ALL CHILDREN READING:
GRAND CHALLENGE FOR DEVELOPMENT

Ready2Read Challenge

The Talking Book: Improving Literacy Among Pre-Primary Learners in Rural Malawi

Project Evaluation

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

September 2023

Ready2Read Challenge

The Talking Book: Improving Literacy Among Pre-Primary Learners in Rural Malawi

Project Evaluation

This report is made possible through the support of the All Children Reading: A Grand Challenge for Development (ACR GCD) Founding Partners (the United States Agency for International Development [USAID], World Vision, and the Australian Government). It was prepared by School-to-School International and does not necessarily reflect the views of the ACR GCD Founding Partners. Any adaptation or translation of this work should not be considered an official ACR GCD translation, and ACR GCD shall not be liable for any content or errors in this translation.

Table of Contents

Abbreviations

ACR GCD	All Children Reading: A Grand Challenge for Development
AECDM	Association of Early Childhood Development in Malawi
CBCC	Community Based Childcare Center
EdTech	Educational Technology
IDELA	International Development and Early Learning Assessment
IT	Information Technology
MELQO	Measuring Early Learning Quality and Outcomes
R2R	Ready2Read Challenge
SRI	School Readiness Initiative
USAID	United States Agency for International Development

Introduction

The *Talking Book: Improving Literacy Among Pre-Primary Learners in Rural Malawi* project (referred to as Talking Books Malawi within this report) was implemented by a consortium of ILC Africa, the Amplio Network, and the Association of Early Childhood Development in Malawi (AECDM).[1] The Talking Books Malawi 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 three to six.

The Talking Books Malawi project is one of three awards under R2R. This report presents evaluation results of the Talking Books Malawi project, which ran from August 2021 to March 2023.

1 ILC Africa was the consortium lead, the Amplio Network supplied and provided virtual technical guidance and support for the use of the Talking Books, and AECDM served as project implementer.

Project Description

The Talking Books Malawi project was designed to increase foundational literacy skills among pre-primary learners using **Amplio Talking Books**, which are durable, low-cost, battery-operated interactive radios that hold hours of content and can record usage activity. The project also aimed to increase community capacity to enhance the at-home learning environment. To achieve these goals, the project created 22 audio lessons and five children's vowel songs aligned to the existing Government of Malawi Early Education Curriculum. Four parent messages were also created to increase parents' and guardians' awareness of childhood development needs and at-home educational support, and each Community Based Childcare Center (CBCC) received printed facilitator guide materials and activity sheets to supplement each of the audio lessons. All audio and print materials were created in Chichewa. The audio messages, songs, and parent messages were uploaded to the Amplio Talking Books.

The project was implemented in 50 CBCCs in the districts of Nkhotakota and Blantyre over a period of nine months.[2] Twenty-five CBCCs from each district participated in the program. CBCCs are attended by learners between the ages of three and six and are staffed by volunteer community CBCC "caregivers." The average number of learners in each CBCC is 80. The participating CBCCs were selected based on literacy needs and locations where AECDM had existing relationships with CBCCs.

Over the course of the project, approximately 5,000 learners, 400 CBCC caregivers, and 1,300 parents, guardians, and community members were reached. Four hundred Talking Books, or eight per CBCC, were distributed to ensure that all corresponding households and learners would have adequate access to them. AECDM uploaded audio lessons to each of the Talking Books in batches as they were created, during which time supplementary print materials were also provided to the CBCCs and Talking Book usage data was collected.[3] The Talking Books were predominantly used by the CBCC caregiver to supplement teaching and learning in the CBCCs, but they were also used by families and community members on a rotational basis. In addition, AECDM provided CBCC caregivers, parents, and guardians with initial training and provided regular monitoring and support on the use of the Talking Books and the materials provided through biweekly visits.

2 The project initially planned to implement in 25 CBCCs in Nsanje district, but in January 2022, two weeks prior to when project activities were expected to begin, Cyclone Ana severely affected Nsanje, making the targeted communities there unreachable. Therefore, 25 replacement CBCCs were selected from Blantyre district.

3 Individual learner, family member, and CBCC caregiver data was not collected, but the overall usage for each Talking Book at each of the CBCCs was collected and uploaded to a data portal during monitoring visits by AECDM.

Project Evaluation

Baseline data collection took place in January 2022 and endline data collection occurred 10 months later, in November 2022, in 24 control and 50 treatment CBCCs. In total, 479 learners (166 at control CBCCs and 313 at treatment CBCCs) were assessed using the letter identification and oral comprehension subtests of the International Development and Early Learning Assessment (IDELA) and 479 parents and guardians (166 control and 313 treatment) were interviewed. Learners also answered questions about how much they enjoyed literacy and technology. In addition, their parents or guardians were interviewed 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' and guardians' use, reliance, and level of comfort with technology and digital devices were also included in the interviews.

Approximately mid-way through project implementation, the ACR GCD team learned that another pre-primary program, the School Readiness Initiative (SRI), was also being implemented in the Blantyre CBCCs. To better assess the impact of the Talking Books Malawi project and account for this unexpected intervention, School-to-School International, in conjunction with ACR GCD, included additional protocols in the endline assessment (see **Appendix A** for more information).

Research Questions

The evaluation focused on two research questions. The first research question looked at changes in literacy outcomes for learners from baseline to endline in both control and treatment CBCCs. In doing so, the evaluation aimed to establish if learners' foundational reading and language skills improved from baseline to endline. Moreover, the research question evaluated whether there was a notable difference in literacy improvements between control and treatment CBCCs.

The second research question focused on learners' educational experiences in control and treatment CBCCs. In looking at literacy outcomes alongside educational experiences, the evaluation can comment on the Talking Books intervention's holistic effects.

Research Question 1

Did Talking Books Malawi 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 Talking Books Malawi learners' educational experiences change from baseline to endline?

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.[4] 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, learners were interviewed to measure their educational experience. Learners were asked questions to measure how they felt about topics such as learning, books and writing. 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 used an interview tool consisting of close-ended questions to collect data from learners' parents or guardians. This interview tool measured multiple indicators to give the project a broader understanding of the learners' experience, family dynamics, and characteristics, along with information about the parents' or guardians' use, reliance, and level of comfort with technology and digital devices.

Parent or Guardian Interview

Components:

