Literacy Boost

Tanzania
Baseline Report

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Executive Summary

This report examines the results of a primary school learner background survey and reading assessment conducted in September and October of 2014. The survey and reading assessment covered 1035 Standard 2 learners from 40 schools in the Area Development Programmes of Magugu, Kisongo, Mtinko and Kinampanda Area Development Programmes (ADPs) located in Northeastern Tanzania. The 40 schools are split into 20 primary schools designated to receive Literacy Boost programming, and 20 comparison primary schools receiving no intervention this school year. Roughly 26 randomly selected students were assessed at each comparison and Literacy Boost school.

The Literacy Boost programme includes teacher training, community reading activities, and age-appropriate local language material creation to support emergent literacy skills among early-Standard children. As part of Literacy Boost, learners are periodically assessed in each of these skills through an adaptable assessment tool to inform programming and estimate programme impact. The data gathered from these schools is analyzed to present a snapshot of the emergent literacy skills of Standard 2 learners in these schools and to inform the adaptation of the Literacy Boost programme to this context.

The primary purpose of the baseline assessment is to identify the strengths and weaknesses of local learners' reading abilities and to determine if and how skills vary by student background, home literacy environments, and school contexts. In order to ensure the reliable interpretation of programme endline results, however, the comparability of Literacy Boost (LB) and Comparison Group (CG) learners must first be examined. Significant differences in between learner groups' skills and resources must be transparently accounted for, so that at end-line, we can know how much Literacy Boost has, or has not, contributed to learners' accelerated reading development for in order to control for the effects any group's comparative advantages.

The Literacy Boost Tanzania learner assessment collected data regarding children's demographic backgrounds and home literacy environments (HLEs) and also tested children's reading skills in both Kiswahili and English. Although Standard 2 learners primarily receive school instruction in Kiswahili, English is taught as a second language in Standard s 1 to 7, and national curriculum transitions to English-led instruction at the beginning of secondary school (Form 1). Likewise, while Literacy Boost programming prioritizes Kiswahili literacy acquisition, it is also important to prepare children for educational and language transitions. Although this report focuses primarily on children's Kiswahili literacy skills, analysis reveals the great amount of support learners will need to begin secondary school with English language confidence. Currently, only 3.5% of all learners can be classified as English readers, while 56% of learners are Kiswahili readers.[1]

Analysis using clustered-t tests demonstrates that no statistically significant differences exist between LB and CG learners' reading skills in either English or Kiswahili. As previously stated, only 3.5% of children are English readers, but within the sample as a whole, two groups of students emerge: Kiswahili readers (56%) and non-readers (44%). Non-readers correctly identified only 48% of Kiswahili letters, and will need additional support to catch up to their reading classmates. Kiswahili readers demonstrated

[1] A 'reader' is defined as a child who is able to read least 5 words correctly within 30 seconds of a grade appropriate text.

encouraging skills, scoring an average of 96% accuracy, and reading approximately 36 words correctly per minute (wpmc). Readers, however, only read with an average of 41% comprehension, and only 16% of readers (9% of all children) read Kiswahili with comprehension. Given these results, Literacy Boost programming should:

1. Strategically and sensitively target non-readers to ensure *all* students become readers, and ultimately, readers with comprehension
2. Focus on helping non-readers master the Kiswahili alphabet and make the transition to decoding single words
3. Support children who can read some connected text to increase their fluency, accuracy, and comprehension through practice
4. Work with teachers to incorporate teaching skills used to support Kiswahili literacy acquisition to extend to English-language instruction

Literacy Boost and Comparison Group students' home environments and demographic backgrounds are also generally equivalent. Students from both groups live in families with an average of 5 to 6 persons, with roughly 10% having electricity at home, but 88% possessing mobile phones. Students are on average 9.1 years old, but boys, with a mean age of 9.3 years, are significantly older than girls (8.8 years old). Nearly 88% of learners attended preschool, and repetition rates are moderate with 37% having repeated either Standard 1 or 2. At home, only 17% of students have child-friendly reading materials, and 30% have no books at all.

