ALL CHILDREN READING:
GRAND CHALLENGE FOR DEVELOPMENT

Ready2Read Challenge

Ready2Read & Play

Project Evaluation

Prepared for All Children Reading: A Grand Challenge for Development
by School-to-School International

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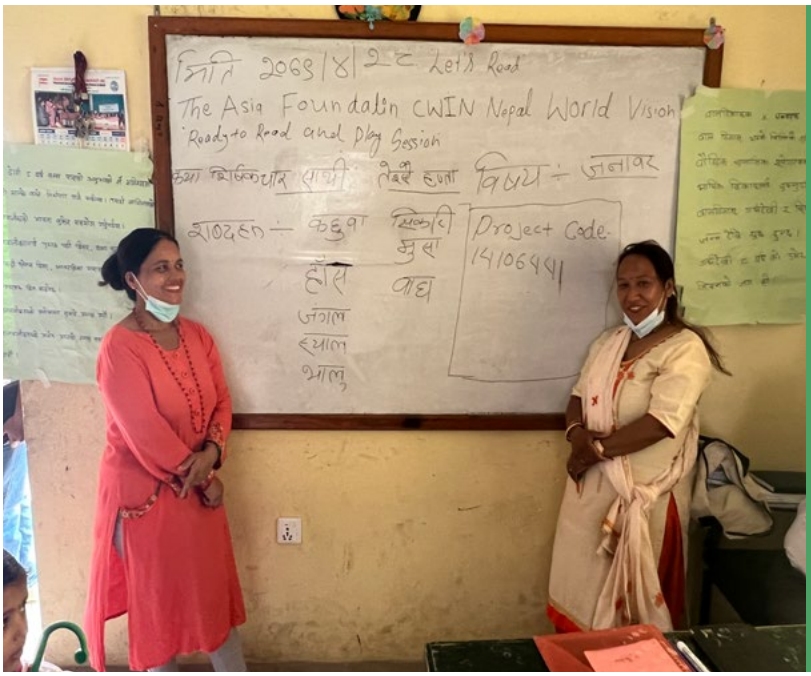
Abbreviations

ACR GCD	All Children Reading: A Grand Challenge for Development
ECE	Early Childhood Education
IDELA	International Development and Early Learning Assessment
MELQO	Measuring Early Learning Quality and Outcomes
R2R	Ready2Read Challenge
TAF	The Asia Foundation
USAID	United States Agency for International Development

Introduction



The Ready2Read & Play[1] project was designed by The Asia Foundation (TAF) and its implementing partner, Child Workers in Nepal Concerned Centre. The Ready2Read & Play project was funded through the Ready2Read Challenge of All Children Reading: A Grand Challenge for Development (ACR GRD), which is a partnership between the United States Agency for International Development (USAID), World Vision, and the Australian Government. In 2020, ACR GCD conducted a landscape review which revealed that there was a scarcity of evidence-based, open-source EdTech solutions to build emergent literacy skills in underserved languages and for children in low resource contexts. In response, recognizing that individualized learning technology can help address barriers to early reading skills development, ACR GCD launched the Ready2Read Challenge (R2R) to find context appropriate EdTech solutions to support foundational language and literacy development for children ages 3 to 6.

The Ready2Read & Play project is one of three awards under R2R. This report presents endline evaluation results of the Ready2Read & Play project, which ran from August 2021 to March 2023.

1 The Ready2Read & Play program was integrated as supplementary curriculum material under the name of Ready to Learn and Play by the Government of Nepal.

Project Description

The Ready2Read & Play project was a community-based, reading-focused early childhood education (ECE) intervention that took place in the Kirtipur Municipality in Nepal. Ready2Read and Play utilized a holistic approach that helped prepare children for school and develop social, emotional, and executive functions. The project created 30 weekly lessons aligned to the Government of Nepal's early childhood education curriculum to encourage caregivers to support foundational literacy skills at home for preschool children aged 3 to 6 years old, and supported by storybooks from TAF's **Let's Read Asia Digital Library**. The project trained community mobilizers as facilitators and engaged family caregivers through the 30 weekly, in-person lessons in all 10 wards of the Kirtipur Municipality. TAF also used social media to broadcast the lessons through its Let's Read Nepal Facebook page and encouraged families to access the digital audio books through their Let's Read Asia platform.[2] During each of the 30 sessions, the corresponding books and activity sheets were provided in print format to all in-person participants. Participants were also given access to the digital format of the books and mobile hotspots were provided during the in-person sessions to enable family access to the digital platform. Families who consistently participated in the in-person sessions acquired a library of 36 print books by the end of the project (the 30 curriculum titles plus six more titles that were distributed to incentivize regular participation through the end of the project).

The project reached a total of 550 in-person families. Implementation with families was over a period of nine months (approximately February 2022 to November 2022).[3] The implementation team established a community of practice to support families in creating meaningful reading and play-based learning experiences at home. The intervention included weekly in-person Ready2Read & Play sessions drawn from the project's Family Engagement Guide and the use of Let's Read products. However, given caregiver responsibilities, the specific caregivers representing each family may have changed each week (i.e., mother attended week 1, father attended week 2). This means that not all caregivers participated for the full nine-month period.

2 Both the Let's Read Asia platform and the Let's Read Nepal Facebook page were accessible through caregivers' personal devices (devices were not provided to the learners through the project).

3 The period prior to February 2022 was used for project start-up and materials development.

Project Evaluation

Baseline data collection took place in March 2022 and endline data collection occurred eight months later, in November 2022. For both baseline and endline rounds, School-to-School International conducted a training with a group of 10 local data collectors from the organization Mountain Research and Development Foundation Private Limited. Those data collectors then conducted assessments and surveys with learners in the field. At both baseline and endline, 440 (240 treatment and 200 control) learners were assessed using the letter identification and oral comprehension subtests of the International Development and Early Learning Assessment (IDELA). At baseline, 440 caregivers were surveyed[4]; and at endline, 430 caregivers were surveyed. Learners also answered questions about how much they enjoyed literacy and technology. In addition, their parents/guardians were surveyed about individual and household characteristics, their child's CBCC attendance and environment (playing, learning, etc.), their own self-efficacy, and their own expectations and attitude toward their child's education. Questions dealing with parents'/guardians' use, reliance, and level of comfort with technology and digital devices were also included in the surveys.

4 At endline, not all learners had caregivers who participated or were clearly linked to a specific learner.

Research Questions

The goal of the evaluation was to measure the literacy learning gains of children reached by the Ready2Read & Play programming. The evaluation focused on two research questions.

The first evaluation question looked at changes in literacy outcomes for learners in both control and treatment centers from the intervention's baseline to endline. In doing so, the evaluation aimed to establish if the learners' reading and language skills improved during the course of the intervention. Moreover, research question 1 evaluated if there was a notable difference in literacy improvements between control and treatment groups.[5]

The second research question focused on learners' experience in control and treatment groups. In looking at literacy outcomes alongside educational experiences, the evaluation can comment on the holistic effects of the Ready2Read & Play intervention.

