Reading Success
Transformative Impact of Ghana's Read Along Program

Willem van de Waal, Stephen Konde, Adam Turney | **November 2023**

WORLD EDUCATION
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Executive Summary

World Education led a pilot to help students learn with Google's Read Along app. After participating in the pilot program, their reading proficiency showed promising improvement and the girls, parents, and teachers were more engaged in the learning process.

Overview

For the last five years, the Strategic Approaches to Girls' Education (STAGE) project in Ghana worked to lower the barriers that girls face in achieving an education by providing formal and nonformal education tracks, targeting districts and communities where high levels of extreme poverty, in combination with deep-seated traditional and social norms, negatively impact women and girls. STAGE reached over 17,000 girls through our Accelerated Learning Program, in which girls underwent functional literacy, numeracy, life skills, and vocational skills training, supporting them to receive an education and start businesses to generate income.

This report presents the findings from the impact evaluation of the Google Read Along pilot project conducted between May and August 2023 in Northern Ghana. World Education (WE) in collaboration with Ghana Education Services

(GES) and Google implemented the three-month pilot to address English language proficiency gaps of students in primary school. Building on the successful FCDO-funded STAGE project[1], World Education conducted this pilot program with former out-of-schools girls aged 13 to 17 in grades 3 to 6. In Ghana, formal education is taught in English from grade 3 onwards, but the girls had limited exposure to English in their past schooling and daily lives. Their English language literacy skills were very low, with the majority of students struggling to even pronounce basic letter sounds, let alone comprehend grade-level text. The pilot's goal was to evaluate the effectiveness of leveraging the Google Read Along app and engaging teaching and community members to establish a supportive learning environment to enhance literacy outcomes and understand how these insights might inform future initiatives in similar contexts. The pilot demonstrated

that students in the treatment group showed substantial improvement and outperformed their peers in control schools in all evaluated areas: oral vocabulary, speed of reading letter sounds, non-word reading, oral passage reading, and reading and listening comprehension.

Pilot Description and Methodology

In three schools in the Tolon district (see Figure 1, page 6), students practiced with the Google Read Along app for three months in daily 15-minute sessions outside regular school hours, guided by trained Mentor Teachers. The app offers offline decoding and word recognition activities and age-appropriate reading materials, whilst real-time feedback is given by 'Diya', an online reading companion.

The Early Grade Reading Assessment (EGRA)[2] was used in May 2023 to establish baseline literacy levels of 118 girls in 3 pilot treatment schools (65) and 4 control schools (60) with no use of Google Read Along. It was used again in September to measure the impact of the intervention on 54 of the 65 girls in treatment schools and 45 of the initial 60 girls in control schools.

Key Findings

In the following English proficiency areas, students started at similarly low levels, and learners in the treatment group using the Google Read Along app showed more improvement in each. The assessment results from baseline to the endline showed:

- **Oral Vocabulary:** Both treatment and control groups demonstrated improvement, but the treatment group was able to name ~50% more objects correctly compared to the control group.
- **Letter Sounds:** At the endline, the treatment group read on average 40.5 more letters per minute, almost 4 times as much as the control group.
- **Non-Word Reading:** Children in control schools read 7.7 more words per minute compared to baseline, but in the treatment schools this was 18 more words per minute.
- **Oral Reading Passage:** At baseline, the girls averaged reading 12.1 correct words per minute. 73 children out of the total of 125 did not read a single word. At the endline, the treatment read 34 more words per minute compared to 7.9 words in the control group.

- **Reading Comprehension:** At the endline, the treatment group responded to 50% more questions correctly than the students in the control group. The number of zero scores in the treatment group fell 72.4% (58 to 16 children), compared to a decrease of 19.5% in the control group (46 children to 37).
- **Listening Comprehension:** At baseline, only 8 out of the 125 children answered at least one question correctly. At the endline, the treatment group answered 1.6 correct answers out of 3 questions compared to 0.7 in the control group.

Discussion and Implications

The pilot demonstrated that the Google Read Along app improved English literacy proficiency in all evaluated subtasks in just three months. Additionally, the pilot resulted in motivated teachers, school directors and MoE/GES counterparts who became advocates for continuation and scale up.

Based on the findings, several recommendations are proposed:

- **Scale Up:** Expand the Read Along pilot program to reach more children struggling with English literacy in primary schools, including (semi-)urban areas or grades 1 to 3.
- **Government Collaboration:** Collaborate with the Ministry of Education, Ghana Education Services, and other government agencies to seek official endorsement and support, making the intervention more widely recognized and sustainable.
- **Public-Private Partnerships:** Explore opportunities for public-private partnerships to secure additional resources, funding, and technical support for program expansion.
- **Parental Involvement:** Involve parents and caregivers in the literacy development process, promoting shared responsibility for education.
- **Local Adaptation**: Work with Google to tailor the software and implementation to local needs, potentially incorporating a Ghanaian voice and more teacher-guided interventions.

World Education is committed to exploring ways to continue use of the Google Read Along app or similar technologies that can extend and personalize instruction for children struggling with English proficiency. We will also discuss with stakeholders how lessons learned could contribute to improved literacy and English language learning in Ghana and beyond.

"Since we started using the tablet to learn, I have realized that I can now read, spell, and pronounce words which I could not before. I now know certain English words, especially names of animals and food. When I go to the market, I know the English name for most of the items I buy. Before, it was only the Dagbani names that I knew."

–Amina *(not the real name)*, a participant in the pilot

Introduction

Building on the success of the Strategic Approaches to Girls' Education project, World Education worked with Ghana Education Services to pilot the use of an edtech tool to address English language challenges of students in primary school.

World Education supports diverse partners to leverage technology to increase educational outcomes and advance digital equity. In Ghana through its leadership of the the five-year Strategic Approaches to Girls' Education (STAGE) project funded by the Foreign, Commonwealth and Development Office (FCDO), STAGE supported over 17,000 out-of-school girls, of which ~9500 entered vocational training and over ~8200 transitioned into formal education. World Education and its partners observed that the girls that transitioned back to school struggled because the language of instruction in grade 3 is English, not their mother tongue or any other local language. Many children participating in similar Complementary Basic Education programs face similar language challenges transitioning into schooling,[3] which is compounded by an overall lack of appropriate reading material in schools and households. Building on the success and learnings of prior work in Ghana, World Education (WE) piloted use of Google's Read Along app from May to August 2023. This report shares promising findings from the evaluation of impact on English literacy proficiency levels of girls' of the pilot conducted in Northern Ghana.

In the pilot in partnership with Google, former out-of-school girls in grades 3 to 6 (aged 13-17) practiced English daily on the Google Read Along app for 15 minutes outside of school hours, supported by a trained Mentor Teacher. The app allows users to play decoding and word recognition games, as well as read stories at their reading level. The app held promise for use in remote settings in Northern Ghana because it works completely offline. Additionally, it has no distracting ads or in-app purchases, allowing students to be fully focused on learning. Through the app, users leverage Google's text-to-speech recognition and artificial intelligence to practice reading while an online reading buddy, known as 'Diya', provides immediate feedback and models fluency and pronunciation, where needed. Meanwhile, users collect rewards when they complete their daily exercises and progress to more difficult books.

WE worked with Ghana Education Services (GES) to orient Mentor Teachers and Head Teachers of 3 schools in the northern Tolon district to the Read Along app and to build their capacity to implement the pilot, which included provision of tablets preloaded with stories and games. The Read Along app leverages speech recognition and voice synthesis technologies to provide children with real-time feedback on their reading at various levels, and it includes interactive activities and games with animated characters. The students used Google Read Along on a daily basis for three months. Analysis of qualitative data from surveys and interviews with teachers and students showed high interest and motivation of both groups to use the app. Teachers even reported that school attendance increased because girls and parents wanted to be part of this program and enjoyed the activities with the app. As detailed in the methodology and findings section, WE used an adapted version of the Early Grade Reading Assessment (EGRA) to measure the impact of the pilot on English proficiency and found substantial gains. The treatment group showed meaningful improvement and outperformed their peers in control schools in all evaluated areas: oral vocabulary, speed of reading of letter sounds, non-word reading, oral passage reading, and reading and listening comprehension.

As more people in Ghana get access to smartphones[4], the use of the App and similar technologies that can extend and personalize instruction have the potential to impact reading levels and learning routines at scale.

Figure 1: Background of Tolon District
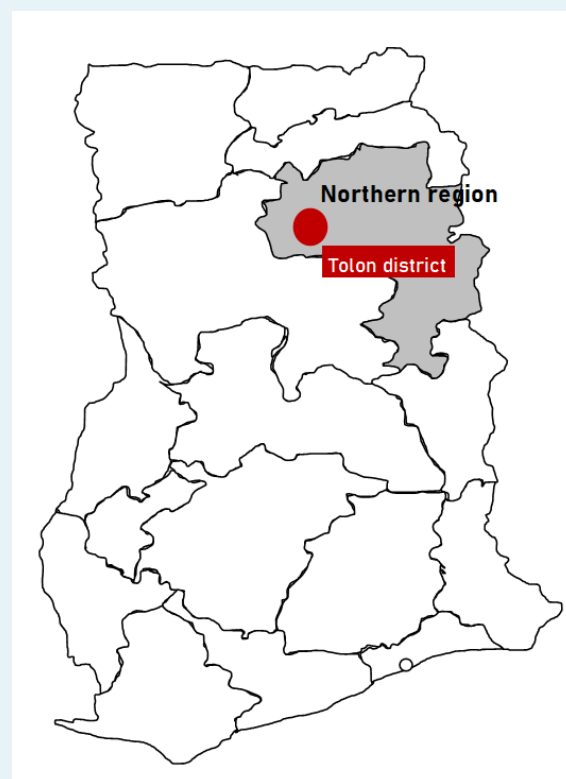
Location of Tolon district in Ghana

WE selected both treatment and control schools in Tolon, a district located in the the northwest part of the Northern Region of Ghana. The district capital is Tolon village, which is situated approximately 35 kilometers south of Tamale, the regional capital.