All schools have latrines and also have separate latrines for girls. Only about 5% of schools have libraries, and only 5% of Comparison schools and *no* Literacy Boost schools possess reading corners. In light of these findings, Literacy Boost programming should:

1. Increase availability and access to a variety of print materials, particularly child-friendly materials
2. Encourage more reading and reading to children at home among literate family members
3. Promote family member story-telling and study assistance, and help non-literate parents engage children in reading activities
4. Encourage schools to set up libraries and dedicated reading spaces
5. Ensure that schools allow students to borrow child-friendly books in addition textbooks
6. Provide teachers the training to introduce, assess, and reinforce reading skills in order to ensure that all students can actively partake and participate in improving reading everyday

Across both sample groups, girls' and boys' reading scores were equal. When controlling for background characteristics such as age, social equity, and reading materials at home, however, girls are likely to score higher than boys on foundational Kiswahili literacy sub-tests. To help students of both sexes achieve their full literacy potential, Literacy Boost programming should:

1. Ensure messages, materials and opportunities to expand reading practice are available and promoted for boys and girls alike, even as this may require specific programme activities for both boys and girls

2. Emphasize the importance of helping both boys and girls study, suggesting special strategies to encourage both boys and girls to continue their education
3. Support teachers in identifying and addressing the unique challenges boys and girls face in pursuing education, and develop contextually-relevant programming for Reading Camps, Parental Awareness Groups, and classrooms

Multilevel regression analysis revealed that in addition to girls, students who attended ECD programmes and learners that report spending more time studying are likely to score higher on Kiswahili reading sub-tests. Children who work outside the home or who have heavy chore burdens are likely ($p < .001$) to score worse on reading comprehension tests than their peers. Additionally, learners who have repeated at least one Standard are also likely to receive lower sub-test scores than learners who have not. Given these findings, Literacy Boost programming should:

1. Use Parental Awareness Groups to encourage all household members, literate and not, to support children's reading outside of the classroom
2. Create awareness among parents about the importance of children's regular attendance at school and afterschool learning activities
3. Engage both parents and children to prioritize time spent studying
4. Utilize qualitative analysis to further understand the challenges students face in order to overcome barriers and strategize motivation mechanisms

Schools and communities in World Vision Tanzania's ADPs need assistance in helping their students gain reading skills and a better education. Focusing on improving letter knowledge, phonemic awareness, and word recognition, while increasing the amount of print materials in their daily lives, will significantly help all students gain better access to the world of reading.

CONTENTS

Introduction

This report examines the results of a learner background survey and reading assessment conducted in September and October 2014. The survey and reading assessment covered 1035 Standard 2 learners throughout 40 schools in the ADPs of Magugu, Kisongo, Mtinko, and Kinampanda. The 40 schools are split into 20 primary schools designated to receive Literacy Boost during the upcoming school year and 20 comparison primary schools that will receive LB during Phase 2 of project implementation. The Literacy Boost Tanzania programme includes teacher training, community reading activities, and age-appropriate Kiswahili language material creation to support emergent literacy skills among lower primary Standard children. These skills include letter awareness, phonemic awareness, single-word reading of most used words, reading fluency, reading accuracy, and reading comprehension.

As part of Literacy Boost Tanzania, learners will be periodically assessed in each of these skills through an adaptable assessment tool to inform programming and estimate programme impact. The data gathered from these schools is analyzed to present a snapshot of the emergent literacy skills of Standard 2 learners in these schools and to inform the adaptation of Literacy Boost programme to World Vision Tanzania's context.

The key research questions to be explored in this report include:

1. How comparable are learners in intervention versus comparison schools in terms of reading skills, background characteristics, home literacy environment, and school environment?

2. What can the baseline tell us about learners' emergent reading skills? What does this mean for Literacy Boost Tanzania programming?

3. How do learners' reading skills vary by student background, school environment, home literacy environment, and other dimensions of equity? What does this mean for targeting Literacy Boost's two strands of intervention?

To investigate these questions, this report first describes the research methods used, including sampling, measurement, and analysis. Next, in order to see if groups are statistically similar, the comparability of intervention and comparison schools is examined through clustered t-tests. The comparability of intervention learners' and comparison learners' scores for each of the emergent literacy skills is also examined, and skill strengths and weaknesses identified. Finally, the report presents correlations with student background, school environment, or home literacy practices & environment variables using multilevel regression analysis.