Research Question 1

Did the Ready2Read & Play learners' reading and language skills improve from baseline to endline?

a. What contextual factors—including geographic, demographic, and socio-economic factors—were associated with learners' reading and language gains?

b. To what extent did EdTech contribute to learners' reading and language skills gains ?

Research Question 2

Did the Ready2Read & Play learners' educational experience change from baseline to endline?

5 Throughout the report, statistical significance is denoted as follows:

- One asterisk (*) indicates that there was a statistically significant difference between the groups or time points at the 95% threshold or significant at the 5% level ($p < 0.05$).
- Two asterisks (**) indicates that there was a statistically significant difference between the groups or time points at the 99% threshold or significant at the 1% level ($p < 0.01$).
- Three asterisks (***) indicates that there was a statistically significant difference between the groups or time points at the 99.9% threshold or significant at the 0.1% level ($p < 0.001$).

A confidence interval (or confidence level) is a range of values that have a probability that the true value lies within it. If the confidence interval does not include the value of zero effect, it can be assumed that there is a statistically significant result.

Research Tools

The evaluation included two separate tools with unique samples. First, learners were assessed using two IDELA literacy subtasks: letter identification and oral comprehension.[6] The letter identification subtask asked learners to identify 20 different letters and the oral comprehension subtask asked learners to answer five questions after listening to a passage read aloud. Second, to measure the learners' experience during the survey, learners were asked questions to measure how they felt and enumerators recorded their observations about each child.

IDELA

Components:

1. Letter identification
2. Oral comprehension
3. "How do you feel …"
4. Assessor's observations

Alongside learners' data, the evaluation collected data from learners' caregivers using a survey that was administered orally. This survey measured multiple indicators to give the project a broader understanding of caregivers' and learners' characteristics, household possessions (as a measure of socioeconomic status and to determine possession of digital devices), ECE attendance, learners' environments, caregivers' expectations and attitudes toward learning and education, caregivers' self-efficacy, and caregivers' use, comfort, and reliance on information technology. Some of these indicators (e.g., attitudes toward learning) were developed as composite indicators.[7] Composite indicators were not weighted, meaning each sub-indicator that comprised that composite was treated equally. More information on the composite indicators is available in Appendix A: Composite Creations.

Caregiver Survey

Components:

1. ECE attendance / non-attendance
2. Child's learning environment
3. Caregiver expectations and attitude towards learning and education
4. Caregiver self-efficacy; use, comfort, and reliance on information technology

6 IDELA measures four core developmental domains, namely: motor development, emergent literacy, emergent numeracy, and social-emotional development. This evaluation included a subset of tasks that were most relevant to the literacy goals of the intervention.

7 The term "composite" refers to a single indicator that is comprised of multiple sub-indicators. No composite has been weighted, meaning that all the sub-indicators carry equal weight or influence on the composite.

Evaluation Sample

At both baseline and endline, the sample was divided between a control group—learners who did not participate in the Ready2Read & Play intervention—and a treatment group—learners who did participate in the Ready2Read & Play intervention. At baseline, the control group was formed through a simple random sample of 200 learners, while the treatment group was formed by a simple random sample of 240 learners from the Ready2Read & Play project population across 10 wards (see Table 1). The baseline sample also included surveys with 440 child-caregiver dyads (200 control and 240 treatment). At endline, the sample of learners was the same as the sample at baseline. In contrast, only 197 caregivers of learners in the control group and 233 caregivers of learners in the treatment group were given the caregiver survey. The endline sample included a total of 430 child-caregiver dyads rather than 440, as not all learners had caregivers who participated or were clearly linked to a specific learner.

TABLE 1
Baseline and Endline Sample

	Baseline		Endline	
	Control	Treatment	Control	Treatment
Learners	200	240	200	240
Caregivers	200	240	197	233