Tolon District is predominantly rural, with agriculture as the main economic activity. The major ethnic group is Dagomba with a population of 45,020 (2010 census) out of which 74.5 percent are not educated. 18.3 percent attained basic education, 4.0 percent completed secondary, 1.1 percent had post middle/secondary/diploma, and less than one percent for both vocational/technical/commercial, and tertiary certificates. 73.8% of the population is not literate in any language. That apart, the District shows vast difference between rural (4.3%) and urban (21.9%). 36.7 percent have basic education whilst 5.9 percent of them have secondary education; and 0.3 percent represents those who pursued "Vocational/Technical/Commercial".

The district is known for its fertile soils, which support the cultivation of crops such as millet, maize, yam, sorghum, and groundnuts. Livestock rearing, particularly cattle and sheep, is also practiced. Tolon has a diverse ethnic composition, with the majority of the population are of Dagomba descent, one of the largest ethnic groups are in the Northern Region.

Methodology

We applied an Early Grade Reading Assessment (EGRA) in a quasi-experimental research approach to assess impact of the intervention. All girls were assessed at baseline and endline to measure progress in reading and understanding English text.

Sampling

The sampling strategy involved selecting three treatment schools and four control schools in Tolon District. The criteria for selection of the schools were;

- Availability of former STAGE girls who transitioned into formal education and were still in primary schools two years after transitioning.
- Availability and interest of a trained Mentor Teacher in the school who was able to support the pilot.
- Accessibility and distance from Tamale, where WE's staff is present.
- Availability of electricity to facilitate charging the tablets.

To establish a comparison group, a set of four control schools was chosen to represent the non-treatment group. The control schools required similar characteristics as the treatment schools, although neither Mentor Teachers nor electricity were required.

The sampled schools are anonymized in this study, and labeled treatment A, B, C and control A, B, C, D. This anonymization is done to avoid inclusion of personal identifiable information which may lead to discussions about school specific performance, which is not the objective of this study. Additionally, findings from this impact evaluation do not reflect the quality of education delivery in those specific schools, but rather the impact of the pilot towards literacy proficiency of the sampled students.

All eligible girls grades 3 to 6 within the selected treatment and control schools were included in the study after the children and their parents/caregivers were informed about the pilot and consented to participate. Additionally, grade 3 students in control schools were present, but since there were no grade 3 students in the treatment schools, assessment results were not analyzed for comparison. Figure 2 outlines the number of girls per grade in each treatment school. A total of 65 girls were assessed at baseline and 54 at the endline assessment. The difference was a result of drop out, mainly

because of absenteeism on the day of the endline assessment coinciding with the farming season.

Within each control school, girls with similar age and grade profiles as the treatment group were identified. Initially the project had identified 3 control schools, but after onsite verification a number of girls were either frequently absent or had already left school. As such, a fourth school was identified to account for a similar number of girls as in the treatment group. Figure 3 provides an overview of the number of girls involved per grade in the control schools.

Of the initial 59 students involved in the baseline, 45 were present during the endline. The drop out rate is slightly higher than in the treatment group although most of that can be attributed to 1 school. As mentioned, most absenteeism was explained by teachers to be the result of the farming season when children were required by their parents to join for harvesting. In previous years children had a holiday between mid-July and early September to accommodate, but due to learning losses from COVID closures, the Ministry of Education decided to move this vacation and continue teaching in this period.

School	BASELINE					ENDLINE				
	Grade 3	Grade 4	Grade 5	Grade 6	Total	Grade 3	Grade 4	Grade 5	Grade 6	Total
Treatment A	-	6	3	9	18	-	6	3	9	18
Treatment B		6	12	12	30	-	3	10	13	26
Treatment C	1	5	4	6	16	-	3	2	5	10
Total	1	17	19	27	64	-	12	15	27	54

Figure 2: Treatment schools sample selection

School	BASELINE					ENDLINE				
	Grade 3	Grade 4	Grade 5	Grade 6	Total	Grade 3	Grade 4	Grade 5	Grade 6	Total
Control A	3	6	4	1	14	-	5	-	-	5
Control B	1	-	8	11	20	-	-	8	8	16
Control C	1	9	4	1	15	-	9	4	1	14
Control D	-	2	5	3	10	-	2	5	3	10
Total	5	17	21	16	59	-	16	17	12	45

Figure 3: Control schools sample selection

EGRA tool

This study utilized USAID's Early Grade Reading Assessment (EGRA) tool to measure and evaluate the reading proficiency of girls in the treatment and control schools. The EGRA tool is widely recognized as a reliable and standardized assessment instrument specifically designed to assess early grade literacy skills using subtasks.[5]

The WE research team chose the EGRA tool because it is comprehensive and aligned with international best practices in early grade reading assessments. It has been widely used globally to collect data on reading skills, which allows for meaningful comparisons and benchmarking. World Education used a version of the EGRA developed by FHI360 and used in the USAID|Learning project. Whilst the EGRA assessed English language skills, specific instructions for the enumerators were written in Dagbani, the language widely used in Tolon district.

The EGRA tool consists of a series of standardized subtasks that measure different aspects of early grade literacy. These tasks are carefully designed to be age-appropriate and culturally sensitive for the local context. Figure 4 shows the tool used for the pilot, which includes several of the more commonly used EGRA subtasks.

Example:	t	m	s						
o	T	i	A	E	N	e	E	r	t
o	s	L	o	S	R	L	S	n	s
R	t	M	a	e	D	A	C	m	A
I	y	i	p	R	E	s	N	U	w
e	k	E	t	i	R	g	l	b	S
S	Z	n	e	c	s	a	i	O	n
N	d	r	M	A	u	E	a	l	d
s	D	f	r	I	J	P	T	Y	W
B	V	a	F	T	h	p	G	K	M
X	E	f	Q	O	H	I	r	I	T

Figure 4: Example sheet letter sound subtask

The tool used for the pilot includes several of the more commonly used EGRA subtasks, including:

1. **Oral Vocabulary:** Girls were asked to identify and name 8 objects on a student sheet in English. This activity was untimed. The objective of this subtask is to determine the extent of vocabulary knowledge by assessing a number of familiar words for children at this level.

2. **Letter Sounds:** A timed subtask in which students were asked to read as many letters as they could in 1 minute. Students read from a sheet with 100 letters, both in lowercase and uppercase print. In letter sound reading learners acquire the knowledge of the alphabetic principle, which states that letters represent a specific sound. Students learn the correspondence between phonemes (speech sounds) and graphemes (written symbols).

3. **Non-word reading:** A timed subtask in which students read out as many non-words as they could in 1 minute from a sheet with 50 non-words. Non-word reading refers to the ability to read unfamiliar or nonsense words. It is a component of reading skills that assesses a person's decoding abilities, specifically their capacity to apply phonics rules and sound-letter correspondences to pronounce unfamiliar letter combinations. Non-word reading is often used as a measure of phonological processing and phonics skills in reading assessments.

4. **Oral Reading Passage:** A timed activity in which children were asked to read out (part of) a short story of 56 words within 1 minute. This subtask assesses ability to read fluently with appropriate speed, rhythm and accuracy.

5. **Reading Comprehension:** This subtask is linked to the oral reading passage (above). After reading (part of) the story, children read and answer comprehension questions about the story itself. Reading comprehension refers to the ability to understand and interpret

written text. It involves the active process of constructing meaning from a written passage, making connections between the words, sentences, and ideas presented in the text. Children were only asked questions about the story that they hypothetically could know based on how far they had read the story. A maximum of 5 questions could be asked.

6. **Listening Comprehension:** An untimed subtask in which students listen to a story read out by the enumerators. Afterwards, students respond to 3 questions to measure their listening comprehension in English. Listening comprehension involves actively listening to spoken language, processing the sounds and meanings of words, and integrating the information to construct meaning.

The team also developed an ID data form to register student and teacher names, school and grade levels, age, and date and time of the assessment – and the EGRA tool can be found in Annex 1. This facilitates further analysis of the results and determination of differences per student characteristics.

Data Collection

After revision and testing of the EGRA tool, the WE team developed a data collection protocol involving several steps to ensure accurate and reliable data collection procedures:

1. **Preparatory Phase**: Prior to data collection, WE created a detailed plan outlining the objectives, timeline, and logistics of the assessment. A team of 3 trained assessors, or data collectors, carried out the data collection process. WE staff led the process, supported by 2 colleagues from Ghana Education Services (GES). WE staff obtained necessary permissions from GES to enter schools and work with teachers and students.

2. **School Selection and Coordination:** As detailed previously, girls in the three treatment and four control schools involved in the Read Along pilot were assessed during baseline and again during endline. The research team gained consent from parents/caregivers.

3. **Assessors Training:** A Senior Technical Advisor from World Education developed

and conducted training for WE staff in Ghana. The training for the baseline assessment started with an outline of the assessment instrument, data collection protocols, and ethical considerations. The training covered standardized administration procedures, scoring criteria, and techniques for managing and engaging students during the assessment. WE staff in Ghana were already familiar with EGRA assessments, which facilitated the use of a refresher course based on use of the adapted EGRA tool. Before the endline assessment, WE organized another quick refresher to ensure that defined protocols were used consistently.

4. **Data Collection Sessions:** WE staff and GES colleagues conducted data collection sessions at the selected schools, adhering to a predetermined schedule. Assessors ensured a conducive environment for testing by minimizing distractions and interruptions. The students were briefed about the assessment subtasks and reassured about the confidentiality of their responses. During the data collection sessions, assessors administered the EGRA subtasks to individual students. They carefully followed the standardized instructions, recorded student responses, and noted relevant observations. The assessors provided clarifications or rephrased instructions when necessary, ensuring students' comprehension of the tasks.

5. **Quality Control:** To ensure data quality and consistency, the WE staff member overseeing the two GES colleagues conducted regular monitoring and supervision. WE conducted spot-checks to verify the accuracy and completeness of data collection, addressed any issues or concerns raised by assessors, and provided ongoing support and guidance.

Ethical Considerations

WE strictly attended to ethical considerations during the data collection process. Enumerators were informed about the JSI/WE code of conduct and safeguarding protocols[6] and signed acknowledgement of the code of conduct. During the assessments, enumerators upheld professional conduct and integrity.

Students and parents were informed prior to the start of the Read Along pilot that they had the option to stop with the pilot program at any time. All were informed about safeguarding regulations, including access to reporting mechanisms for any suspected abuse or harassment. Informed consent was obtained from the parents or caregivers of participating students, and the privacy and confidentiality of student data were maintained.