Context

Education, seen as a path leading to self-reliance, economic growth, and national unity, has been an integral aspect of Tanzania's economic development policy since the country gained independence. Initiated by Tanzania's first president, Julius Nyerere, the "Education for Self-Reliance" policy (1967) transformed national perceptions of education. Nyerere, seen by many as a champion for education, emphasized access and quality of education with the goal of helping citizens lead productive and fulfilling lives. As one of the four main pillars of planning, education is seen as the main driver for economic development, therefore necessitating a clear link between education and learning that happens in schools and communities with future work, productivity, and life skills. Additionally, policies regarding teacher training, inclusive education, and ICT were created with improvement in access and quality in mind (Ministry of Education of Tanzania, 2010).

The quality of education has not progressed at the same rate as access. Tanzania's education system faces various challenges such as the lack of qualified and motivated teachers, insufficient teaching resources, and low quality education administration. In 2011, the average pupil to classroom ratio was 66:1, pupil to teacher ratio 47:1, and pupil to textbook ratio 5:1 (UNICEF 2011). Consequentially, such challenges affect learner outcomes and contribute to children's low functional literacy rates (only 1 in 4 Standard 3 learners can read a Kiswahili text with comprehension) (UWEZO 2012). By the time children complete primary education (Standard 7), only 3 in 4 children read Kiswahili with comprehension, and are thus inadequately prepared for secondary schooling.

World Vision Tanzania has initiated Literacy Boost (*Watoto Tusome* in Kiswahili) to support the Government of Tanzania's efforts to address low literacy rates among school children. This project is initially being implemented in four ADPs of Kisongo, Magugu, Mtinko, and Kinampanda. These areas are populated by multiple ethnic groups which speak various home languages languages at home in addition to Kiswahili,[2] and where children have particularly low literacy rates.

The medium of instruction is critical for children to learn effectively. Research demonstrates that young children acquire literacy more easily and comprehensively in their mother tongue. Kiswahili is not considered a mother tongue language in the ADPs of *Watoto Tusome* project implementation, but it is familiar to the area's young children. Although Tanzania is comprised of 120 different tribes which speak different mother tongue languages and dialects, President Julius Nyerere established Kiswahili as the national language in 1961. In alignment with this policy, the language of instruction in primary schools in has since been Kiswahili, with English being taught as subject. Although teachers often answer questions and assist learners in mother tongue languages, local languages are *not* official languages of instruction. The language of instruction in secondary schooling is English, with Kiswahili taught as a distinct subject (Ministry of Education of Tanzania, 2010).

The 2011, a UWEZO study found that only 3 in 10 Standard 3 learners were able to read a Standard 2-level story in Kiswahili, and that only 1 in 10 were able to read Standard 2-level story in English. Twenty-eight percent of students had no Kiswahili literacy skills, only 33% were able to read syllables, 15% able to read words, 9% were able to read a paragraph, and 14% were able to read a story. The results were

[2] Including the Maasai community, whose language is of Nilotic origin rather than the Bantu-originated Kiswahili.

comparable among boys and girls alike. It was found that in Babati, only 40-49% of Standard 7 students achieved proficiency in all subjects at the Standard 2 level, and in Singida, 50-59% of Standard 7 students achieved standard 2 level proficiency in all subjects (UWEZO, 2011).

In the 2011 UWEZO study it was also found that students who spoke an ethnic language rather than Kiswahili at home are more likely to perform lower. Babati and Singida clusters are located in rural settings with languages other than Kiswahili spoken at home. In primary school, there is a marked difference in the proficiency of Kiswahili and home language, leaving children who speak a language other than Kiswahili at home at a loss. It was found that in Babati, 30-39% of children were able to read a Standard 3-level story, compared to 20-29% in Singida. The level to which a child is literate in the primary language of instruction is directly tied to the level of literacy achieved in a second or third language learned in school. In Tanzania, this was found to be the case with far fewer children being able to read and comprehend a passage in English than in Kiswahili. Forty-three percent of children were found to have no literacy skills in English in Standard 2, only 35% were able to read syllables, 12% were able to read words, 4% were able to read a paragraph, and 6% were able to read a story. Only 10-19% of children were able to read a basic English story in both Babati and Singida (UWEZO, 2011).

Watoto Tusome project aims to improve functional literacy skills of more than 9000 Standard 1-3 students 41 primary schools in four WVT ADPs, with a vision toward scaling the programme throughout Tanzania.

These 41 primary schools serve as pilot schools for the first year out of 110 primary schools in the project areas. The 69 schools out of 110 act as control schools during the first phase of implementation in order to measure and compare the progress of children in and out of the Watoto Tusome Project. The control schools will be transitioned to treatment schools during the subsequent expansion of the project.

