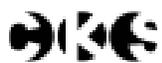




LEVERAGING MOBILE TECHNOLOGY FOR PARENTAL ENGAGEMENT IN THE EARLY YEARS

Findings from the **Read to Kids India Pilot**
2015-2017

Project Partners:



ACKNOWLEDGEMENTS

This report is the result of efforts from a variety of donors and partners. First and foremost, we would like to thank our donor Pearson's Project Literacy for their curiosity and passion for early learning that allowed us to gather early insights into how mobile technology and great books together can get parents reading to young children in developing countries. In particular, we would like to thank Emma Buckle, Emilie Colker, Julia Firestone, Luisa Gockel, Sarah Perkins, Vikas Singh, Ramesh Yadav and Jennifer Young for their support and guidance throughout the pilot.

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This report was authored by Annya Crane and Wendy Smith at Worldreader. Contributions to the report were made by several individuals at Worldreader, Pearson and Results for Development.



Dr Amarendra P. Bahera

Joint Director - Central Institute of Educational Technology (CIET)
National Council of Educational Research and Training (NCERT), Government of India

“ If technology - that is already in the hands of parents and teachers - can be put to use in creating foundational language learning skills among young children at homes and preschools, we can greatly increase their learning and school readiness by the time they enter into Higher Grades. Read to Kids pilot combines the ubiquitousness of mobile phones and engaging digital storybooks in empowering parents and caregivers to scaffold early learning for young children. This is straight and center in alignment with Government of India’s Digital India Mission and CIET’s mission of mainstreaming technology in promoting learning and education in India. ”



Dr. Venita Kaul

Former Director - Centre for Early Childhood Education and Development (CECED)
Ambedkar University, Delhi, India

“ The children’s learning environment and the inputs and support they receive in their early years will have an enormous impact on their future – both in school and beyond. Research within India and internationally has demonstrated the significant impact that ECE can make in terms of compensating for developmental deficits and enabling children to have a sound foundation. ”



Bhanu Potta

Board Director
Digital Reading Foundation (Worldreader India)

“ Parental aspiration and involvement in children’s education are increasing across socio-economic levels. The local publishing ecosystem is addressing the needs of young audiences with ever-increasing volumes of children’s storybooks and becoming more open to exploring digital readership. Rapidly declining costs of ownership is bringing affordable smartphones and mobile internet within the reach of hundreds of millions of low-income households. Read to Kids pilot wraps an innovative program design around these forces playing out in India to empower parents and caregivers in low-income households to read to their young children. ”

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FOREWORD

LEARNING STARTS AT HOME



Reading matters. It is a fundamental prerequisite to the basic skills needed to think critically, to make informed choices and to prepare for an increasingly complex world - and science tells us that the earlier, the better. Yet as a global community we continue to do poorly by our young children, with millions of children entering school without the basic skills and habits needed to learn.

Over 200 million children in low and middle income countries will fail to meet their developmental milestones and fall behind their peers by the age of 5.¹ These gaps in development contribute to poorer educational outcomes later in life and affect the very countries that need the next generation's brain power the most. To meet the needs of these children, we need simple scalable solutions, new partnerships and sharper thinking as to what can move the needle on early childhood development outcomes and early learning. Research has repeatedly demonstrated that early learning opportunities in low-resource communities are powerful antidotes to poverty. Access to quality reading books and stories, as well as supportive and engaged caregivers, can positively influence child development.

What new tools exist to help us rethink such persistent problems? Simple technologies today are increasingly present in even the poorest of households. There are over five billion mobile phone connections on the planet and among low-income households in developing countries, mobile phone ownership is rising.² These technological shifts provide unique opportunities to reach parents and caregivers at scale in ways previously not explored.

In 2015, Worldreader and Pearson came together to look at new ways to get parents in low-resource communities reading to young children. Our goal was to take the ubiquitous mobile phone in India, transform it into a great mobile library, and discover how to get parents reading with their children. We partnered with a network of organizations - publishers, education and health organizations, creative agencies and local government - to learn how best to promote shared reading to young children with the support of mobile phones.

The results of this pilot suggest that real progress is possible. This report contributes to a growing evidence base on how parents can support their children's early learning using new tools, and showcases mobile reading to young children as a potential enabler of early learning.

We're thrilled to share the results of this pilot, and hope to encourage others to join in scaling this and similar approaches. The collaboration between all partners in the Read to Kids pilot is fueled by the belief that improved outcomes require new approaches, including deep partnership from all sectors. This is a prerequisite for sustainable development.

Lifelong learning starts in the home, one page and one parent at a time. Only together can we make that difference.

David Risher
Co-founder and CEO
at Worldreader

Kate James
Chief Corporate Affairs and
Global Marketing Officer
at Pearson

¹ *Early Childhood Development: A Statistical Snapshot*, UNICEF, 2014.

² *Number of Mobile Subscribers Worldwide Hits 5 Billion*, GSMA, 2017.

EXECUTIVE SUMMARY

Between 2015-2017, Worldreader, Results for Development (R4D) and Pearson's Project Literacy partnered to develop and implement a digital reading pilot called Read to Kids for parents of young children among under-resourced households in Delhi State. Read to Kids promoted emergent literacy and school readiness of young children 0-8 years of age by encouraging parents and caregivers to read aloud to their children. **The pilot goals were to raise awareness of the value of reading to young children, encourage a culture of reading at the household level, and get parents reading frequently to their children.** The Worldreader Kids app³ was designed, developed and launched containing an age appropriate digital collection of 550 children's storybooks in both Hindi and English. These books were sourced from 34 different local and international publishers including Pearson, Katha, Tulika, Pratham Books and Eklavya. The application was promoted in Delhi using a blended approach consisting of partners on the ground, a behavior change campaign and digital marketing. The program aimed to reach 200,000 families and learn how to best encourage and support parents and caregivers in reading to young children.

Worldreader partnered with organizations with an established presence and positive influence in 177 small communities across Delhi. Partners were selected based on their extensive networks, their ability to scale, and their knowledge of early childhood development, reading or early education. Partners selected were HLPPT, a health organization with a network of clinics and a community health outreach program; SARD, a community-based organization focused on improving education outcomes; and KATHA, a publishing partner that works in schools and communities. All partners promoted reading and aimed to improve the knowledge, attitudes and reading behaviors of parents and caregivers in the target group.

A behavior change campaign tested messages and competing distribution channels to learn how to best reach and influence parents cost-effectively. The campaign आज की कहानी, कल की तैयारी - meaning "today's stories are tomorrow's preparation" developed program support tools for partners (flyers, posters, banners, and reading cards) with a common brand, as well as messages for broader channels such as radio, local cable TV, outbound dialing, billboards, Google Ads, YouTube and Facebook. Messaging for the campaign was developed based on the findings of the formative research and existing parental attitudes and behaviors towards reading. **Campaign messages that resonated most with parents were those that focused on the importance of reading for school readiness and the teaching of early language and learning concepts.**



The program was designed as a learning pilot to gather insights into the types of support parents and caregivers need for reading habit creation. It also sought to understand how digital reading could effectively scale to the millions of families in India lacking access to quality children's books. Results for Development (R4D) used an adaptive learning methodology to place structured learning, experimentation and feedback at the heart of the program design. Read to Kids' research framework included three components: a pre-pilot formative research phase, a one year implementation period, and an external outcome evaluation. Quarterly Learning Checks were led by R4D and Worldreader and brought together all partners in Delhi to evaluate progress towards desired outcomes based on both back-end and field data. An independent outcome evaluation was led by the Centre for Early Childhood Education and Development (CECED) from Ambedkar University in Delhi between November 2016 and June 2017 to measure short-term outcomes.

³ During the pilot the app was referred to as "Read to Kids". Once the pilot ended, the app was renamed to "Worldreader Kids".

KEY FINDINGS:



- **The pilot reached over 203,000 households** through a blended approach of traditional and digital marketing outreach, as well as community-based organizations. Partners directly supported 15,000 families from 177 low-income communities in Delhi. The remaining 188,000 users were reached through a primarily digital campaign aimed at raising awareness on the value of reading.
- Formative research at baseline concluded the **majority of children** in our target group **lived in a home literacy environment absent of children's storybooks**. Nonetheless, over 57,000 individuals browsed the library and read at least one book. Nearly 7,000 households changed their reading habits and became "frequent readers", or individuals reading from the application at least four times a month, a proxy indicator for reading habit creation and behavior change.
- **Digital reading is scalable and affordable.** App promotion and downloads cost Worldreader approximately \$0.30 USD per user. This low cost of app promotion coupled with widespread availability of mobile phones in India supported affordable access to our digital books. India's aggressive cell phone market translates to low data costs for the end user so that online digital reading is an affordable option, even for low-income parents. Reading a book a day for thirty days cost the equivalent of two cups of street chai, or about \$0.16 USD per month.
- **Women became important and indirect beneficiaries of the pilot.** Many women in our intervention group reported that access to storybooks and participation in the program helped increase their access to a family phone, led to more investment in cellular data and improved their digital literacy.
- **Books in Hindi (bilingual or Hindi only) were the most-read books on the application.** Parents preferred books in mother tongue but English was also frequently read and reflected parental aspirations for early exposure to English.
- **Leveraging in person, digital and media assets together best foster attitude and behavior change in parents.** A blend of digital and in-person strategies is most supportive in normalizing digital reading to children.

1. INTRODUCTION

THE HOME IS THE CHILD'S
FIRST CLASSROOM AND
PARENTS ARE THEIR
FIRST TEACHERS



250 million children in low and middle income countries start school unprepared for learning. While governments have made, and continue to make, strides in opening access to early learning, most vulnerable children in rural or urban resource-constrained environments have limited or no access to early learning opportunities. Therefore, in these settings in particular, the home is the child's first classroom and parents are their first teachers. Supporting parents with simple, scalable skills and tools to improve a child's home learning experience is critical to ensuring these children have a strong start in school. Having access to a variety of both formal and informal materials for learning has a consistently positive effect on children's reading competence and achievement.⁴ The tools, training and support of quality learning and play activities at home -such as reading, storytelling, singing, drawing - enable parents to be the drivers of cognitive development and brain growth in the first years of life.

Shared reading with children is an activity with numerous benefits. Shared reading promotes emergent literacy and language skills long before a child is exposed to the classroom. It increases phonological awareness and alphabet knowledge, and exposes children to fictional and personal narratives. Quality shared reading deepens and improves parent-child interactions, another critical driver of child development.⁵ It can promote questions, conversations and exposure to richer vocabulary not present in everyday conversation.

Access to books in the household is a prerequisite for reading to children. Despite this, few children have access to quality early learning in the Global South and even fewer have home literacy environments supportive of language and cognitive development. The 2016 Annual Status of Education Report surveying 350,232 households across India found that just 20.5%⁶ of households had any reading materials at all. The same survey states that 75.5% of schools had access to a library in 2016, however only 42.6% of these were using them.

While children have limited access to books in India, access to mobile technology is growing exponentially, even in low-income households. In June 2016, a GSMA study found that India had overtaken the United States to become the world's second-largest smartphone market. It further projected that India would have close to one billion unique mobile subscribers by 2020.⁷

The Read to Kids pilot was an opportunity to learn how to leverage mobile phones to support parents and caregivers in reading to young children in vulnerable low-resource households. The questions and research were about identifying the support needed to normalize digital reading to children. How could digital books delivered through mobile promote a more engaging home literacy environment and contribute to improved school readiness? Mobile phone ownership, mobile penetration and low data costs in India represent an opportunity to address the lack of quality reading materials in India at scale. This report summarizes Worldreader's work and experience.