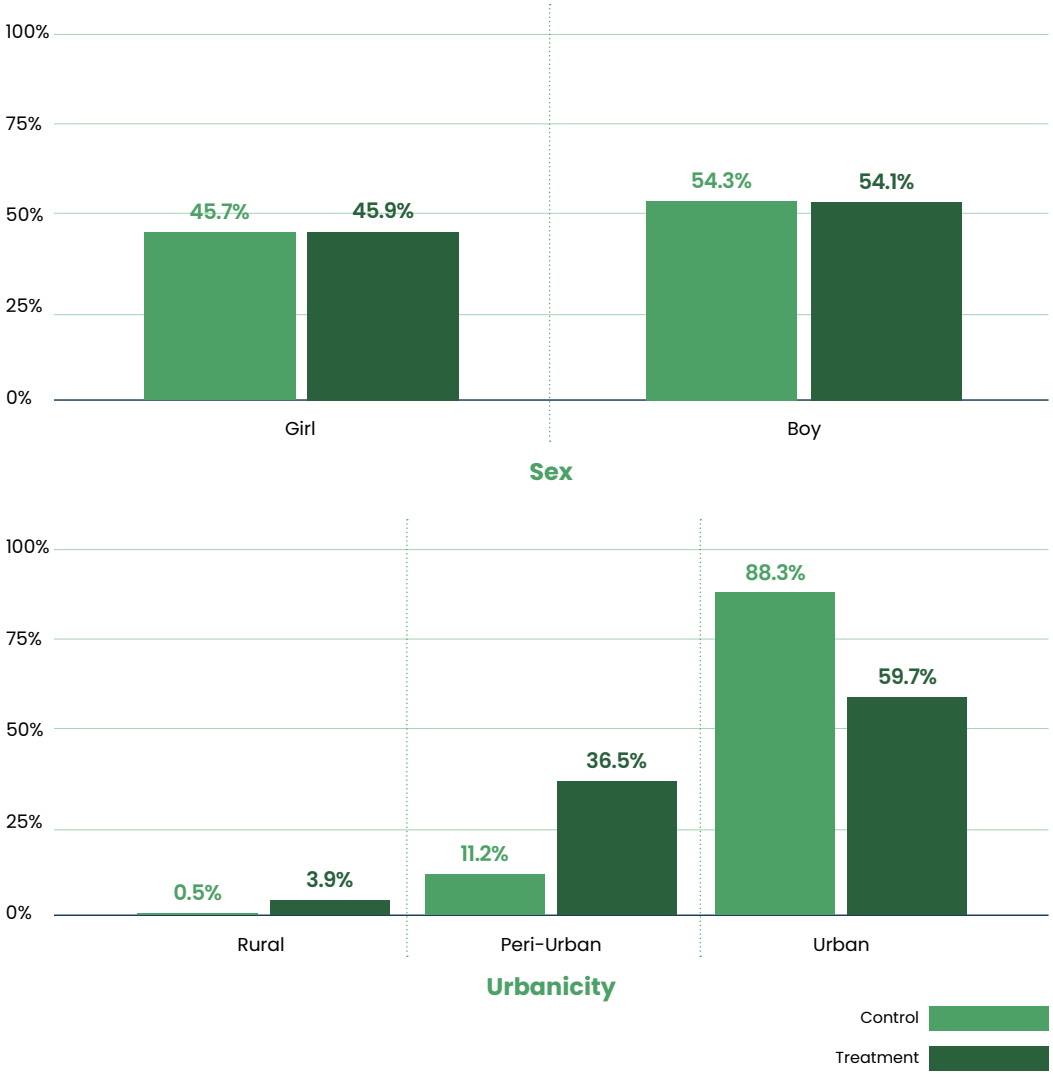
Learner Profile

The baseline and endline sample of learners (combining both treatment and control groups) had comparable proportions of boys and girls (54% boys and 46% girls). Likewise, the baseline and endline sample of learners in control and treatment groups had comparable proportions of learners living in urban, peri-urban, or rural areas.

At endline, more learners from the treatment group lived in urban areas (59.7%) than in peri-urban (36.5%) or rural (3.9%) areas (Figure 1). Most learners in both control and treatment groups lived in urban areas. However, a larger percentage of learners in the control group, rather than the treatment group, resided in urban areas (88.3% and 59.7%, respectively).

FIGURE 1

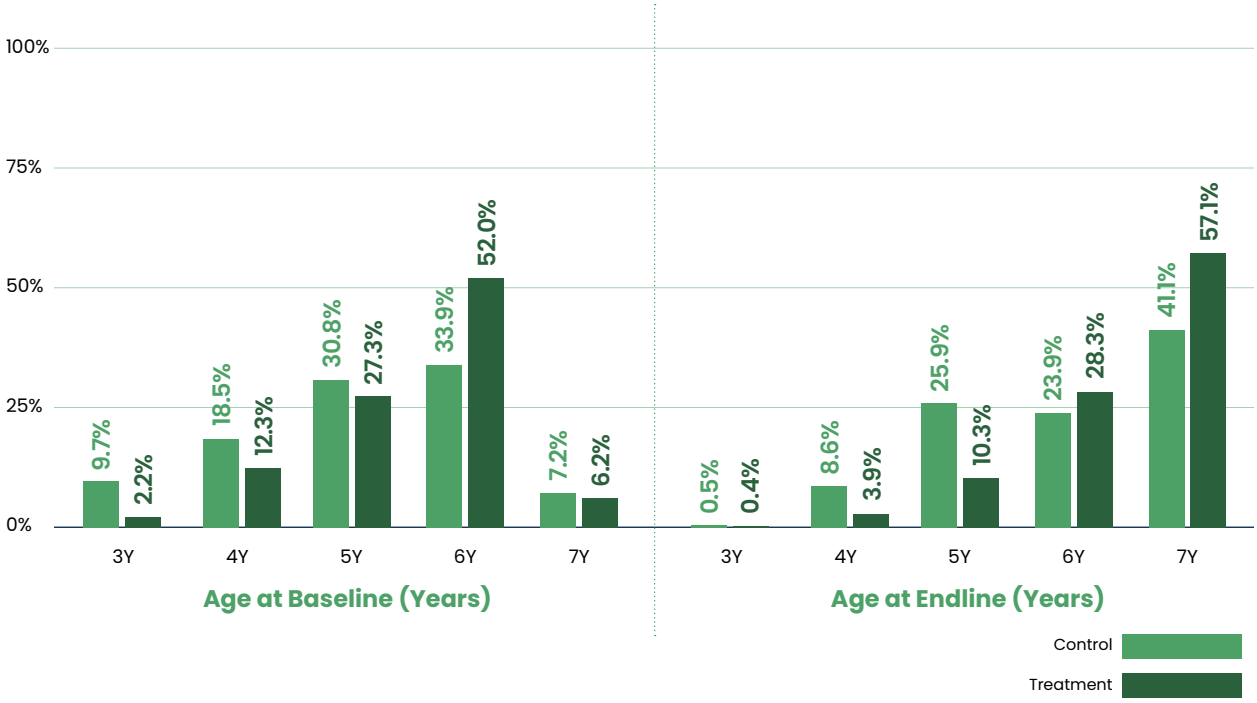
Respondent Profile of Child at Endline, By Sex and Urbanicity



The target age range of learners for the Ready2Read & Play intervention was 3 to 6 years. At baseline, the largest percentage of learners in both the control (33.9%) and treatment groups (52.0%) were 6 years old (Figure 2). At baseline, a small percentage of learners in both the control (7.2%) and treatment (6.2%) groups were 7 years old, older than the target age range. In contrast, at endline, 7-year-olds comprised the largest percentage of learners in both the control (41.1%) and treatment (57.1%) groups. Because age is typically related to development, one might expect that older learners would perform at higher levels of learning than younger learners. As for learners' ECE attendance, nearly all caregivers (more than 85.0%) in both control and treatment groups reported sending their children to an early education center or preschool daily.

FIGURE 2

District Representation for Control and Treatment Groups at Baseline and Endline



Research Question 1

Did the Ready2Read & Play learners' reading and language skills improve from baseline to endline?

a. What contextual factors—including geographic, demographic, and socio-economic factors—were associated with learners' reading and language gains?

b. To what extent did EdTech contribute to learners' reading and language skills gains?

TABLE 2
Summary Findings for Research Question One

	Letter Identification	Oral Comprehension
Overall Skill Improvement	Statistically significant increase from baseline to endline was noted for both treatment and control groups***	Statistically significant increase from baseline to endline was noted for the treatment group only***
Group Differences	No statistically significant differences between treatment and control groups were noted at the endline*	No statistically significant difference was noted at endline
Contextual Factors Associated with Score Gains	No statistically significant differences by gender or urbanicity were noted from baseline to endline and between treatment and control groups Statistically significant differences by age (older learners had higher learning outcomes) were noted for all learners both treatment and control*	No statistically significant differences by gender or urbanicity were noted from baseline to endline and between treatment and control groups Statistically significant differences by age (older learners had higher learning outcomes) were noted for all learners both treatment and control*
EdTech Contribution to Score Gains	No statistically significant differences by control or treatment groups were noted at endline	No statistically significant differences by control or treatment groups were noted at endline