The ID Data form includes personal information about names, age, and school of children so that the endline assessment was conducted with the same children. Data was digitized using a google sheet and kept secure. Names of teachers and students were kept confidential and were only accessible by WE project staff for the duration of the study for research purposes.

Limitations

While this study aimed to assess the impact of the Google Read Along pilot project in northern Ghana, it is important to acknowledge several limitations that may have influenced the research process and the interpretation of the results.

1. **Sample Selection:** The selection of schools was based on specific criteria, such as the availability of former STAGE girls who transitioned into formal education, the geographical limitation to Tolon district, and the presence of a trained Mentor Teacher in control schools. This sampling approach might not fully represent the diversity and challenges faced by all out-of-school girls in the Northern region. The selection of schools and participants may have introduced selection bias.

2. **Data Collection Timing:** The timing of the endline assessment coincided with the farming season, which resulted in a higher absenteeism rate, particularly in the treatment group. It cannot be discounted that this may have influenced the measured outcomes.

3. **Research Duration:** The pilot project spanned from May to August 2023, which is a relatively short time frame. For the purposes of gathering initial data to measure impact and discussing the potential impact from using the Read Along app, this timeframe was deemed sufficient. Results of this pilot may not capture longer-term impacts or trends that could emerge over a more extended period.

4. **Resource and Training Constraints:** The pilot relied on the availability of electricity to charge tablets and trained teachers to manage the use of tablets after school hours or during breaks. This may limit the scalability and replicability of the program in regions with different infrastructure or human resource challenges.

It is important to recognize these limitations when interpreting the findings of this study. While the research provides valuable insights into the potential impacts from use of the Google Read Along pilot, these considerations emphasize the need for further research and adaptation to more effectively address the challenges faced by out-of-school girls in transitioning to formal education in different contexts, particularly for extended periods.
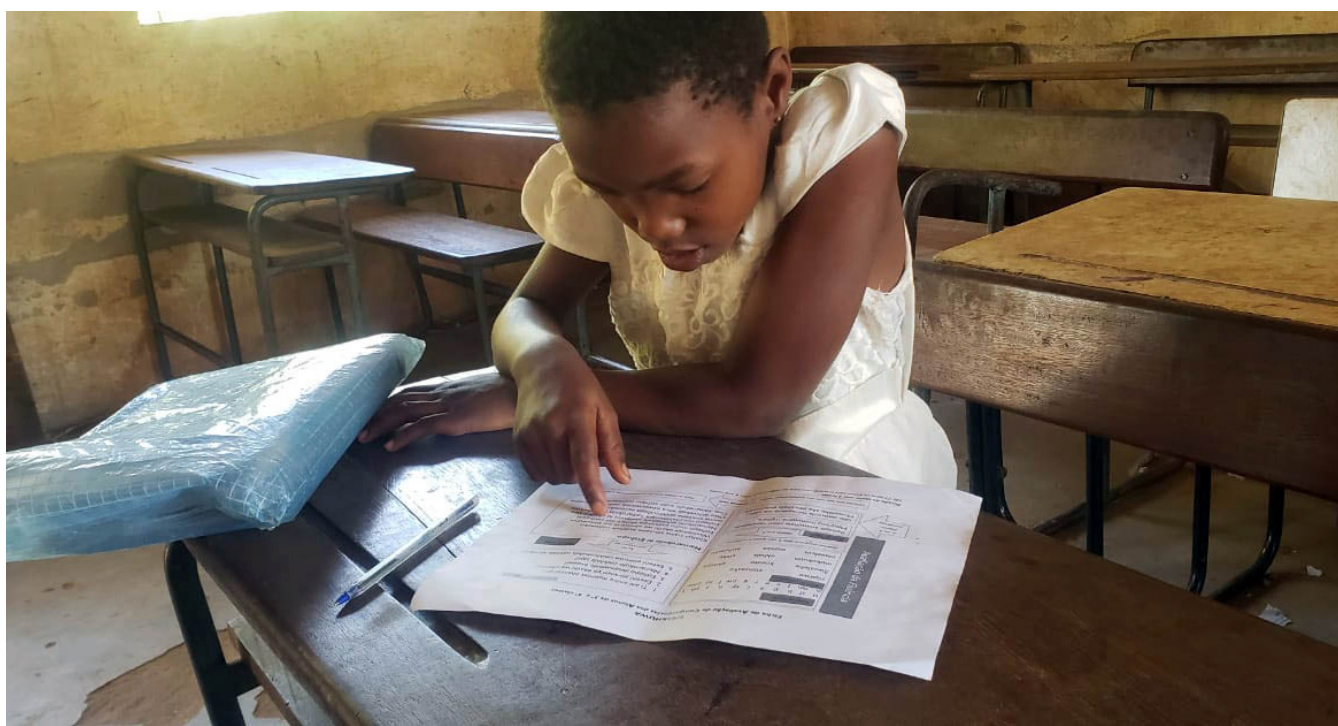
Assessment Results

The EGRA assessment results indicate considerable learning gains in the group of girls who used Read Along on a daily basis for three months. The girls substantially outperformed their peers in control schools in all subtasks.

This section provides a detailed description of the findings of the impact evaluation results for all 6 subtasks of the EGRA tool used in seven schools (treatment and control) in Tolon district. A baseline assessment was conducted in May 2023 and an endline assessment after 3 months in September 2023. The EGRA assessment results indicate considerable learning gains in the group of girls who used Read Along on a daily basis for three months. The girls substantially outperformed their peers in control schools in all subtasks. Results are aggregated per grade as we aim to capture broader trends in learning gains that are associated with the pilot intervention across different schools. This approach aligns with our research objective, which is to evaluate the impact of the pilot on literacy proficiency for the selected group of girls rather than to assess the quality of education delivery in specific schools.

Oral Vocabulary

Student achievement in the oral vocabulary subtask is described in this section for all students and by school type (control and treatment). Students were asked to name 8 objects that were drawn on a student sheet (see Annex 1). The enumerators gave the instruction in Dagbani, the local language spoken by the girls, whilst the girls had to name the object using the correct word in English.

Baseline findings

The average number of correct responses among girls in all schools was 3.6 out of a total of 8 words possible. A total of 19 students were unable to mention a single object correctly. Grade level differences were observed with grade 4 students able to name on average 2.8 words correctly,[7] while grade 6 students averaged 4.6 words correctly. The children in the control schools slightly outperformed the students in the treatment schools in grade 4 and 6, whilst the opposite was true for grade 5. Figure 5 illustrates the differences between the two cohorts and the gray bars in Figure 5 illustrate the differences between the two cohorts during baseline.

Despite these small differences, it becomes clear that oral English language proficiency in this subtask is low with children not able to name

more than half of the objects. Only three children were able to name all 8 objects correctly. The enumerators made sure to reinforce understanding of the task. given that this was the first subtask of the assessment. They asked the girls to regularly name objects in Dagbani. While they were able to do this correctly, the English words were often unknown.

Endline findings

After 3 months the endline assessment shows a clear change in both treatment and control groups. The average number of correct answers in grade 4 went from 2.8 to 5.8 correctly named vocabulary items in English (Figure 5). Grade 5 students' vocabulary knowledge went up from 3.3 correct words during baseline to 6.6, and in grade 6 it increased from 4.7 at baseline to 6.9. At baseline, only 3 students could name all 8 objects correctly. This number increased at the endline to 42 (12 students in control, 30 students in treatment). In this subtask, the results show learning took place in both sets of schools. However, analysis of the increase of correct answers given per cohort (control vs treatment) shows that in all grades children in the treatment schools named more words correctly than in the control schools. The blue (control) and red (treatment) bars in Figure 5 detail the increase

in correct answers per grade. This shows, for example, that grade 6 students in the control schools on average knew 1.6 more words at the endline than compared to the baseline (increase from 5 to 6.6 words). The students in the treatment schools, however, knew 2.9 more words in grade 6, increasing from 4.4 known words at baseline to 7.3 out of 8 words at the endline.

Letter Sounds

In this timed subtask, children were asked to sound out as many letters as they could within a minute. Letters were presented using both capital and lower case print.

Baseline Findings

At baseline, children were, on average, able to sound out 33.7 letters correctly within 1 minute. Two children were able to read all 100 letters and 24 children had zero-scores (i.e. did not read a single letter). Low scores might have to do with children not being familiar with the letter sounds. In various instances they were able to mention the names of the letters but not the sounds. It's equally important to note that enumerators were instructed to stop the exercise and move on to the next subtask if children were unable to read a single letter from the first line of 10 letters.
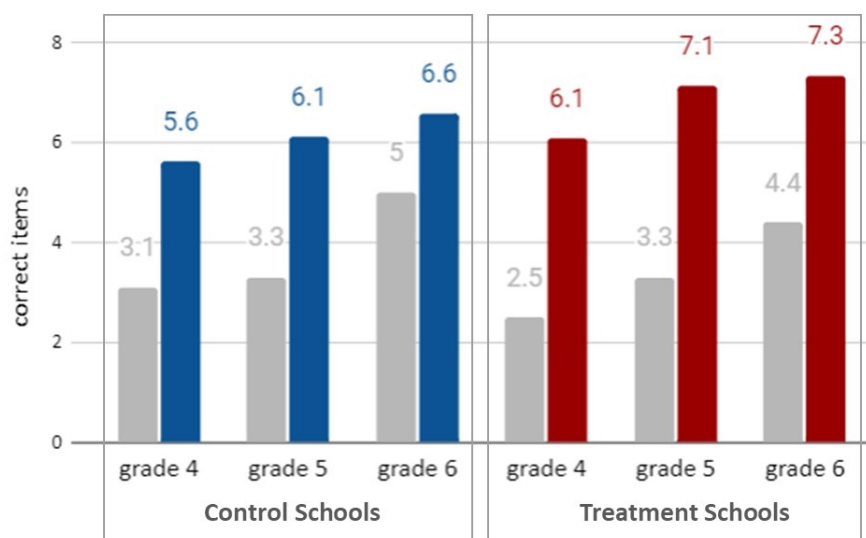

Figure 5: Baseline-Endline Comparison Oral Vocabulary

Similar to subtask 1, we are noting an increase in letter knowledge from grade 4 to grade 6. The grey bars in in Figure 6 show shows that children in grade 4 and 5 in the control schools are outperforming their peers in treatment schools by 22 and 11.5 more letters read correctly, respectively. That is a substantial difference, which could be attributed to various factors such as higher parental engagement, effective teaching, higher attendance rates or others[8]. Not typical in schools, the scores on the letter sound subtask in the control schools were almost identical in grade 4, 5 and 6. It is more common to see an incremental increase as children progress from grade 4 to 6, as in the treatment schools. When looking at the grade 6 results, children in treatment schools are reading 42.3 letters correctly compared to 36.7 letters in the control schools.