⁴ See Bradley (2006). pp. 89–120.

⁵ See E. Duursma, M. Augustyn, B. Zuckerman (2008) *Reading aloud to children: the evidence*.

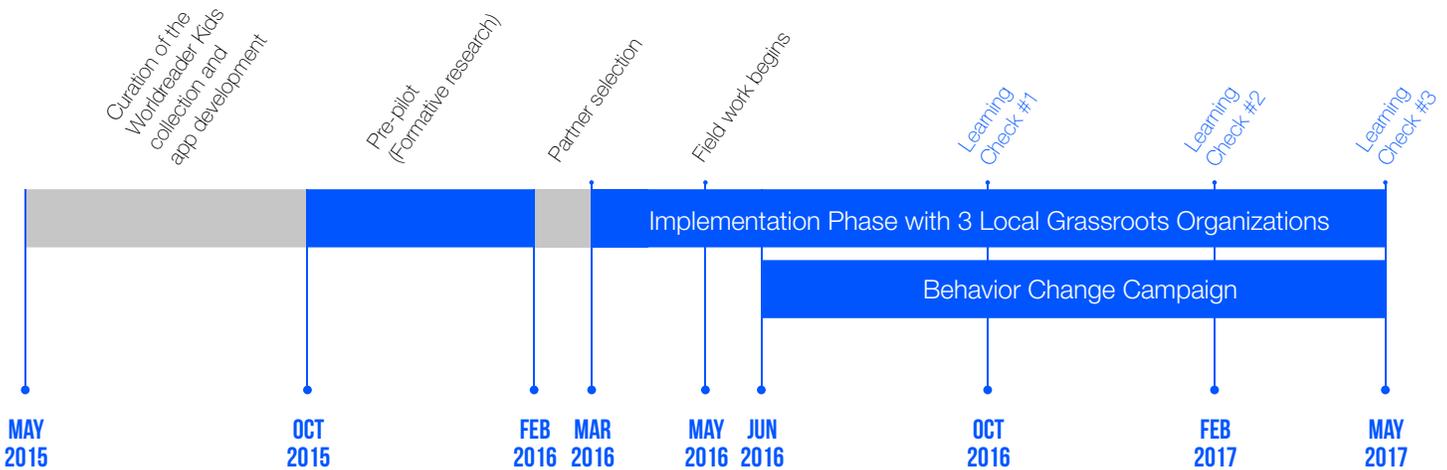
⁶ See *Annual Status of Education Report 2016 (2017)* for more Indian education statistics.

⁷ See GSMA's *The Mobile economy, India 2016* (2016) for more on India's mobile landscape.

2.PROJECT DESCRIPTION AND COMPONENTS

The Read to Kids pilot in Delhi sought to promote pre-literacy skills by encouraging parents and caregivers to read aloud with their young children from birth to age 8. This age group was chosen in keeping with UNICEF’s definition of early childhood. **The pilot used mobile technology, a network of implementing partners and a multimedia behavior change campaign to raise awareness of the importance of reading to young children.** Storybooks for children between 0-8 years of age were curated and disseminated through the Worldreader Kids app, available in the Google Play store and via a url. This pilot tested the use of mobile phones to deliver children’s stories and reading tips to promote quality reading to children. The pilot further aimed to identify the barriers and drivers that need to be addressed in order to foster regular reading to children.

During the first five months of the pilot Worldreader curated a children’s book collection and developed the Worldreader Kids app. Formative research was then conducted from October 2015 to February 2016. The findings from this research informed the design of the implementation phase that began in March 2016 by defining the target audience, guiding the selection of the three implementing partners and supporting the development of the behavior change messaging. Finally, we used an adaptive learning approach through quarterly workshops attended by all partners in Delhi to strategize on the challenges and progress made in this period. Data analysis from the server and field data were used to inform changes in the design of the pilot.



Target Audience:

- Parents and caregivers of children aged 0-8.
- Household income levels between 150 USD to 450 USD per month (10 000 to 30 000 INR).⁸
- Own or have access to an internet-enabled mobile phone.
- Minimum literacy proficiency.

⁸ Many of these low-income households paid a small fee to send their kids to affordable private schools and preschools. Low-income urban families are investing significant percentages of their limited resources in education opportunities they see as beneficial to their children. Our findings aligned with those of another recent report by FSG. See FSG (2017).

2.1. A QUALITY CHILDREN'S LIBRARY FOR AGES 0-8

Book quality and relevance are critical to the success of any reading program. In India, the children's publishing sector is still nascent and represents only 5% of total publishing. Almost half of the Indian children's literature market is in English (45%) and the bulk is content that has been translated, not generated nationally. Hindi is the second largest language group for children's storybooks, representing 25% of the books. The government is the largest procurer of children's storybooks in India and penetration of children's storybooks at the household level among the urban poor is very low due to lack of purchasing power, but also lack of awareness of the need and value of children's books for early development. This means that both demand for, and availability of, children's books is very low. Overall, storybooks for Indian children in the age group of 0-6 represent only 26% of the children's literature in the market⁹. What this translates into concretely is an insufficient variety of age- and language-appropriate books for parents of young children.

Worldreader partnered with Indian and international publishers to curate a collection of locally relevant Hindi and English storybooks for children 0-8 years of age. The goal was to deliver a balanced collection of locally relevant content consisting of traditional and contemporary storybooks, popular folktales, picture books and nonfiction books introducing parents and their children to basic educational concepts. Books were organized by age levels 0-2, 3-5 and 6-8 in simple categories to help support discoverability. The collection strived for language parity between English and Hindi. 54% of the content was sourced from Indian publishers and 46% from international publishers. **A total of 550 free books were available on the app at the time of writing; 45% of the books were in Hindi or bilingual and 55% were in English.** This sizeable collection is available for free on any data-enabled device (mobile internet charges apply per operator rates).

Worldreader received donated titles from most international authors but supported local publishers by digitizing content for them (when only print copies existed) free of charge and purchasing mobile distribution licenses for their work. The content collected was a mixture of open source books, creative commons and licensed content.

All books from publishers were digitized by Worldreader's production team. Digital files were converted from publisher pdfs to e-publications with sizeable, quality images that were optimized for small screens.

Over 35 Publishers Contributed to the Worldreader Kids Collection, Including:



⁹ See Tata Trust (2013).

2.2. THE WORLDREADER KIDS APP¹⁰

The pilot used a web app¹¹ designed to have universal compatibility with all data-enabled mobile devices, including both feature phones and smartphones. The choice of the web app ensured access to the library in households with even the simplest data-enabled phone of any brand. The web app was placed in the Google Play store to promote discoverability. The url www.readtokids.com was equally promoted to accommodate other types of phones. During the formative research phase, usability testing of the app was carried out amongst our target audience; the results of the test determined changes for the app's next iteration.

The web app requires online reading but was designed to be incredibly simple to keep data costs at a minimum. While parents in urban Delhi used a wide variety of phones, book loading was designed to be fast on any model. The size of the application is less than 4MG so as to encourage downloads and not monopolize device space. It was estimated that using the Worldreader Kids app to read one storybook online every day for a whole month incurred data costs equivalent to two cups of chai (10 rupees or \$0.16),¹² thus making digital reading an affordable option for many, if not most, phone owners.



The application's interface was designed to be simple and eliminate common barriers to digital reading. No login is required and users can enter the application and begin reading without getting lost in registration or data requests. The application has both a Hindi and English interface and searches in the library can be done in English, Hindi and “Hinglish” to accommodate our target group. The collection of books is organized in simple categories and age groups to help guide parents to appropriate books.

Finally, the application includes reading tips focused on building the awareness and skills of parents less experienced in reading aloud to children. These reading tips are found at the bottom of the main page, as well as before and after selecting a book.

While the Worldreader Kids app worked efficiently for the pilot, allowing thousands of parents to access free storybooks on their phones and read to their children, using a web application also comes with some limitations. While the app included the functionality to download a book and read offline, using this feature was challenging for many users. Many users were unable to download books for offline reading due to limited space on their browsers and a general lack of knowledge of their browser and device functions. The use of a web app also created some challenges around tracking unregistered users since ID codes were stored in browser cookies, which often had unstable codes, depending on the browser and phone used.¹³

¹⁰ During the pilot the app was referred to as “Read to Kids”. Once the pilot ended, the app was renamed to “Worldreader Kids”.

¹¹ A web app is an application that can be accessed from any web browser and does not use native mobile functionality.

¹² This calculation was made with the web app using the smallest data package available in market, which tends to be the most expensive in data cost. At the time of the pilot in 2016 this was an Airtel pack: 259 INR for 28 day/1GB. It was estimated that loading the app interface and a different 20-page book with images 30 times in a month would use 39,936 kb, which costs the end user just under 10 rupees in data.

¹³ Please refer to “Limitations of the Research” in section 3.4.

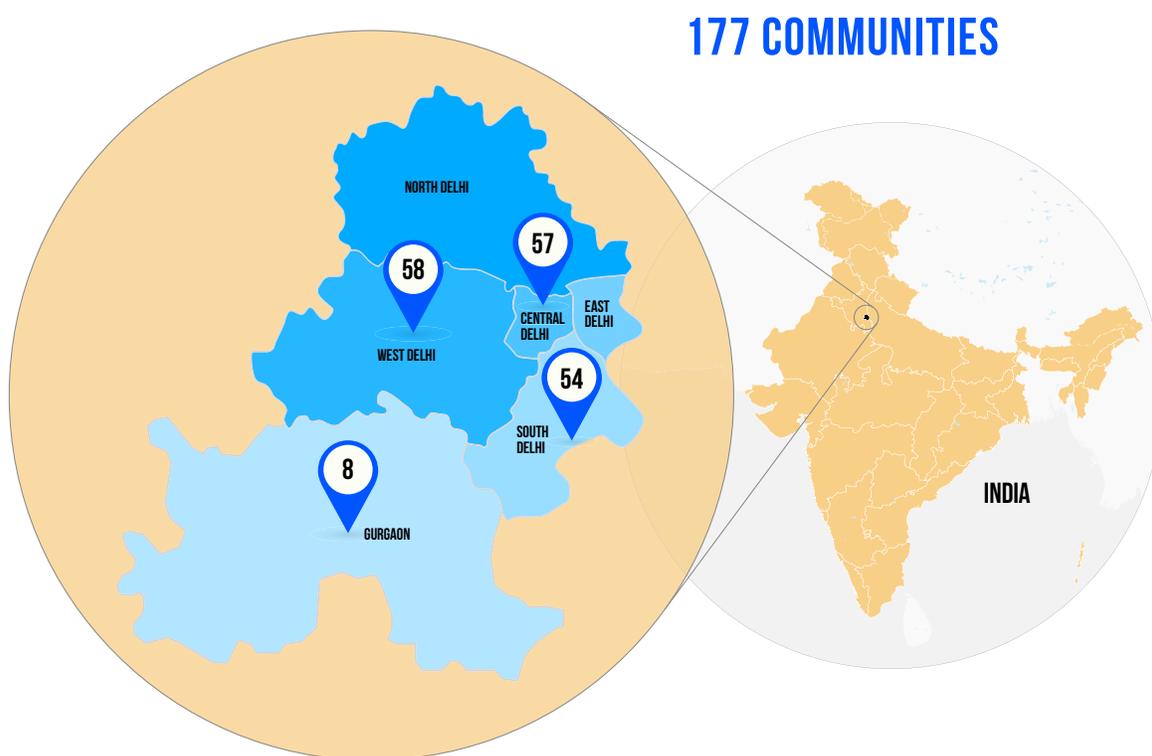
2.3. PARTNERSHIPS WITH COMMUNITY-BASED ORGANIZATIONS

Worldreader partnered with a network of grassroots organizations in India. Partners were selected based on the findings from the pre-pilot's formative research, their existing networks to reach parents and caregivers, their knowledge of early childhood development, reading or education and their ability to scale. The pre-pilot phase identified teachers, doctors, community members and youth as strategic supporters to behavior change amongst our target audience; these were therefore represented via the three community-based partners selected. It is important to note that none of the partners selected had previously used mobile technology in their programs.

