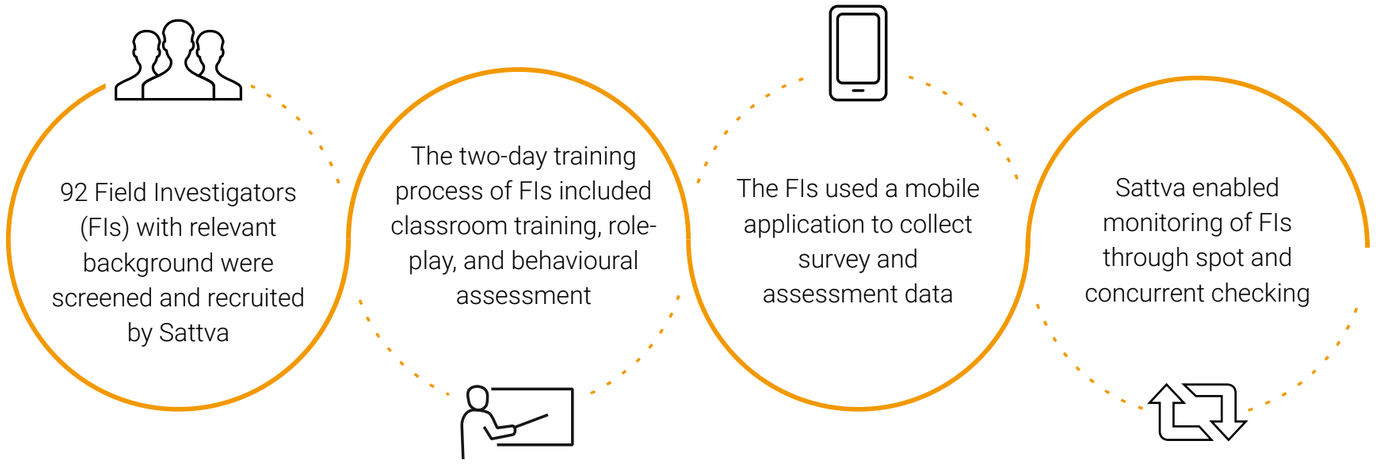


Figure 9: Field execution process undertaken by Sattva

Tracking Process

As location data of Read Along readers was not captured by the application, Sattva designed an elaborate process to arrive at the sample frame of 6094 children who are tracked using parent's data from Baseline to Midline evaluation cycle over a period of six months.

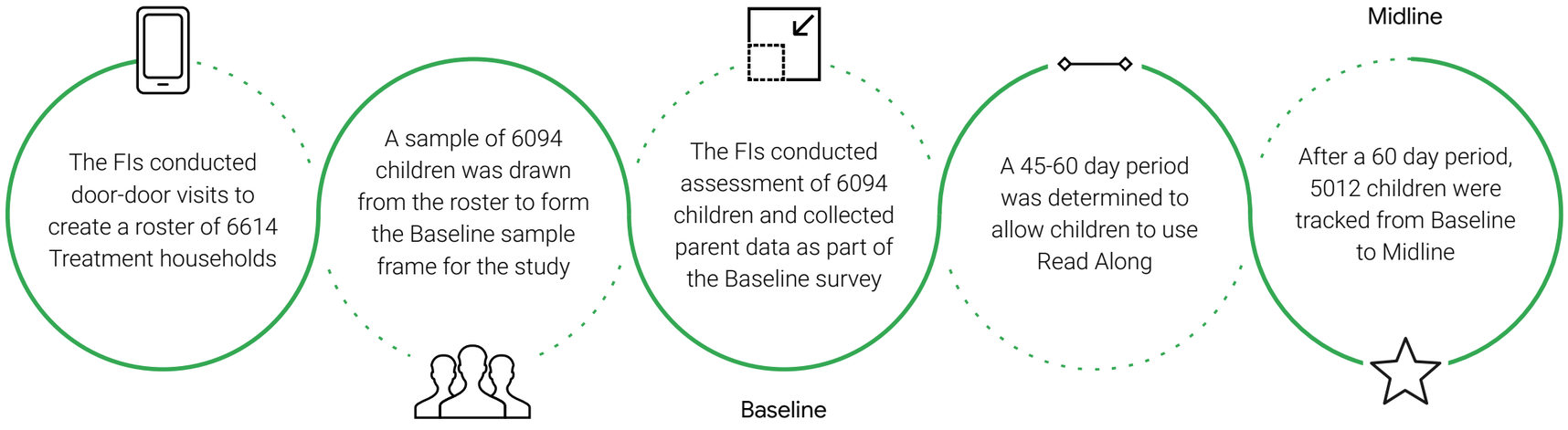


Figure 10: Sampled child tracking process employed by Sattva

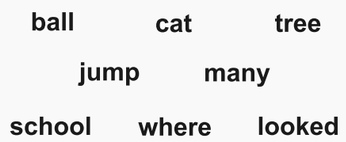
Testing the reading fluency levels

Start from Letter

- Ask the child to read all the letters from the grid

- The child is at ‘Letter Level’ if the child correctly recognizes at least 3 out of 8 letters with ease

- If the child is not able to recognize at least 3 letters, then the child is marked at the ‘Beginner level’

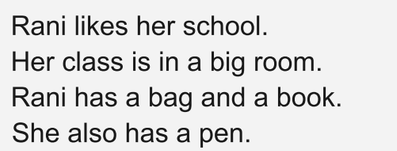


Word

- Ask the child to read the words from the word grid

- The child is at ‘Word Level’:
  - If the child reads the whole word at once or reads the word upon joining letters
  - If the child reads at least 3 out of the 8 words with ease

- If the child is not able to recognize at least 3 words, then the child is marked at ‘Letter level’

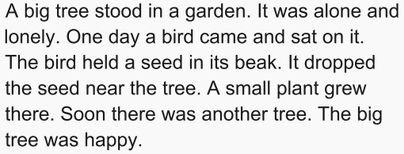


Paragraph

- Ask the child to read the paragraph

- The child is at Paragraph level if:
  - Reads the text like they are reading sentences, rather than a string of words
  - Reads the text fluently and with ease, even if they are reading slowly
  - Reads the text with 3 or less than 3 mistakes

- If the child is not able to read fluently with 3 or less than 3 mistakes, then the child is marked at ‘Word Level’



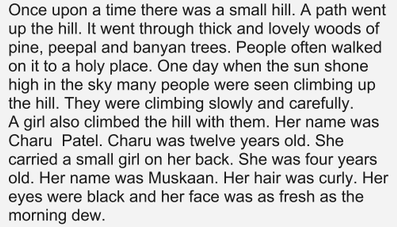
Story

Story is a 50 word std.2 level story from ASER DIY tool kit

- Ask the child to read the story

- The child is at ‘Story Level’ if the child:
  - Reads the text like they are reading sentences, rather than a string of words
  - Reads the text fluently and with ease, even if they are reading slowly
  - Reads the text with 3 or less than 3 mistakes

- If the child is not able to read fluently with 3 or less than 3 mistakes, then the child is marked at ‘Paragraph level’



Story Plus

Story Plus is a std.3 level story of 195 words, a level up from Story level

- Ask the child to read the Story Plus.

- The child is at ‘Story Plus Level’ if the child:
  - Reads the text like they are reading sentences, rather than a string of words.
  - Reads the text fluently and with ease, even if they are reading slowly.
  - Reads the text with 3 or less than 3 mistakes.

- If the child is not able to read fluently with 3 or less than 3 mistakes, then the child is marked at ‘Story level’.

Data Sources

A comprehensive literature review was undertaken to understand the research conducted so far on Ed-Tech solutions to form a knowledge base upon which the study could be based. The insights and recommendations of the study have been derived from primary and secondary sources of data as well as literature review.

Primary Sources of Data

The data collected from various stakeholders during the study using data collection tools designed for this study is treated as a primary data.

Secondary Sources of Data

Read Along's internal data pertaining to the targets, timelines and activities vis-a-vis the actual data for each partner NGO.

Data collection tools and stakeholders

Sattva designed the qualitative and quantitative data collection tools to generate insights from different stakeholders. These tools and stakeholders have been described in the illustration below.