Endline Findings

Endline results show an increase in letter recognition within the control group from on average 37 correct letters per minute in grades 4 to 6 at baseline to 47.5 letters at endline.There was also a considerable improvement across all grade levels in the treatment school. From a lower baseline of 28 correct letters per minute, students are now averaging 68.5 letters per minute. The increase of letters per minute in the control group was 10.5 more letters read at the endline while in the treatment group it was 40.5, almost a 400% increase over the control group.

The number of zero scores was reduced from 24 at baseline to 5 at endline; 2 in treatment schools and 3 in control schools. Six children were able to read all 100 words within 1 minute; 5 from the treatment group and 1 from the control group.

Figure 6 indicates there is an increase in correct letters per minute in each grade. The gray column is the baseline score for both groups, while the dark blue is the endline score per grade for the control schools. The dark red is the endline score per grade for the treatment schools. Grade 4 in all 3 treatment schools on average improved their letter knowledge with almost 250% against ~33% increase in grade 4 in the control schools.

Improvements were made in both the control and treatment schools, but the gains in grade 4,5, and 6 in the treatment schools far outshines
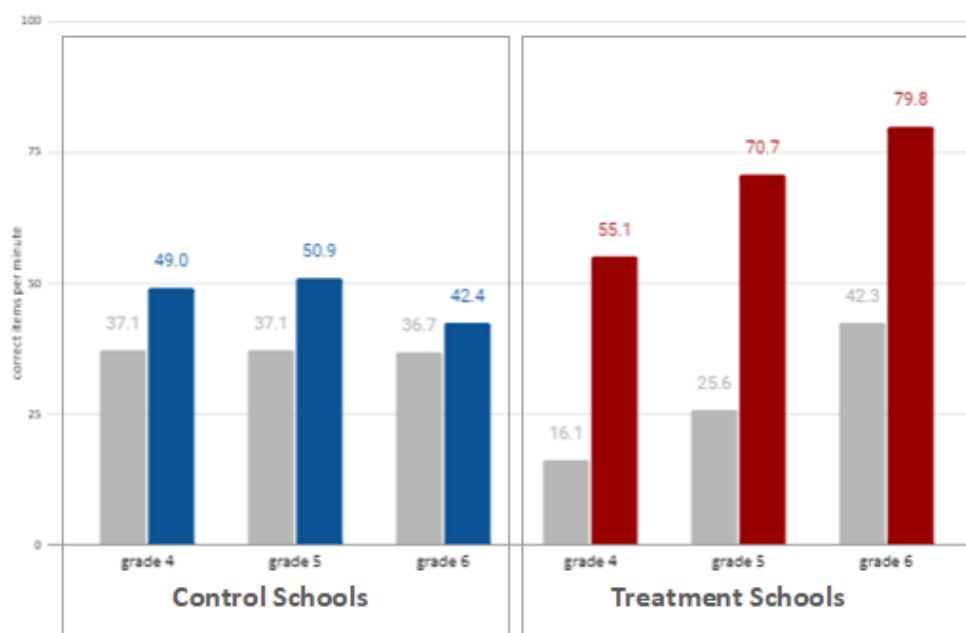
Figure 6:
Baseline-Endline Comparison Letter Sounds per Grade

the gains of their peers in control schools. This leads us to attribute a positive impact of the intervention across all grades.

Non-Word Reading

This timed subtask requires students to read up to 50 meaningless words (non-words) within 60 seconds.

Baseline Findings

Children were able to read on average 9.4 words per minute in grade 5 and 20.8 words in grade 6. A total of 65 students were unable to read a single word. Of these 63 girls, 32 were in control schools, while 33 were in treatment schools.

The low scores at baseline in all grades are linked to the inability of many children to sound out letters and the corresponding difficulty they have to decode nonsense words. As all treatment and control group students have participated in the STAGE program, they all underwent a phonics-based literacy program in which decoding and strengthening oral reading fluency were central elements. Many girls, however, are unable to read simple Consonant-Vowel Consonant combinations in one syllable nonsense words in English (such as 'dit, gof, lem'). This highlights the need for a structured

pedagogical approach and focused practice.

As illustrated in Figure 7 (gray bars are scores at baseline), a similar pattern is observed as in subtask 2 – letter sound recognition – in which the students in control schools outperform their peers in treatment schools in grade 4 and 5, whilst the students in grade 6 in treatment schools outperform their peers in the control schools. Differences in grade 4 and 6 are substantial between the two groups.

Endline Findings

The endline scores show improvements in both cohorts, as expected, given that regular teaching has taken place during the 3 months in which the pilot was implemented. However, while the increase in correct words per minute in the control schools was on average 7.7 words per minute, treatment schools saw an increase of on average 18 correct words per minute across all grades. The number of zero scores reduced from 65 at baseline to 25 at the endline. Of that number, 5 zero scores were within the treatment group and 23 in the control group. Equally relevant is the number of girls who were able to read all 50 words within the given time. While there was only 1 girl in the control group able to do so, there were 10 girls out of the 54 in the
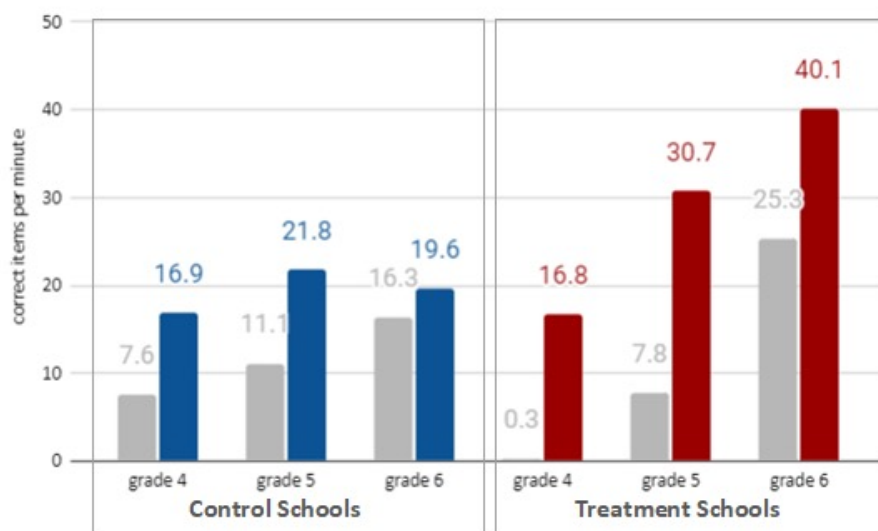
Figure 7:
Baseline-Endline Comparison Non-Words per Grade

treatment group who were reading all words within 1 minute. This is a remarkable increase from just 1 girl achieving this at baseline.

Figure 7 shows the difference between the baseline results (gray bars) and the endline results per grade and cohort. Grade 4 students in control schools who were reading 7.6 words per minute during the baseline read 16.9 words at the endline. This is almost similar to the endline results in grade 4 in the treatment schools, but the baseline results there were almost zero. Grade 5 and 6 scores in treatment schools had similar substantial learning gains between baseline and endline, surpassing the learning gains made in control schools by more than 230%.

Oral Reading Passage

The fourth subtask of the EGRA was timed and involved reading a passage with a total of 56 words in the English language. Whilst the non-word task mostly involved simple, one syllable words, the oral reading passage included multisyllabic words as well.

Baseline Findings

On average, children were able to read 12.1 words per minute at baseline. Given that the first sentence has 13 words, it means that on average

they were only able to read up to the point that they could be asked 1 question[9]. A total of 73 children out of 125 were unable to read a single word. This included 39 children from the treatment group and 34 from the control group. Only 1 student was able to read the full text within 1 minute.

Figure 8 (gray bars for baseline) illustrates the differences in oral reading fluency. No children in grade 4 in any treatment school read a single word. Grade 5 and 6 students on average read 9.6 and 21.5 words, respectively. The difference between grade 4 and higher grades is notable. A more gradual picture is seen in control schools, although reading levels are still low. Oral Reading Passage scores differ per school with relatively larger variations in the control schools.

Endline Findings

The ability to read connected text fluently is important and, combined with vocabulary, predicts reading comprehension. It is encouraging to see that during the endline students in all schools read more correct words per minute than at baseline.

Figure 8 shows the impact of the intervention towards the oral reading fluency scores for connected text reading per grade. Reading
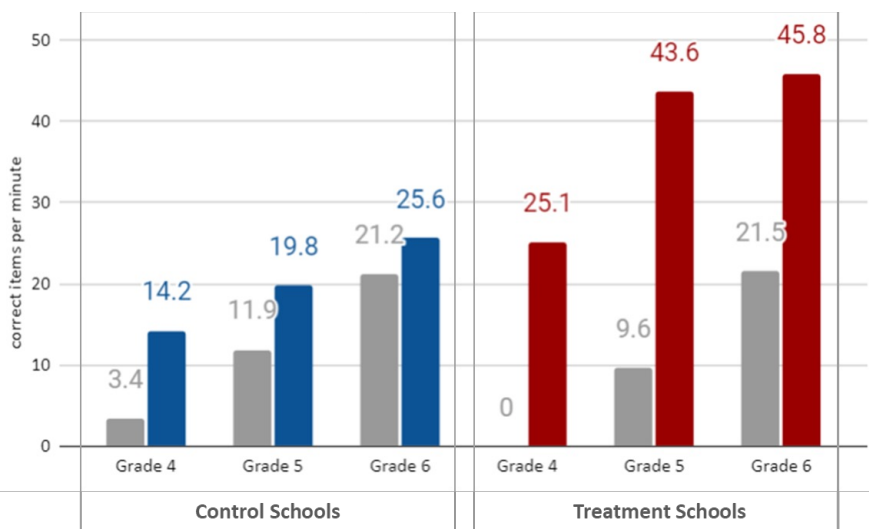
Figure 8:
Grade Level Comparison - Control vs. Treatment Oral Reading Fluency

fluency endline scores of children in treatment schools increased dramatically against baseline scores. In treatment schools, 12 students assessed at the endline in grade 4 read on average 25 words per minute against zero words at baseline. In grade 5, 15 students were assessed at the endline and read on average 43.6 words per minute compared to 9.6 words at baseline. The fact that the children improved very substantially over the 3 month pilot is an indication of the intervention's impact.