Community-Based Partners

<p>Hindustan Latex Family Planning Promotion Trust (HLFPPT)¹⁴</p> <p>—</p> <p>A health organization with a network of family planning clinics and community health outreach.</p>	<p>KATHA¹⁵</p> <p>—</p> <p>A publishing partner with work in schools and communities promoting reading through mother's groups and youth reading clubs.</p>	<p>Society for All Round Development (SARD)¹⁶</p> <p>—</p> <p>An education non-profit focused on improving government pre-primary and basic education.</p>
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Location: DELHI, NCR



¹⁴ See <https://hlfppt.org/> for more information.

¹⁵ See <http://katha.org/> for more information.

¹⁶ See <http://sard.org.in/> for more information.

Partners leveraged their networks and reached over **177 communities in Delhi** and **registered over 15,000 users on the application**. Implementation took place in six health clinics, 10 low-cost private schools, government schools, day care or “anganwadi”¹⁷ centers and the 177 communities around these. Partner outreach activities were a blend of home visits, community gatherings, and school- and clinic-based awareness sessions with parents.



“WE MAY HAVE TO TEACH PARENTS HOW TO USE THEIR SMARTPHONES BEFORE TEACHING THEM HOW TO USE THE APP.”

Deepti, Community Worker

Centre for Knowledge Societies (CKS), a local M&E and research design firm in Delhi, acted as the local coordination and M&E partner. Together with Worldreader’s support, CKS was responsible for training partners’ field staff to teach parents to read to children. Several trainings took place throughout the year, with session themes that included effective behavior change messaging, use of data collection tools, and technology training on the application itself. Trainings were iterative and need-based, focusing on the approaches frontline workers needed to adopt when working with parents to convey the value of reading and using a mobile application to read to children.



¹⁷ Anganwadis are government-run day care centers.

2.4. BEHAVIOR CHANGE CAMPAIGN

With the goal of raising awareness about the benefits of reading to young children starting at birth, Worldreader developed a behavior change campaign. The campaign tested effective messaging for behavior change as well as appropriate channels for affordable user acquisition and scalability.

Worldreader selected a creative agency, Happy McGarry Bowen, to co-design the campaign and support both on-the-ground implementation, as well as a digital and traditional mass media strategy.

The formative research informed the development of messaging for the campaign. आज की कहानी, कल की तैयारी - meaning “today’s stories are tomorrow’s preparation” - was the key message of the campaign. This was designed around the aspirations parents had for their children’s education and success in future. All messaging in the campaign was in Hindi and aimed to engage families in Delhi in the target group. A number of channels were tested for both reach

and cost-effectiveness, including local cable television, radio, outbound dialing, billboards, metro advertising, and social media and digital acquisition platforms such as Google Display Network and Universal App Campaigns. Throughout the year implementation partners used flyers, posters, banners, reading cards, t-shirts and bags. Each piece of creative collateral was adapted to fit partners’ communication needs and followed consistent campaign branding.

In-app push notifications were used to send tailored messages to groups of users based on their behavior. The digital agency ITTISA tested different messages and reader engagement improved with the inclusion of push notifications.

Throughout the pilot, 17,000,000¹⁸ people saw or heard behavior change messages around the benefits of shared reading. This figure is the estimated potential reach of all media channels used when combining radio, TV¹⁹, outbound dialing, and out-of-household advertising in metro.

Watch the TV ads:

<https://www.youtube.com/worldreaders>



POSTERS



TV ADS



BANNERS

¹⁸ This estimation was provided by Worldreader’s media buying agency, ISOBAR.

¹⁹ Videos of the campaign can be found on Worldreader’s YouTube channel: <https://www.youtube.com/user/worldreaders>.



FLYER



READING CARD



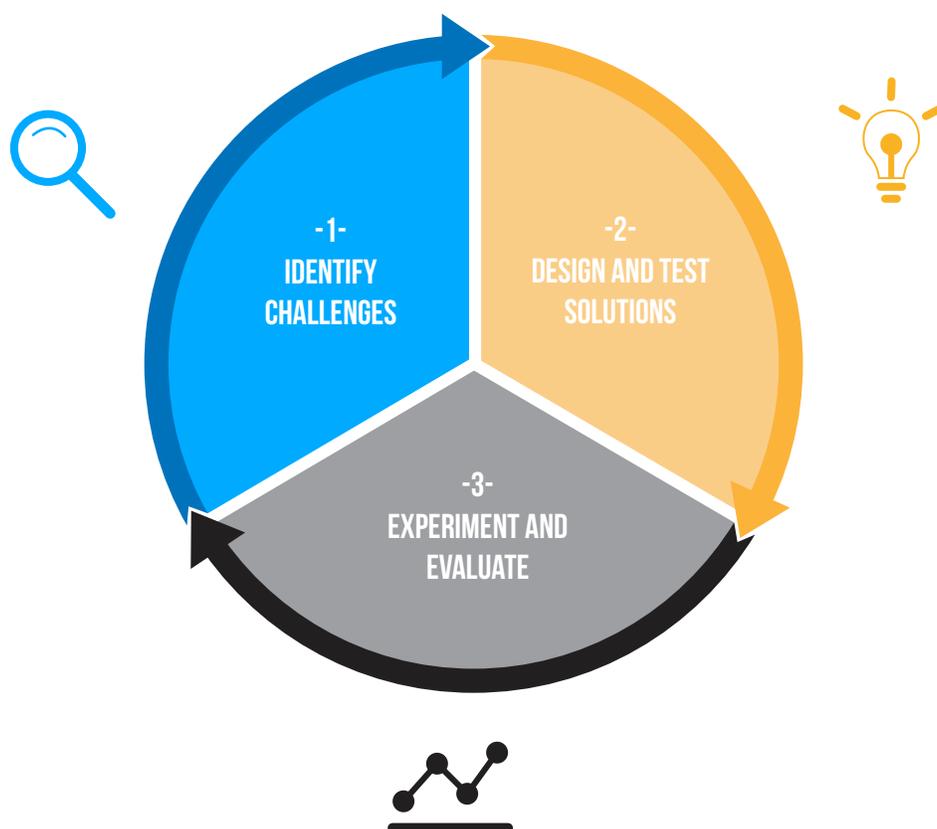
PUSH NOTIFICATIONS



3. RESEARCH DESIGN

The research methodology for Read to Kids needed to be adaptive, with an emphasis on active learning. Results for Development (R4D), the pilot's learning partner, supported data-driven decision making from project inception. R4D's adaptive learning approach to monitoring and evaluation is outlined in the graphic below. The first step was identifying barriers to parental reading with young children and outlining the project's theory of change. The next phase involved designing and testing solutions, and finally evaluating the approach based on qualitative and quantitative project feedback in real time. Feedback was shared with on-the-ground teams via R4D's Learning Check workshops held quarterly in Delhi.

R4D's Adaptive Learning Approach



- 1. Identify Challenges:** Understand performance challenges and other issues, and define impact goals.
- 2. Design and Test Solutions:** Scope potential solutions and define a testable theory of change.
Rapidly test those solutions.
- 3. Experiment and Evaluate:** Pilot and refine solutions based on qualitative and quantitative feedback.
Analyze data, reflect and conduct Learning Check workshops held quarterly in Delhi.



3.1. THEORY OF CHANGE

A theory of change was developed to guide the research and pilot implementation of the Read to Kids project. The theory of change is a comprehensive description and illustration of how and why a desired change is expected to happen in a particular context. It is focused on linking barriers to activities to desired outcomes. For example, for Read to Kids to have viability, parents participating in the project would need to have access to a data-enabled phone, a desire to improve their child's life and education and have some minimum literacy proficiency. It was also understood that the intervention would need to work around barriers to mobile reading such as, parental time constraints and lack of knowledge around the importance of reading to children.

The project developed a set of activities²⁰ aimed at raising awareness of the importance of reading, getting parents to download the Worldreader Kids app for reading and eventually supporting more shared reading at the household level.

Due to the short implementation cycle of the pilot and the focus on learning what does and doesn't work, long-term outcomes of children's school-readiness and learning outcomes were not measured. They were, however, included within the theory of change as a reminder of the explicit relationship between regular reading to children in the early years and improved learning.



²⁰ See project components section 2.0 for more details on the activities carried out during the pilot.

Basic Theory of Change



3.2. KEY COMPONENTS OF THE RESEARCH FRAMEWORK

The research framework included three components: formative research, an implementation period and an external outcome evaluation.

The formative research took place over a five-month period from October 2015 to February 2016. The goal of this phase was to test assumptions in the theory of change and select implementation partners. The research included interviews and focus groups amongst 198 parents, caregivers and teachers in low-income communities in urban Delhi. This extensive pre-pilot was necessary to identify the correct target audience and their existing values and practices related to reading. The pre-pilot research revealed the barriers parents face and informed the activities of the pilot, including our content acquisition and behavior change messaging.

Pilot implementation was one year in duration and ran from April 2016 to May 2017. In order to be responsive to successes and challenges in this short implementation period, R4D and Worldreader conducted quarterly Learning Checks with implementation partners in India to share both back-end data from the application triangulated with field data from partners' monitoring data and feedback from parents. Learning Checks led to strategy revisions and continuous performance improvement. The Learning Check findings were triangulated with a qualitative review of the pilot in Quarter 4 that solicited deeper insights into the experiences of project staff and families.

The third component of the research framework was an external evaluation conducted by the Centre for Early Childhood Education and Development (CECED).²¹ CECED conducted an independent evaluation to measure the changes in parents' attitudes and behaviors. CECED also conducted qualitative case studies to better understand the parents using the Worldreader Kids app.



²¹ External evaluation carried out by the Centre for Early Childhood Education and Development of Ambedkar University, Delhi, on Katha and SARD's intervention only.

Research Framework



The Research Framework Guided the Findings Shared in this Report with the Aim of Answering the Following Research Questions:

- What are the barriers keeping parents from reading to children?
- What are existing parents' attitudes and behaviors toward reading to young children?
- What levels of support/types of activities proved most successful in generating changes in parents' reading practices?
- What messaging was most effective in driving frequent reading to children?
- What type of content (books) is most effective at driving frequent reading among the target audience?
- How effective is a wide-reaching media campaign at providing access to digital books and generating frequent readers?
- How has the Read to Kids pilot changed parents' attitudes about reading to young children?



3.3. KEY PERFORMANCE INDICATORS AND DEFINITIONS

R4D and Worldreader agreed on the following indicators and their definitions at the beginning of the pilot²² to help measure project progress and outcomes:

NUMBER OF USERS:

Number of unique visitors to the Worldreader Kids app.

NUMBER OF READERS:

Number of users who open a book and read at least one page, excluding the cover page and publisher's information page.

NUMBER OF READING SESSIONS:

Number of sessions in which a book is opened and at least one page is read.

NUMBER OF FREQUENT READERS:

Number of readers who have at least four reading sessions in a month.

NUMBER OF REGISTERED USERS:

Number of users who have created an account on the app.

NUMBER OF UNREGISTERED USERS:

Number of users who use the app without creating an account.