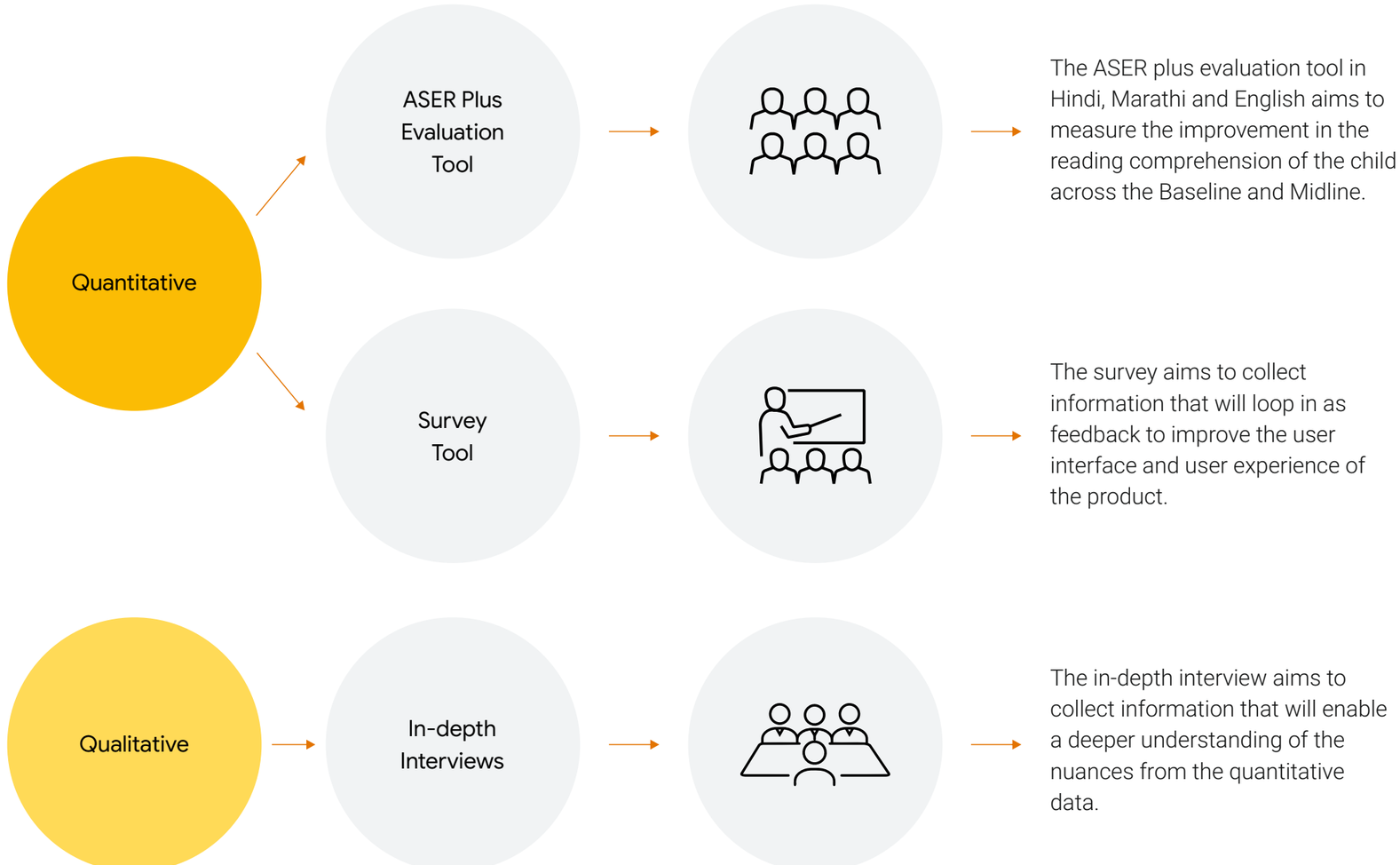


Figure 11: Data collection tools employed by Sattva to different stakeholders

03

Findings based on Impact Assessment

Socio-Demographic Profile

This section outlines the socio-demographic data around the sampled children. The information has been confined to children who were a part of the sample frame during the Baseline and were successfully tracked to the Midline. A significant proportion of children* dropped out from the study as they could not be tracked owing to migration, inter-village/district movement or were not available at the household during the time of the visit.

Sampled children have been defined as all the children who were a part of the Baseline assessment. The Treatment cohort was identified as the group of children who had activated Read Along during Baseline. Control cohort has been defined as the group of children who, though similar to Treatment children, were not using Read Along during Baseline or Midline visit.

Treatment Control

Gender Distribution

50.3% | 52.8%

49.7% | 47.2%

Age of the children

5-7 Years	8-10 Years	10-12 Years
19.7% | 30.5%	47.3% | 45.6%	33.0% | 23.9%

Medium of Instruction at School

English	Hindi	Others
12.6% | 13.4%	75.0% | 75.7%	12.4% | 10.9%

Types of School

Public	Private	Others
76.4% | 75.0%	21.8% | 22.1%	1.7% | 2.9%

Grades of the children*

Unschooled	Std 1	Std 2	Std 3	Std 4
2.2% | 3.2%	7.6% | 14.4%	9.4% | 13.7%	12.8% | 14.4%	16.8% | 15.1%

Std 5	Std 6	Std 7	Std 8	Std 8+
23.5% | 21.4%	14.2% | 8.7%	9.7% | 6.9%	3.7% | 1.8%	0.2% | 0.4%

Figure 12: Socio-demographic information at the learner level

* As the numbers have been rounded to one decimal, the total is being observed as 100.1

Socio-Demographic Profile

From the socio-demographic information, it can be inferred that the two cohorts were broadly similar in-terms of their age-gender composition and the medium of instruction in school. Children in the two cohorts were similar in their school type and education background of the parents.

It is important to note that roughly 55.3% of sampled learner's mother was at the most, school educated. This proportion stood at about 71.4% for sampled learner's father. As parent's education has a direct correlation with the education attainment of the learner, the findings in the subsequent chapters will have to be understood within this context.

Treatment Control

Educational qualification of the Parents**

	Unschooled	Std 12 or below	Graduate	Post Graduate	Unspecified
	15.6% | 13.3%	64.8% | 69.9%	5.0% | 6.0%	1.6% | 0.9%	13.0% | 10.0%
	43.3% | 35.4%	53.3% | 60.8%	1.7% | 2.1%	0.3% | 0.4%	1.4% | 1.3%

Paid Tuition taken by the Children

English
28.1% | 27.9%

Hindi
26.9% | 24.3%

Marathi*
50.0% | 52.1%

Average number of smartphone and internet connection per household

	Community-Based	Direct-to-Home	Indirect
	0.57	1.49	1.43
	0.50	1.42	1.34

Figure 13: Socio-demographic information at the household/parent level

* Calculated using sample size in Maharashtra
** As the numbers have been rounded to one decimal, the total is being observed as 100.1

Insights

01

40.6% learners in the Direct to Home model improved their Hindi reading fluency levels compared to 19.0% in Control cohort

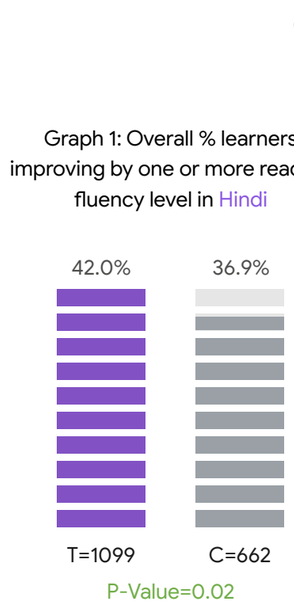
Key Insights

- Direct to Home model proved successful in improving a statistically significant proportion of learners in their Hindi fluency
- Native language familiarity in Hindi enables a learner to engage consistently with Read Along leading to improved reading fluency levels
- Community model rations Read Along usage which makes it difficult to enable a statistically significant[#] improvement in learner's Hindi reading fluency levels

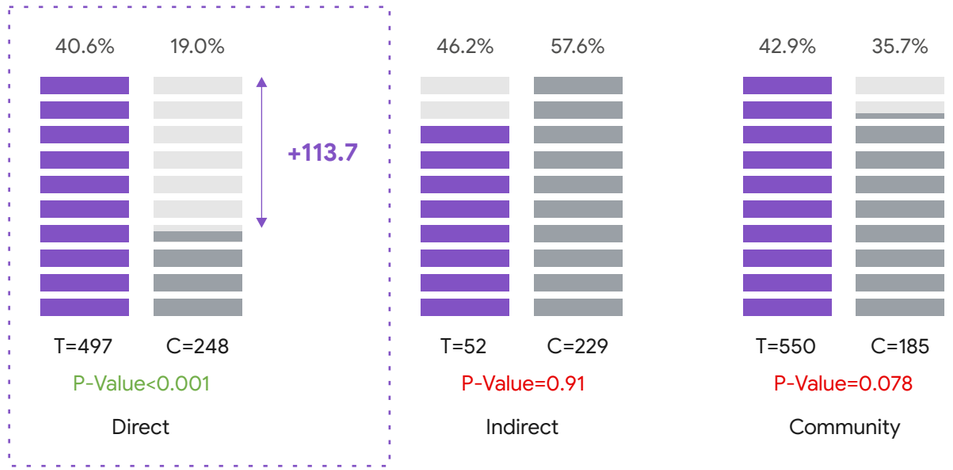
Across the three implementation models, 42.0% learners in the Treatment cohort improved their Hindi reading fluency levels against 36.9% in the Control cohort. This result was statistically significant (P-value=0.02). However, in terms of model effectiveness, only the Direct to Home model reported a statistically significant proportion of Read Along learners outperforming its Control cohort (P-value <0.001, less than 0.05, the level of significance at 95% confidence level)[#]. While a higher proportion of Read Along learners improved against the Control cohort in the Community model, this improvement was not found to be statistically significant (P-value= 0.078)[#]. This implies that the Direct to Home delivery model was the only proven one that enabled an improvement in Hindi reading fluency.