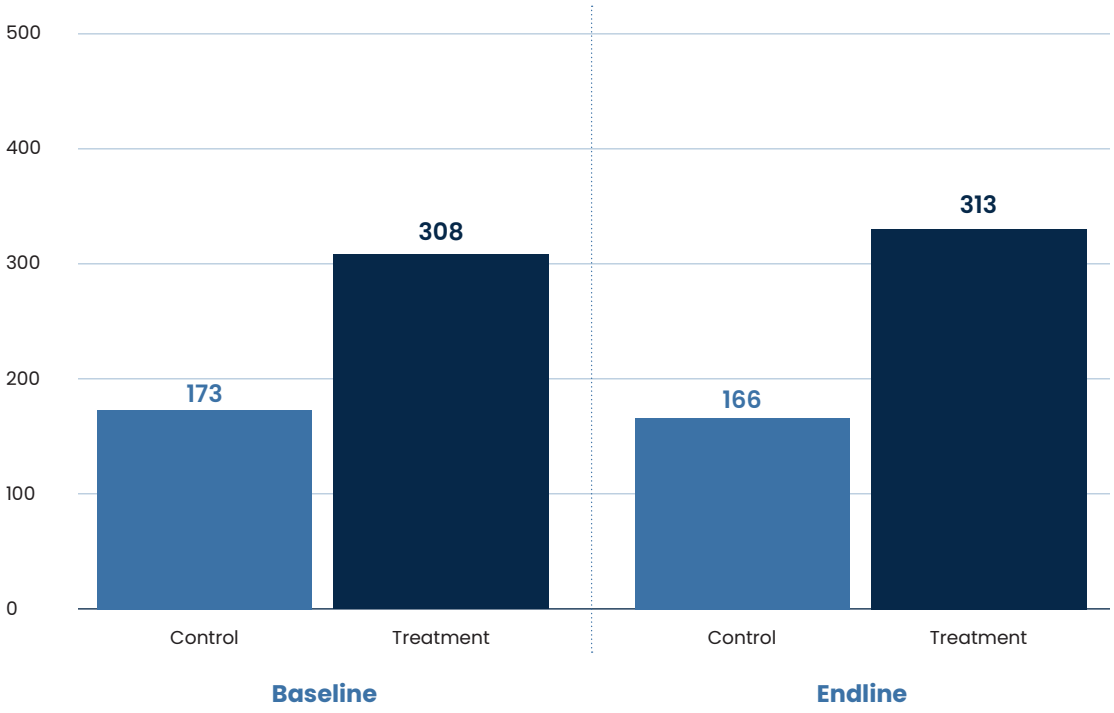
1. CBCC attendance / non-attendance
2. Child's learning environment
3. Parents' or guardians' expectations and attitude toward learning and education
4. Parents' or guardians' self-efficacy and their use, comfort, and reliance on technology

4 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.

Evaluation Sample

The sample population included 50 treatment CBCCs, including 25 each in the Blantyre and Nkhotakota districts.[5] The control group was established by randomly selecting 12 of the 25 treatment CBCCs per district, after which the project purposefully selected a matched control site for each randomly selected CBCC based on geographic proximity. As shown in Figure 1, a total of 481 child-parent/guardian dyads (173 control and 308 treatment) were included at baseline and 479 child-parent/guardian dyads (166 control and 313 treatment) were included for analysis at endline.[6]

FIGURE 1
Sample of Child-Parent/Guardian Dyads for Control and Treatment Groups at Baseline and Endline



5 Enumerators were asked to identify if the CBCC was in a rural, urban, or peri-urban area at the beginning of the IDELA.

6 Data attrition in child-parent/guardian dyads was mostly due to absence on the day of data collection and the difficulty in mapping the child to the parent or guardian during data collection.

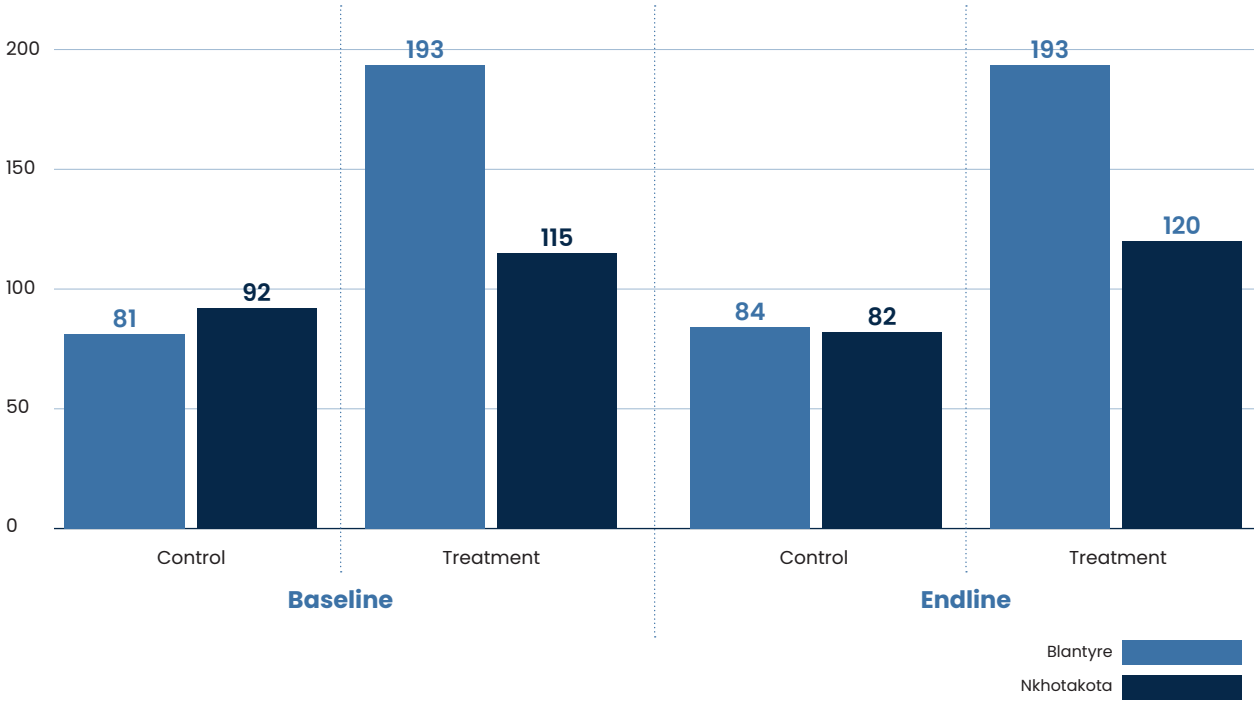
Learner Profile

The differences in learner profiles between control and treatment CBCCs at baseline and endline were not statistically significant.[7] The endline sample of learners had almost equal representation of boys and girls in control and treatment CBCCs, with marginally more girls in both control and treatment CBCCs—53 percent and 51 percent, respectively.

As shown in Figures 2 and 3, the sample of learners at treatment CBCCs in Blantyre was greater than the sample of learners in Nkhotakota. For example, Figure 2 shows that at endline, there were 193 learners at treatment CBCCs in Blantyre and 120 learners at treatment CBCCs in Nkhotakota. Figure 3 shows that learners from Blantyre comprised 62 percent of the treatment group, whereas learners from Nkhotakota comprised 38 percent. Additionally, as shown in Figure 4, most learners lived in rural areas.[8] Eighty-three percent of learners in the control groups and 75 percent of learners in the treatment group reported living in rural areas.

FIGURE 2

Number of Learners, Disaggregated by District for Control and Treatment and at Baseline and Endline



7 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. Throughout the report, statistical significance will be denoted as follows:

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

8 In Malawi, urban areas consist of major metropolitan areas, secondary cities, townships, and district centers. All other areas in the country are considered rural. The major metropolitan areas host economic activities, such as manufacturing, trading, and financial services, while urban townships are primarily focused on agriculture. Rural Malawi, where about 84 percent of the population resides, is diverse and includes peri-urban areas as well as sparsely populated regions with limited infrastructure and road access.