The “number of frequent readers” metric was selected as a proxy indicator for behavior change and as a measure of user engagement and possible habit creation. Research shows that frequent reading to children can lead to improved school readiness. For the purposes of measurement, if a parent read from the application four times per month, they were considered a frequent reader.



²² These definitions were agreed upon at the start of the pilot in 2015. As Worldreader has developed more sophisticated data tracking methods, these definitions have shifted over time. For the sake of consistency with the original research framework of the Read to Kids pilot, it was decided to use the original definitions of indicators in this report.

3.4. LIMITATIONS OF THE RESEARCH

Limited Disaggregated Data within Target Group

Worldreader encouraged implementing partners to work with literate parents and caregivers with a household income estimated between 10 000 to 30 000 rupees (150 USD to 450 USD) per month. Income levels were self-reported as within this range or not. Income differences between individuals within this group may have been a factor in the adoption of mobile reading by parents. User behaviors were not disaggregated by income or by education level of the parents. The nature of this pilot was to learn more about how to reach parents and support digital reading through a variety of influencers in the community. Therefore, a deeper analysis of user behavior in the future with disaggregated data by income and education levels within the target group may add to our understanding of how these factors could create variable reading behaviors within the same target group.

Testing Multiple Partner Approaches

The pilot evaluated the effectiveness of partner strategies used to get parents to develop a habit of reading to children with a digital tool. Comparability between partners' programs was limited as program designs were fluid and changed based on the data generated by Worldreader's back-end and the quarterly Learning Checks.

Registration Challenges

The Read to Kids pilot used a web app. Web applications have the benefit of working on any data-enabled phone. The Worldreader Kids web application did not force registration of users. Registration was seen as a barrier for new users who may be less digitally savvy. By making registration optional, Worldreader had less data available for unregistered users, thereby limiting insights into their identity and reading behavior. Unregistered web application users were tracked via a browser cookie ID which could generate multiple IDs, complicating the ability to gather insights on these unregistered users. The majority of unregistered users were those parents reached through the digital campaign only.

The majority of our 15,000 registered users were those parents supported by a community-based organization. Registered user data was much more stable and was complemented by data collected in the communities. Nonetheless, parents sometimes forgot passwords or created new accounts. Worldreader and Results for Development cleaned data to try and account for these variables.

CECED Short-Term Outcome Evaluation

The short-term outcome evaluation carried out by CECED faced some limitations, including that data was collected after implementation had begun. In addition, the pro-reading media campaign was launched in the same geographic area from which the control group was drawn, which may have influenced their responses.

4. FINDINGS

4.1. HOME LITERACY ENVIRONMENT IN TARGET HOUSEHOLDS WAS POOR

The home environment provides children with their first literacy experiences. Reading resources in the home, exposure to “modeled” reading behaviors, and participation of children or household members in early literacy activities all help determine the quality of one’s home literacy environment. Income levels, parents’ education levels and parental efforts to directly engage their children in activities that promote reading also determine the quality of a home literacy environment.

In the context of India, literature on home literacy practices is very limited but of increasing interest as research indicates that the home literacy environment is important for the development of language, reading and school readiness skills.²³ Anecdotal records from various in-home assessments conducted by researchers from the Centre for Early Childhood Education and Development (CECED), indicated that there was a dearth of print materials (especially children’s books) in both rural and urban homes.

In the formative research conducted by CKS,²⁴ the majority of parents reported few to no storybooks for children in the home. While some families reported the presence of newspapers, religious texts, or textbooks, age appropriate mother tongue storybooks for young children were notably absent. The cost and availability of books were one reason why parents didn’t have storybooks in the home.

Parental attitudes around the value of reading to young children were also not favorable. Parents in focus groups shared that reading should be “utilitarian” or “for the purpose of education”. Parents in the target audience were only reading textbooks or religious texts/poems and only with school-aged children. Mothers and siblings spent the most time reading to children, but their aim was to improve school performance or reinforce rote memorization of poems or texts. Reading to a younger, pre-literate child held less importance to parents and many reported that “the child would not understand since they were not yet in school.” Finally, time constraints and lower literacy levels were major barriers to reading for most parents and caregivers interviewed during the pre-pilot.

THE WORD “पढ़ना” (PADHNA) IN HINDI MEANS BOTH “READ” AND “STUDY”, CREATING A STRONG ASSOCIATION BETWEEN READING AND TEXTBOOKS. THE IDEA OF STORY TIME OR READING FOR PLEASURE FOR THE CRITICAL DEVELOPMENT OF YOUNG CHILDREN IS ABSENT IN MOST HOUSEHOLDS.

Shared book reading or reading aloud to young children has many benefits, including improving attention, word recognition, comprehension and language skills development.²⁵ Reading to a child provides a unique opportunity to expose them to words that are not generally encountered in spoken language. The parents interviewed were not aware of these benefits. Parents participating in the formative research did not report knowing the benefits of reading or engaging in reading activities for leisure with young children.

Despite India’s tradition of narrating stories to children, few low-income households reported continuing this behavior. Parents reported engaging in storytelling only when they have free time, such as when there is no electricity, when they are not watching television or when they are not tired. Most parents reported television watching as their preferred leisure activity with children. In the target audience, parents of young children reported their pre-primary school children spent anywhere from 15 minutes to several hours per day watching television.

Overall, the formative research confirmed a lack of access to children’s storybooks in the home, few literacy-promoting behaviors at the household level and a general lack of knowledge on the benefits of shared reading with preschool aged children.

²³ See Malhi, P; Bharti, B; Sidhu, M (2017).

²⁴ Please refer to section 3.2. “Key Components of the Research Framework” for more details on the pre-pilot.

²⁵ See Roy-Charland, Perron, Boulard, Chamberland, & Hoffman (2015); Sim & Berthelsen (2014).

4.2. OVER 203,000 HOUSEHOLDS WERE REACHED AND PROVIDED ACCESS TO DIGITAL CHILDREN'S BOOKS

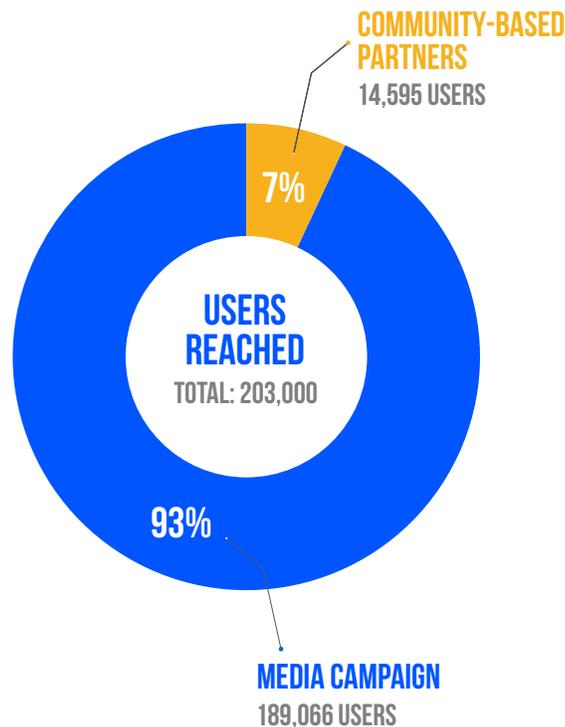
Mobile technology and the ubiquity of mobile phones at the household level provide a unique opportunity for reaching individuals with digital books. By leveraging both community-based partners and media, the pilot formed a reading campaign that reached over 203,000 households in one year.²⁶ Of the 203,000 users, the majority - 189,066 - were reached through a media campaign alone. 15,000 households were reached traditionally through community-based partners with a presence in 177 low-income communities in Delhi.

This blended approach of digital and traditional outreach provided an opportunity to test the two separate approaches and their impact on parental reading to children, helping to determine how both together could influence attitudes and behaviors. Both strategies targeted low-income, urban, Hindi-speaking parents of young children.

The media campaign aimed at raising awareness around the importance of reading to young children and delivering a call to action that encouraged users to download and use the application. Community-based organizations met directly with parents, youth volunteers, teachers or other caregivers and promoted the importance of reading. Promotion was conducted through in-person activities such as community meetings, reading clubs, health camps or school visits. In meetings, parents were exposed to information about the importance of reading and training on how to access children's books through the mobile application.

Community-based partners collected quantitative and qualitative data that provided a better understanding of the barriers to mobile reading adoption that parents faced. The media campaign tested scalability and capacity of digital and traditional marketing alone to reach parents and support reading in the home.

Users Reached per Outreach Channel



Source:
Back-end data from
May 2016 to May 2017

²⁶ Between April 2017 and May 2017, Read to Kids reached 203,000 households, as measured by the number of users that visited the Worldreader Kids app during this period.

4.3. PROVIDING ACCESS TO DIGITAL BOOKS IS AFFORDABLE AT SCALE

During the pilot, a behavior change campaign was designed to test affordable and effective ways to harness digital platforms to provide access to children's books at scale. The campaign first used traditional media to raise awareness of the value of reading to young children. This phase of the campaign was followed by a digital acquisition phase that tested the efficacy and cost efficiency of different digital marketing channels including Facebook, YouTube, Google Display Network and the Universal App Campaigns. Digital marketing targeted parents between 25 and 34 years of age who use low-cost smartphones so as to remain in the target group of parents. Parents with previous digital behaviors that showed an interest in web apps and websites targeting parents, education for young children, parenting information, comics and books received ads.

A variety of ads were run over a period of six months to raise awareness and distribute the application at scale. Average cost per download was \$0.30 USD and the cost of reaching

users dipped as low as \$0.20 USD per download, with the Google Display Network and Universal App Campaigns yielding the lowest cost per download. As a result of this user acquisition campaign, 189,066 users visited the Worldreader Kids app or accessed the web app at www.readtokids.com.

The low cost of app marketing coupled with widespread availability of mobile phones in India meant affordable distribution costs at scale.

Digital reading online was also affordable for the end users. India's aggressive cell phone market and low data costs meant online reading was an affordable option within reach of the majority of parents in our target group. Data from the pilot period and analysis of data plans estimated that a parent reading a story a day over a 30 day period spent the equivalent of two cups of chai, or about \$0.16 USD²⁷, per month on digital reading.



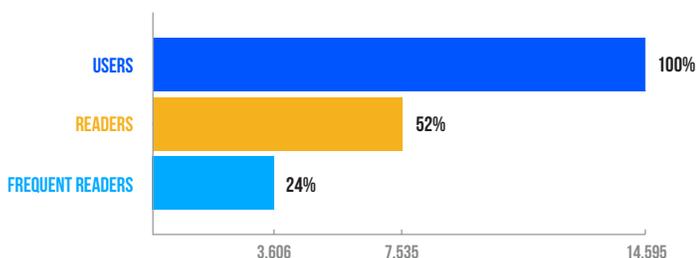
²⁷ This calculation was made using the smallest data package available in market which tends to be the most expensive in data cost. At the time of the pilot in 2016 this was an Airtel pack: 259 INR for 28 day/1GB. It was estimated that loading the app interface and a different 20 page book with images 30 times in a month would use 39,936 kb which costs the end user just under 10 rupees in data.

4.4. ACCESS TO DIGITAL BOOKS LED TO FREQUENT READING FOR 7,000 FAMILIES IN THE PILOT

It became evident that providing access to digital books in and of itself can trigger parental interest in reading to their kids. While a wide range of reading frequencies was observed, there was particular attention paid to evidence of behaviour change and habit development. The Read to Kids pilot reached 203,000 households with digital books, among which 57,000 individuals browsed the library and read at least one book. Approximately 7,000 of these users became frequent readers to children. For the purpose of this pilot, Worldreader defined a frequent reader as an individual who read from a book at least four times in a calendar month. This frequency of reading was the proxy indicator chosen to represent new habit creation in parents who were not previously reading to young children.