Parents reported that the learner's familiarity with Hindi enabled him/her to begin Read Along usage without challenges or inhibitions. This led to Read Along being perceived to be an enjoyable activity on an engaging platform, increasing uptake and improving fluency. This applies to high engagement models where access to the device was managed by a facilitator (Community model) or the activation happened through a facilitator (Direct to Home model). The Community model did not report a statistically significant improvement in Hindi from the consistent but rationed usage. As Read Along's integration with partner's existing programs rationed the app's usage, it led to a consistent but lower weekly usage as compared to the Direct to Home model. This, along with a relatively low focus on Hindi resulted in a statistically insignificant improvement in the learner's Hindi fluency levels.

Graph 1: Overall % learners improving by one or more reading fluency level in Hindi



Graph 2: % learners improving by one or more reading fluency level in Hindi by implementation model



[#] One tailed proportion test used to check statistical significance. Results were considered statistically significant if P-Value <0.05 and marked in green

02

32.8% learners in the Community model improved their English fluency levels against 22.8% in Control cohort

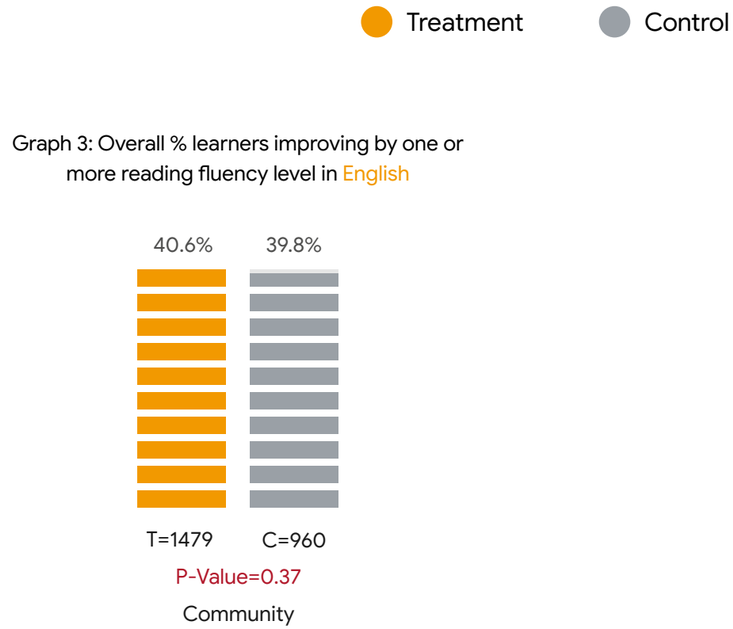
Key Insights

- Improving reading fluency in a non-native language presents a higher usage barrier that can be overcome through high-engagement implementation
- Across all implementation models, 40.6% Read Along learners improved by a level or more against the corresponding Control proportion of 39.8%, not statistically significant (P-value=0.37)[#]
- Parents were particularly impressed with the fact that their children could now read English, a feat achieved through the personalised attention provided by Read Along

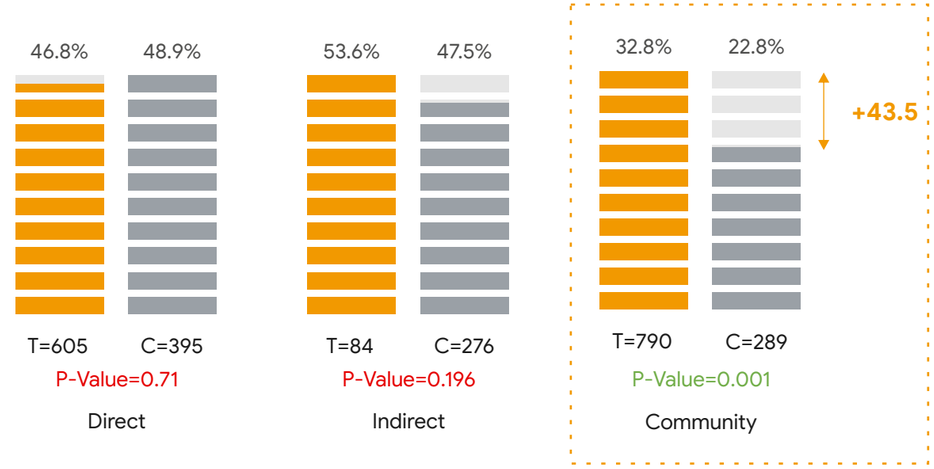
For English learners, it was observed that the uptake and usage of Read Along posed a higher barrier owing to the non- native nature of the language. From Graph 3, it can be observed that 40.6% Read Along users improved against 39.8% in the Control cohort, a result that was not statistically significant (P-value=0.37). However, from Graph 4 it is clear that the proven model to overcome barriers to improving English reading fluency is the high engagement Community model where it was reported that 32.8% of Read Along learners improved by a level or more against its Control cohort which stood at 22.8%. In relative terms, 43.5% of Read Along learners improved by a level or more over its Control cohort, a statistically significant difference in proportion of Read Along learners who improved from Baseline to Midline (P-value=0.001)[#].

The barriers to uptake and usage of Read Along are overcome through facilitation provided in the Community model. The usage of the app is supported and monitored by the partner's facilitators who ensure consistent usage. It may be concluded that developing fluency in a non-native language like English requires a high engagement model to enable the learner overcome barriers to uptake and early usage.

The proven result from Community model when extrapolated to other non-native languages, provides the key to a successful implementation of Read Along across newer geographies. Enabling the collection of individual learner level data and correlating that with improvement in reading levels would reveal stronger conclusions about Read Along's impact, a fact that future implementers should keep in mind.



Graph 3: Overall % learners improving by one or more reading fluency level in English



Graph 4: % learners improving by one or more reading fluency level in English by implementation model

[#] One tailed proportion test used to check statistical significance. Results were considered statistically significant if P-Value <0.05 and marked in green

03

20.0% learners improved their Marathi fluency against 9.1% learners who improved in the Control cohort, a statistically significant[#] 119.8% more than the Control cohort*

Key Insights

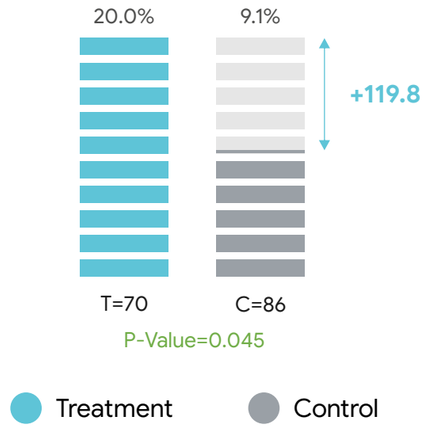
- Improvement in reading fluency was more pronounced for native language learners while different implementation models delivered a statistically significant[#] improvement for different languages
- It was observed that the Direct to Home model when rigorously implemented in Marathi locations leads to multiple touch-points with the parents who reported that Read Along has acted like a Marathi tuition for their children

Earlier, we understood that the proportion of learners who improved in Hindi over its Control cohort stood at 113.7% with Direct to Home model delivering statistically significant[#] results. Hindi is a native language for the learners in the sampled locations. It had been argued that the native language offered little or no barrier to Read Along usage that led to a higher proportion of Read Along learners improving as compared to its Control cohort. With regard to Marathi, a statistically significant improvement was observed for the Direct to home model.