FIGURE 3

District Representation for Control and Treatment Groups at Endline

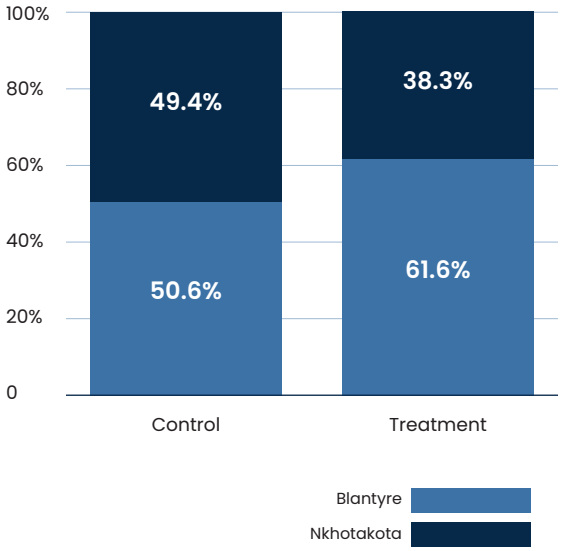
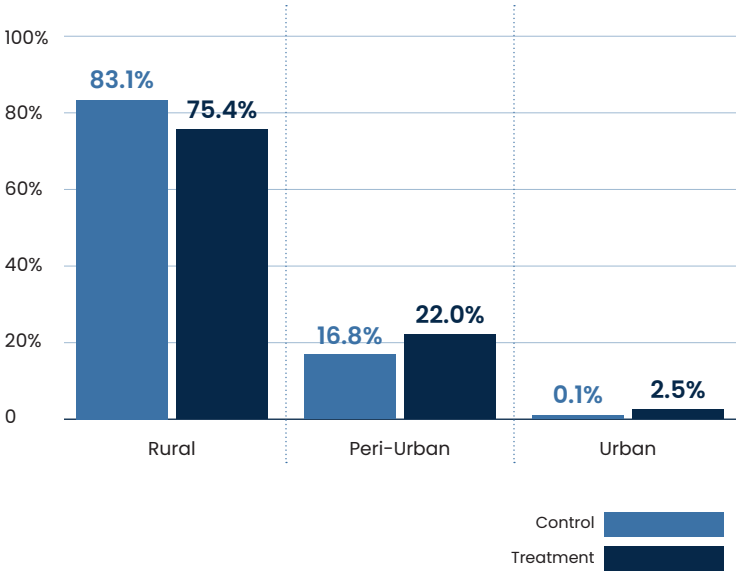


FIGURE 4

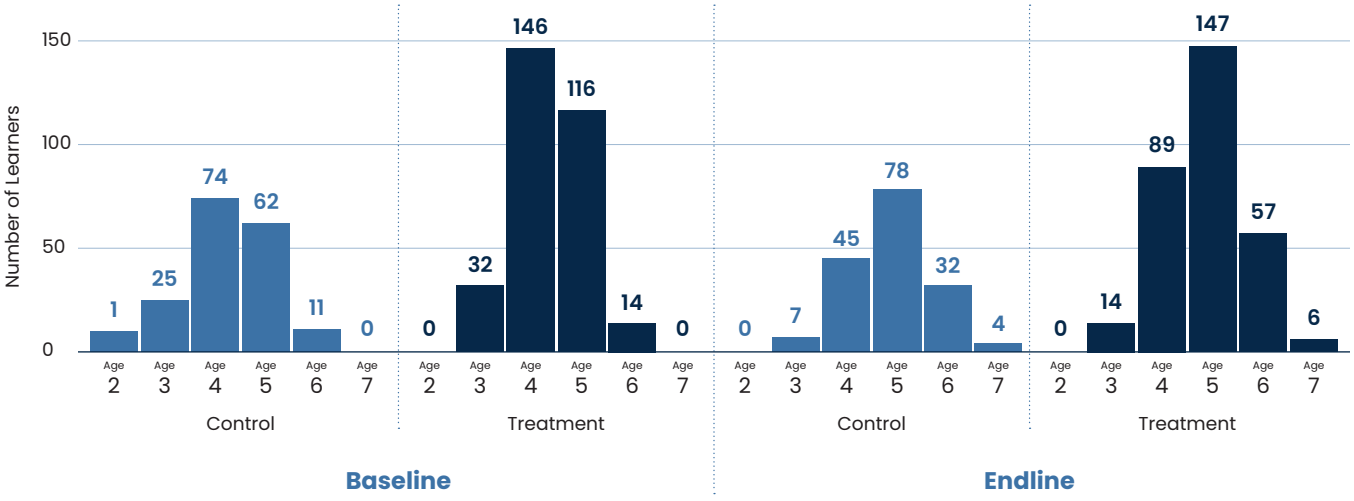
Geographic Region for Control and Treatment Groups at Endline



Notably, more than 20 percent of the learners sampled at endline were six years of age or older. The breakdown of learners by age is shown in Figure 5. Additionally, more than 95 percent of learners in both control and treatment CBCCs reported Chichewa as their primary language.[9]

FIGURE 5

Age of Learners for Control and Treatment at Baseline and Endline



9 At baseline and endline, participating learners were asked to report their primary language.

Parent and Guardian Demographics

The endline sample of parents and guardians provided a picture of the upbringing of learners involved in the project, as well as the similarities between control and treatment CBCCs. Figure 6 depicts the sample of female or male parents and guardians of learners in treatment and control CBCCs at baseline and endline. At baseline, of the 481 parents and guardians in both control and treatment groups, 403 were female (83 percent). The sample showed a similar trend regarding sex at endline; of 479 parents and guardians, 323 (67 percent) were female. Of the parents and guardians who were interviewed, nearly 80 percent in both the control and treatment groups were mothers (see Figure 7). While female parents and guardians were a large percentage at both baseline and endline, as shown in both Figures 6 and 7, the number of male parents and guardians increased between baseline and endline.

FIGURE 6

Parents and Guardians, Disaggregated by Sex for Control and Treatment at Baseline and Endline