Reading habits have been predominantly characterized by behavioral frequency or, in other words, how often an individual reads. The Read to Kids pilot tested two strategies to encourage regular reading to children and found that on-the-ground partner organizations were more effective at converting users to frequent readers than the media campaign alone. Partner organizations worked directly with 14,595 families during the pilot. Of those nearly 15,000 families, over half (7,535) read at least one book during the pilot and 24% - or 3,606 caregivers - became frequent readers to children.²⁸

Community Based Partners



Source:
Back-end data from
May 2016 to May 2017

²⁸ A frequent reader is defined as a reader that read at least four times in a calendar month according to Worldreader's back-end data. Please refer to section 3.3 "Key Performance Indicators and Definitions" for more information.



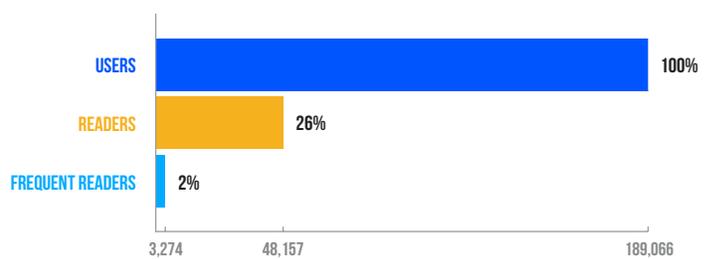


The average cost of reaching and providing in-person support to a parent to become a reader during the pilot was between 20 USD and 28 USD across the three implementing partners over the course of the year.²⁹

While the digital campaign had a lower conversion rate to reader or frequent reader, it actually brought in a similar number of frequent readers due to its large reach. Out of 189,066 users that came in from the media campaign, 26% of users, or 49,157 individuals, became readers at a cost of approximately 1 USD³⁰ per reader. 2% of total users, or 3,274 individuals, became frequent readers having been reached by digital only. **This rate of conversion to frequent reader using a purely digital intervention among low-income households in India is higher than the 2017 US retail e-commerce conversion rate of about 0.9% to 1.4%.**³¹ This speaks to the power of digital and its ability to get large numbers of people reading.

These frequent visits to the application served as proxy indicators for behavior change, as the frequency and repetition of visits to the app suggest habit creation. As previously mentioned, during the formative research phase, most individuals in the target group stated that they did not read to children as a leisure activity, therefore the act of returning to use the app four times a month shows significant progress toward habit creation.

Digital User Acquisition Campaign



Source:
Back-end data from
May 2016 to May 2017

²⁹ This calculation is based on the size of the grants given to each partner divided by the total number of readers per partner.

³⁰ This calculation is based on the total media buying budget divided by total number of readers that were acquired during the user acquisition campaign.

³¹ See Chaffey, D. (Jan. 30th, 2018).

4.5. A COMBINATION OF HOUSEHOLD VISITS AND GROUP ACTIVITIES WERE MOST EFFECTIVE IN SUPPORTING FREQUENT READING TO CHILDREN FOR PARTNERS

Partner organizations used a variety of strategies to support behavior change and create a habit of shared reading. In order to understand which strategies and activities yielded the most frequent reading, field staff collected data on which activity each parent or caregiver was engaged in when they joined the program or downloaded the app; this data was then correlated with back-end app data.

All three partners found that a combination of home visits and group activities were the most successful at yielding frequent reading amongst a series of tested activities. Data collected early in the pilot showed that home visits were necessary to help raise awareness and build parents' skills and confidence in using the application with their young children. **Skills-building sessions with parents individually or in groups included effective storytelling techniques, the importance of shared reading in healthy child**

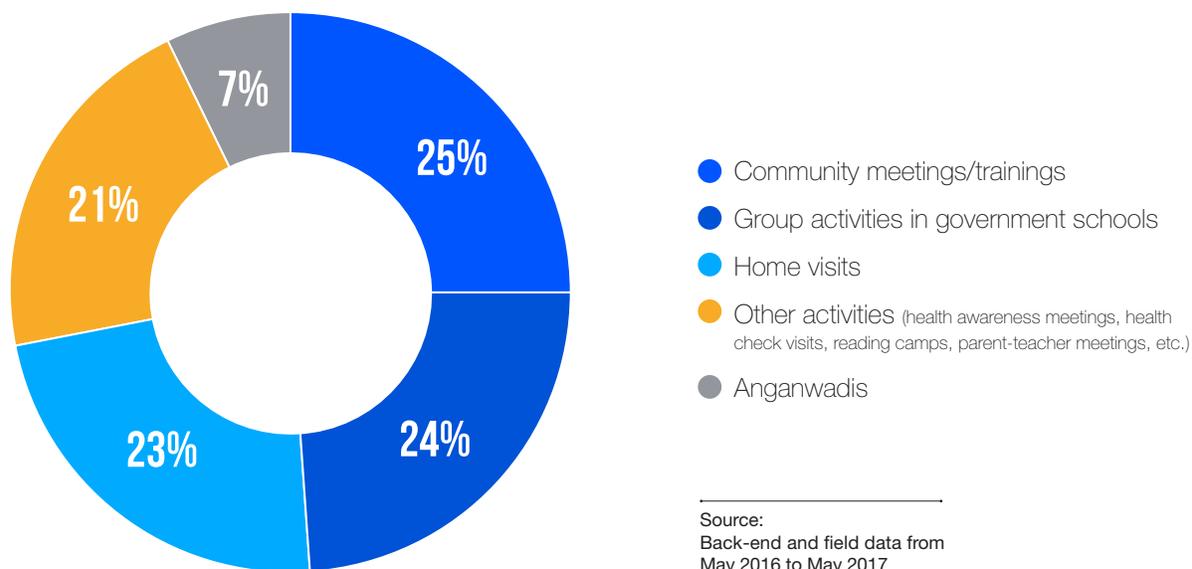
development and actual training on the application.

App usage sessions focused on how to open, navigate, and use the application online, as well as how to download a book for offline reading.

Later in the pilot, group meetings became as important as home visits, and necessary to engage a wider constituency of parents. Group activities were carried out across a variety of settings including school pickup and drop off times, weekend reading fairs, mother-child wellness meetings, or after school meetings. **Group activities helped with visibility and credibility of the project in the communities and were critical in normalizing digital reading to young children.**

The graph below summarizes the different activities carried out during the pilot and their conversion rate to frequent readers.

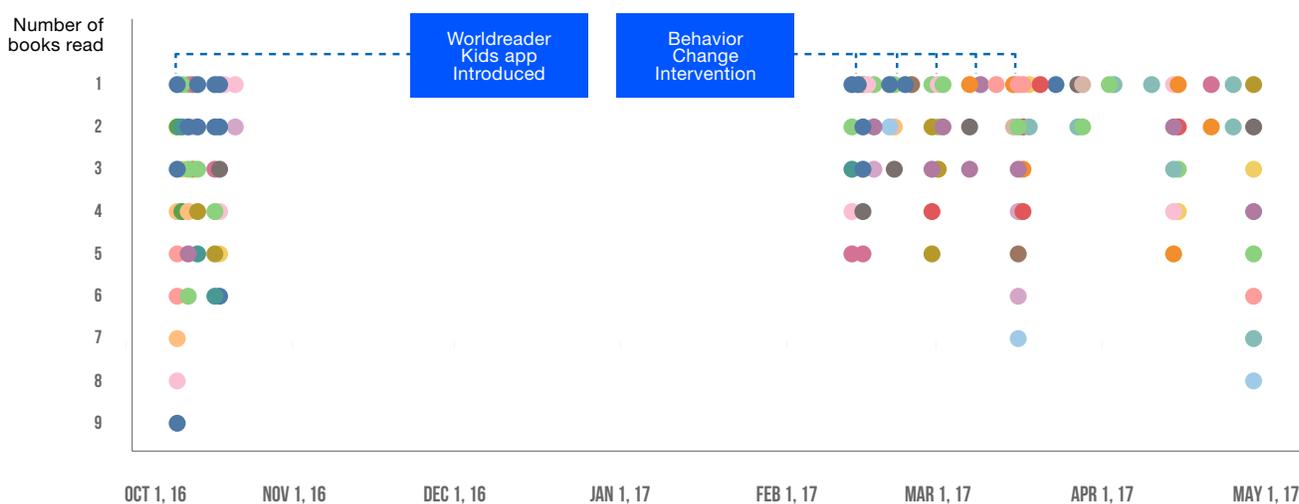
% Frequent Readers Acquired per Type of Activity



Learning Through Data: A Case Study of Username Disha29

Disha29 is the username of a reader on the Worldreader Kids app. Worldreader was able to meet her through Katha, one of the Read to Kids' implementing partners. She is a mother of a three-year-old child and had only one book in her home. The graph below shows her reading behavior on the Worldreader Kids app; each vertical in this graph represents a day, each dot is a book read, and each color is a different book. Disha29 was part of the initial phases of the pilot in October 2016. She participated in four group training sessions to learn about the importance of reading to young children and how to find free books on her phone.³² During those initial weeks she used the app several times, but didn't develop a habit of reading and didn't come back to the app to read in the following months. Her early data - and that of similar users - was shared and analyzed during the February Learning Check. Observing that the majority of users stopped coming to the app after the few days of training, programmatic changes were designed and adopted. Additional training was provided to field staff with stronger behaviour change messaging and parental skills building incorporated. Individual household visits were added to ensure parents and caregivers in the pilot understood the benefits of reading to children and were able to understand the connection between these benefits and their aspirations for their children. Revision sessions on use of the app were also included as necessary. Disha29 benefited from this set of improved behaviour change strategies, which resulted in a notable positive change in her reading behavior. From March 2017 onwards, Disha29 read several books to her child every week.

BOOKS READ BY USERNAME "DISHA29"



Source:
Back-end data from Oct 2016 to May 2017

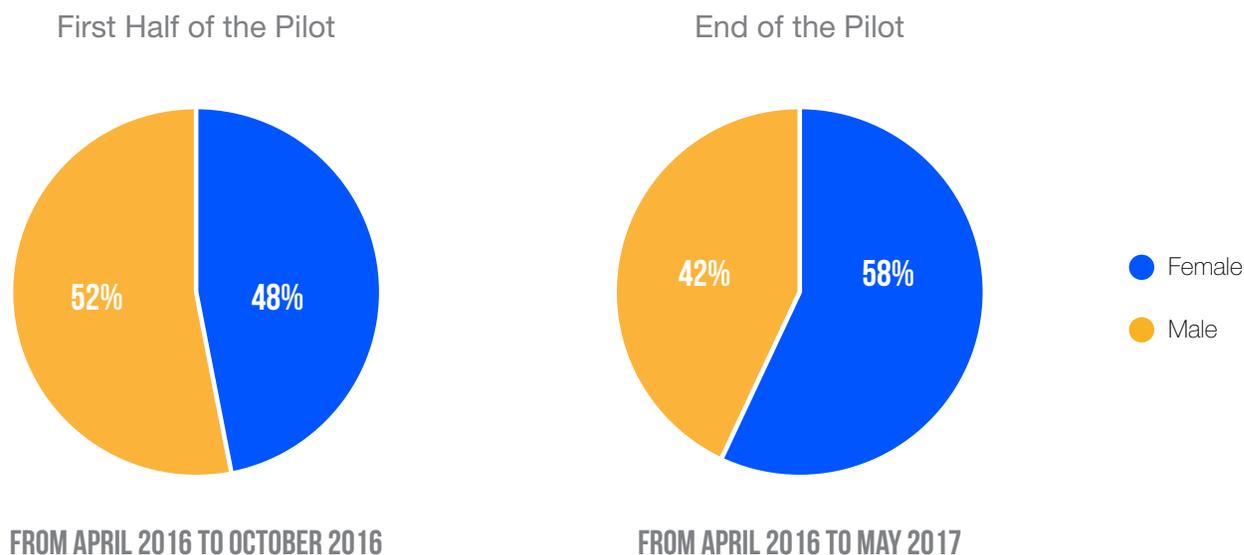
³² Katha's intervention consisted of training mothers and youth using four training modules. Participants were encouraged to attend four weekly training sessions in total.