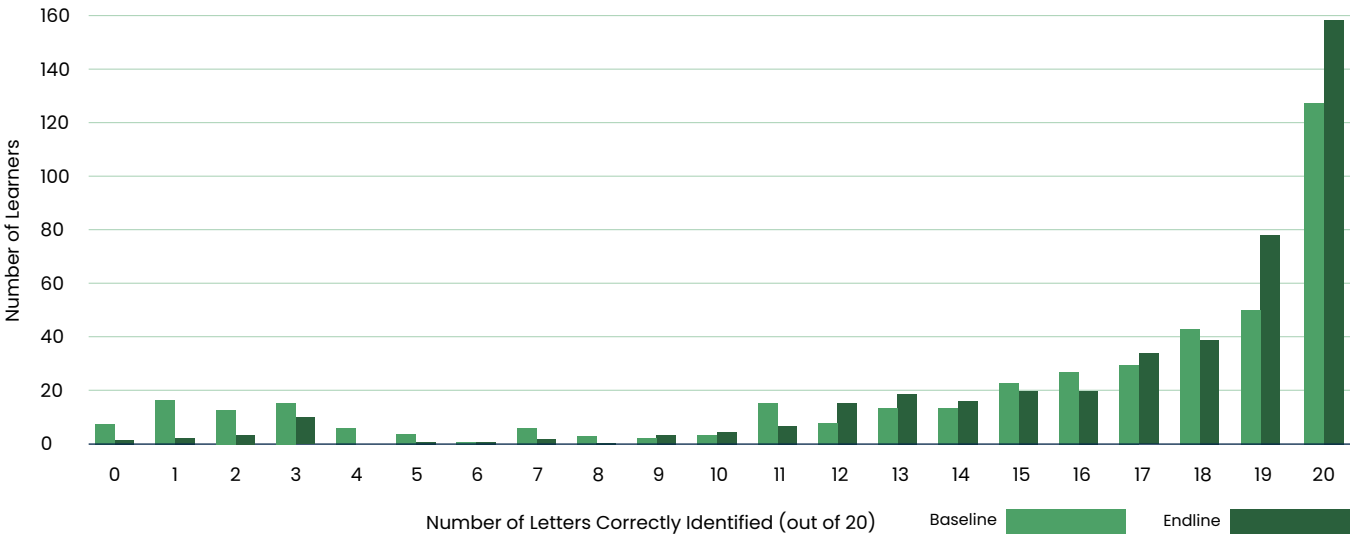
Note: One asterisk (*) indicates statistical significant at 5% level; two asterisks (**) indicates statistical significant at 1% level; three asterisks (***) indicates statistical significant at 0.1% percent level

Letter Identification

The letter identification subtask asked learners to identify twenty letters. At baseline and endline, most learners in both treatment and control groups correctly identified all twenty letters, resulting in a ceiling effect (see Figure 3). Learners' high performance in letter identification suggests that other assessments of early reading skills, such as phonological awareness or word reading, could be considered to better capture the range of learners' skills.

FIGURE 3

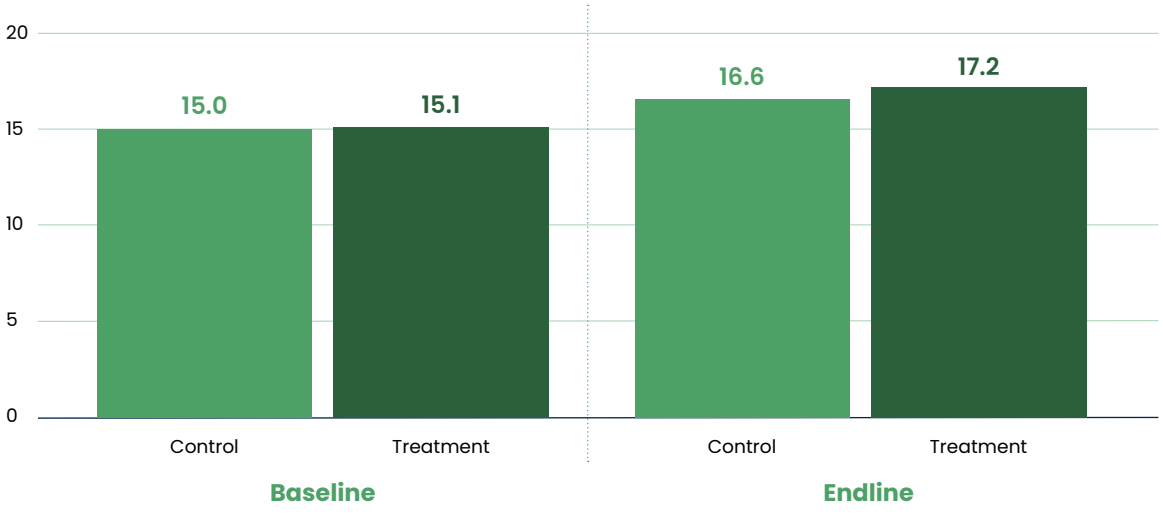
Letter Identification Scores for All Learners (Treatment and Control Combined) at Baseline and Endline



A statistically significant increase in mean letter identification scores was noted for both groups from baseline to endline (see Figure 4). This was true for learners in the treatment group and the control group at endline. While there was a statistically significant improvement in letter identification between baseline and endline, the practical difference was minimal. At baseline, learners in the control group could already identify an average of 15.04 letters and this increased to 16.6 letters at endline. Similar numbers were found for the treatment learners (15.1 letters at baseline to 17.2 letters at endline). The exact explanation for the improvement is not fully explained by the data. There are no statistically significant differences in letter identification scores between learners in control and treatment groups at endline.

FIGURE 4

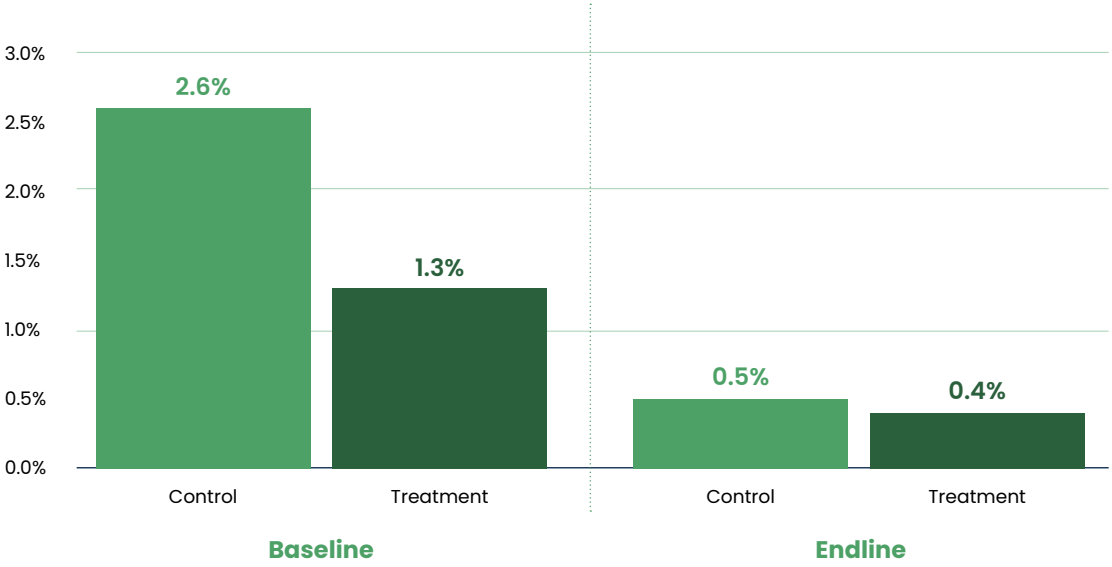
Mean Letter Identification Scores at Baseline and Endline for Both Treatment and Control



At both baseline and endline, a small percentage of learners earned zero scores, indicating those learners did not identify a single letter correctly. Also, the percentage of learners who did not identify a single letter correctly decreased from baseline to endline (see Figure 5). In sum, most learners in both treatment and control groups were able to identify letters, showing near mastery of a key early reading skill.