This baseline assessment component is the useful first step in the Literacy Boost programme model. Prior to implementation, baseline data helps Literacy Boost stakeholders identify students' needs and identify learners' strengths and weaknesses.

Methods

Sampling

The sample for this baseline encompasses 1035 Standard 2 learners assessed in September and October of 2014. The sample was divided between 20 schools set to receive the Literacy Boost (LB) intervention (N of learners = 516) and 20 Comparison Group (CG) schools (N of learners = 519). Schools were randomly selected across the three target ADPs in order to carry out a randomized control trial (RCT).

At each of the Literacy Boost and comparison schools where data was collected, 26 children in Standard 2 were sampled. If there was more than one section of Standard 2 at a given school, one section was randomly selected. Approximately thirteen boys and thirteen girls were randomly selected, resulting in a total sample of 523 boys and 512 girls (N=1035). Both the LB and CG samples are approximately 50% percent female.

Measurement

School profile data were collected via direct observation and a survey of school head-teachers at every school in the sample. This data includes information on enrolment & class size, availability of textbooks, school facilities and construction, and teacher backgrounds. For the student assessment, all learners in the sample were asked about their background characteristics (age, household possessions, household building materials, etc.). Learners also were asked about their family members and reading habits in their home (whom they saw reading in the week prior to the assessment, who had read to them etc.).

After collecting this background data, learners received emergent literacy tests in both English and Kiswahili. The literacy assessment features six components administered through five sub-tests: letter awareness, single word recognition (reading of most used words), decoding of invented words, reading fluency and accuracy (words correctly read per minute and total percentage of passages correctly read; both within the same sub-test), and comprehension questions linked to the fluency and accuracy passages. The same set of comprehension questions was administered for both those learners who read independently and those who could not and thus had the assessor read to them.

During the English reading assessment, assessors attempted to provide instructions and ask the child comprehension questions in English. If the child struggled to understand in English, the assessor switched to Kiswahili. Forty-eight percent of learners received instructions in Kiswahili for the English assessment, 50% in both Kiswahili and English, and only 2% in English alone. Details on inter-rater reliability are provided in Appendix A.

Analysis

The critical purpose of the analysis is to identify the strengths and weaknesses of local children's literacy skills in order to effectively contextualize Literacy Boost programming. To strategically target learners and track their progress, however, it is also necessary to test whether the Literacy Boost and Comparison Group learners are equal in terms of background and skills. That is, do these learners possess the same resources and capabilities? This question is important so that at endline, it can be determined if and to what degree Literacy Boost has, or has not, contributed to learners' accelerated reading development.

To test the comparability of learners in the Literacy Boost and Comparison Group samples, this report will use comparison of means through t-tests with clustered standard errors to account for the grouping of student-level data within schools. Summary statistics accompanied by clustered t-tests will be used to analyze learners' performance in each of the reading sub-tests. Finally, multilevel regression models are utilized to explore relationships between literacy skills and student background characteristics, school environment, and home literacy environment

Analysis: Comparability between Literacy Boost and Comparison Students

First, this report will investigate the comparability of the two samples: Comparison Group (CG) and Literacy Boost (LB) students. Comparability is examined in terms of students' background characteristics, home literacy environment, and school environment.

Student Background Characteristics

Table 1 below displays the average values attributed to CG and LB learners for a range of background characteristics. The sample as a whole is comprised of students 6 to 15 years in age, with the majority of students being 8 to 10 years old (average 9.1 years). Boys, at an average of 9.3 years old, are statistically significantly older than girls (8.8 years). Approximately 88% attended an early childhood (ECD) program. Repetition rates are moderate; approximately 25% of children have repeated Standard 1 and 19% have repeated Standard 2, but only 7% have repeated *both* Standards 1 and 2.