4.6. DESPITE BARRIERS, MOST FREQUENT READERS TO CHILDREN WERE WOMEN, INCREASING THEIR ACCESS TO MOBILE PHONES AND INTERNET

Women became important and indirect beneficiaries of the pilot. Gender norms in India impact reading behaviors and attitudes, time spent with children and access to mobile technology. Childcare in families is typically defined by gendered expectations that women are the primary caregivers and, therefore, spend a great deal of time at home with children. **Due to their role as primary caregivers, mothers were identified as a strategic audience for engagement by implementing partners.** However, a major challenge identified during the pre-pilot is that women often do not own a phone or have access to a data plan on their phone. According to the Indian National Family Health Survey, less than 46% of Indian women own and use a mobile phone.³³ Many women only have access to a data-enabled phone through their husband or a male relative in the home. These findings were consistent with field observations during implementation and were echoed in the end-of-pilot qualitative research. This barrier not only reduces the amount of time women have access to a data-enabled phone, but also results in women not being as comfortable using mobile technology. According to the recent GSMA report³⁴ on gender, access and usage of mobile technology, women in South Asia report using phones less frequently and intensely than men, especially for more sophisticated services such as mobile internet.

Despite these barriers, women accounted for 58% of frequent readers over the course of the pilot. This is a 10% increase from the beginning of the pilot when just 48% of frequent readers were women.

Frequent Readers by Sex



Source: Back-end data from partner-registered users only.

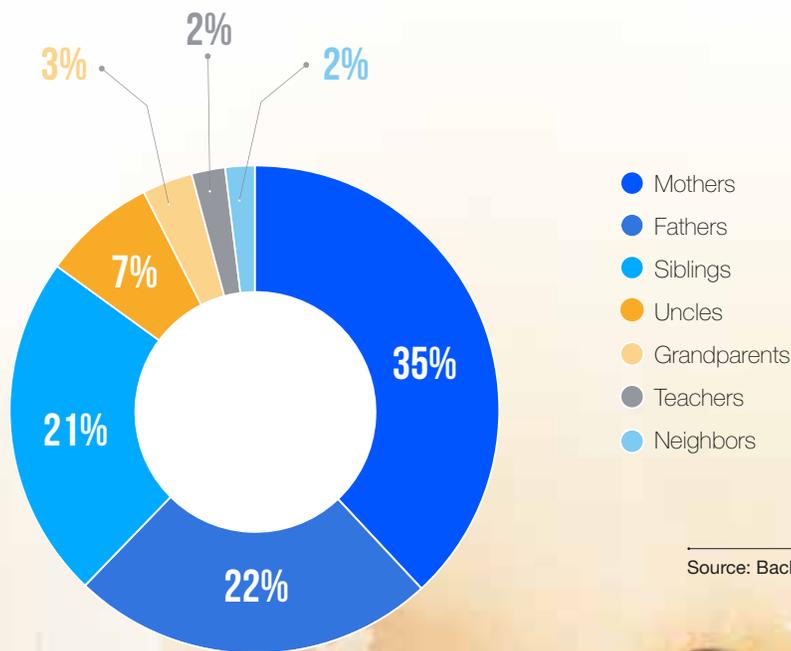
³³ See National Family Health Survey (NFHS), (2015-16).

³⁴ See GSMA (2015). Bridging the gender gap: Mobile access and usage in low- and middle-income countries.

The increase in female users overall, and female frequent readers, can in part be explained by a shift in partner strategies mid-pilot. **This strategic shift led to more time invested in home visits and group visits with women, which had a disproportionately positive effect on mothers.** The strategy was adapted to account for women's more limited access to phones and lower their comfort level with technology, which indicated that **women required more follow-ups than men in order to become frequent readers.** For example, increasing follow-ups allowed implementation partners to provide

regular reminders to mothers to borrow their husband's phones and increased women's comfort using a phone to read to children. All three partners continued to refine and improve their methods for teaching female caregivers how to engage with the digital library, taking into account challenges in accessing wifi or data, supporting more low-literate moms with picture books and coaching on reading strategies for children of different ages. Partners' activities and follow-ups included demonstrations on how to download books for offline reading and sessions on how to apply engaging storytelling techniques.

Frequent Readers' Relationship to Children



Source: Back-end data from partner-registered users only.



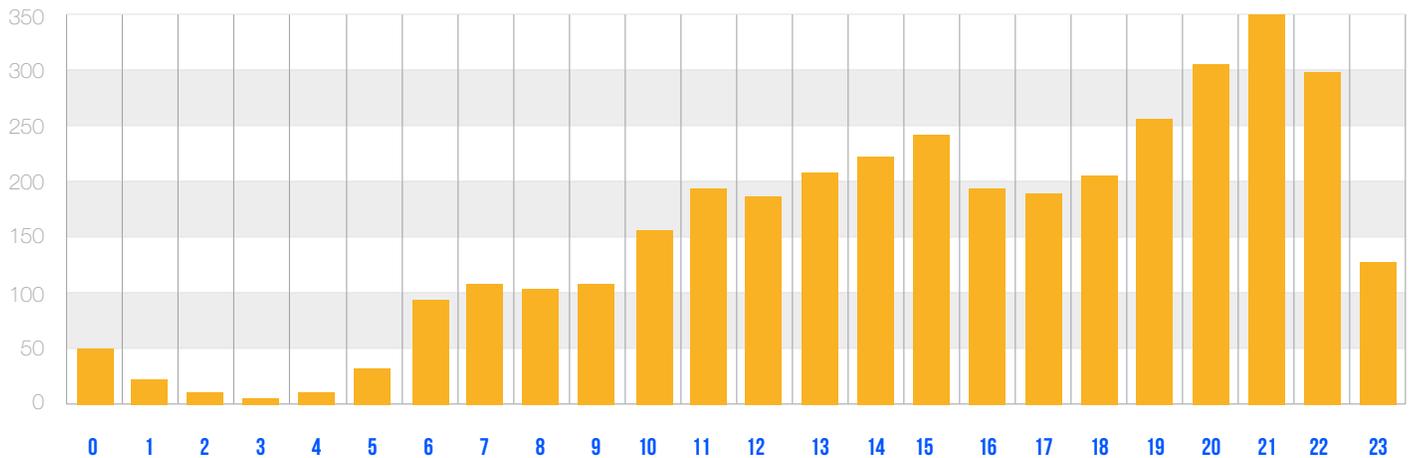


“WE HAD JUST ONE SMARTPHONE IN THE FAMILY BEFORE AND IT WAS MY HUSBAND’S PHONE. HE WOULD COME BACK LATE FROM WORK AND THAT’S WHEN I COULD ACCESS ANYTHING ON THE PHONE. I’D USUALLY LOOK AT THE WORLDREADER KIDS APP RIGHT BEFORE GOING TO BED.”

Mumtaz, Worldreader Kids User and Mother

By the end of the pilot, additional qualitative data from partners noted increased confidence in women around technology and mobile phone use and use of the reading application. Demand for data plans and personal devices by women also increased. **Women’s readership increased and surpassed that of their husbands during the pilot, suggesting a change at the household level.** While the reason for this change is not definitive, it indicates that women are being authorized to own their own devices or access the internet on household mobile phones with increased frequency. Back-end data showed that most reading on the app happened in the evenings. This correlates to the fact that women could often only access the phone in the evenings once their husband was home, and the idea that bedtime was a favored time to read to children.

Number of Pages Read by Time of the Day



Source: Back-end data from the month of February 2017



WHILE MANY PARENTS READ WITH THEIR CHILDREN USING THE WORLDREADER KIDS APP, SOME PREFER TO READ THE STORIES BEFOREHAND, PUT THE PHONE AWAY AND NARRATE THE STORIES TO THEIR CHILDREN.

4.7. HINDI AND BILINGUAL CONTENT WAS THE MOST DESIRED BY FAMILIES IN OUR TARGET GROUP

During the formative research, different categories of books were shown to parents and caregivers to determine their reading preferences for children's books and to help inform Worldreader's content acquisition and management. Parents expressed interest in visually rich books, wordless books, animal characters and stories that taught strong lessons and morals derived from Indian culture. Traditional children's poems and songs were seen as important teaching tools for young children between 0 and 3 years of age. Parents overwhelmingly preferred Hindi-only or bilingual stories for their children, and only 2% of parents said they preferred English. Hindi was the language spoken at home by respondents.

Data from the implementation period revealed that, **of the 15 most frequently opened books, 11 were in Hindi or bilingual and four were in English.** Additional data shows that 75% of users of the application used it with a Hindi³⁵ interface, but rates of English browsing and reading were surprisingly high. The most accessed categories in Hindi were storybooks, nature, rhymes and poems.

English books represented 40% of the total books opened on the application, significantly more than anticipated by the findings from the formative research. Bilingual books or English books may have fulfilled parents' aspirations and desires for their children to have early exposure to English even if it was not the language spoken regularly at home. The high number of books opened in English was also driven by the digital campaign, which may have invited a slightly more affluent or digitally savvy group of parents to the application.



³⁵ Based on Worldreader's Google Analytics data tracking.