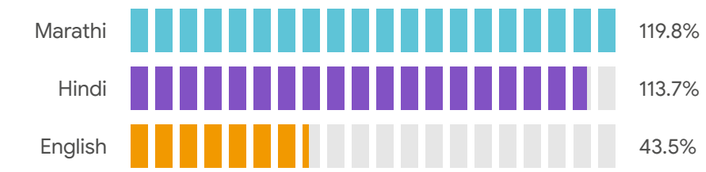
Marathi is a native language for the state of Maharashtra where Read Along was implemented using only one implementation model. From the data, it can be seen that the implementation model (Direct to Home) was successful in improving the Marathi reading fluency of a higher proportion of Read Along learners as compared to Control cohort. While proven result was observed for the Direct to home model it can not be established that no other model would have been successful as Marathi language was prescribed over the Direct to home model only.

It can be inferred that among the three languages, a higher proportion of native language learners improved their reading fluency as compared to the non-learners. It can be implied that native language offers a significantly lower barrier to Read Along usage. This was also seconded by parents and other stakeholders during the qualitative discussions.

Graph 5: Overall* % learners improving by one or more reading fluency level in Marathi



Graph 6: % learners improving by one or more level in English, Hindi, and Marathi as a proportion of corresponding improvement in Control group



[#] One tailed proportion test used to check statistical significance. Results were considered statistically significant if P-Value <0.05 and marked in green

* Only statistically significant result has been shown

04

Across English and Hindi, a statistically significant[#] proportion of early learners (Beginner or Letter level during Baseline) improved their reading fluency levels

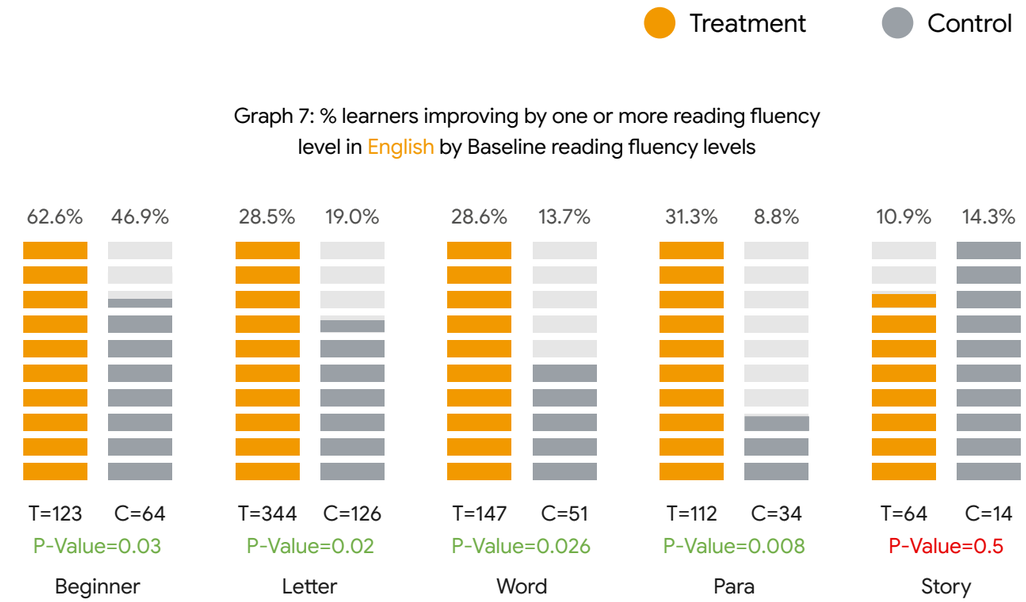
Key Insights

- In Hindi, only learners at the Beginner and Letter level were able to show a statistically significant[#] improvement in their reading level against the Control cohort
- In English, learners at all level except the Story level demonstrated proven[#] improvement in their reading fluency level from Baseline to Midline

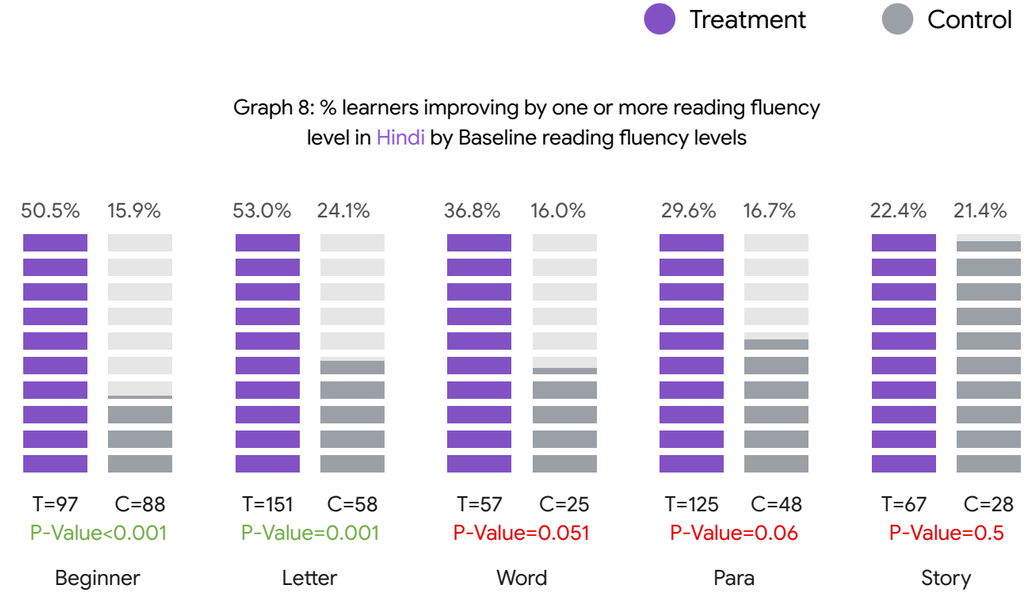
As discussed in the previous sections, the Direct to Home model enabled a statistically significant proportion of learners to develop reading fluency in the child's native language while the Community model enabled the same in English. However, not all learners showed a similar improvement pathway.

From the assessment, it can be understood that a higher proportion of learners with limited foundational reading ability (at Beginner or Letter level during Baseline) transitioned to higher levels after they started using Read Along. This is especially true for Hindi where a statistically significant proportion of Read Along learners improved by atleast a level, more than that for Control. While a similar trend was visible for English, a noticeable insight comes for these learners. It can be seen that in addition to learners who were at beginner or letter level during Baseline, a significant proportion of learners improved from Para level too, implying to a widely applicable learner profile for whom Read Along is relevant.

To conclude, it is fair to say that, while Read Along helps in imparting reading fluency to learners, it also enables development of foundational competencies of Letter and word recognition. The extent of this development depends on the level of engagement of the learner with the application. The subsequent chapters deal with the drivers of this engagement and the impact of the same on the learner's confidence and interest in learning a new language.



Graph 7: % learners improving by one or more reading fluency level in English by Baseline reading fluency levels



Graph 8: % learners improving by one or more reading fluency level in Hindi by Baseline reading fluency levels

[#] One tailed proportion test used to check statistical significance. Results were considered statistically significant if P-Value <0.05 and marked in green

05

Parents perceive a positive impact of Read Along on the child's confidence, interest and academic performance with the highest being for English learners

Key Insights

- 81.1% learners reported an increase in confidence as they improved Hindi reading fluency, maximum across the three languages
- 82.9% learners reported an increased interest in learning a new language as Hindi reading fluency increased
- 81.1% learners reported an improvement in academic grades as they improved Hindi reading fluency

Parents reported that reading English and Hindi stories has improved the overall academic performance of the learner as stories on Read Along builds the child's confidence to read school textbooks, improving school grades. Parents were also of the opinion that reading fluency is fundamental to mastering higher competencies and consistently using Read Along will help develop the foundational ability of the child. They reported that after reading stories on Read Along, learners would try to speak some words and sentences in English while speaking to friends or family members.

Parents reported that their child prefers to read Hindi on the application, as compared to English. With Hindi being the native language of the child across all states (except Maharashtra) where the study has been conducted, the reader faces a significantly lower barrier to using Read Along for developing Hindi reading fluency as compared to English.