The number of zero scores at the endline was 32 against 73 at baseline. Of this number, 23 children in the control schools and 9 in the treatment schools were unable to read a single word. The number of zero scores in the treatment schools went down from 39 to 9 in 3 months. A total of 23 girls read the full text of 56 words within 1 minute. Of this group, 18 girls were from the treatment group and 5 from the control group.

Although improvements can also be noted in the control schools, these are far lower than in the treatment schools. Impact in grade 5 provides an example. Children in control schools could read, on average, 7.9 more correct words per minute during the endline assessment compared to the baseline. Children in treatment schools however could read 34 more words. Figure 9 shows the increase in correct words per minute per grade in control and treatment schools between baseline and endline. Comparison of the learning gains in all grades of both control and treatment groups makes clear that the increased number of words read correctly during this subtask in treatment schools is 2 to 6 times higher than in control schools.

Reading Comprehension

As indicated in the previous section, comprehension questions were asked to students who were able to read (any particular part of) the story. The objective of this task is to verify understanding of what they have read. Comprehension is a complex task that requires a level of proficiency in all other reading skills/subtasks.

Baseline Findings

Of the total, 104 children (control 46, treatment 58) were unable to respond to any question because they did not read a sufficient number of words. During baseline, out of the total, only 14 children were even asked 1 or more questions. Most children responded correctly to 1 question, and only one student was able to answer all 5 questions correctly.
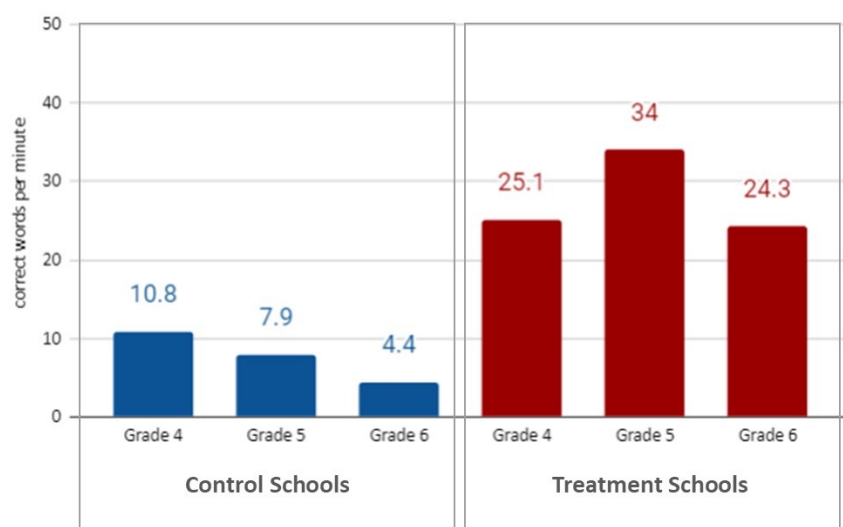
Figure 9:
Comparison Control vs. Treatment per Grade

An analysis of grades in which girls were able to respond to one or more questions shows that some are in grade 5 (4 students), and most are in grade 6 (10 students). Interestingly, all but one of the children who were able to respond to one question or more were reading at relatively high levels in the Oral Reading subtask. 10 of them were reading 49 words or more per minute. Despite that, many gave incorrect or incomplete answers to the questions, indicating that they might be able to technically read out the text, but lack comprehension.

Endline Findings

The number of zero scores in the treatment group reduced from 58 at baseline to 16 at endline. In the control group, the number reduced from 46 at baseline to 37 at the endline assessment.

Figure 10 shows the average number of correct responses to reading comprehension questions. Reading comprehension in the control group is between 2.5 and 5 times higher, depending on the grade level. Students in grade 4 who were
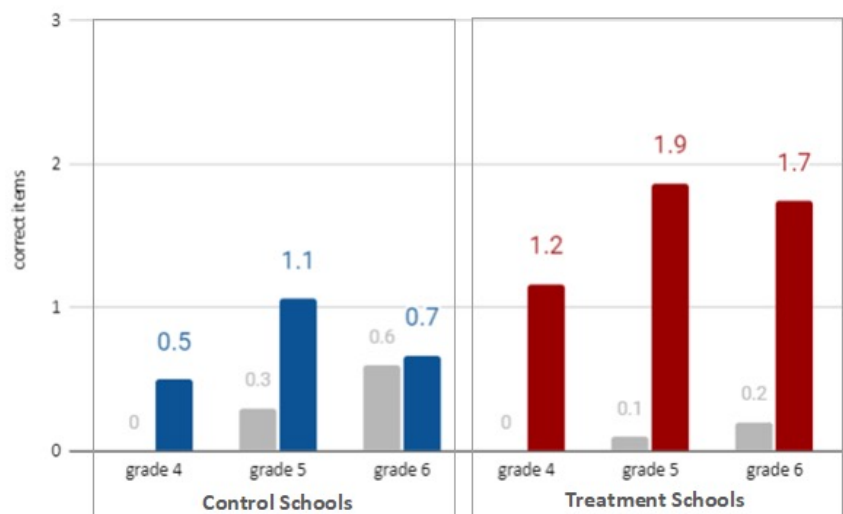
Figure 10:
Baseline-Endline -
Listening Comprehension -
Control vs. Treatment
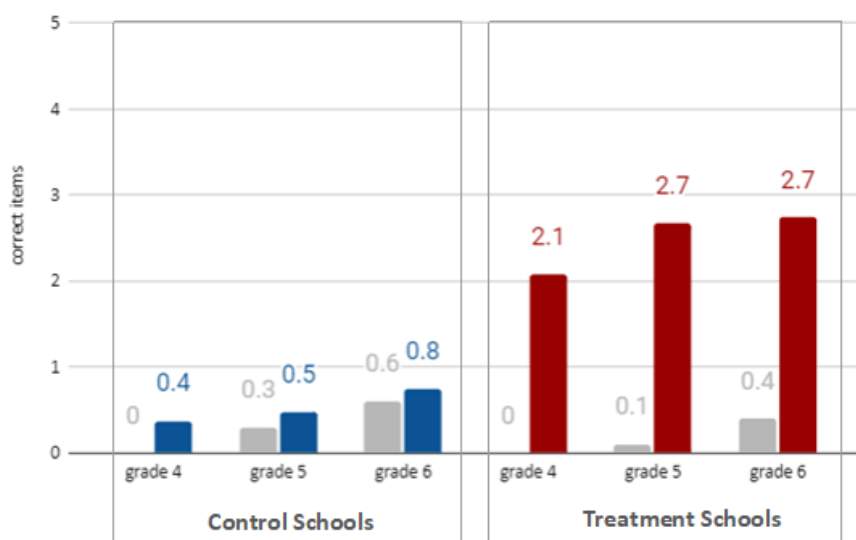
Figure 11:
Baseline-Endline -
Reading Comprehension -
Control vs. Treatment

previously unable to answer a single question (because they could not read the connected text in the Reading Passage subtask) were now able to respond correctly to 2.1 out of the 5 questions.

If the zero scores at the endline are taken out of the equation, of which the control had 35 against 11 in the treatment group, the difference becomes smaller, but only by a bit. Without the zero scores, the 16 children in the control group responded to on average 1.4 questions correctly. If the zero scores from the treatment group are taken out, the remaining 43 students responded to 3.2 questions correctly on average.

Listening Comprehension

The last subtask of the EGRA was the untimed listening comprehension activity in which enumerators read a short story of 5 sentences to the child. They would provide an orientation in Dagbani and read the story once to the students in English. Afterwards, they asked the students 3 questions.

Baseline Findings

This activity proved to be very challenging for the students as only 8 children were able to respond to one question or more. A total of 110 girls were unable to answer any question. Not surprisingly, the 8 students who were able to

answer one question or more were among the 14 who were able to respond to one or more Reading Comprehension questions.

If listening comprehension levels are as low as suggested by this data, there are serious implications for how children are able to understand teacher instruction effectively.

Endline Findings

At the endline, the total of zero scores reduced to 48 (19 in treatment, 29 in control schools).

A trend comparable with the reading comprehension subtask can be seen where increases in listening comprehension in treatment schools is substantially larger than in control schools. Students in control schools responded to 0.7 out of the 3 questions correctly on average, whilst students in treatment schools could respond to 1.6 questions correctly. If the zero scores are taken out, that number moves to 1.2 correct answers in the control group and 2 correct questions in the treatment group.

Grade level differences can be observed in **Figure 11** with grade 5 students in both cohorts slightly outperforming their peers in grade 6. This corresponds with a similar trend in the Reading Comprehension subtask.

Discussion and Implications

The demonstrated impact of this pilot makes a compelling argument to World Education and its partners to pursue replication and scale up. This section suggests various strategies and adaptations to make the intervention more effective and sustainable.

Findings from the impact evaluation demonstrate the value of the Read Along pilot program intervention for improving English literacy proficiency of the target students. The program had a substantial impact in all subtasks of the EGRA assessment, with students in treatment schools consistently outperforming their peers in control schools.

"Since we started using the tablet to learn, I have realized that I can now read, spell, and pronounce words which I could not before. I now know certain English words, especially names of animals and food. When I go to the market, I know the English name for most of the items I buy. Before, it was only the Dagbani names that I knew," said Amina, a participant in the pilot.

Baseline Findings

The May 2023 baseline assessment confirmed that English language literacy skills of children in the 7 target schools were low, with high zero-scores across subtasks. Children could name less than half of the basic English vocabulary in grade 4 to 6, and listening comprehension was low with only 8 out of the 118 children assessed able to respond to any question *(see Listening Comprehension, page 20)*.

Assessment results from early reading skills, such as Letter Sound recognition, proved to be challenging for all grades, with very few children from grade 4 able to even sound out letters. The average number of letter sounds read correctly among all the girls was 33.7 letters in one minute.