FIGURE 5

Letter Identification Zero Scores for Control and Treatment at Baseline and Endline



On the letter identification subtask, no statistically significant differences were observed among girls' and boys' scores in either the treatment or control groups. This remained true at both baseline and endline. This suggests that the intervention did not impact girls or boys differently. No significant differences were also observed among scores of learners (on letter identification and oral comprehension) residing in urban, peri-urban, or rural areas at baseline or endline. Again, these results suggest that the intervention did not have a different impact by urbanicity. This finding is likely explained by the fact that most learners sampled were living in relatively similar contexts (urban/peri-urban) and thus there was little variation in urbanicity. Some variations in the letter identification scores can be correlated with contextual factors. Specifically, when controlling gender, urbanicity, and age, a statistically significant difference exists for learners by age. As previously reported, half of learners (50.0%) at endline were 7 years old—older than the target age range of the intervention. When the same analyses were conducted looking at the subset of learners within the target age range (3 to 6 years), the trends in letter identification outcomes were like those found when looking at all learners. The mean letter identification scores remained high, and no statistically significant differences existed between the control and treatment groups.

TABLE 3

Summary of Heterogeneous Effects in Letter Identification

Factor	Effect	Observation
Gender	No	No statistically significant differences in letter identification scores were observed between baseline and endline in either the treatment or control groups.
Urbanicity	No	No statistically significant differences in letter identification scores were observed between baseline and endline in either the treatment or control groups.
Age	Yes	Some statistically significant*** differences by age were observed. Older learners (6- and 7-year-olds) scored significantly higher on letter identification than did younger learners (3-, 4-, and 5-year-olds) across both treatment and control groups.

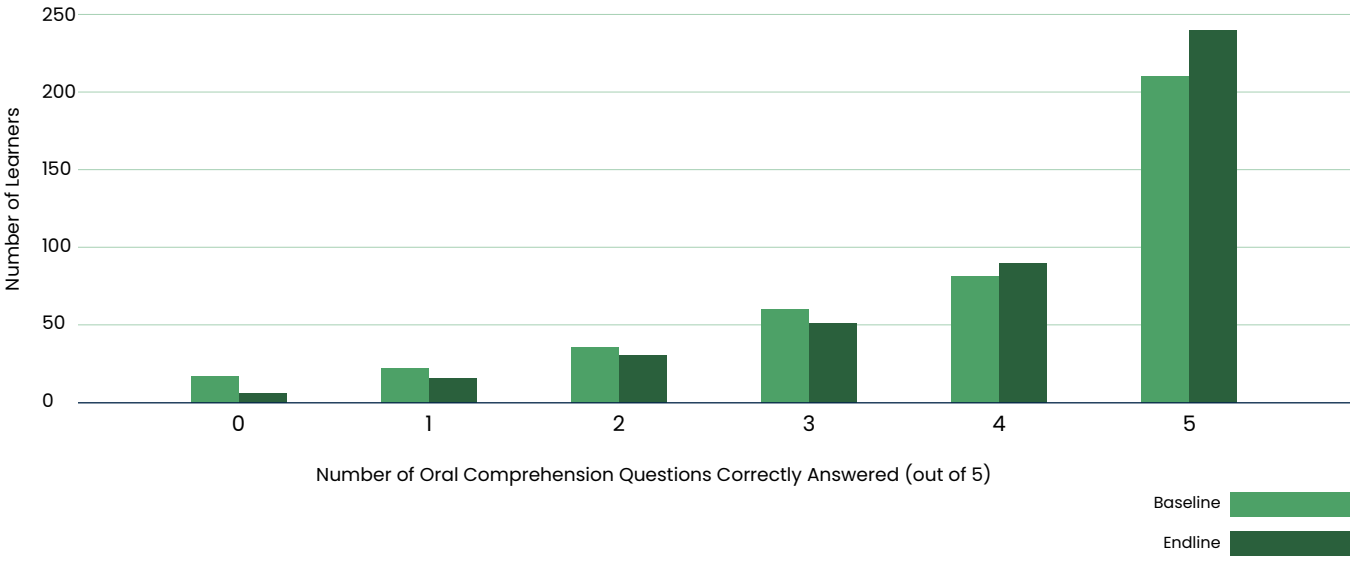
Note: One asterisk (*) indicates statistical significant at 5% level; two asterisks (**) indicates statistical significant at 1% level; three asterisks (***) indicates statistical significant at 0.1% percent level

Oral Comprehension

The oral comprehension subtask consisted of five comprehension questions which learners responded to after listening to a reading passage. Most learners answered all five comprehension questions correctly at endline (56%), an improvement over baseline (50%) (see Figure 6). Like the letter identification subtask, the results on the oral comprehension subtask displayed ceiling effects. Because of the ceiling effects, it is likely that the oral comprehension subtask did not adequately capture changes in learner oral comprehension abilities. In the future, a wider range of literacy skills could be examined to better capture the range of learner literacy acquisition and development.