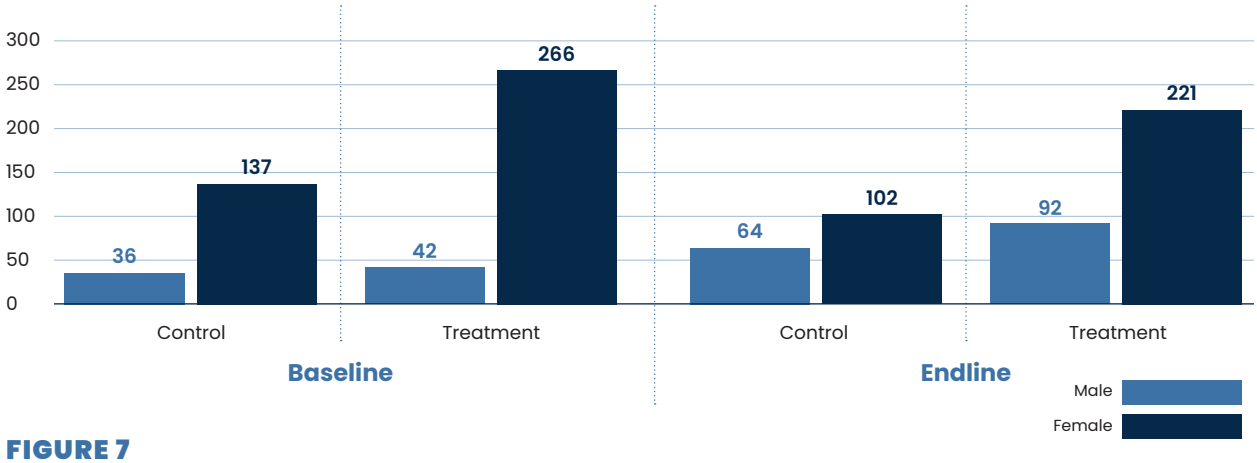
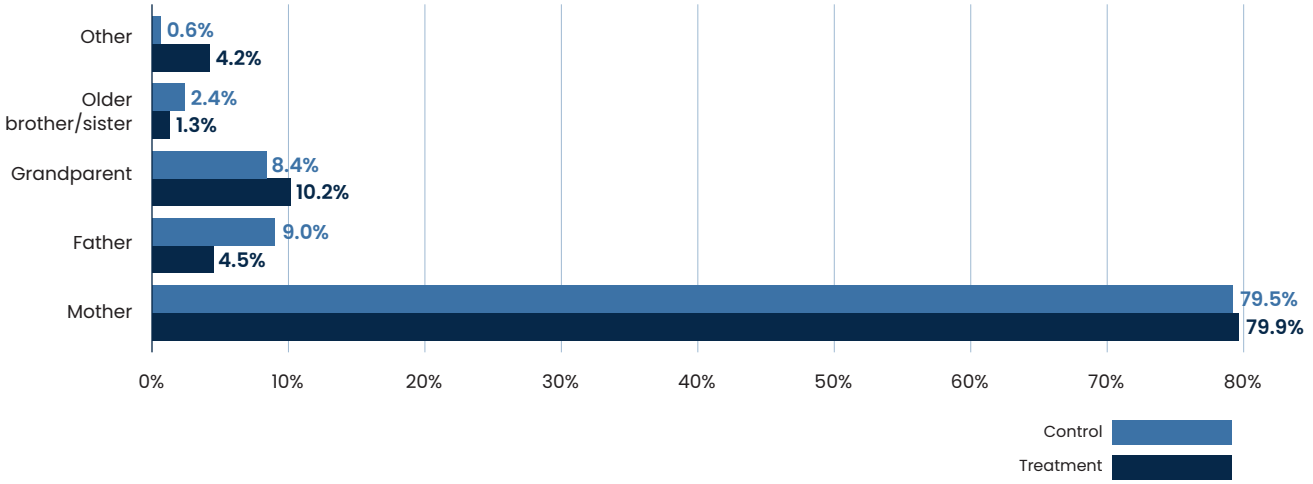


FIGURE 7

Relationship to Child in Control and Treatment Groups at Endline



Additionally, most parents and guardians reported they could read, including more than 80 percent of female parents and guardians in both the control and treatment groups (see Figure 8), as well as 86 percent of male parents and guardians in the control group and 93 percent in the treatment group. As seen in Figure 9, more than 50 percent of female parents and guardians in both the control and treatment groups had completed at least some primary school. However, less than 5 percent in the control group and less than 7 percent in the treatment group had completed secondary school. No significant differences were noted in parents' and guardians' education between baseline and endline. As for learners' CBCC attendance, nearly all parents and guardians (more than 96 percent) in both control and treatment groups reported that they send their child daily to an early education center or preschool. No differences were noted in child attendance between baseline and endline.

FIGURE 8

Literacy Level of Female Parents or Guardians for Control and Treatment Groups at Endline

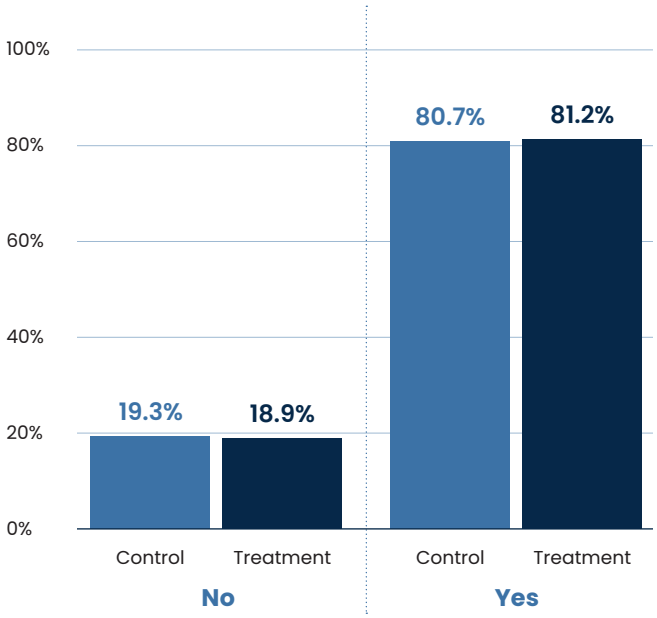
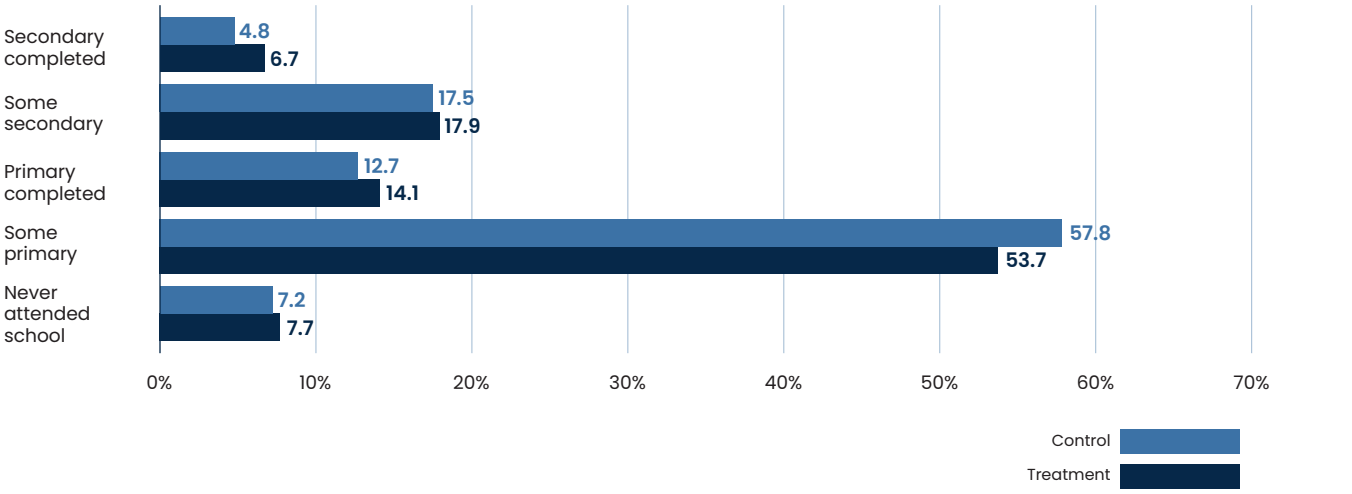


FIGURE 9

Education of Female Parents and Guardians in Control and Treatment Groups at Endline



Research Question 1

Did Talking Books Malawi 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 1
Summary Findings for Research Question One

	Letter Identification	Oral Comprehension
Overall Skill Improvement	Statistically significant increase (4.3 percent) from baseline to endline***	Statistically significant increase (13.8 percent) from baseline to endline***
Group Differences	Statistically significant difference, learners at treatment CBCCs perform better at endline*	No statistically significant difference at endline
Contextual Factors Associated with Score Gains	Mixed results: • Gender in control CBCCs (girls performed significantly lower)* • Urbanicity in treatment CBCCs (peri-urban learners performed significantly higher at endline)**	Mixed results: • Gender (girls performed higher)* • Urbanicity (peri-urban learners performed significantly lower)* • Age in treatment CBCCs (4- and 5-year-olds performed significantly higher at endline)*

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

Letter Identification

At endline, the average letter identification score for a learner in the treatment group was 1.4 letters and the average letter identification score for a learner in the treatment group was 0.9 (see Figure 10). Learners' scores for letter identification significantly increased 4.3 percent, or 0.68 points, on average, from baseline to endline when looking at both control and treatment CBCCs (see Figure 10). Across both groups, the proportion of zero scores—that is, the percentage of learners who did not identify a single letter correctly—significantly decreased from baseline to endline. From baseline to endline, 18 percent more learners at treatment CBCCs and 28 percent more at control CBCCs correctly identified at least one letter (see Figure 11). Despite this increase, letter identification scores remained low. At endline, 66 percent (207) of the 313 learners in the treatment group received zero scores (see Figure 12). Most learners did not identify a single letter, a finding that suggests learners will need more and better instruction in letter identification in the future to make progress toward reading comprehension later in their academic lives.