More advanced early reading skills such as Non-word reading and Connected Text reading (Oral Reading Passage) were increasingly more difficult with 65 students of the total of 118 girls not able to read a single word in the non-word reading, and 73 girls not able to read a single word at the Oral Reading Passage subtask. Grade 4 and 5 reading levels in both subtasks were particularly low, with treatment schools scoring lower than control schools.

A growing body of research confirms that children at the end of grade 2 should be able to read between 45-65 correct words per minute (cwpm) in English to be able to comprehend grade level text[10]. If we apply this benchmark to our group of students up to grade 6, only 16 students (13.5%) read more than 45 words per minute.

Given the relationship between oral reading fluency and reading comprehension, it is quite logical that the reading comprehension task was even more challenging for students. Only 14 out of the 118 children in the sample were able to respond to 1 or more questions correctly. Most of these 14 students were able to read 46 words or more per minute in the oral reading fluency subtask.

Endline Findings

The endline assessment conducted in August 2023 showed a very different picture, with students who took part in the Read Along pilot vastly outperforming their peers in control schools where no intervention took place. Figure 12 shows the baseline and endline assessment

results of the fluency subtasks: letter sounds, non-words reading, and connected text reading. Students from treatment schools show very high learning gains, ranging from 250% to 350% increased performance at the endline.

This is a striking difference compared to the control group where, although improvements are noted, they range from 30% increases in the letter recognition to 68% increases in the non-words reading subtasks.

Although students in the treatment group also outperformed their peers in the control schools in the vocabulary subtasks at the endline assessment, the difference was less with students in control schools improving on average 64% from 3.7 words at baseline to 6.1 words at the endline assessment. Students in the treatment group improved their vocabulary score with on average 94% from 3.6 words at baseline to 7 words at the endline assessment.

The listening comprehension and reading comprehension subtasks again showed substantial differences between both groups. Figure 13 shows the baseline and endline
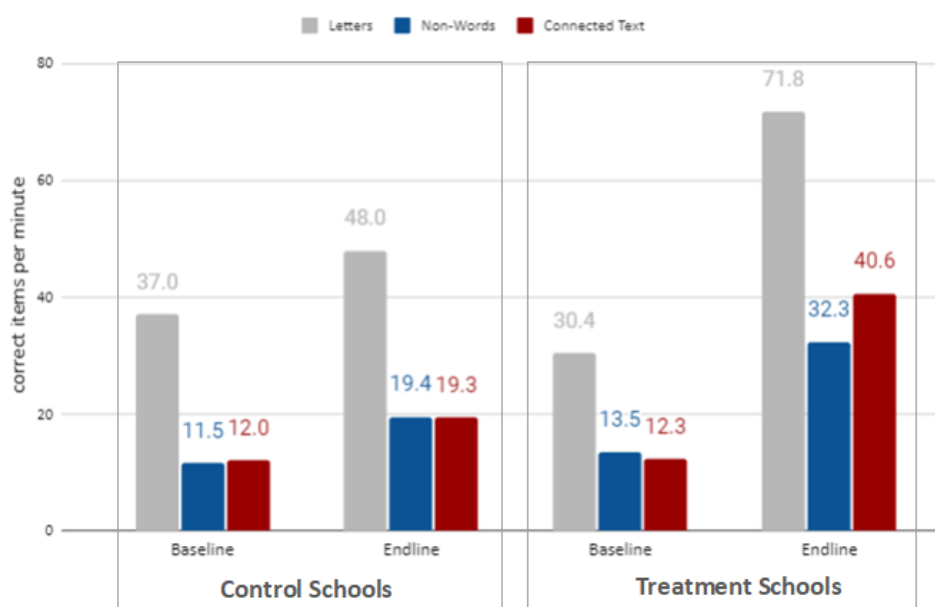
Figure 12:
Baseline-Endline Fluency Comparison

scores for both subtasks. The maximum score for reading comprehension was 5 correct answers and the maximum score for listening comprehension was 3 correct answers.

Whilst improvements are clear, with the treatment schools again outperforming the control schools, overall scores are still fairly low with children in treatment schools on average

answering correctly to slightly more than half of the questions asked in both subtasks.

It is likely that this correlates with the relatively low oral reading fluency demonstrated in subtask 'Connected Text reading'. Children with higher reading fluency scores are more likely to answer reading comprehension questions correctly.
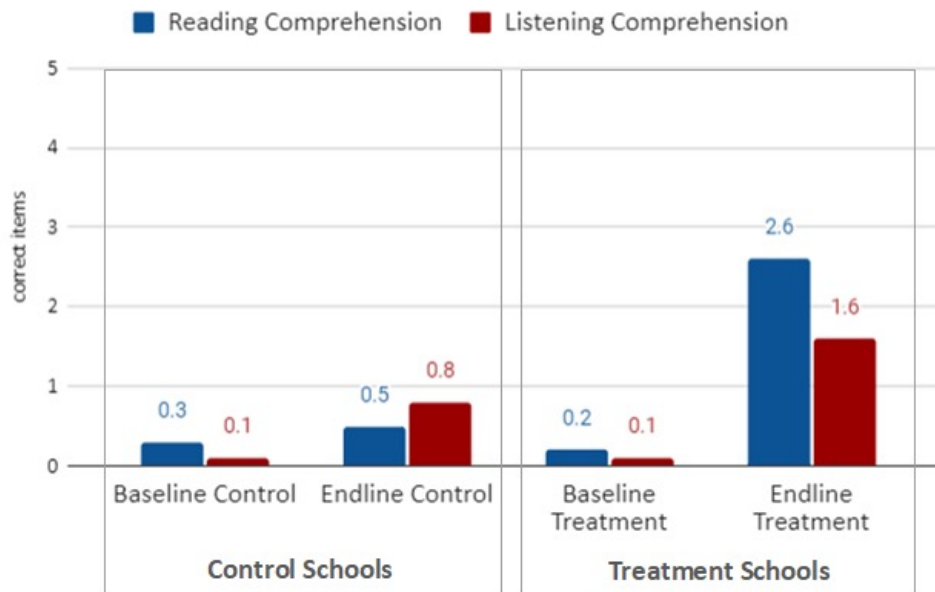
Figure 13:
Baseline-Endline Comprehension Comparison - Control vs. Treatment
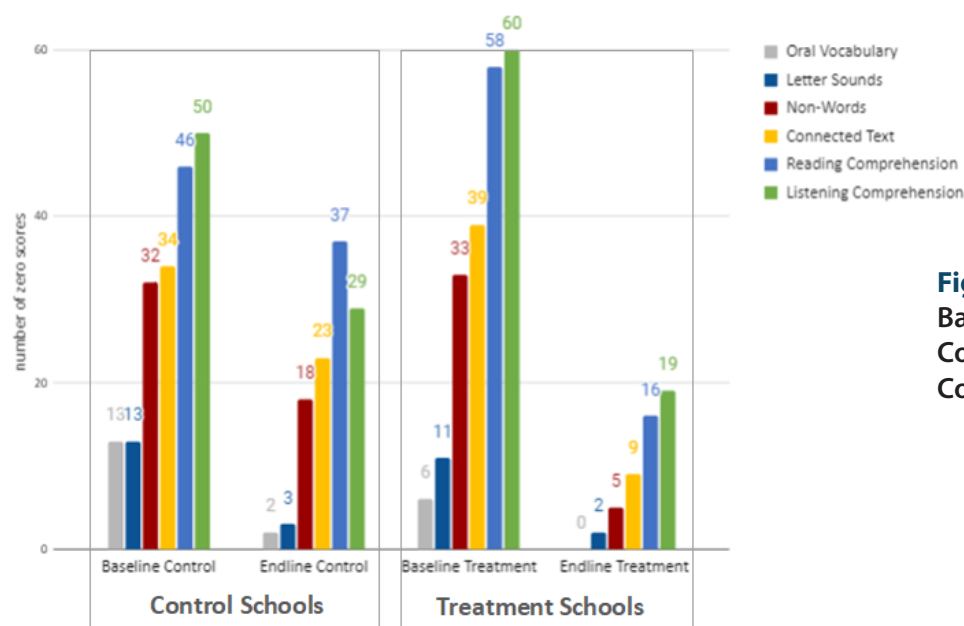
Figure 14:
Baseline-Endline Comparison - Zero Scores - Control vs. Treatment

Lastly, we looked at the number of students who had zero correct items in each subtask.

If we analyze Figure 14 *(opposite page)*, we note that a higher number of girls in the treatment group had zero scores at baseline. As a reminder, the control group had 54 children at baseline, and the treatment group had 64 children. This partly explains the higher number of children with zero scores at the baseline. Analysis of the endline shows that of the 45 children in the control group and the 54 children in the treatment group, a low percentage of children in the treatment group still had zero scores.

For example, at baseline ~60% of the students in the control schools (32 out of 54) were unable to read a single word in the non-words subtask, against ~51% of the children in the treatment group (33 out of 64). This percentage was reduced at the endline to ~35% of girls in the control group and ~9% of the girls in the treatment group still unable to read a single non-word.

Similar differences can be noted in the other subtasks.

Implications of the Research

Based on the key findings and conclusions, the following recommendations can be considered;

1. Given the substantial impact observed in a relatively short period of time, it is recommended to scale up the Read Along pilot program to benefit a larger number of children struggling with English literacy in primary schools. Expanding the program to additional schools and regions could help address the widespread literacy challenges. Such scale up might consider expanding into more diverse settings, including (semi-) urban areas or the involvement of grades 1 to 3

2. Collaborate with the Ministry of Education, Ghana Education Services and other relevant government agencies in establishing more evidence of the impact. Seek official endorsement and support to make the intervention more known and sustainable.

3. Explore opportunities for public-private partnerships to secure additional resources, funding, and technical support for the expansion. Engage with other EdTech stakeholder groups in and outside of Ghana and other umbrella organizations that have

"We realized through monitoring that students had serious challenges in the English language. The pilot gave us the opportunity to understand these challenges. We saw that attendance improved. Students were engaged during breaks and not during regular hours. It increased the learners' ability to read within a very short a short time."

–Abu Kassim
Ghana Educations Service

an interest in improving English literacy outcomes of the use of technology in education.