Table 1 - Background Characteristics by Sample Group

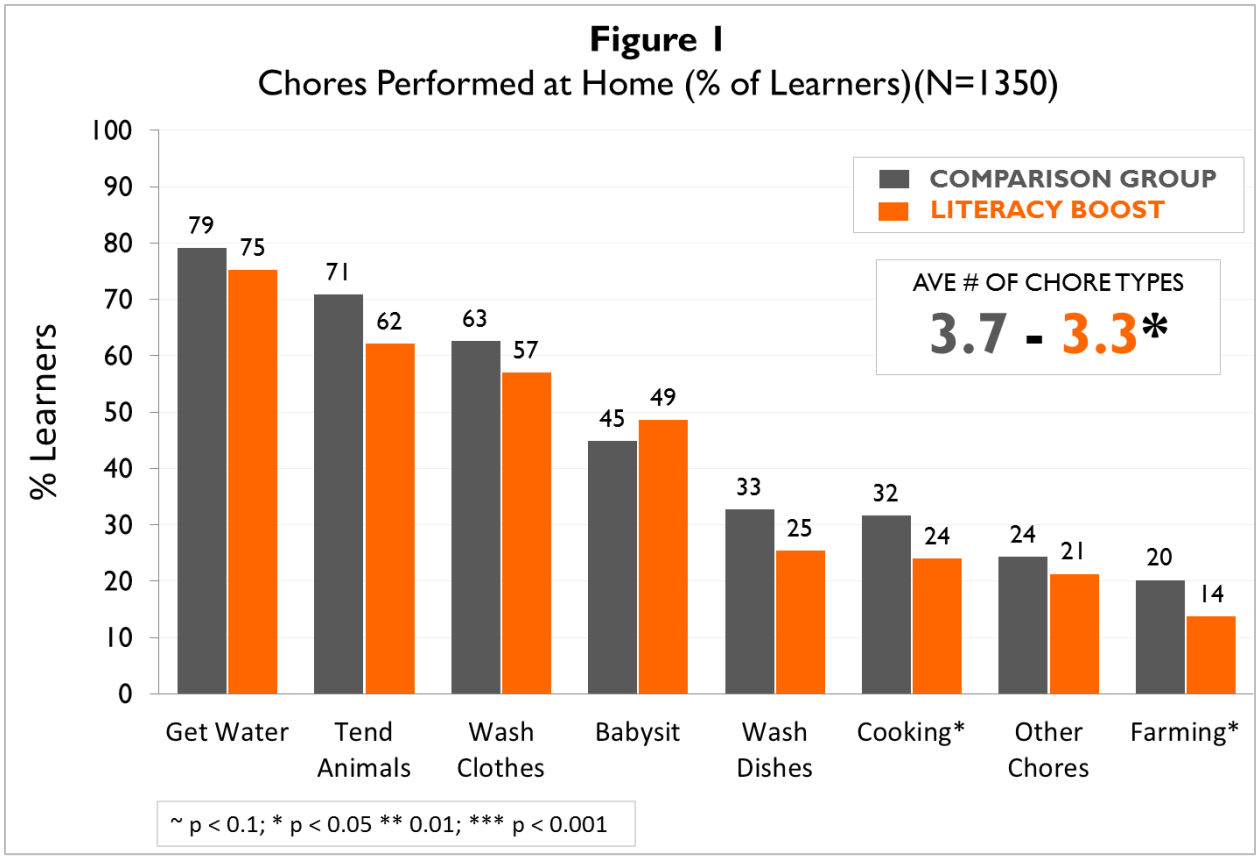
Child Background Characteristics	***N***[a]	***CG*** *(N=519)*	***LB*** *(N=516)*	***Sig. Diff?***
Age	959	9.1	9.0	---
Attended an ECD Programme (%)	1034	87.8	87.8	---
Have Repeated Standard 1 or Standard 2 (%)	1035	36.3	36.8	---
Perform Chores at Home (%)	1035	98.1	97.3	---
Sometimes Misses School to do Chores (%)	1011[b]	26.3	28.3	---
Do Chores Before AND after School	1011[b]	50.1	57.4	---
Work outside the home (paid labor) (%)	1033	15.3	11.2	---

[a] Sample sizes vary due to the number of missing cases, as some learners did not know the answers to questions.
[b] Only students who do chores were asked follow-up questions.
~ $p < 0.1$; * $p < 0.05$ ** 0.01; *** $p < 0.001$

Nearly all children do chores (98%), with the most common chores being dish washing (77%), fetching water (67%), and washing clothes (60%). On average, Comparison Group students perform significantly more types of chores (3.7) than Literacy Boost students (3.3), and are more likely to engage in cooking and tending animals (see Figure 1). Comparison (26%) and Literacy Boost (28%) students, however, are equally likely to report missing school to perform chores. Students most often do chores before school (95%), however, 54% of chore-doers perform chores both *before and after* school.