FIGURE 10

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

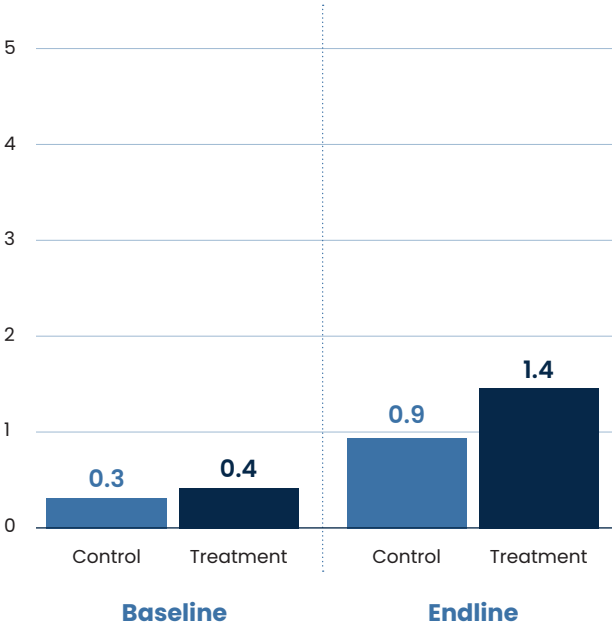


FIGURE 11

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

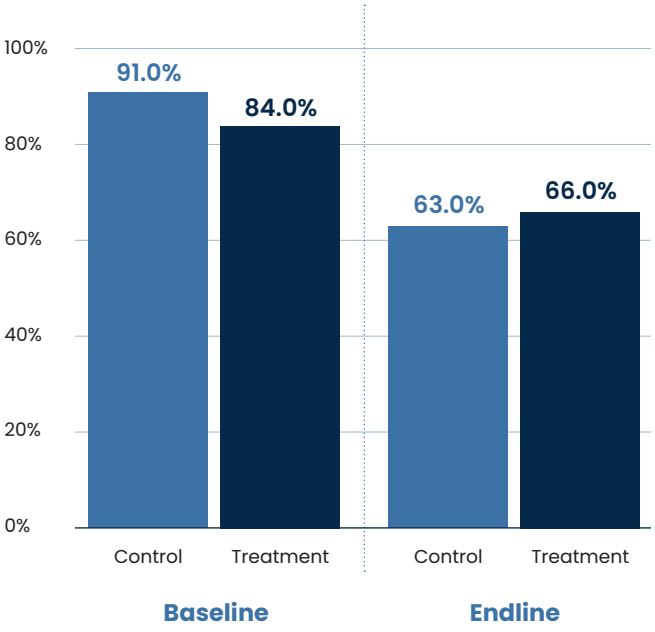
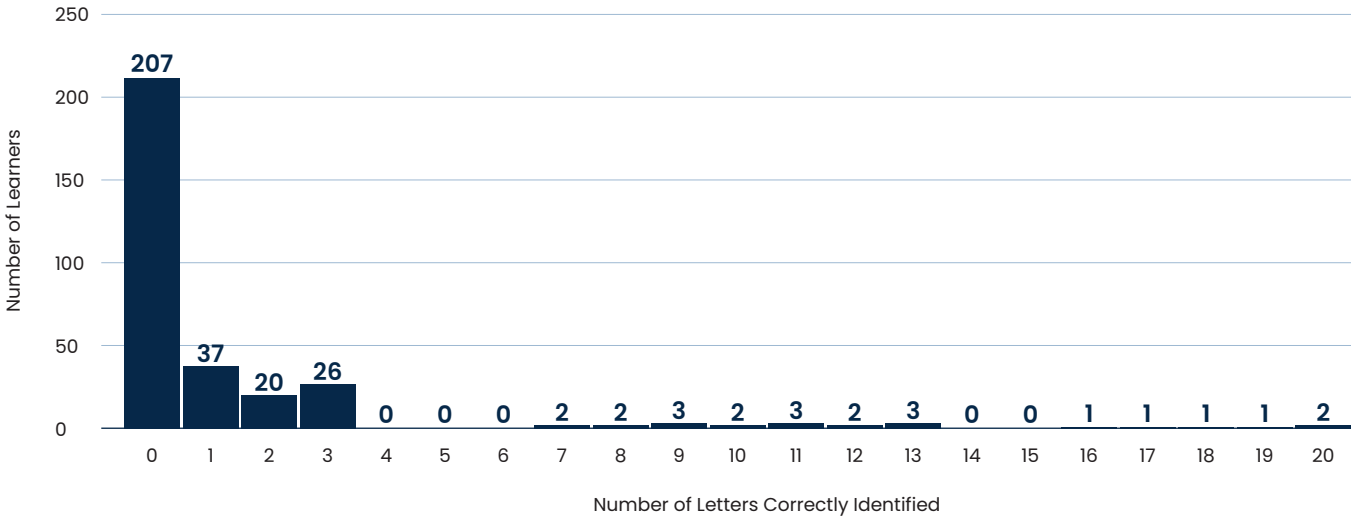


FIGURE 12
Letter Identification Scores for Treatment Learners at Endline



Overall, no statistically significant differences were observed between girls' and boys' scores in the two groups when controlling for both treatment and timepoint,[10] which suggests that the intervention did not impact girls or boys differently. While there were higher scores among learners who live in urban or peri-urban areas, it is important to note that this represents a small number of learners (nine children) and therefore should use caution when interpreting this finding.

Table 2 summarizes the variation in letter identification scores that can be correlated with contextual factors, such as gender, age, and district.

TABLE 2
Summary of Effects in Letter Identification for Gender, Age and District

Factor	Effect	Observation
Gender	Yes	In control CBCCs, girls scored significantly lower than boys (1.8 percent)^ between baseline and endline.
Age	Yes	In control and treatment centers, five-year-old learners scored significantly higher (0.9 percent)** at endline than at baseline.
District	No	No meaningful differences were observed between learners in Blantyre and Nkhotakota.

Note: One caret (^) indicatoes statistical significance at a 10-percent level; one asterisk (*) indicates statistical significant at a 5-percent level; two asterisks (**) indicates statistical significant at a 1-percent level; and three asterisks (***) indicates statistical significant at a 0.1-percent level.