FIGURE 6

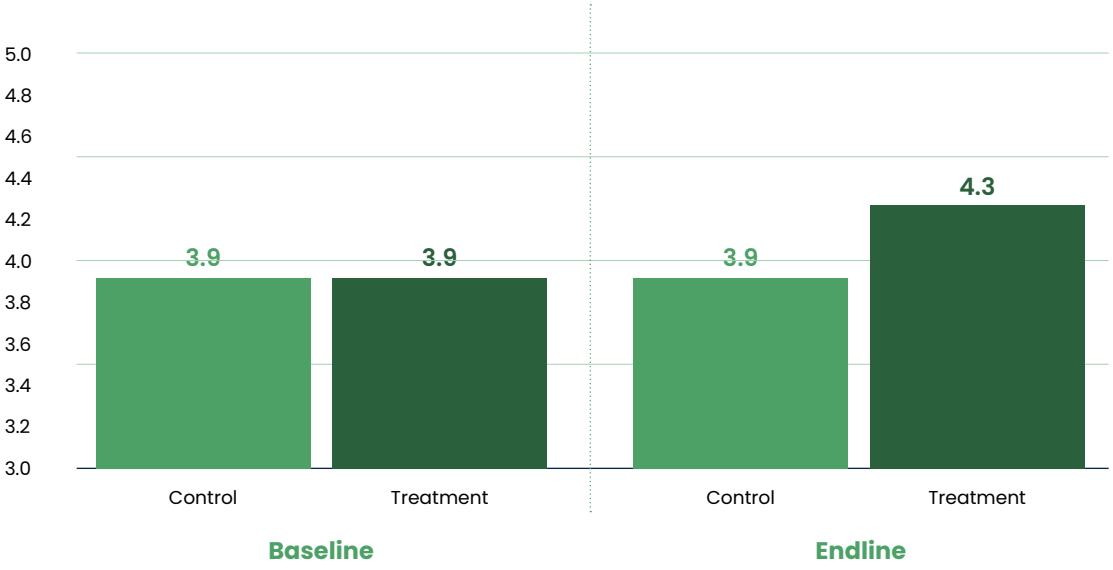
Number of Treatment and Control Learners Combined at Each Level of Oral Comprehension Score (0 to 5) at Baseline and Endline



Despite the observed ceiling effects, mean scores for the oral comprehension subtask statistically significantly increased from baseline to endline among learners in the treatment group. Mean scores among learners in the control group increased from 3.88 questions to 3.90 questions, while mean scores among learners in the treatment group increased from 3.90 to 4.30. Practically speaking, this improvement is not meaningful; however, it suggests a positive oral comprehension trend (see Figure 7).

FIGURE 7

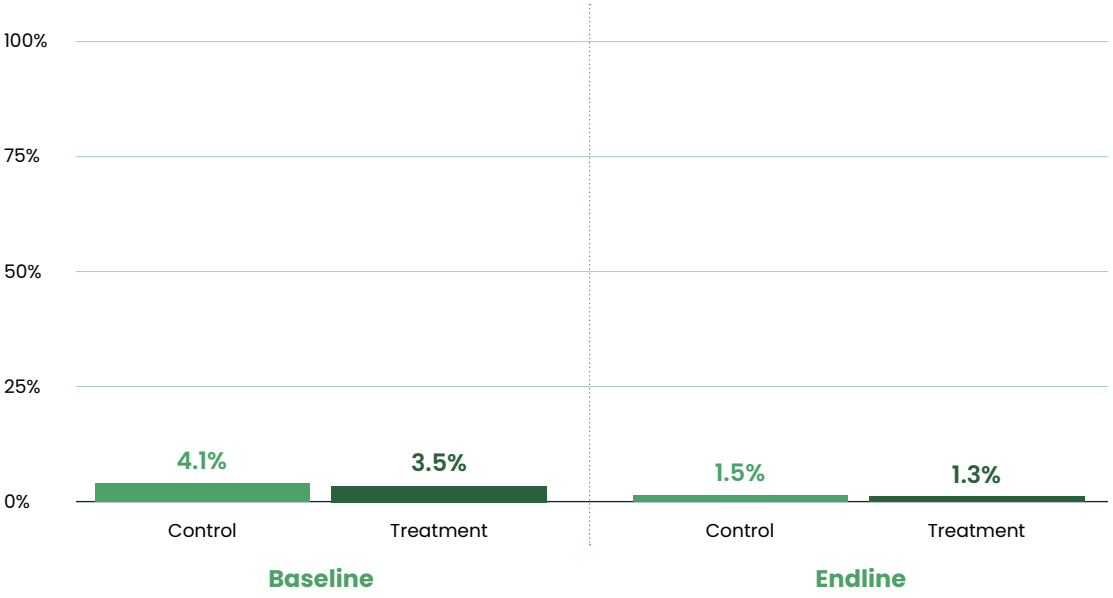
Oral Comprehension Mean Score for Both Treatment and Control at Baseline and Endline



A small percentage of learners in either the treatment group or control group received zero scores on the oral reading comprehension subtask (see Figure 8). Also, the percentage of learners who failed to answer any questions correctly as represented by zero scores decreased from baseline to endline in both groups. In sum, most learners in both the treatment and control groups were able to answer oral comprehension questions correctly at both baseline and endline.

FIGURE 8

Mean Zero Scores in Oral Comprehension for Both Treatment and Control at Baseline and Endline



Looking into the variation within learners' scores, an interesting contextual difference by age was identified similar to that found when examining letter identification outcomes. Older learners tended to have statistically significantly higher oral comprehension scores than younger learners. A subsequent analysis of only those learners within the target age range of the intervention (ages 3 to 6) found that most learners had high oral comprehension scores. When controlling for the target age range, there were no statistically significant differences between control and treatment groups at endline.

TABLE 4

Summary of Heterogeneous Effects in Oral Comprehension

Factor	Effect	Observation
Gender	No	There is no overall effect of gender on oral comprehension. No significant differences in oral comprehension scores were observed between boys and girls in treatment and control groups.
Urbanicity	No	There is no overall effect of urbanicity. No significant differences in oral comprehension scores were observed between learners in urban, peri-urban, or rural locations between treatment and control.[†]
Age	Yes	Some statistically significant differences in oral comprehension scores by age were observed across both control and treatment groups. Older learners (i.e., 6- and 7-year-olds) scored significantly*** higher on oral comprehension than younger learners.

Note: One asterisk (*) indicates statistical significant at 5% level; two asterisks (**) indicates statistical significant at 1% level; three asterisks (***) indicates statistical significant at 0.1% percent level

Research Question 2

Did the Ready2Read & Play learners' educational experience change from baseline to endline?

TABLE 5
Summary Findings for Research Question Two

Letter Engagement	Caregiver Engagement
No statistically significant difference across groups from baseline to endline in learners' overall feelings about learning (i.e., feeling towards books, learning to read, writing, drawing, playing games)	No statistically significant difference in learning environment across groups from baseline to endline in: • Presence of literacy resources (e.g., picture books, textbooks, magazines, newspapers, religious books, coloring books, comics), including eBooks • Presence of materials for play (e.g., homemade and manufactured toys, puzzles, drawing materials)

Learner Engagement

At both baseline and endline, learners were asked how they felt about multiple factors contributing to their educational experience, such as their feelings about books, learning to read, writing, drawing, or playing games. Learners were asked to respond by pointing to a happy face, a neutral face, or a sad face.