Figure 14: % increase in the confidence of Read Along learner by improvement in reading fluency levels*

English	Hindi	Marathi
71.9%	81.1%	75.0%

Figure 15: % learners reporting an increased interest in learning a new language by improvement in reading fluency levels*

English	Hindi	Marathi
70.2%	82.9%	75.0%

Figure 16: % learners reporting an improvement in the learner's academic grades by improvement in reading fluency levels*

English	Hindi	Marathi
65.5%	81.1%	62.5%

*For learners who have improved by at least one reading level

06

A statistically significant[#] proportion of below Story learners increased their Read Along usage from Baseline to Midline with new users beginning Read Along usage in the household

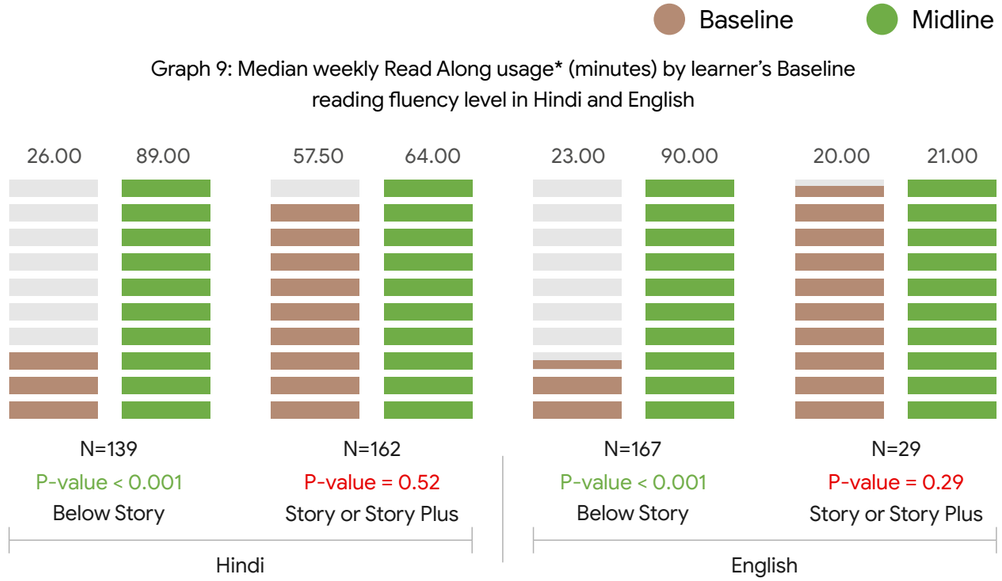
Key Insights

- Read Along usage* has been increased from Baseline to Midline - driven primarily by learners below Story level
- New learners have begun using Read Along in the household within 45-60 days of installation
- Average weekly usage is lower for girls as myths and biases around technology usage abound in the society

Data in the adjacent graph reveals that there has been a statistically significant increase in the Read Along usage for below Story learners, from Baseline to Midline. This usage has particularly been driven by learners who were below Story level during their Baseline assessment. For both Hindi and English, the median weekly usage has been increased significantly among below Story level children in a span of 45-60 days implying that once the learner has been onboarded on the application, they are engaged with the application. This was especially true for learners who had not yet developed reading fluency in either Hindi or English. Many new users apart from the sampled child have begun using Read Along between Baseline to Midline establishing the aspirational value of the application.

It has been observed that the average weekly usage is lower for the girl child in the household. This trend is reversed for the Community model where the average weekly usage is higher for the girl child. This can be further corroborated by qualitative insights from the field where parents were skeptical of allowing their daughters to use Read Along beyond a stipulated period of time, leading to a rationed usage.

On the whole, while Read Along usage increases from Baseline to Midline and new learners are on-boarded in the household, the orientation process needs to be strengthened to overcome the myths that are prevalent in the community.



Graph 9: Median weekly Read Along usage* (minutes) by learner's Baseline reading fluency level in Hindi and English

Figure 17: Distribution of % households with additional Read Along users between Baseline and Midline

Additional users other than the sampled child

38.6% | 46.2%

Male Female

Figure 18: Avg. weekly Read Along usage* (minutes) by learner's gender

Direct	Indirect	Community
106.71 | 82.03	100.76 | 85.16	52.52 | 65.73

[#] Wilcoxon-Signed rank test used to check statistical significance. Results were considered statistically significant if P-Value <0.05 and marked in green

* Weekly usage was recorded from the app by the field investigator for the week immediately preceding the survey

07

Choice of implementation model and parental nudges are pivotal to Read Along usage

Key Insights

- Learners whose parents engage with them consistently reported the highest average weekly usage against learners who were subjected to other nudges
- Engagement model defines household awareness level, impacting Read Along retention from lowest in Indirect model to highest in case of Community model
- A consistent Read Along usage can be assured through building household level awareness and introducing the right nudges in the system, through parents

The difference in implementation models has a strong correlation with the extent of engagement with the household leading to a varied level of Read Along awareness. It can be observed that the Direct to Home model has the highest proportion of respondents who were aware of Read Along translating to higher retention from Baseline to Midline and a higher average weekly usage as compared to the Indirect model. The Community model is peculiar as it restricts Read Along usage to a consistent but rationed duration as compared to the other models. Respondents too may not be aware of the application as they may not be aware of the child joining an after school reading program run by the implementation partner.

Parents can influence their child's mobile usage via their attitudes, beliefs, role-modelling, and style of parenting[9]. Building over existing researches, four levels of nudges were identified:

- **Level 0 No engagement**
- **Level 1 Ask** (Guardian instructs/ encourages the child to use Read Along)
- **Level 2 Monitor** (Guardian checks the report card and supports occasionally)
- **Level 3 Engage** (Guardian frequently engages with the child during)

From graph 10, it can be observed that learners whose parent/guardian frequently engaged with them around Read Along used the app for 121.25 minutes per week on an average as opposed to the 71.7 minutes average weekly usage for learners whose parents did not engage with them. This highlights the opportunity to focus on building awareness amongst parents/guardians on their role in ensuring Read Along usage by orchestrating nudges in the child's learning environment.

Figure 19: % retention of Read Along from Baseline to Midline

Community	Direct	Indirect
73.3%	57.0%	43.3%

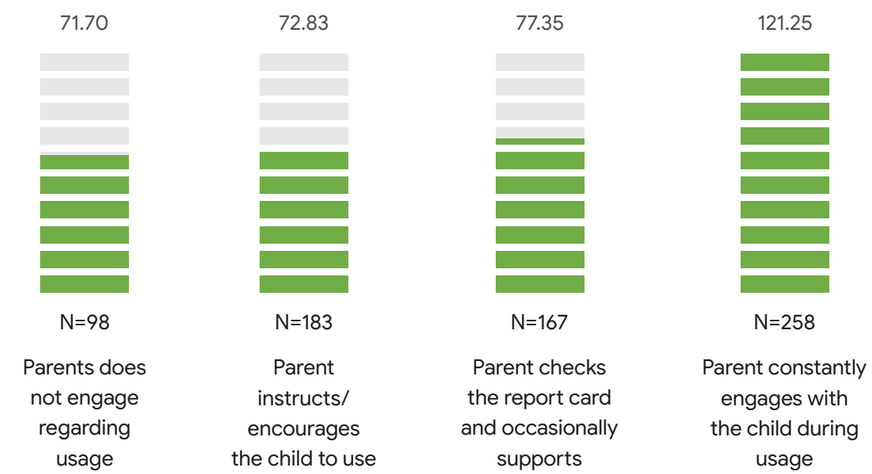
Figure 20: % households with the respondent aware of Read Along by implementation models

Community	Direct	Indirect
63.2%	72.3%	61.8%

Figure 21: Average weekly Read Along usage* (in minutes) across implementation models

Community	Direct	Indirect
59.95	95.46	92.47

Graph 10: Efficacy of parental nudges to drive Read Along usage



* Weekly usage was recorded from the app by the field investigator for the week immediately preceding the survey

08

Access to smartphone, internet connection and activation source are paramount to consistent usage

Key Insights

- Building household awareness of Read Along is vital to it's usage as the usage is primarily on either parent's phone
- Onboarding the learner's father in the improvement journey of the learner becomes important as highest average weekly usage is on father's phone
- Access to smartphone and internet penetration are barriers to successful intervention that can be overcome through a Community model

The process of developing reading fluency through Read Along hinges on access to a smartphone and internet connection that is required to download and install the application. Several studies have pointed to the disparity across rural and peri-urban Indian locations in terms of smartphone and internet penetration.

In addition to the two factors mentioned above, findings from the study reveal that a majority of the learners in the Direct to Home and Indirect model used their father's smartphone to activate Read Along and use it. The average weekly usage was found to be highest at 112.93 minutes for the learners using the app in their parents' phone; followed by those who use it exclusively on their father's phone. The average usage was significantly lower for learners who use Read Along exclusively on their mother's phone. While this insight is surprising, data from the assessment is insufficient to draw causal inferences for the same. Future researches would do well to explore this in further detail.

The data above proves that Read Along necessitates for high smartphone and internet penetration with a well-defined orientation process. As mitigation of these barriers is beyond the purview of the application, they can be overcome through the facilitator driven Direct to Home or Community model. As the application is activated primarily on either parent's phone in the Direct to Home or Indirect model, their awareness of Read Along and its need for the child are seminal components that need to be emphasized during the engagement process. This, when leveraged with the right implementation model is poised to achieve improvement in reading fluency for the learner.