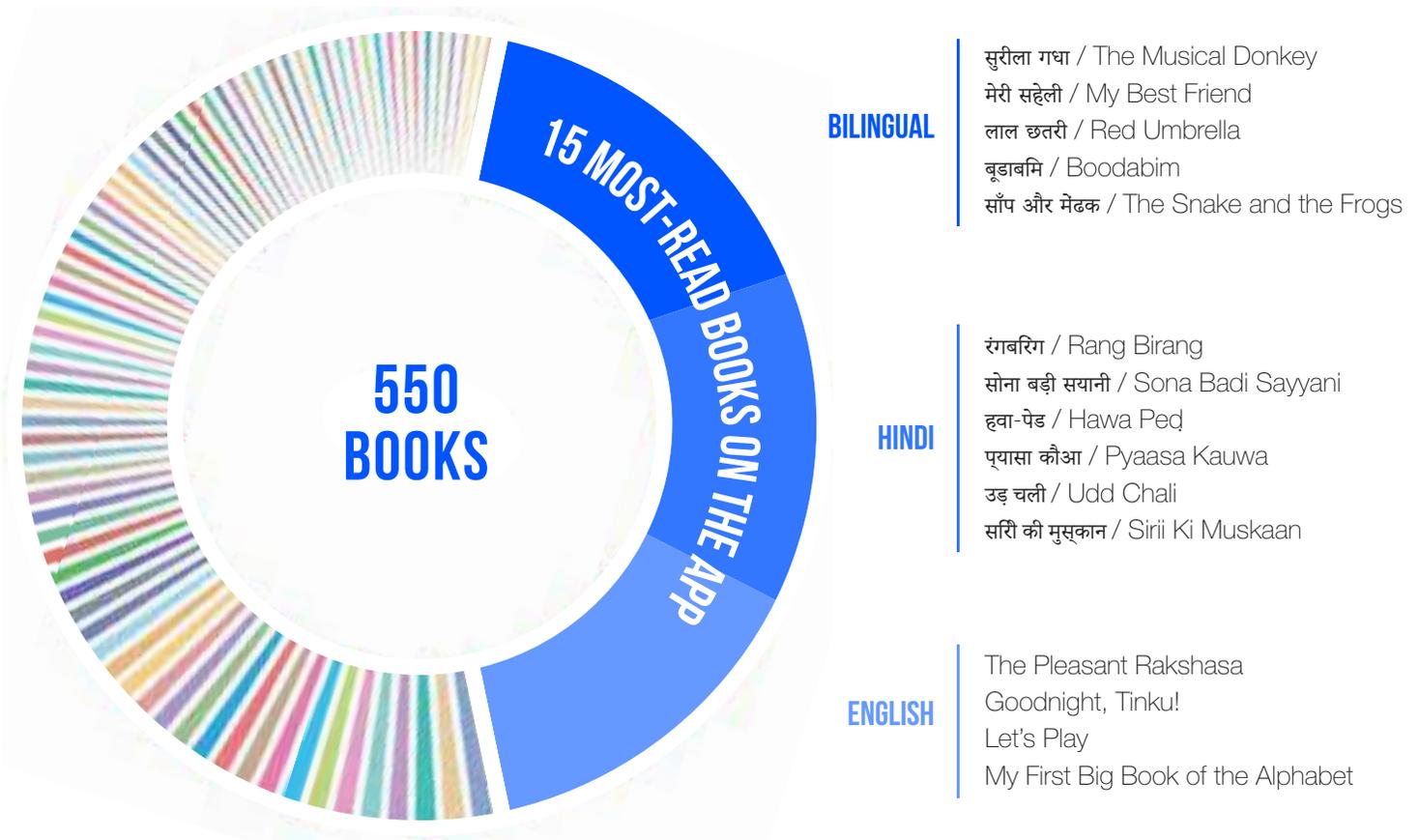


“ONE OF THE IMMEDIATE OUTCOMES OF READING, ESPECIALLY BOOKS IN ENGLISH, IS THAT THE CHILD IS MORE CONFIDENT IN SPEAKING THE LANGUAGE. IT’S HELPFUL WITH ACADEMICS BUT ALSO THEIR PARENTS FEEL VERY PROUD WHEN THE CHILD SPEAKS ENGLISH CONFIDENTLY.”

Kusum, School Teacher of Grade 1

It is important to highlight that deeper analysis of content preferences was limited by users’ lack of familiarity with the full functionality of the application. The graph below lists the top 15 books read on the app during the course of the pilot. 40% of these 15 books were promoted on the homepage as “featured books” for a minimum period of one week. Many first-time app users limited their discovery of content to featured books, and back-end data showed that “nested content”, or books located behind categories, were not as frequently discovered by users.

Most-Read Books During the Pilot



Source:
Back-end and field data from
May 2016 to May 2017



4.8. ATTITUDE AND BEHAVIOR CHANGE MAY BEST BE SUPPORTED BY A BLENDED APPROACH OF IN-PERSON AND DIGITAL SUPPORT

The initial design of the pilot was to test the effectiveness of in-person versus digital strategies and examine the reach and impact of both. During the pilot, however, it was quickly determined that there was no either/or and that, in reality, the more interesting question was how both in-person and digital strategies together support attitude and behavior change.

Seven thousand users of the Read to Kids application became frequent readers supported by partners and digital tools. It was the combination of both digital and in-person support that best encouraged behavior change. Parents supported by implementation partners were regularly encouraged to interact with the app via digital tools such as push notifications, participation in chat groups, a dedicated Facebook page and program-developed videos found on YouTube and SMS messaging. Partners created WhatsApp groups with parents that suggested books to users. In total, 641,492 push notifications were sent to 16,000 users encouraging them to read or explore a book or try a new storytelling technique. Click-through rates for these messages were 64% higher than industry standard, suggesting that they did indeed engage parents and prompt a return to the app and some reading.³⁶

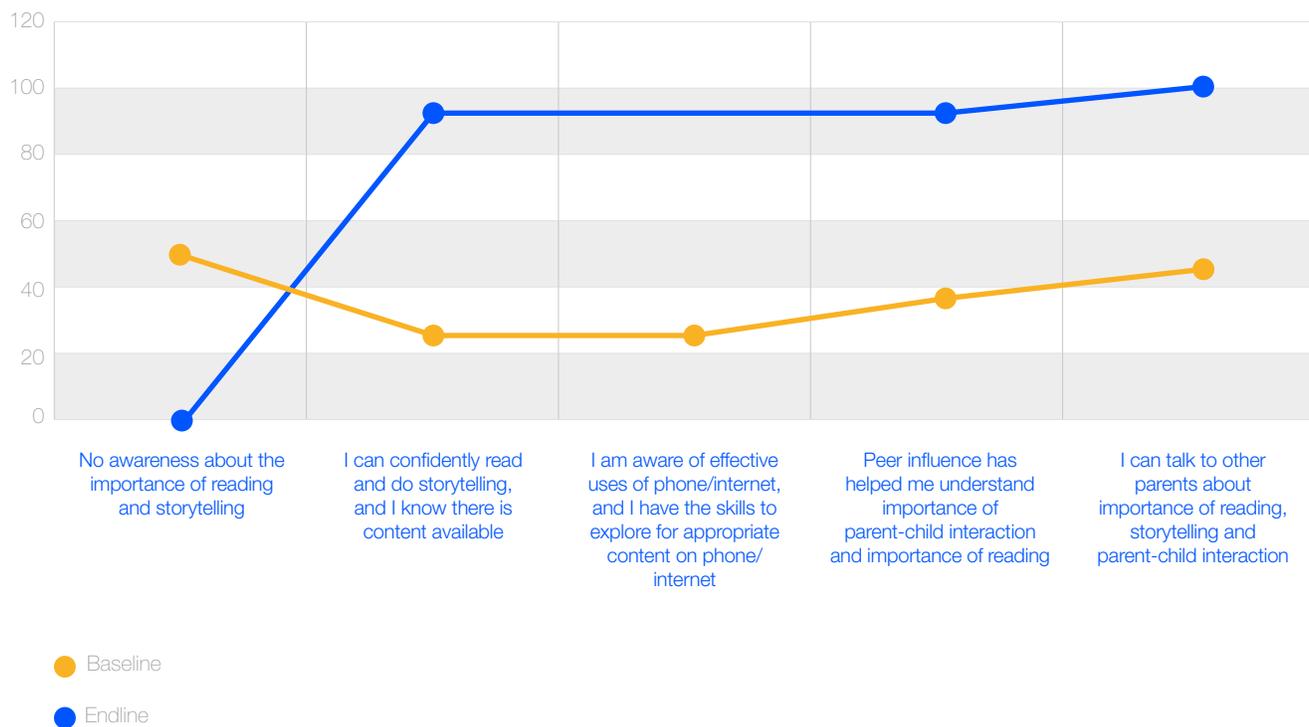
Multi-channel approaches to engaging individuals is on the rise, reflecting the impact that digital outreach can have, even on those families with extremely low incomes. Whether it be an SMS from local healthcare providers or an in-app reminder to read or exercise, digital tools are shifting the behaviors of individuals in their homes and communities. Habit creation and effective behavior change will increasingly benefit from a blend of in-person support and digital tools. With careful use, these channels hold great promise for supporting behavior change and improving both the reach and impact of the program.

While habit creation is easily identifiable through back-end data, attitudinal changes however were more difficult to measure. CKS conducted a polling booth³⁷ exercise with 120 parents at baseline and endline that showed a positive increase in parental attitudes about reading, technology or the willingness to be a reading advocate. The majority reported an increase in their awareness of the importance of reading to young children, an increase in knowledge on storytelling techniques and an increased understanding of the value mobile can have by bringing relevant children's content into the home.

³⁶ The average click-through rate for Worldreader Kids push notifications was 5%, versus an industry standard of 3.05% cited by Takahashi, D. (2016).

³⁷ CKS research with 120 parents in Delhi in 2017.

Qualitative Polling Survey Amongst Group of Users at the End of the Pilot



Source: CKS, 2017

At the end of the program, an independent outcome evaluation conducted by CECED³⁸ shed a different light on the findings. The CECED evaluation focused on 300 families (150 intervention and 150 control)³⁹ and concluded that the difference in parents' attitudes and behaviors between baseline and endline were not of statistical significance. This outcome evaluation relied on survey methods and self-reporting of parental behaviors and attitudes.

CECED noted that the absence of a significant difference between the attitudes and behaviors of parents in the intervention and control groups may be due to the absence of an in-depth intervention by virtue of the program being a pilot. Additionally, baseline data collection and questions around reading and its benefits might have influenced responses in both groups.⁴⁰ Positive trends towards attitude and behavior change were seen in both groups, but the difference between groups suggest the pilot failed to reach impact in the 150 intervention families.

An improved program design that incorporates the findings of this pilot and strengthens the interplay between community-driven and digital support is the path forward to increase impact. Many parents may still not know or entirely value the importance of reading to young children, but the pilot showed that habits began to change in a very short period of time. Normalization of reading to children will be achieved as parents increasingly see their peers beginning to read, see commercials about the value of reading, receive "nudges" via push notifications or get a digital book-of-the-day straight from the application.

³⁸ The Centre for Early Childhood Education and Development (CECED), Ambedkar University Delhi.

³⁹ Caregivers who were part of the control group did not participate in the trainings our partners provided. They also did not have access to the app unless they had come to know about it through the media campaign or word-of-mouth.

⁴⁰ Baseline data was collected with a group of users that had been screened by partners as potential beneficiaries of the pilot. It is possible that some respondents had been introduced to the goals of the project in the course of screening, which may have affected the baseline data.



हेली
कोई आई लोनी आई
या बियाँ सुकणी-बट
भी रात-रुई निकली
किन्नाके केकर लोली
रुई-रुईत और नव
आँ पर ऐसा चव

3D BIRDS

5. DISCUSSION AND NEXT STEPS

Mobile reading is a cost-effective strategy to get a diverse and plentiful selection of quality books into the hands of parents and caregivers. At a cost of \$0.30 USD to reach a user on mobile, mobile technology has the ability to provide access to reading materials to millions of people in populations previously outside the traditional book market and supply chain. Reading on mobile is very affordable for parents, with the price of monthly online reading approximated at the equivalent of two cups of street chai per month.

However, the promise of mobile technology can only be delivered if there is greater cooperation between industry, international, governmental and local community development actors. Building and disseminating an app is a beginning, but all of the above influencers must work in coordination to reach millions of parents and ingrain the habit of reading to children.

DIGITAL HOLDS PROMISE BUT BARRIERS REMAIN

It is predicted that by 2020 India will have over 951 million unique mobile subscribers.⁴¹ In addition to the ever-lowering price of smartphones, India has a thriving refurbished phone market and boasts some of the lowest mobile internet costs in the world. This has enabled low-resource households to overcome economic barriers and participate in the digital world, often with a mobile device as their first and only screen.

In many cases, mobile devices are the only digital technology available to families. Integrating mobile into programing was therefore an easy choice. Still, despite the factors noted above, multiple devices are not yet found in many of the pilot households. Cost of devices, credit and data remain a significant barrier⁴² for both sexes in accessing and regularly participating in the digital world. In addition, while this pilot was in urban Delhi where 4G is available, densely constructed and populated urban slum communities still lag in quality and consistency of connectivity. Unfortunately, these challenges combined did negatively impact parental participation in the pilot.