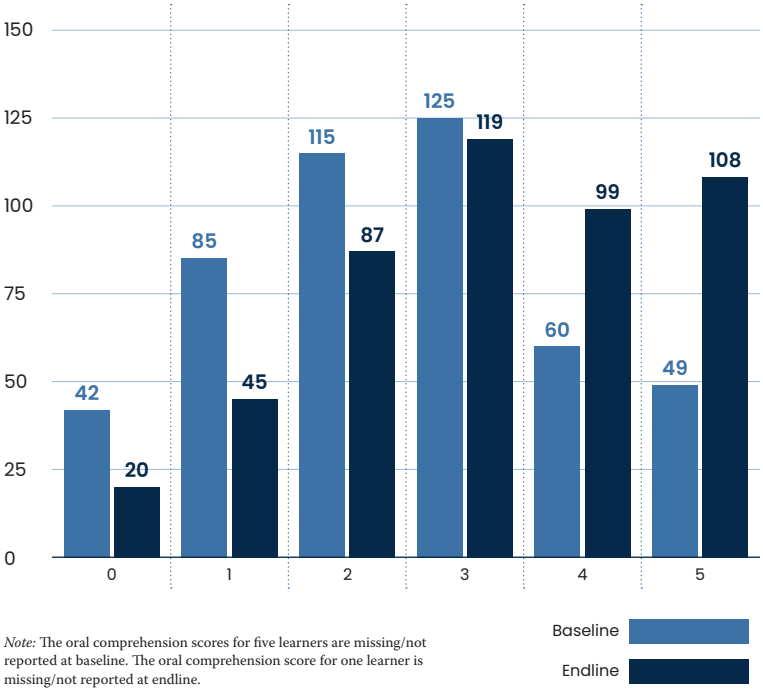
10 Timepoint refers to the time at which data was collected (i.e., baseline and endline).

Oral Comprehension

Overall scores on the oral comprehension subtask increased from baseline to endline for all learners in control and treatment CBCCs. Figure 13 shows overall oral comprehension scores (ranging from 0 to 5) for all learners, comparing baseline and endline. At baseline, learners answered an average of 2.4 (control) or 2.5 (treatment) out of five questions correctly, while at endline, they answered an average of 3.2 (control) or 3.1 (treatment) out of five correctly (see Figure 14). There were no statistically significant differences in oral comprehension scores between learners at control and treatment CBCCs at either baseline or endline.

FIGURE 13

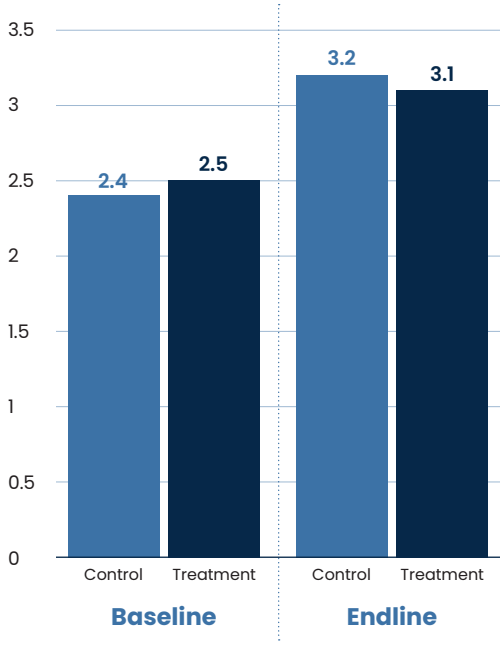
Overall Oral Comprehension Scores (control and treatment reported together) at Baseline and Endline



Note: The oral comprehension scores for five learners are missing/not reported at baseline. The oral comprehension score for one learner is missing/not reported at endline.

FIGURE 14

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



As shown in Figure 15, the percentage of learners overall who did not answer a single oral comprehension question correctly—that is, the proportion of zero scores—decreased from baseline to endline. At control CBCCs, the proportion of learners with zero scores dropped from 11 percent (19 learners) at baseline to 4 percent (6 learners) at endline, while at treatment CBCCs, it decreased from 8 percent (23 learners) to 5 percent (14 learners) between the two timepoints. There were no statistically significant differences when controlling baseline differences in scores between the groups by oral comprehension zero scores.

Minor contextual differences were identified when looking into the variation in learners' scores. Within the control group, girls went from answering 2.2 questions correctly at baseline to 3.0 questions correctly at endline. Within treatment CBCCs, girls went from being able to answer 2.5 questions correctly at baseline to 3.1 questions correctly at endline (see Figure 16). In addition, no statistically significant differences were observed across timepoints or treatment types with respect to oral comprehension scores and districts.

See Table 3 for a summary of the variation in oral comprehension scores that can be correlated with contextual factors such as gender, age, or district.

FIGURE 15

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

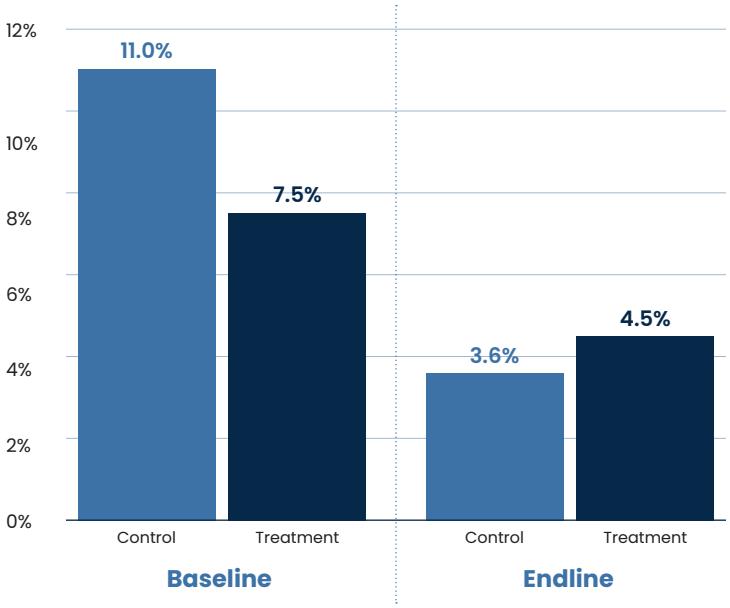


FIGURE 16

Mean Oral Comprehension Scores (Out of 5 Questions) for Girls in Control and Treatment at Baseline and Endline

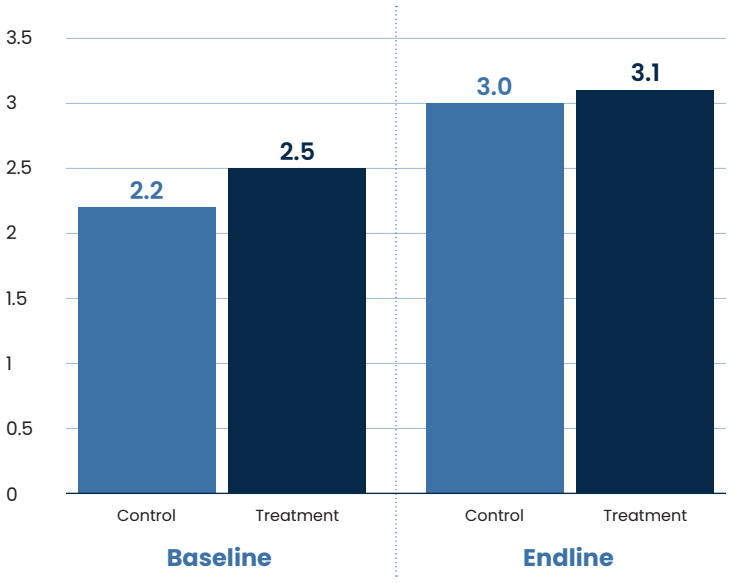


TABLE 3
Summary of Effects in Oral Comprehension for Gender, Age and District

Factor	Effect	Observation
Gender	Yes	Girls scored significantly higher*** at endline when comparing within treatment type.
Age	Yes	In treatment CBCCs, 4- and 5-year-old learners' scores were significantly higher** across baseline and endline.
District	No	No meaningful difference was observed between learners in Blantyre and Nkhotakota.