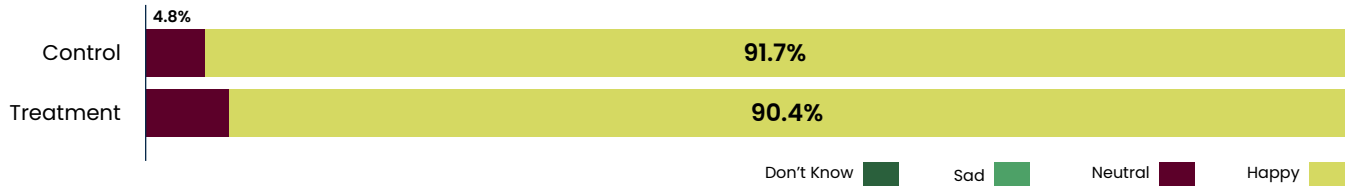
Learners' educational experiences were measured on an index ranging from 0 to 22. The index included items reporting on learners' overall feelings about books, learning to read, writing, drawing, and playing games. More information on the composite indicators is available in Appendix A: Composite Creations.

No significant differences in learners' feelings were observed between baseline and endline or between treatment groups. The study measured learner's feelings about education using a composite variable that asked questions on feelings toward books, learning, and writing. Between baseline and endline, among the treatment group, learners' average feelings scores on the composite were 24.7 at baseline and 25.0 (out of 26) at endline with no statistically significant difference. Among the control group, average scores were 25.4 at baseline and 25.5 at endline with no statistically significant difference. In sum, learners' feelings as measured by the composite were relatively high at both baseline and endline, but did not appear to change much over time, perhaps because there were already high at the outset.

The feelings composite[8] was also analyzed by its sub-components—books, learning, and writing. For this study, books were broadly defined to include both print and digital. Learners were asked how they felt about books. Most learners across the control (91.7%) and treatment (90.4%) groups stated they felt happy about books at endline.[9] A small percentage of learners expressed feeling neutral about books; no learners reported feeling sad or negative about books. While percentages were slightly higher for the control group than for treatment, the differences between those two groups were not statistically significant. Notably, no learners reported feeling sad or negative toward books (see Figure 9).

FIGURE 9

Learner Feelings about Print and Digital Books for Both Control and Treatment at Endline



Likewise, at endline most learners expressed feeling happy about learning and these reported feelings were true for both control and treatment groups. At endline, 95.3% of learners in the control group and 90.5% in the treatment group reported happy feelings about learning (see Figure 10).[10]

FIGURE 10

Learner Feelings about Learning for Both Control and Treatment at Endline

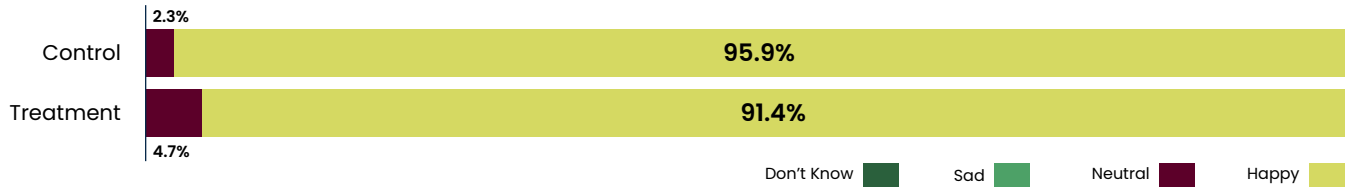
8 The composite scores were created after conducting an exploratory factor analysis at baseline. The same composite was created at endline.

9 The books composite was comprised of six different items, asking the following questions: how do you feel when you look at pictures in a book; how do you feel when someone reads a book to you; how do you feel when someone asks you questions about what happened in a book; how do you feel when you listen to a story either read from a book or told to you; how do you feel about your books at school; and how do you feel when you tell a story.

10 This composite included three questions to gauge their feelings towards learning: how do you feel about learning to read; how do you feel about learning letters; and how do you feel about going to school or a learning center.

Lastly, at endline, most learners expressed feeling happy about writing.[11] In all, 95.9% of learners in the control group and 91.4% of the treatment group reported feeling happy about writing. Like learners' feelings toward books and learning, small percentages of both groups reported neutral feelings toward writing; no learners reported sad or negative feelings toward writing (see Figure 11).

FIGURE 11
Learner Feelings about Writing for Both Control and Treatment at Endline



Overall, the findings on learners' feelings toward books, learning, and writing at endline were positive. A hypothesis could be that if learners hold positive feelings toward books, learning and/or writing, they are more likely to engage in reading books, learning, and writing. This would likely lead to better overall learning outcomes.

Caregiver Engagement: Education Experiences and Learning Environment

Caregivers were asked to report on several indicators of learners' educational experiences, including the learning environment at home. When asked about the learning environment—as measured by reading materials found in the home—a statistically significant difference was observed in the learning environment (measured on an scale of 0 to 8 literacy mediums). This finding is expected as the project gave participants one print book each time they joined a session; participants who attended all the sessions could have received as many as 30 print books over the life of the project. TAF internal monitoring data found that caregivers attended an average of 16 learning sessions. This difference between treatment and control groups and between baseline and endline was statistically significant in both cases.

Calculated using the composite, caregivers of learners enrolled in control reported, on average, 3.3 reading materials at home at baseline compared to 3.0 at endline.

11 This composite includes two questions to measure learners' feelings around writing and drawing: how do you feel about drawing pictures and how do you feel about writing.

Calculated using the composite, caregivers of learners enrolled in treatment reported, on average, 3.7 reading materials at home at baseline compared to 4.1 at endline.

The analysis used two composites to measure the play environment. Composite 1 included three types of toys and Composite 2 included seven types of toys or learning materials.[12] When asked about the play environment—as measured by various types of toys found in the home—a statistically significant difference was observed in the play environment (measured on a scale of 0 to 8 play mediums) both between baseline and endline and between treatment and control groups. In all instances, there was a statistically significant decrease in play measures.

On average, caregivers of learners in the control group indicated:

a. at baseline, their child(ren) played with **2.6 Composite 1 toys**, and

b. at endline, their child(ren) played with **2.1 Composite 1 toys**.

On average, caregivers of learners in the treatment group indicated:

a. at baseline, their child(ren) played with **2.7 Composite 1 toys**, and

b. at endline, their child(ren) played with **2.4 Composite 1 toys**.

The analysis revealed a statistically significant decrease in the number of toys learners reportedly played with from baseline to endline. While statistically significant, the finding likely has little practical significance. One hypothesis to explain the shift could be that caregivers were asked about their level of comfort regarding computers, mobile, and the internet. Specifically, caregivers were asked if they agreed with the following statement: I know how to use digital technologies, like electronic books, computers, tablets, mobile phones, apps, or the internet, to help support the learning needs of my child. In both the treatment and control groups, caregivers reported a decrease in their comfort when using the specified digital technologies from baseline to endline. This was a statistically significant decrease. Although the project did not provide digital technologies such as computers or smartphones to families, the project encouraged the use of personal digital devices to access digital books using the Let's Read Asia app. These findings can suggest that additional support can be provided so that caregivers have an increased comfort level using digital technologies to access and use digital books.