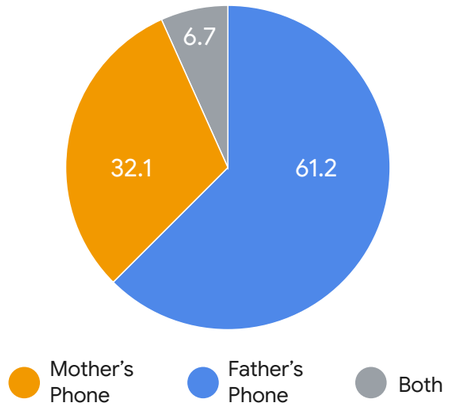
Figure 22: Average number of smartphones per household by implementation model

Community	Direct	Indirect
0.57	1.49	1.43

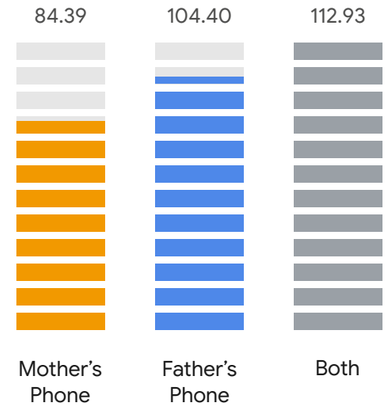
Figure 23: Average number of smartphones with internet connection per household by implementation model

Community	Direct	Indirect
0.50	1.42	1.34

Chart 1: % learners by source of the device on which Read Along was activated



Graph 11: Average weekly usage (in minutes) of Read Along by source of the device on which the app was activated



Voices from the ground

> Initially my child was scared to read in English. One fine day, she started reading English stories on Read Along with so much confidence that it made me realize that Read Along has indeed been helpful
>
> Father of a Read Along user in Jodhpur

> I use Read Along from time to time as I always wanted to learn English. I use the app when my children go to school because if they are home, they would keep using the app for their own learning and they would fight with me if I wanted to use it
>
> Mother of a Read Along user in Thane

> I keep checking the report card after getting instructions from the teacher. If my child does not complete 60 minutes on the app, I make them use it on Sundays
>
> Father of a Read Along user in Thane

94.0% of retained learners recommended Read Along to their friends, neighbours, and community members

04

Recommendations

Recommendation Framework

While Read Along has a positive impact on the reading fluency of the learners, there have been many lessons learnt in this journey. This chapter captures the lessons from the ground and brings out the best practices for the EdTech players, NGOs, implementation teams and Education changemakers, which when adopted, would enable an inclusive, focussed and, data driven process to improve the reading fluency levels of children all over the world.

Sattva has identified the process of implementation and collaboration within the ecosystem as the two critical levers for maximizing impact across the phases of Access, Orientation, Activation, and Usage.

For each of the levers, actionable recommendations have been given with rationale and a way forward. Following defines the flow of recommendations:

Recommendation: Best practices for the EdTech product makers, implementation organizations and education changemakers to be adopted for an amplified impact on ground with a similar intervention

Rationale: The gaps that were identified by Sattva in the assessment process supported by secondary research to make a case for recommendation

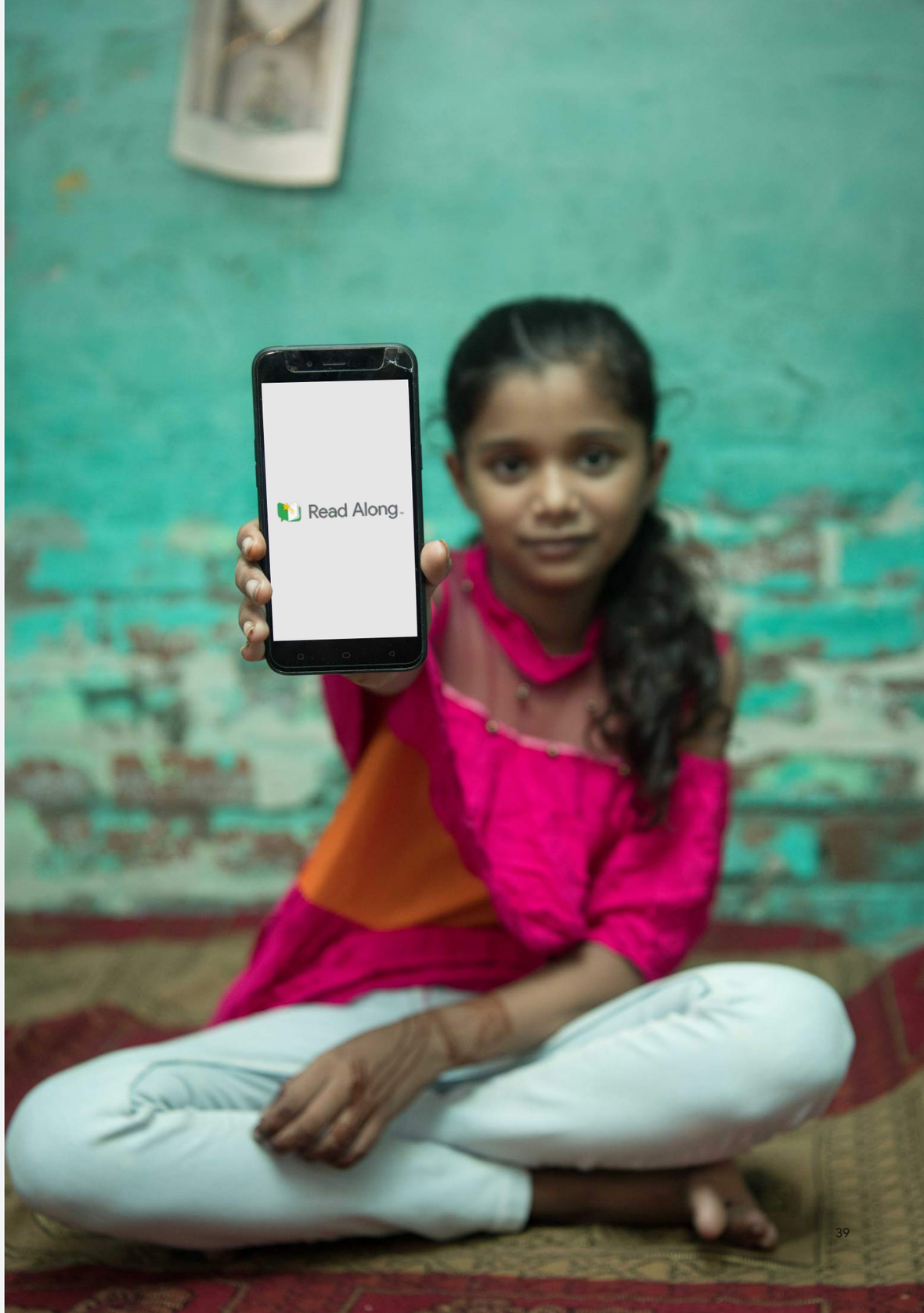
Way forward: Actionable ways in which the recommendations can be operationalised

Processes

Best practices to ensure rigorous and systematic implementation of the product on-ground for amplifying impact

Ecosystem

Best practices to leverage partnerships and collaborations with multiple stakeholders on-ground to ensure sustained product usage and greater outreach



Process Recommendation

Improvement in reading fluency in a non-native language should be accomplished by providing a higher level of support to the child e.g. Community (facilitator-driven) model

Rationale

The impact assessment study findings reported that the statistically relevant improvement in English fluency was found for learners in the Community model. Further, during community discussions it was reported that the learners in the Direct to Home model were more comfortable in reading in their native language as compared to English where they felt they would make a lot of mistakes.

Way Forward

- Establish the process for consistent engagement with the learners to enable them to acquire higher reading competencies. Document and institutionalize a structured process to undertake feedback from the learner and resolve their technical issues on a priority basis

- While engaging with the learner in the Community model, define processes to craft a larger role for the parent. A facilitator driven model would work the best when it is enabled through an independent community monitoring structure enabled through an institutional parent involvement

Process Recommendation

Adopt a data driven approach to select the right implementation geographies for any EdTech solution that aims to improve the reading fluency levels of the learner

Rationale

Smartphone and internet penetration varies across geographics in India with a higher penetration of 66% in peri-urban locations as compared to only 25% in rural areas (Kantar IMRB, ICUBE, 2019 Report). Further, the awareness among the parents regarding their child's reading level was observed to be low during the field visits, which could be leading to low adoption and usage of the app. A data driven approach to understand the feasibility of the implementation is recommended for the product. Further, a systematic approach to understanding reading levels of the children prior to intervention is recommended.