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

Several other considerations emerge when looking at effects. There were no statistically significant differences found when comparing the oral comprehension scores from learners residing in Blantyre versus Nkhotakota. Additionally, there is the possibility of a ceiling effect in this subtask. At endline, for both control and treatment groups, 23 percent of learners (108 learners) correctly answered five of five comprehension questions correctly, while only 4 percent (20 learners) did not answer any questions correctly. This indicates the possibility that true growth in oral comprehension may not have been observed, particularly for the 23 percent of learners who received perfect scores. More details on the effects of age on oral comprehension results are shown in Table 3.

Research Question 2

Did Talking Books Malawi learners' educational experiences change from baseline to endline?

TABLE 4
Summary Findings for Research Question Two

Learner Engagement	Parent and Guardian Engagement
No measurable difference in overall feelings about learning (i.e., books, learning to read, writing, drawing, playing games) across control and treatment groups from baseline to endline.	**No measurable difference** in learning environment across control and treatment groups from baseline to endline in: • Presence of literacy resources (e.g., picture books, textbooks, magazines, newspapers, religious books, coloring books, and comics). • Presence of materials for play (e.g., homemade and manufactured toys, puzzles, and drawing materials).

Learner Engagement

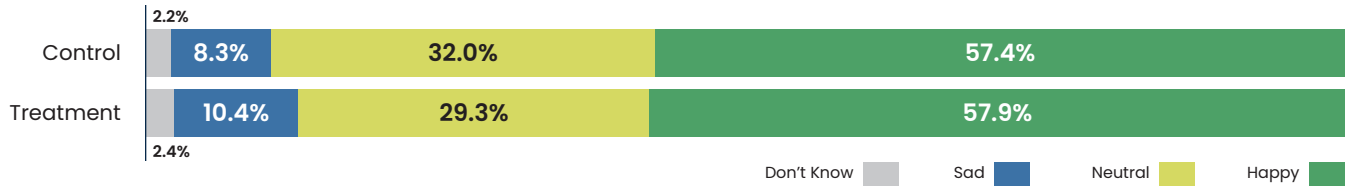
At both baseline and endline, learners were asked how they felt about multiple factors contributing to their educational experience, such as their feelings about books, learning to read, writing, drawing, or playing games. Learners were asked to respond by pointing to a happy face, neutral face, or sad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

No statistically significant differences in learners' feelings were observed between baseline and endline or between treatment groups. To capture learners' feelings, three composites were created: feelings on books, feelings on learning, and feelings on writing. More than 57 percent of learners in both the control and treatment groups at endline stated they were happy about books,[11] which was measured by asking six questions to learners about their feelings on books (see Figure 17). The average feelings score for learners at control CBCCs was 16.1 at baseline and 16.6 (out of 22) at endline, with no statistically significant difference from baseline to endline. The average feelings on books score for learners at treatment CBCCs was 17.1 at baseline and 16.7 (out of 22) at endline, with no statistically significant difference from baseline to endline.

The lack of significant change from baseline to endline is likely due to a generally high starting point on the feelings on books composite. Because learners reported a high average score on the feelings composite at baseline, there was not much room for improvement over the course of the project.

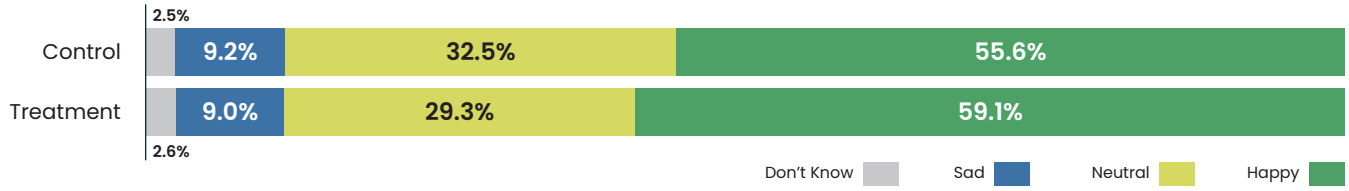
11 The six questions in the books composite include: 1. How do you feel when you look at pictures in a book? 2. How do you feel when someone reads a book to you? 3. How do you feel when someone asks you questions about what happened in a book? 4. How do you feel when you listen to a story either read from a book or told to you? 5. How do you feel about your books at school? and 6. How do you feel when you tell a story?

FIGURE 17
Learners' Feelings on Books for Control and Treatment at Endline



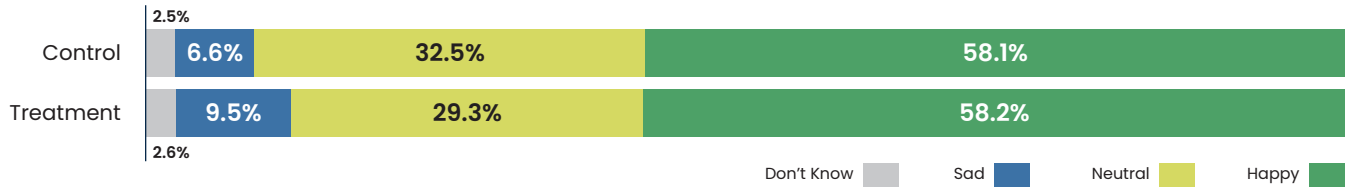
More than 55 percent of learners at endline in both control and treatment CBCCs expressed being happy about learning (see Figure 18). This composite included three questions to gauge their feelings on learning.[12]

FIGURE 18
Learners' Feelings on Learning for Control and Treatment at Endline



Lastly, at endline, around 58 percent of learners overall expressed being happy about writing (see Figure 19). This composite included two questions to measure learners' feelings on writing and drawing.[13]

FIGURE 19
Learners' Feelings on Writing for Control and Treatment at Endline



12 The three questions in the learning composite include: 1. How do you feel about learning to read? 2. How do you feel about learning letters? and 3. How do you feel about going to school or a learning center?

13 The two questions in the writing composite include: 1. How do you feel about drawing pictures? and 2. How do you feel about writing?

Parent and Guardian Engagement

Parents and guardians were also asked about the presence of various types of reading material at home ("Do you have any of the following types of reading materials at home?"). Parent and guardian responses ("Yes", "No" or "Don't know/No response") were then used to tabulate the number of reading materials in each home, measuring the learning environment at home.[14] No statistically significant difference was observed in the learning environment between timepoints and treatment groups. At both baseline and endline, approximately 30 percent of parents and guardians reported that they had at least one story or picture book for their child. When asked how many learners' had books, more than 90 percent of parents and guardians reported that they had only one story or picture book for their child.

The average number of reading materials at home of learners attending control CBCCs was **1.1 materials at baseline** and **1.6 at endline.**

The average number of reading materials[15] at home of learners attending treatment CBCCs was **1.4 materials at baseline** and **1.5 at endline**.

Parents and guardians were also asked whether their child played at home with various types of toys. These responses were then used to create two composites measuring the play environment at home (Composite 1 and Composite 2).[16] No measurable difference was observed in the play environment when controlling for timepoint and treatment group.