12 Composite 1 asked about three topics: toys from a shop or manufactured toys; household objects, such as bowls, cups, or pots; and objects found outside, such as sticks, stones, or leaves. Composite 2 asked about seven topics: homemade toys, such as stuffed dolls, cars, or other toys made at home; drawing or writing materials; puzzles (even a two piece puzzle counts); two or three piece toys that require hand-eye coordination; toys that teach about colors, sizes or shapes; toys or games that help teach about numbers/counting; and educational games on digital technologies—digital technologies meaning electronic books, computers, tablets, mobile phones, apps, or internet.

Recommendations

1 FINDING

There was a statistically significant increase from baseline to endline for both treatment and control groups ($p < 0.001$) in letter identification. At endline, most learners in both treatment and control groups correctly identified all twenty letters, resulting in a ceiling effect.

RECOMMENDATION

- **Consider adapting more challenging pre-reading or reading subtasks from the IDELA or the Early Grade Reading Assessment to assess learners' skills rather than relying primarily on the letter identification subtask, which most learners seem to have mastered.**
- **Consider piloting all assessments, including conducting item analysis and revising sub-tasks based on findings to address potential ceiling effects.**

2 FINDING

There was a lack of data on dosage, fidelity of implementation, and other skills more likely to have been impacted by the project due to its primary content (e.g. child protection, socioemotional learning).

RECOMMENDATION

- **Consider developing assessment tools simultaneously or following the development of the project materials, to ensure their alignment.**
- **Use the data from the EdTech intervention to collect and track individual learner and caregiver activity with the platform so that the usage data can be used to evaluate the fidelity of implementation in future studies.**

3 FINDING

On both letter identification and oral comprehension, older learners performed at higher levels than younger learners.

RECOMMENDATION

In future evaluations, consider age when developing the sampling plan to ensure that learners in the target range are appropriately represented in the sample.

4 FINDING

There is no statistically significant difference for learners' feelings toward their educational experience and learning environment between baseline and endline or between control and treatment groups**.** Overall, learners' feelings toward books, learning, and writing were stagnant over the life of the project. Among the treatment group, learners' average feelings scores were 24.7 at baseline and 25.0 (out of 26)[13] at endline with no statistically significant difference.

RECOMMENDATION

Future projects might consider a more targeted and intensive approach to impacting learner's feelings toward books, learning, and writing. Learners with positive feelings toward these items may also demonstrate greater learning engagement overall, which is likely to result in better learning outcomes.

5 FINDING

Caregivers were asked if they agreed with the following statement: I know how to use digital technologies, like electronic books, computers, tablets, mobile phones, apps, or the internet, to help support the learning needs of my child. In both the treatment and control groups, caregivers reported a decrease in their comfort when using the specified digital technologies from baseline to endline. This was a statistically significant decrease.

RECOMMENDATION

Future projects might consider:

a. **providing specific digital technologies to caregivers (e.g. computers),**

b. **providing training on the use of those technologies, and/or**

c. **considering the relative potential impact of interventions that rely on digital books vs. traditional print books.**

13 The overall feelings composite includes a total of all feelings about books, learning, and writing (13 items). Sad = 0, Neutral = 1 and, Happy = 2. When added, a total score will reflect overall happiness about the different items with a higher score meaning more happiness.

Appendix

Appendix A: Composite Creations

ACR GCD's Ready2Read Challenge based its understanding of foundational literacy on the Measuring Early Learning Quality and Outcomes (MELQO) framework. The composites below were created using this MELQO framework, specifically the Measure of Development and Early Learning measurement module. Composites are created using factor analysis. Factor analysis is a statistical technique that is used to identify underlying factors that explain the correlations among a set of variables. Strong item-item and item-total correlations lead to composite creation. This was carried out at baseline and endline. For example, a feelings composite was created that includes a total of all feelings about books, learning, and writing (11 items) with values for: Sad = 0, Neutral = 1 and, Happy = 2. When added, a total score will reflect overall happiness about the different items with a higher score meaning more happiness.

Composite	Questions	Response Options for Each Question	Composite Reaction
Books Composite	**1.** How do you feel when you look at pictures in a book? **2.** How do you feel when someone reads a book to you? **3.** How do you feel when someone asks you questions about what happened in a book? **4.** How do you feel when you listen to a story either read from a book or told to you? **5.** How do you feel about your books at school? **6.** How do you feel when you tell a story?	Neutral face (0) Happy face (1) Sad face (9) Don't Know/ No Response (777)	Feeling Happy: Count occurrences of 1 for all the questions Feeling Neutral: Count occurrences of 0 for all the questions Feeling Sad: Count occurrences of 9 for all the questions
Learning Composite	**1.** How do you feel about learning to read? **2.** How do you feel about learning letters? **3.** How do you feel about going to school or a learning center?	Neutral face (0) Happy face (1) Sad face (9) Don't Know/ No Response (777)	Feeling Happy: Count occurrences of 1 for all the questions Feeling Neutral: Count occurrences of 0 for all the questions Feeling Sad: Count occurrences of 9 for all the questions
Writing/Drawing Composite	**1.** How do you feel about drawing pictures? **2.** How do you feel about writing?	Neutral face (0) Happy face (1) Sad face (9) Don't Know/ No Response (777)	Feeling Happy: Count occurrences of 1 for all the questions Feeling Neutral: Count occurrences of 0 for all the questions Feeling Sad: Count occurrences of 9 for all the questions

14 UNESCO. (2017). Overview: MELQO: Measuring Early Learning Quality and Outcomes. Retrieved from: https://unesdoc.unesco.org/ark:/48223/pf0000248053

Composite	Questions	Response Options for Each Question	Composite Reaction
Learning Environment	**1.** Do you have any textbooks at home? **2.** Story/picture books for young children? **3.** Do you have any magazines at home? **4.** Do you have any newspaper at home? **5.** Do you have any religious books at home? **6.** Do you have any color books at home? **7.** Do you have any ebooks at home? **8.** Do you have any comics at home?	No (0) Yes (1)	Sum of the responses
Play Environment 1 (measured by the variety of toys present in the house)	**1.** Does your child play with toys from a shop or manufactured toys? **2.** Does your child play with household objects, such as bowls, cups, or pots? **3.** Does your child play with objects found outside, such as sticks, stones, or leaves?	No (0) Yes (1)	Sum of the responses for the three questions
Play Environment 2	**1.** Does your child play with homemade toys, such as stuffed dolls, cars, or other toys made at home? **2.** Does your child play with drawing or writing materials? **3.** Does your child play with puzzles (even a two-piece puzzle counts)? **4.** Does your child play with two- or three-piece toys that require hand-eye coordination? **5.** Does your child play with toys that teach about colors, sizes, or shapes? **6.** Does your child play with toys or games that help teach about numbers/counting? **7.** Does your child play with educational games on digital technologies? By digital technologies, I mean electronic books, computers, tablets, mobile phones, apps, or internet.	No (0) Yes (1)	Sum of the responses for all seven questions