4. Explore involvement of parents and caregivers in the literacy development process. As the Read Along app is free and available to all, the aforementioned scale up could also include parental engagement, reinforcing learning outside of school hours and strengthening a shared responsibility to improve education. As more people in Ghana gain access to smartphones, we should consider the potential impact of the Read Along app in terms of improving English literacy skills at scale.

5. Work with Google to tailor the software and implementation model more to the local needs. This might include the use of a Ghanaian voice speaking in the common English accent, in contrast to the current Indian accent but might also include exploring a more teacher guided intervention. Teachers can be trained to use the Read Along app in their daily teaching or, when they are able to assess student learning, to organize remedial teaching for specific students.

Conclusion

The Google Read Along pilot has made a substantial impact on the literacy proficiency of the girls involved in the pilot in just three months. In all subtasks, learning gains of the treatment group far outweighed that of the control group indicating that gains can be attributed to the Google Reading pilot.

When the World Education team initially embarked on this journey in May 2023, we encountered a sobering reality. The English language literacy skills of students in participating schools were very low. The baseline assessment revealed that the majority of students were struggling to pronounce basic letter sounds and comprehend grade-level text. Fast-forwarding to the September 2023 assessment after the Read Along intervention, a remarkable transformation has occurred. Students in treatment schools have surged ahead, outperforming their peers in control schools across all evaluated subtasks. The gains made in early literacy skills, such as letter sound recognition and non-word reading, are beyond the expectations of WE and GES staff. The substantial improvements in vocabulary, listening comprehension, and reading comprehension further underscore the impact of the program.

Given the impact of this small scale pilot, there is enough evidence to discuss and design a scale up of the intervention to support more children struggling with English literacy in primary schools. Additionally, World Education's engagement with education leaders and Mentor Teachers on implementation of the Read Along app has led to more highly motivated teachers, school directors and MoE/GES counterparts who saw the potential of the approach and have become strong advocates for continuation and scale up. By broadening the scope, partnering with relevant stakeholders, and fine-tuning the approach to local needs, we can pave the way for a more widespread and sustained improvement of English literacy proficiency in Ghana through use of the Google Read Along app. And more broadly, by supporting educators to make effective use of artificial intelligence and other technologies to extend and personalize instruction, together we can shape a brighter future for children struggling with English proficiency in Ghana and with literacy across the globe.

Annex 1 - EGRA tool

INSTRUMENT ID DATA – EGRA

Introduction;

Good morning. My name is _____ and I live in _____. I'd like to tell you a little bit about myself. [Number and ages of children; favorite sport, radio or television program, etc.]

1. What do you like to do when you are not in school? [Wait for response; if student is reluctant, ask question 2, but if they seem comfortable continue to verbal consent].
2. What games do you like to play?

Verbal consent

Let me tell you why I am here today. I work with World Education in the STAGE project / a project for girls' education and we are trying to learn how we can help girls to improve their English language skills further. We would like your help in this. We are going to play a reading game. I am going to ask you to read letters, words and a short story out loud. Using this stopwatch, I will see how long it takes you to read. This is NOT a test and it will not affect your grade at school. I will also ask you other questions about your class, birthday and so on. No one will see these answers in school or community. Once we begin, if you would rather not answer a question, that's all right. Do you have any questions? Are you ready to get started?

Check box if verbal assent is obtained: ☐ YES
(If verbal assent is not obtained, thankthe girl and move on to the next girl, using this same form)

A. Date of the Assessment		G. Teacher name	
B. Assessor name		H. Student Name	
C. Name and location of the school		I. Student Code	
D. School Code		J. Student Grade level	
E.		K. Student's month and year of birth	Month_____ Year_____ Age_____
F. School type	O – Treatment O – Control	L. Time started	

1. **Introduction to the school director/teacher**
   - Explain the purpose of the EGRA; we are NOT here to evaluate the school.
   - Discuss potential location for assessment.

EGRA (English) Assessment (DAGBANI)

Sub-test 1. ORAL VOCABULARY	📖 Page 1	⏱ ✖
🗣 N-nyɛ binyɛra shɛŋa anfooninima. Dimi suɣilo yɛlimi ma bini kam yuli Silimiinsili ni. [point to the bird] Shɛhira, "bird" anfooni m-bɔŋɔ. A yi nya anfooni ŋɔ, nyin bolimi bachi ŋɔ "bird." Here are pictures of some objects. Please tell me the name of each object in English. For example, [point to the bird], this is a picture of a bird. When you see this picture, you say the word "bird." Che ka ti bɔhim. Yɛlimi ma bini ŋɔ yuli Silimiinsili (English) ni. [point to the dog] Let's practice. Tell me the name of this object [point to the dog]. ✓🗣 Taali. Dog m-bala. Good. That is a dog. ✖🗣 [point to the dog] Dog m-bala. Yɛlimi ma bini ŋɔ yuli Silimiinsili (English) ni. This is a dog. Tell me the name of this object in English. A yi ti paai anfooni shɛli a ni bi mi, nyin' yaɣimi li n-chaŋ di paya maa ni. Zaŋmi a nubila m-pa tuuli anfooni maa zuɣu. If you come to a picture that you do not know, go on to the next picture. Put your finger on the first picture. A maali shili? Che ka ti pili. Ready? Let's Begin.		⮐ If a child hesitates for 3 SECONDS, go on to the next word. ✋ If the child does not provide a single correct response on the first line (4 items), say "Thank you!", discontinue this subtask, check the box at the bottom, and go on to the next subtask. If the child does not respond in English, stop the child and ask him/her to respond in English – do this only once, and after that mark any non-English responses as incorrect.

book	frog	plane	duck
trousers	monkey	banana	flower

✎ Exercise discontinued because the child had no correct answers in the first line	

A kpaŋa maŋa. Ti tirisimi tooni Good effort! Let's go on to the next section.

Sub-test 2. LETTER SOUND IDENTIFICATION	📖 Page 2	⏱ 60 seconds

🕮 Gbaŋ ŋɔ nyɛla din pali ni Silimiinsili bachikɔba, dimi suɣilo bolimi bachikɔba maa pam kumsi a yaa tariga Silimiinsili (English) ni. Pa di yuya, amaa di kumsi. Here is a page full of letters of the ENGLISH alphabet. Please tell me the SOUNDS of as many letters of the alphabet as you can. Not their names, but their sounds.

[point to the letter T] Shɛhira, bachikɔbili ŋɔ kumsi nyɛla /t/. For example, the sound of this letter is /t/.

[point to the letter M] Ti bɔhimma. Yɛlimi ma bachikɔbili ŋɔ kumsi. Let's practice: Tell me the sound of this letter.

✓🕮 M-bo! bachikɔbili ŋɔ kumsi nyɛla /m/. Good, the sound of this letter is /m/.

✗🕮 Bachikɔbili ŋɔ kumsi nyɛla /m/. The sound of this letter is /m/.

[point to the letter S] Lahi pahimi shɛli. Yɛlimi ma bachikɔbili ŋɔ kumsi. Now let us try another one. Tell me the sound of this letter.

✓🕮 M-bo, Bachikɔbili ŋɔ kumsi nyɛla /s/. Good, the sound of this letter is /s/.

✗🕮 Bachikɔbili ŋɔ kumsi nyɛla /s/. The sound of this letter is /s/.

[point to first letter] N yi yɛli ni a pilima, nyin' pili kpe zaŋ ti yi gbaŋ maa tariga Tirimi bachikɔbili kam ka wuhi ma di kumsi, che ka a yee dura. A yi paai bachikɔbi shɛli a ni bi mi nyin kpahi yaɣi n–chaŋ din' pa di zuɣu. Zaŋmi a nubila m-pa tuuli bachikɔbili maa zuɣu. Niŋmi shili? Pili ma. When I say "Begin," start here and go across the page. Point to each letter and tell me the sound of that letter in a loud voice. Read as quickly and carefully as you can. If you come to a letter you do not know, go on to the next letter. Put your finger on the first letter. Ready? Begin.

✎ (/) Mark any incorrect letters with a slash
(∅) Circle self-corrections if you already marked the letter incorrect
( ]) Mark the final letter read with a bracket

Examples: t   m   s

1	2	3	4	5	6	7	8	9	10	
o	T	i	A	E	N	e	E	r	t	(10)
o	s	L	o	S	R	L	S	n	s	(20)
R	t	M	a	e	D	A	c	m	A	(30)
I	y	i	p	R	E	s	N	U	w	(40)
e	k	E	t	i	R	g	I	b	S	(50)
S	Z	n	e	c	s	a	i	O	n	(60)
N	d	r	M	A	u	E	a	I	d	(70)
s	D	f	r	I	J	P	T	Y	W	(80)
B	V	a	F	T	h	p	G	K	M	(90)
X	E	f	Q	O	H	I	r	I	T	(100)

✎ Time remaining on stopwatch at completion (number of SECONDS)	
✎ Exercise discontinued because the child had no correct answers in the first line	

Instructions (right column):

Start the timer when the child reads the first letter.

⮌ If a child hesitates or stops on a letter for 3 SECONDS, point to the next letter and say "Go on"

If the child does not respond in English, stop the child and ask him/her to respond in English – do this only once, and after that mark any non-English responses as incorrect.

🖑 When the timer reaches 0, say "stop."

🖑 If the child does not provide a single correct response on the first line (10 items), say "Thank you!", discontinue this subtask, check the box at the bottom, and go on to the next subtask.

A kpaŋa maŋa. Ti tirisimi tooni Good effort! Let's go on to the next section.

| Sub-test 3. NON-WORD READING | 📖 Page 3 | 🕐 60 seconds |

✦ **Bachinima ŋɔ nyɛla bɛ ni kuli laɣim shɛŋa Silimiinsili (English)ni. M bɔrimi ni a karim di pam a yaa tariga Silimiinsili (English) ni. Miri ka a yiɣisi di bachikɔba, amaa lee karimmi li.** Here are some made-up words in ENGLISH. I would like you to read as many as you can. Do not spell the words, but read them.

[point to the word "ut"] **Shɛhira, bachi ŋɔ nyɛla 'ut'.** For example, this made-up word is: "ut".

[point to the word "dif"] **Ti bɔhimma. Dim suɤulo, karimmi bachi ŋɔ.** Let's practice: Please read this word.

✓✦ **M-bo, bachi ŋɔ nyɛla 'dif'.** Good, This made-up word is "dif."