Way Forward

Feasibility Assessment: An assessment encompassing the following components is recommended to be conducted prior to implementation of the intervention:

- **Technical Feasibility:** Access to smartphone/technology among the households ; Capacity among the implementation partners/community members to use the devices/app

- **Social Feasibility:** Willingness/Motivation among the community members to take up Ed- tech learning ; Awareness among the HHs about EdTech

Reading Assessment: Conduct a reading assessment using ASER tools to understand and communicate the reading levels of the children to their parents to establish the need for the product.

Process Recommendation

Success of Indirect implementation model hinges on the implementers ability to onboard school teachers and administrators on the application as its core advocacy base and support system at the school level

Rationale

During observation visits to school, the on-ground assessment team identified schools where teachers themselves were not aware of Read-Along and its usage. In schools where teacher awareness of Read Along was low, the adoption too was low. As the Indirect model depends on the teacher and partner organization's facilitators, the low awareness level among school stakeholders becomes a cause for concern, a problem that can be remediated through a well-thought out implementation process for the model.

Way Forward

Broaden the role of school stakeholders in Read Along implementation:

- Design systematic processes to onboard teachers on Read-Along through a hands-on training process and complemented through refresher trainings after first 3 months of intervention

- Broaden teacher's role to provide usage nudges that would enable a higher usage of Read Along when the learner goes home after school

- Existing research in EdTech products implemented through school based models has revealed that monitoring by school based actors is strongly correlated with a higher product usage. In cases where the usage happens at home, these actors can provide soft monitoring to ensure that the app is used consistently

Process Recommendation

Orientation process forms the bedrock of the implementation models. A step-by-step process should be defined and codified to enable effective implementation

Rationale

From the impact assessment study, it was observed that the digital skills among the parents is low. This is corroborated by established research that outlines the low level of awareness among the parents, especially in rural areas. There is a digital divide in remote and rural India, perpetuated by inequalities related to physical access to ICT, low-literacy, low economic status and inadequate social and health awareness. Further, as per the findings of the study, girls have reported a lower usage as compared to the boys.

Way Forward

Define and document an orientation process that incorporates:

- Leveraging existing institutions and workers like Anganwadi workers, SHG groups to disseminate Read Along related information to create an awareness campaign
- Step by step orientation process at the community level to train the households on activation of the app
    - A handbook/video based orientation guide in native language to each mobilizer
    - Adopt a gender inclusive approach to outreach during implementation to enable higher activation on mothers' phones and usage by the girl child
    - Detailed explanation on product specific features: installation, usage, report card, stars, nudges etc

Process Recommendation

A robust monitoring mechanism to provide periodic feedback on activation and usage for the technology solution is a must for the rural/peri-urban locations. This enables the on-ground implementation team to provide further support

Rationale

During the Midline study, several cases were observed where the household had uninstalled the app or the smartphone of the household was changed and they were unable to reinstall the app. Further, it was observed that there was no on-field mechanism to track the usage of the app to support the learner further in their learning process. While the app has inbuilt feedback features, given the limited knowledge of the app and its usage, the feedback from parents and learners could not be captured.

Way Forward

- Enable a weekly tracking mechanism through household visits or backend data tracking, for the first three months of app installation to understand the usage of the app among learners
- Enable the report card/usage details of the learners by the language they are learning to understand their usage of each language and take actionable steps accordingly
- Incorporate a mechanism to take feedback from learners and parents once a month and make iterations to app design and implementation process accordingly
- Incorporate mechanism for impact measurement through the usage of the app by on-boarding external evaluators to understand the improvement in reading levels of the learners from Baseline to Midline to Endline

Process Recommendation

Create community champions/community leader board to enable community-owned models for driving sustained usage of the app

Rationale

Community owned models for implementation enable operational sustainability of the model. As per the observations from the study, the users were dependent on the support of the mobilizer/on-ground staff of the partner NGOs. Technical difficulties were reported to be the major reason for uninstallations during the Midline study while many households requested the field investigator to reinstall the app on their phone. While the parents faced challenges with technology usage, community youth aged (14-24) were found more comfortable operating a smartphone.

Way Forward

Enable partnership with local community leaders and youth volunteers to create a cadre of local leaders, especially women, to become 'helping hands' for the activation of the app and guidance to navigate through the app.

Ecosystem Recommendation

Leverage effective on-ground panerships and build synergies with government schemes to scale the outreach process

Rationale

The study finds that different implementation models with a varying degree of engagement during app activation and product usage show significant variation in parental awareness and learner retention on Read Along. Presence of myths and apprehensions around smartphone usage and lack of technical know-how amongst guardians restricts the activation and continuous usage for many learners. It is important that parents perceive value in the product and have access to ongoing technical support.

Way Forward

- Focus on partnerships to go beyond installations to enable informed orientation by providing relevant information to learners, guardians and providing on-ground support to overcome technical challenges and community apprehensions on technology usage
- Engage with Government, on-ground NGOs and organizations that can incorporate Ed-tech products as a part of their larger offering. Dovetailing the orientation process with existing program processes of the partner shall ensure process monitoring and a streamlined initiation that will help fight community apprehensions towards mobile usage.
- Establish a toll-free helpline to answer questions and resolve technical problems faced by the learner or their guardians. This can also act as a monitoring and enablement centre to provide on the fly support and encouragement when usage drops below a defined level

Ecosystem Recommendation

Evolve an Ecosystem implementation model in partnership with other EdTech players to offer the application as an API layer on existing platforms to enable organic usage and wider applicability

Rationale

There are over 4500 EdTech solutions available in India. Each application is trying to solve India's learning crisis at different levels, focussing on grade-level competencies or higher education. While such applications are important to master higher competencies, applications that enable the development of reading fluency cuts across these use cases. As a result, a reading fluency application becomes a must-have, more so for rural/peri urban learners.

Way Forward

- Offer an API version of application that can be integrated with existing EdTech solutions
- Partner with existing EdTech solutions in education and skill development
- In a mobile first world like ours, leverage partnership with mobile phone manufacturers to offer Read Along as a native/pre-installed application on the phone

Ecosystem Recommendation

Onboard influencers and key stakeholders at different levels to complement the implementation with a campaign approach, uniting the community towards solving the learning crisis

Rationale

The usage of an EdTech solution in rural and peri-urban communities relies on household perception. As technology awareness in these households is low, there are several misconceptions that are prevalent in these communities. While efforts at the awareness stage would enable a better understanding, it was observed that when multiple learners in the neighbourhood engaged with Read Along, its usage would increase. This would be amplified when a teacher/Sarpanch lived in close proximity of the learner and was was also aware of the application.

Way Forward

- Onboard influencers who navigate through community misconceptions and ensure that the user community remains together
- Evolve a community narrative through publication of success stories, case studies and video to overcome barriers created through misconceptions and biases
- Create community role models who champion the achievement of learning outcomes through the application

05

Partner's corner: Slices from the Lives

The need for integrating technology into the education system couldn't have been felt more than now with the world being globally impacted due to COVID-19 pandemic.

The latest global trends point to a paradigm shift in the economic, social and environmental ecosystem leading to an increasingly dynamic future where there is an increased emphasis on cognitive and human skills; there is a greater focus on abilities and mindsets that enable continuous learning and re-skilling; there is incorporation of technology in all walks of life and work and there is an increased need of compassion and democratic values that need to be instilled in the society.

We at Kaivalya Education Foundation are committed towards building a Future Ready Child Platform where every child is exercising their choice and has the ability to attain their full potential with strong cognitive skills, higher social emotional ethical learning, expertise in technological capabilities and entrepreneurial abilities.

With technology playing a pivotal role in transforming all spheres of life and a 10x rise in global internet users it is evident that technology can play a significant role in re-shaping the education landscape. The need for integrating technology into the education system couldn't have been felt more than now with the world being globally impacted due to COVID-19 pandemic.

Our partnership with Google gave us a unique opportunity to introduce Read Along app a voice based AI powered solution to children belonging to different social-economic backgrounds across multiple geographies including urban, rural and tribal belts. Through our action based research study as we reached out to children across 160 communities in three states it helped us understand the highlights and challenges experienced by a child while learning through an EdTech based solution and build a detailed viewpoint about the child's immediate ecosystem which encompasses her/him and includes her/his parents, guardians, teachers, community and their perception about EdTech as a medium of learning.