However, there was a statistically significant increase in the number of toys reported at the homes of learners enrolled at control CBCCs from baseline to endline; while there was a statistically significant decrease in toys reported at the homes of learners attending treatment CBCCs. Despite these changes, objectively, learners at treatment CBCCs still had more toys at home because their baseline total was higher.

On average, parents and guardians of learners at control CBCCs indicated:

a. at baseline, their learners play with **0.5 (Composite 2) toys at home**, and
b. at endline, their learners play with **1.1 (Composite 2) toys at home**.

This is a statistically significant*** increase.

On average, parents and guardians of learners at treatment CBCCs indicated:

a. at baseline, their learners play with **2.2 (Composite 1) toys at home**, and
b. at endline, their learners play with **1.8 (Composite 1) toys at home**.

There is a statistically significant*** decrease.

14 This number does not represent the total number of all reading materials, because it would be very difficult for parents and guardians to give an accurate count of all the reading materials in their homes. The question posed only asks if parents and guardians have that type of reading material in the home. Thus, the number represents the minimum number of reported reading materials in the home and also gives insight into the type of reading material(s) that are commonly reported.

15 Reading materials refers to all the materials that were included in the composite indicator, including: books, textbooks, magazines, newspaper, religious books, coloring books, and comic books.

16 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.

Parents and guardians were also asked 11 questions[17] about their interactions with their child, and the frequency and types of those interactions were compared for learners across control and treatment CBCCs.

At baseline, *female parents and guardians* on average interacted **3.2** out of the 11 ways measured in the interview. This significantly increased*** to **4.4** at endline.

At baseline, *male parents and guardians* on average interacted **0.6** out of the 11 ways measured in the interview. This significantly increased*** to **1.1** at endline.

Parents and guardians were also asked questions about their beliefs on education. There was a significant increase in the level of agreement among parents and guardians on the possible role they can play in their child's education.

73.2% **Baseline**

86.4%** **Endline**

Strongly agree that parents and guardians play an important role in learners' learning and development.

68.5% **Baseline**

84.1%** **Endline**

Strongly agree that parents and guardians can support learners' educational development at home.

56.7% **Baseline**

72.2%** **Endline**

Strongly agree that it is possible for parents and guardians to talk with or engage learners in games while doing their daily work.

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

Lastly, parents and guardians were also asked about the importance of educational games. About 65 percent of parents and guardians across both groups strongly agreed that their child can learn a lot by using technology, such as educational games. No statistically significant differences were observed in the responses across timepoints for the indicator about the importance of educational games.

17 The 11 questions about parents' and guardians' interactions with their child included: 1. Read books or look at picture books with your child? 2. Tell stories to your child? 3. Sing songs to or with your child, including lullabies? 4. Take your child outside the home? For example, to the market, visit relatives. 5. Play any simple games with your child? 6. Name objects or draw things to or with your child? 7. Show or teach your child something new, like teach a new word, or teach how to do something? 8. Teach alphabet or encourage to learn letters to your child? 9. Play a counting game or teach numbers to your child? 10. Use digital technologies to help your child learn at home? By digital technologies, I mean electronic books, computers, tablets, mobile phones, apps, or internet. 11. Hug or show affection to your child?

Limitations

Notably, some limitations may have impacted the project and the endline analysis. First, individual dosage data was not collected, so it was not possible to determine the level of exposure each child had to the Talking Books. The child's exposure to the treatment could have, and likely did, dictate the variation in the intervention's impact. Second, the School Readiness Initiative, funded by the Roger Federer Foundation, was also implemented in control and treatment CBCCs in the Blantyre area and thereby contaminated this project (see **Appendix A**). Furthermore, as a result of budget limitations, the learners were only administered two subtasks of IDELA, consequently restricting the evaluation of their skills to just two domains. Lastly, this analysis was unweighted, and it is not intended to represent the larger population of Malawi.

Recommendations

1 FINDING

Learners' skills in letter identification and oral comprehension improved between baseline and endline, and that improvement was statistically significant. A large number of learners answered all five oral comprehension questions correctly, suggesting a potential for ceiling effects.

RECOMMENDATION

- **Revise the oral comprehension assessment to include more challenging items to address the potential ceiling effect.**
- **Consider adding other early reading skill assessments—such as phonological awareness or word identification—to better capture the range of learners' reading skills.**

2 FINDING

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

RECOMMENDATION

- **Use the data from the Talking Book 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.**
- **Incorporate a tool to evaluate the intervention's fidelity of implementation at the CBCCs.**
- **Consider developing assessment tools simultaneously or following the development of the project materials to ensure their alignment.**

3 FINDING

At endline, 66 percent of learners in the treatment group received zero scores on the letter identification subtask of the IDELA.

RECOMMENDATION

Future project interventions should prioritize letter identification in curriculum and teacher training. Learners should have ample access to print and supplementary materials (for example, letter flash cards or letter charts) to support letter identification acquisition.

4 FINDING

At endline, 57 percent of learners reported positive feelings toward books, learning, and writing. This remained steady between baseline to endline, with no statistically significant improvement.

RECOMMENDATION

Learner engagement—as measured by reported feelings toward books, learning, and writing—appears positive in this context. Future projects should continue to ensure that the intervention promotes positive feelings toward these items but also may consider reorienting focus to areas that need additional improvement (such as letter identification). Future projects might also want to capitalize on the positive feelings toward books and distribute books directly to learners and their families, parents, and guardians, an activity that was not included in this project.

Appendices

Appendix A

School Readiness Initiative, Roger Federer Foundation

The presence of a second intervention simultaneously implemented in a sub-group of CBCCs limited the evaluation of the Talking Books Malawi project. Both control and treatment CBCCs in Blantyre were also participating in the School Readiness Initiative (SRI), funded by the Roger Federer Foundation. This initiative features a tablet-based Early Learning Kiosk to support CBCC caregivers' continued professional development through the following: self-guided courses on early learning; peer-to-peer mentoring; guidance on continuous assessments for child development; and manuals, templates, and guides for developing teaching and learning materials, conducting parents and guardians workshops, and engaging parents and guardians in their child's education.

The total sample population included 50 treatment CBCCs, 25 each in the Blantyre and Nkhotakota districts. The control group was established by randomly selecting 12 of the 25 treatment CBCCs per district and then having the project purposefully select a matched control CBCC based on geographic proximity for each randomly selected CBCC. However, the control CBCCs in Blantyre were not true controls, as the CBCCs were receiving the SRI intervention. Likewise, the treatment group in Blantyre was not a traditional treatment group because CBCCs were receiving two interventions simultaneously (see Table 5).

TABLE 5
Overlap between Talking Books and SRI Interventions

	Blantyre	Nkhotakota
Control CBCCs	SRI Intervention Only	No Interventions (True Control)
Treatment CBCCs	SRI Intervention + Talking Books	Talking Books Only

Since CBCCs in the treatment group in Blantyre were receiving two interventions, it could be assumed that those beneficiaries would outperform their peers. However, analyses showed that there were no statistically meaningful differences in letter identification or oral comprehension scores between learners attending treatment CBCCs in Blantyre and Nkhotakota districts. However, since the purpose of the external evaluation—and the development of assessment tools—was not to assess the SRI intervention, it is impossible to know if the tools adequately assessed the impact of the SRI intervention.

Appendix B

Composite Creations

ACR GCD's Ready2Read Challenge based its understanding of foundational literacy on the Measuring Early Learning Quality and Outcomes (MELQO) framework.[18] The composites 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.

18 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 Creation
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
Play Environment Composite 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 Composite 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