✗✦ **Lala bachi ŋɔ nyɛla 'dif'.** This made-up word is "dif."

[point to the word "mab"] **Lahi buɤisim yini pahi. Dim suɤulo, karimmi bachi ŋɔ.** Now let us try another one. Please read this word.

✓✦ **M-bo, bachi ŋɔ nyɛla 'mab'.** Good, This made-up word is "mab."

✗✦ **Bachi ŋɔ nyɛla 'mab'.** This made-up word is "mab."

[point to first word] **N yi yɛli a ni a pilima nyin pilimi kpe n-zaŋ ti yi gbaŋ maa tariga. Tirimi bachi kam ka karim li ka di yiri polo. Karimmi yomyom ni viɛnyɛla a yaa tariga. A yi ti paai bachi shɛli a ni bi mi, nyin yaɤi chaŋ bachishɛli din' paya. Zaŋmi a nubila n-tiri tuuli bachi la. Niŋmi shili? Pili ma.** When I say "Begin," start here [point to first word] and read across the page [point]. Point to each word and read it in a loud voice. Read as quickly and carefully as you can. If you come to a word you do not know, go on to the next word. Put your finger on the first word. Ready? Begin.

✎ (/) Mark any incorrect words with a slash
(Ø) Circle self-corrections if you already marked the word incorrect
( ]) Mark the final word read with a bracket

Examples: ut   dif   mab

	1	2	3	4	5	
	dit	fut	lus	leb	gak	(5)
	huz	jod	lek	tob	kib	(10)
	reg	san	nom	rop	hig	(15)
	tup	nad	wix	ral	nep	(20)
	sim	tat	yod	lut	sig	(25)
	nup	sen	en	kad	mon	(30)
	taw	lew	zuv	sal	paf	(35)
	gof	vom	riz	ved	kag	(40)
	beb	et	maz	ver	kol	(45)
	lim	tib	dov	yag	lef	(50)

| ✎ Time remaining on stopwatch at completion (number of SECONDS) | |
| ✎ Exercise discontinued because the child had no correct answers in the first line | |

Right column instructions:

Start the timer when the child reads the first word.

➲ If a child hesitates or stops on a letter for 3 SECONDS, point to the next word and say "Go on"

If the child does not respond in English, stop the child and ask him/her to respond in English – do this only once, and after that mark any non-English responses as incorrect.

✋ When the timer reaches 0, say "stop."

✋ If the child does not provide a single correct response on the first line (5 items), say "Thank you!", discontinue this subtask, check the box at the bottom, and go on to the next subtask.

A kpaŋa maŋa. Ti tirisimi tooni Good effort! Let's go on to the next section.

EGRA (English) Assessment (DAGBANI)

Sub-test 4a. ORAL READING PASSAGE	⏱ 60 seconds
📖 **Page 4** Show the child the sheet in the student stimulus booklet as you read the instructions. 🗣 Lahibali ŋmaa m–bɔŋɔ, m bɔrimi ni a karim li ka di yiri zahara, maami a ni karim li yomyom. A yi karim naai n ni bɔhi a bɔhisi zaŋ kpa a ni karim kariŋ shɛli maa. N yi yɛli ni a pilima, nyin karimmi lahibali ŋɔ a yaa tariga viɛnyɛliŋga. A yi ti paai bachi shɛli a ni bi mi, nyin kpahi yaɣa n chaŋ bachi shɛli din paya. Zaŋmi a nubila n-tiri tuuli bachi la. Niŋmi shili? Pili ma. Here is a short story. I want you to read it aloud, quickly but carefully. When you finish, I will ask you some questions about what you have read. When I say "Begin," read the story as best as you can. If you come to a word you do not know, go on to the next word. Put your finger on the first word. Ready? Begin. ✎ (/) Mark any incorrect letters with a slash (Ø) Circle self-corrections if you already marked the letter incorrect ( ]) Mark the final letter read with a bracket	➲ If a child hesitates or stops on a letter for 3 SECONDS, say "Go on" ✋ If the child does not provide a single correct word before the word in a box, say "Thank you!", discontinue this subtask and check the box at the bottom. Do not ask any comprehension questions. If a child says "I don't know," mark as incorrect.

There is no doctor in the village where Ama lives. Father is **sick**.	13
Ama says that when she grows up she will be a **doctor**.	25
She will help people who are sick like **father**.	35
Kojo wants to be a teacher. He will teach boys and girls to be **healthy**.	46
Father smiles. He is happy with both of his **children**.	56
✎ Time remaining on stopwatch at completion (number of SECONDS)	
✎ Exercise discontinued: the child had no correct answers in the first line	

Sub-test 4b: READING COMPREHENSION

📖 X After the child is finished reading, REMOVE the passage from in front of the child.

Ask the child only the questions related to the text read. A child must read all the text that corresponds with a given question. If the child does not provide a response to a question after 10 seconds, mark "no response" and continue to the next question. Do not repeat the question.

✊ **Pumpɔŋɔ n yɛn bɔhi a la bɔhisi zaŋ kpa a ni karim lahibali shɛli maa. Kpaŋmi a maŋ n labisi bɔhisi maa viɛnyɛla a yaa tariga. A ni tooi labisi bɔhisi maa zuliya shɛli kam a ni bɔra.** Now I am going to ask you a few questions about the story you just read. Try to answer the questions as well as you can. You can provide your answers in whichever language you prefer.

✎ (✓) 1 = Correct
   (✓) 0 = Incorrect
   (✓) . = No response.

Questions [Answers]			
Who is sick? [Father]	1	0	.
What does Ama want to be when she grows up? [a doctor]	1	0	.
Why does Ama want to be a doctor? [to help people / to help people who are sick]	1	0	.
What will Kojo teach boys and girls? [to be healthy]	1	0	.
Why is father happy with his children? [they want to be doctors / they want to help people]	1	0	.

A kpaŋa maŋa. Ti tirisimi tooni.

Good effort! Let's go on to the next section.

EGRA (English) Assessment (DAGBANI)

Sub-test 5. LISTENING COMPREHENSION	📖 X	🕐 X
🔊 N yɛn Karimla lahibal ŋmaa ka di yiri zahara ka a wum ka m bɔhi a bɔhi sheŋa. Dim suɣulo, gbulisim tibili ka labisi bɔhisi maa a yaa tariga. A ni tooi labisi bɔhisi maa zuliya shɛli kam a ni bɔra. A niŋ shili? Ti piligi ma. I am going to read you a short story aloud ONCE and then ask you some questions. Please listen carefully and answer the questions as best as you can. You can answer the questions in whichever language you prefer. Ready? Let's begin.		Remove the pupil stimuli booklet from the child's view.

✎ (✓) 1 = Correct
    (✓) 0 = Incorrect
    (✓) . = No response.
		Do not allow the child to look at the passage or the questions.

Issa was very sad. He lost his grandfather's sheep. He could not go to look for them. Grandfather came to look for them. Soon he returned with the sheep. Issa is smiling now.

Why was Issa sad? [he lost his sheep; he could not go to look for his sheep]	1	0	.
Who went to look for the sheep? [Grandfather]	1	0	.
Why is Issa smiling now? [Grandfather returned with his sheep; his sheep are back; Grandfather found the sheep]	1	0	.

If a child says "I don't know," mark as incorrect.

Acknowledgments

The success of Ghana's Read Along Program and the insights provided in our report owe a debt of gratitude to the collaborative efforts, creativity, and unwavering support of various stakeholders. We are profoundly thankful for the invaluable contributions of the World Education team, whose expertise and commitment have been instrumental in driving this initiative forward. Special recognition is owed to World Education and one of its esteemed Board Members for their generous financial backing, which has been pivotal in making this pilot program a reality.

Furthermore, we are honored to have been acknowledged by the Library of Congress with the 2022 Literacy Award for Successful Practice in literacy promotion. This recognition has not only affirmed our dedication to advancing literacy but has also provided additional resources that we have utilized to further amplify our impact.

The crucial role played by our esteemed partners from Ghana Education Service, in particular the deputy director from Tolon district, Mr. Abu Kassim, cannot be overstated. Their extensive contributions have significantly shaped and enriched the pilot program, underscoring the importance of collaborative efforts in achieving transformative outcomes.

Within our own organization, we are deeply grateful to Yuri Machkasov, and Priyanka Sharma for their tireless dedication and invaluable support throughout the project. Their expertise, guidance, and ongoing commitment have been indispensable in driving the success of the Read Along Program.

We also extend our heartfelt appreciation to Aanchal Bindal and the entire Google Read Along team for their continued engagement and support. Their efforts have been instrumental in facilitating greater uptake and maximizing the transformative potential of the Read Along app as a powerful tool for enhancing reading skills among learners worldwide.

References

[1] Strategic Approaches to Girls' Education, Final reflections Achievements and lessons learned, Girls' Education Challenge, UKAID, 2023

[2] An EGRA tool was adapted based on an existing version developed by FHI360 under the USAID Learning project in Ghana.

[3] Addressing transitions into public schools for children undertaking Complementary Basic Education in Ghana. REAL Centre, University of Cambridge, Carter, E., Sabates, R., Rose, P. 2019

[4] https://blogs.worldbank.org/africacan/ten-facts-about-digital-technology-adoption-ghana

[5] Early Grade Reading Assessment (EGRA) Toolkit, second edition, Washington DC, USAID, 2016

[6] The full Child Safeguarding policy, standards of behavior and reporting mechanisms for suspected abuse can be found here; https://worlded.org/child-safeguarding-policy

[7] Note that there were seven grade 3 students included in the baseline sample. However, only two students from the control schools and zero from the treatment schools were assessed during the endline. As such it is not possible to compare learning gains. For the sake of this impact evaluation we have left out any grade 3 scores or analysis.

[8] This assessment did not analyze the influence of these factors to baseline results. For the scope of this assessment it was more important to measure the difference between baseline and endline results to determine the impact of the intervention.

[9] For subtask 5 - Reading Comprehension, children were asked comprehension questions related to the text that they were able to read. The full text consisted of 5 sentences and 5 corresponding questions. If children read 1 sentence, they could only respond to 1 question correctly.

[10] *Efficient Learning For The Poor: New Insights Into Literacy Acquisition For Children*. *International Review of Education*, 54(5/6), 581–604, Abadzi, H, 2008.