It is fascinating to see that students across urban, rural and tribal belts enjoy learning through this medium equally and there is no behavioural difference based on the demographics and it is encouraging to see an overall 18% improvement in reading level of students across the age group of 5-11 years who were engaged in active learning through the Read Along app. The reading buddy 'Diya' was a great hit among students and it plays a highly effective role in encouraging, aiding and correcting the child as they read aloud and thus helps them to stay engaged in reading and learning. Additionally our Gandhi Fellows were actively involved in creating awareness and bringing a mindset shift in the community members to begin viewing technology as a source of learning other than being a source of only communication and entertainment.

The accessibility to this medium of learning is still a challenge though for children and while parents, guardian and teachers agree that EdTech can play a significant role in students learning but the time and effort invested by them to help the student learn through this medium is low. Thus providing an easy, cost-effective access to an EdTech solution which reaches to the farthest corner of the world and is contextualized to a child's immediate environment is a vision that can be accomplished through Google's AI powered solution Read Along which would not only help every child improve their reading abilities but also help them stay educationally engaged at an individual level.

Aditya Natraj
Director
Kaivalya Education Foundation

It was surprising to see little children pick up the various functions of the app, even without anyone explaining it to them.

Though Room to Read India has been working in the area of Foundational Literacy for the past 17 years, our efforts to scale has been recent. Since the past few years, we have been trying to explore ways to scale up our programs and learnings to benefit a larger number of children, Education technologies are a critical component of such scale up efforts. We have therefore been interested to look at technology solutions that can promote reading among children at scale and support them while reading. Google Read Along seemed to meet this need perfectly. We were therefore keen to be part of this pilot project. Through Google Read Along project, Room to Read was able to reach out to 590 schools, 798 Teachers and 10,57,000 children across five state of Chhattisgarh, Delhi, Rajasthan, Uttarakhand and Uttar Pradesh.

A blend of onsite classroom instruction and offline reading materials improves child's capacity to be an independent reader. The design of the app and the user interface is important; throughout the project implementation, Diya (AI assistant) remained a big hit. Children really liked when she said "Sabaash"" (Good Job). School Management Committees played a pivotal role in encouraging parents to download the App and spend time with children in listening to the stories. It is therefore important to strengthen the SMCs/ dissemination channels as part of the project, to ensure optimum utilization of the App.

The initial interest of the children was very high, probably due to the newness of the medium. But over time, the interest levels seemed to wane off.

It was surprising to see little children pick up the various functions of the app, even without anyone explaining it to them. In fact, by the end of the project, the children knew more about the app than their teachers or the RtR facilitators.

It was very encouraging to see parents lend their mobile phones to their children to read stories, and at times make time to read along with their children. The efforts taken by teachers, headmasters and RtR facilitators in ensuring that children have access to the App, and are reading from them, was also encouraging. Teachers spent extra hours reaching out to parents and explaining the App to them. Both parents and teachers saw the value of the App in enhancing their children's interest and skill of reading.

Taking the learnings from pilot phase, Room to Read would like to scale the Google Read Along project to more states of its operation including Telangana and Maharashtra. Due to Covid – 19 Pandemic, schools are likely to remain shut for a longer period of time and usage of Google Read Along seems fitting to reach out to Teachers, Parents and Children.

Sourav Banerjee
Country Director
Room to Read India

The app was in tandem with the requirements of parents and the communities where Saajha runs its interventions.

My child spends way too much time just playing games on my mobile. What can I do?", a concerned mother asked during a community meeting, which focussed on addressing parenting challenges and children's reading skills. This set us on a path to explore solutions that could improve children's reading. We met the team at Google, who had developed a mobile application that supports children to read better, using simple and short stories. The app was in tandem with the requirements of parents and the communities where Saajha runs its interventions- parents wanted to be involved in their child's learning at home and wanted children to use technology in productive ways, but did not know where to start from. The app provided them with a simple tool that the child could use and read better, even while playing 'games' on the mobile. Google India and Saajha partnered in April 2019 to implement a program to understand the use of the app. The project focussed on parents across Delhi. The project was implemented in three phases – Reach, Enable and Close. During the Reach phase, the focus was on reaching out to potential parents who would find the app useful. This was done through multiple channels including distribution of pamphlets, community visits, in addition to direct calls made to parents.

During the Enable phase, support was provided to parents on challenges they faced through a phone call. This would be continued in Close phase to help parents use the app seamlessly as we worked towards enabling parents to use the app independently. We quickly learned the importance of face to face interactions. Calls to parents were only successful when we first interacted with the parents in person. Also, calls had to be short and clear. One of the big outcomes as a result of running the pilot was the development of a community-based decentralized call support model. Members from the community became a part of Saajha. They called other parents using an app developed by Saajha to discuss any challenges that they might have been facing in using the reading app. In the future want to scale the direct-to-home, parent support model to other geographies where Saajha operates. We also want to develop a replicable framework for adoption by other organization and governments across India.

Saransh Vaswani
Director
Saajha

The story of Alfiya

Alfiya was scared of reading aloud, although she enjoyed listening to stories from her mother every night before going to bed. Our team reached out to Shabana ji , Alfiya's mother, and told her about the Bolo App. She immediately downloaded it and asked Alfiya to start using it. During the home visits we discovered that Alfiya now spent more time on the app and her pronunciation had improved. Alfiya was hesitant while reading loudly but after using the app for some time she gained the confidence to do that. Besides that, Shabana Ji taught herself to read English stories. She regularly makes time for herself to read stories and learn new words. Now Alfiya tells stories to her mother every night before going to bed!

Pratham

The application had various features to keep the content interactive and engaging for children.

Pratham's interest in the Read Along application stems from the fact that Pratham has been promoting reading as a fundamental skill since 2003 and has been using in house technology resources to improve learning outcomes for the last five years.

The partnership with Google since 2018 has been multi-fold. The Google Read Along team and Pratham's technology innovations team brainstormed and ideated the design and creation of the application during its initial days. Having worked with children in rural villages in a technology-enabled model, Pratham was able to offer insights and support both in the learning design and program delivery. Secondly, the ASER centre (autonomous research wing of Pratham) conducted a research project to understand and evaluate the usage of the app and the learning outcomes. The results of the study can be found at https://readalong.google

Pratham has been a partner in the delivery and dissemination of the Read Along App. The application was disseminated through tablets and smartphones for students in two locations: Dausa and Unnao. This dissemination campaign was organized for a duration of six months.

Children enjoyed using the application. It was primarily used for English learning and the children explored multiple aspects within this domain. The application had various features to keep the content interactive and engaging for children. The feature of the in-app buddy was a hit amongst young learners. The process of implementing and using the application on the field was smooth. The Google team supported the process with quick turnarounds to queries and additional support wherever needed.

Pratham is creating a package of self-learning, remote learning products to be disseminated in all program villages soon. The Read Along app will be included in the product package.

Viplow Shivhare
Program Head
Pratham Education Foundation

The story of Ankit Bairva

Ankit Bairva is a sixth grader from the Nangal Champa village in the Dausa district of Rajasthan. Ankit has been part of our Hybrid Learning Program for the last two years.

Ankit loves reading out the stories on Read Along, with his friends in the village. "My friends and I find it more interesting to learn new words in English, and also read paragraphs which we were not comfortable speaking at the start" Ankit says.

The presence of the in-app buddy 'Diya', who guides them by speaking out the words correctly to the user, proved to be very helpful for children and was seen to increase their interest in learning using the application. Ankit adds, 'In the village, very few people know English, and having an application which speaks to us at all times helps us in learning at our own speed'.

Moreover, the stars and badges required to be collected as the children progress, makes it a fun and engaging game. "Sometimes learning English becomes a game among friends where we want to know how many stars each of us have collected, and try to compete with each other', says Ankit. Ankit also points out that Read Along has also helped him learn new words and improved his ability to start a conversation in English.

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Annexure

Sample Distribution across different models in Baseline and Midline

Implementation Partner	Sample size (Baseline)		Tracked successfully (Midline)					
			Consent not given		Retained Read Along learners			Control
	Treatment	Control	Treatment	Control	Installed and using it	Installed but not using it	Uninstalled	
Saajha	1225	239	24	32	415	95	329	164
Room to Read	449	323	25	12	140	5	178	276
Pratham	1526	329	23	6	992	1	361	302
KEF	1488	515	55	58	719	93	340	367
Total	4688	1406	127	108	2266	194	1208	1109

Total children tested in each language during both Baseline and Midline

Implementation Partner	English		Hindi		Marathi	
	Treatment	Control	Treatment	Control	Treatment	Control
Saajha	388	163	366	143	-	-
Room to Read	85	276	139	276	-	-
Pratham	843	302	991	299	-	-
KEF	273	269	412	169	89	93
Total	1589	1010	1908	887	89	93