Data showed that the education, health and community literacy partners in the pilot each converted parents to frequent readers at a rate of between 22% and 27%, making their impact roughly equivalent. One reason for these similar results may be that the pilot targeted a socio-economic group still too poor for successful participation. Mobile reading is affordable and accessible, but only when users are properly supported by the larger infrastructure and have enough resources to feel confident in online reading. Users in the pilot often expressed anxiety about using too much data, which was still seen as expensive. This perception of data as a pricey commodity is a holdover from before 2017, when competition between operators drove down costs.⁴³ In addition to misperceptions about data costs, low digital literacy levels meant that some parents didn't understand which internet behaviors would incur costs and therefore avoided most online activities. These cost and cost-perception barriers had a discernible impact on families in the pilot, even with the influx of new mobile operators and concomitant price cutting.

The digital divide remains significant, but strong consumer demand for connectivity, more innovation, and falling prices mean that a growing selection of digital content and services will reach millions more in India year upon year. Read to Kids wants to make sure parents of young children benefit from the narrowing divide.

⁴¹ See GSMA (2016). Mobile profile on India.

⁴² See GSMA (2015). *Bridging the gender gap: Mobile access and usage in low-and middle-income countries*.

⁴³ Annual average data rates now stand at 1.3% of annual GDP/capita, well below the recommended 2% ceiling. However, these cuts are relatively recent and fears around data costs still persist in the target groups.

GENDER BARRIERS

The gender barriers to digital reading are persistent. In the beginning of the pilot, fewer women were participating due to reduced access to phones, cultural or economic concerns, lower literacy levels and a lack of awareness that mobile could be a tool for their child's development. Therefore it was an unexpected surprise that, by the end of the pilot, the majority of frequent readers were women.⁴⁴

Many women in the Read to Kids program reported access to children's books as an enormous motivator that helped them to negotiate and legitimize their own access to a phone and data. While men expressed concerns over what type of content women were accessing, children's books were perceived by both sexes as positive content with educational benefit, thereby softening the traditionally conservative stance around women's use of the internet.

Women in the pilot reported climbing on rooftops in the narrow streets of Delhi to capture a signal. Other women reported allocating more family resources towards their own first phone and using the internet for the first time. Both sexes considered women the primary caregivers responsible for helping with their child's education, and the presence of digital books and appropriate content was an incentive for mothers to use the app and support their children's path to reading. Fathers' participation in reading was higher than expected, but "lack of time" was the most frequently reported barrier, as fathers often returned home very late in the day when young children were already in bed.

The cause of the mobile gender divide is multi-faceted, with historical, social, economic and cultural barriers at play. While the gender divide is narrowing in urban India, women in low-resource households still face distinct challenges. For this reason, it is imperative that mobile programs for development consider ways to chip away at the gender divide through their design.

While mobile-based programs like Read to Kids empower women, they should also not lose sight of the critical role that men, in this case fathers, play in early childhood development. Literacy levels of men in India remain higher than those of women, making it imperative to reach fathers and normalize their participation in reading with their children. Relatedly, it is important to foster a belief that sharing books and stories with children is not just women's work, but the work and joy of both parents. Any successful program will require a set of strategies that target fathers and mothers equally.

⁴⁴ This data is drawn from the 15,000 registered Read to Kids application users. Only registered users provided information on sex.





AN INNOVATIVE APPROACH TO M&E FOR AN INNOVATIVE PROGRAM

A project's theory of change reflects the idea that a fixed set of inputs, resources, and activities will combine to generate a change within a specified period of time. Read to Kids had a theory of change, but it was unique in that the inputs and activities were continually adapted in relation to real-time back-end data. While this kind of adaptive programming is common in the startup and tech world, it is less so in traditional international and government development programs. In those programs, contracting procurement regulations and a promise to deliver on the initial design all lead to stricter accountability and a lower tolerance for deviation from original plans.

Adaptive programming that has a strong ethos of data-driven decision making and change requires an openness among donors. Strong discipline and coordination among implementation teams is also needed as program strategies, training approaches and the product itself may change in the space of a pilot. The Read to Kids pilot strived to be agile and coordinate product, tech, content and implementing teams' efforts in a loop of continuous program improvement. Worldreader and partners were continuously iterating to better meet the needs of users, and this led to releasing code, bringing in new content or shifting partner strategy on a quarterly basis. In a pilot characterized by such continuous design and program change, careful thought needs to be given to the quality and frequency of data collection and analysis, as well as the timing of evaluations. Like any programming, mobile programming needs rigorous monitoring and evaluation (M&E) systems to document impact. Updates to an application or a shift in program design may be beneficial, but can lead to extra challenges for an M&E team or a data analyst interpreting data on the back-end of an application. Worldreader, with the support of Results for Development, worked to analyze real-time data and provide insights into behaviors in a way that was more dynamic than traditional M&E systems.

THE CRITICAL IMPORTANCE OF DESIGNING AROUND USERS

During the pilot, readers' behaviors became better known and many were surprising. While the program focused on parents' engagement in reading to children, extended family, including grandparents, aunts, uncles and siblings, also engaged with the application. Children themselves became active agents in reading, with many looking at pictures even without prompting from their parents. Older siblings, who were in some cases more literate and tech-savvy than their parents, often read to younger siblings or looked at books themselves. Parents also used content from the app in non-traditional ways, for example narrating the stories rather than reading them aloud. In these cases, the app served as a prompt, an encyclopedia of both familiar and unfamiliar content, and a source of new storytelling ideas and activities. Less literate parents also found ways to use the app, relying on picture books and illustrations from familiar or traditional tales to storytell to their children. These mixed practices at the household level should inform future application design, as well as data metrics and analysis techniques.



SOME MOTHERS READ STORIES ON THE APP AND WHILE NARRATING IT, THEY REINVENT THE PLOT AND CREATE NEW STORYLINES. THEY USED THE IMAGES OF THE BOOK TO KEEP THE CHILD INVOLVED AND PLAY WITH THE STORY TO TEACH NEW MORALS, SHARE IDEAS OR SIMPLY HAVE FUN.

The knowledge that there are multiple users of a phone, or the discovery of new and unexpected habits or concerns, should inform program design. Being attentive to unexpected findings and listening to users will ultimately improve the program and lead to more parents reading. Linking reading to other parental activities such as traveling to school, daily routines or holidays can help integrate reading into current child-rearing practices.

Responding to user feedback will improve both content curation and the content discovery process within the app. Data showed that readers often chose the same books or chose promoted books on the application, which might mean they didn't always know which book to read with their child. To choose the right book for a child, a parent must make decisions about language, content and age appropriateness. Stronger app design can help build parents' confidence and ease the process of making those decisions. Improved content management in the application, more tailored book suggestions, better categorization and game-based rewards may help parents more consistently find the right book when needed, and ultimately keep them reading to their child.

A stronger user feedback mechanism and a solid understanding of reader motivations, content discoverability and community support must inform future programming and product design.

Next Steps

STRENGTHEN PROGRAM AND PRODUCT DESIGN

The findings of the pilot were promising in that they suggest that the right combination of appropriate technology, appropriate content and reading support can begin shifting parental behaviors. Reading to young children can become a new parenting practice. To further support this, Worldreader will invest in a few key areas:

- **A stronger product.** Future iterations of the Worldreader Kids application will represent a departure from a simple digital library to a richer and more engaging app that deepens parental engagement, builds parental skills and promotes more frequent reading. Insights from the pilot around barriers and motivations will drive the design improvements in areas such as personalization of content, offline reading options to address concerns over cost and in-app support for parents. This version will aim to personalize and improve data gathering about our users and their preferences.
- **More content curation.** Linking content to short-term and long-term developmental needs of children merits further consideration. A digital reading library offers choice, variety, and exploration but content anchored to clearly articulated benefits such as improvements in vocabulary, letter recognition, enhanced imagination or socio-emotional growth may increase parental engagement.
- **Better support to partners.** Improvement of existing support materials (digital and physical) for implementing partners that explain the benefits of reading, model good reading behaviors and foster more community around reading will be pursued with the goal of helping any organization use these materials and embed them in their existing programs.

SCALE IN INDIA AND ADAPT READ TO KIDS TO OTHER CONTEXTS

Worldreader hopes to reach 1,000,000 households with quality children's storybooks by 2020. The program has already expanded to Jordan and hopes to expand to Africa by 2020. Reading to young children will become mainstream in India and other contexts through the partnership and

collaboration of a diversity of stakeholders dedicated to making books available to all. Digital and mobile technology is an affordable vehicle to support this, and mobile operators and network providers can help with distribution and discovery. Education institutions - both public and private - can promote parental involvement in learning through shared reading. Community-based organizations - already evangelizing the importance of reading to young children for improved child development - are needed to reach the most vulnerable of families. The publishing sector is a natural partner to continue investing in and developing quality children's books in appropriate languages to support early reading. All of these actors play a role in realizing the blended approach of both digital and in-person reading support will make reading to children at scale possible.

MEASURE THE IMPACT OF SHARED READING ON CHILDREN'S LANGUAGE AND SOCIO-EMOTIONAL DEVELOPMENT

While the outcome analysis of this pilot focused on changes in parental attitudes and behaviors, the Read to Kids project will in the future measure the impact of shared reading on the child. Significant research has already been done in the Global North to establish a positive correlation between parental reading and benefits for the child, but few studies have looked at this in the South. Additionally, better understanding the effects of digital books versus print books on shared reading and child learning outcomes is worthy of future research. Fidelity of implementation, stronger design and product stability will be precursors to impact evaluation.





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CONCLUSION

There is no time more critical in a child's development than the first few years of life. It is in this period that language development begins and a child's long-term health, social, education and economic outcomes begin to unfold. Various studies on child development have demonstrated that engaged parents – parents who regularly interact with their children through playing, talking, reading or singing – can significantly reduce or eliminate the impact of poverty or conflict on their child's cognitive development. The frequency of reading to children at a young age has a direct causal effect on their schooling outcomes regardless of their family background and home environment⁴⁵ - and yet millions in the world are not read to for a lack of books and a poor reading culture in the home.

The global call to action represented in the Sustainable Development Goals makes the need to invest in early childhood clear. To achieve these goals, creative and impactful solutions are needed to build the skills and capacities of parents and caregivers, and to protect the intellectual and social development of the estimated 250 million children under the age of five currently at risk of not reaching their full cognitive development.

Read to Kids India made positive steps towards leveraging mobile technology as a tool for getting parents reading to children. The program raised awareness around the importance of reading and gave access to children's books to over 200,000 families. Few digital collections for young children in Hindi and English are available, let alone distributed for free, with such a diverse set of publishers' books. This represents an enormous contribution to the children's reading landscape.

This pilot generated evidence within a short period of time because it employed an adaptive learning approach that combined real-time data with project implementation to quickly yield results on what was working and what was not. This pilot leveraged digital technology, media communications and local communities to generate an excitement about reading so as to normalize it and encourage attitude and behavior change.

Access is the first in many steps necessary to support reading to children. The pilot demonstrated that high-touch interventions such as home visits or community meetings are still necessary to support families in their reading, but that digital communication strategies can also foster new behaviors. Future iterations of the Read to Kids project will build off of this research, continue to share findings with the emerging community of professionals working in the early childhood and digital space, and make progress towards our shared goal: a world where everyone is a reader.

⁴⁵ See findings from G. Kalb and J.C. van Ours (2012).

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