Work outside the home is less common, with only 13% of learners working for wages. Of these 137 children, domestic labor (in another family's home) was the most common response (35%). Of working children, the majority report working 1 to 2 days per week, and nearly 1 in 3 have missed school in order to work. Children who work outside the home are also marginally ($p < 0.1$) more likely to report missing school to perform chores than those children who do not work outside the home (32% and 27%, respectively).

The majority of students (46%) report spending 'a little time' studying outside of school, followed by 'neither a little or a lot' (28%), no time (15%), and 'a lot of time' (11%). Literacy Boost students (50%) are more likely than their CG counterparts (41%) to spend only 'a little' time studying, but are no more or less likely to spend none or 'a lot' of time.



On average, students live in a household of 5.7 people. The majority live with between 4 to 6 other family members, but 15% of children live with 7 or more (up to 18) persons. The majority of students' families own a radio (70%) or mobile phone (88%) but very few have electricity (10%) or a refrigerator (2%). On average, students' families own 2.8 out of 9 household objects.[3] Additionally, on average, students have 2.7 of 5 types of livestock at home, most commonly chickens, goats or cows.[4] See Figures 2a and 2b for more details.

[3] Household items include: radio, electricity, mobile phone, refrigerator, bike, solar energy, TV, motorcycle, and car
[4] Livestock includes: goat, chicken, cow, sheep and donkey

Figure 2a

Items Possessed at Home (% of Learners)(N=1035)

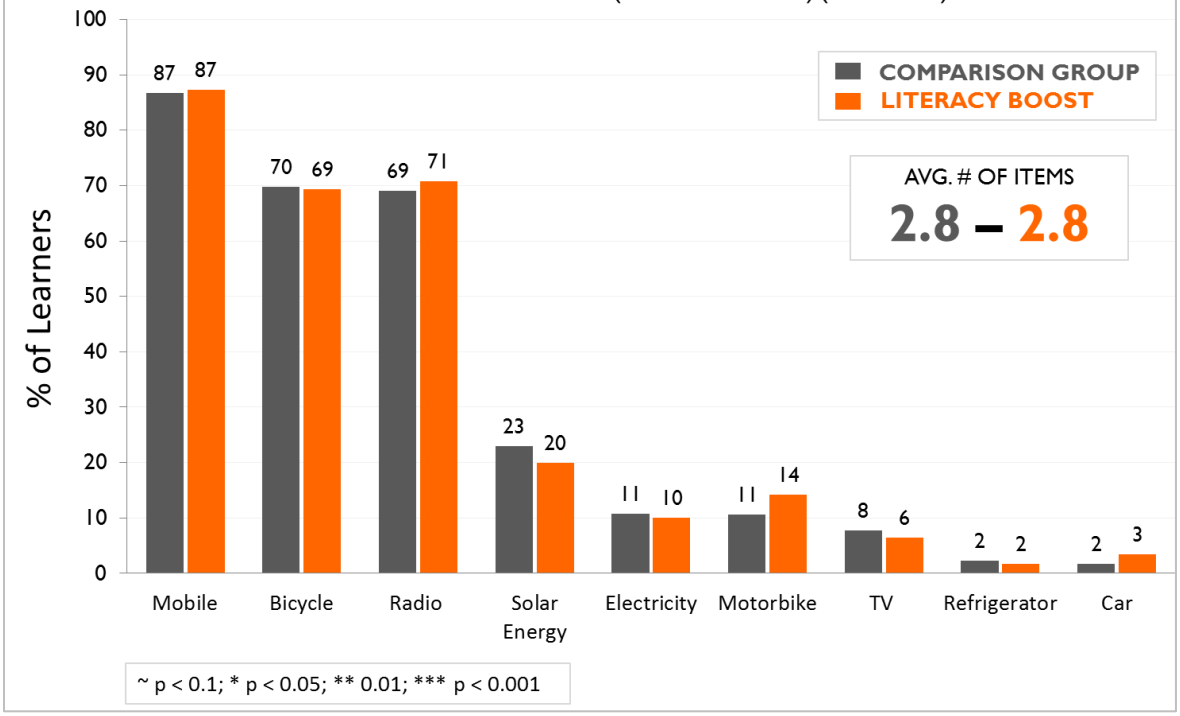
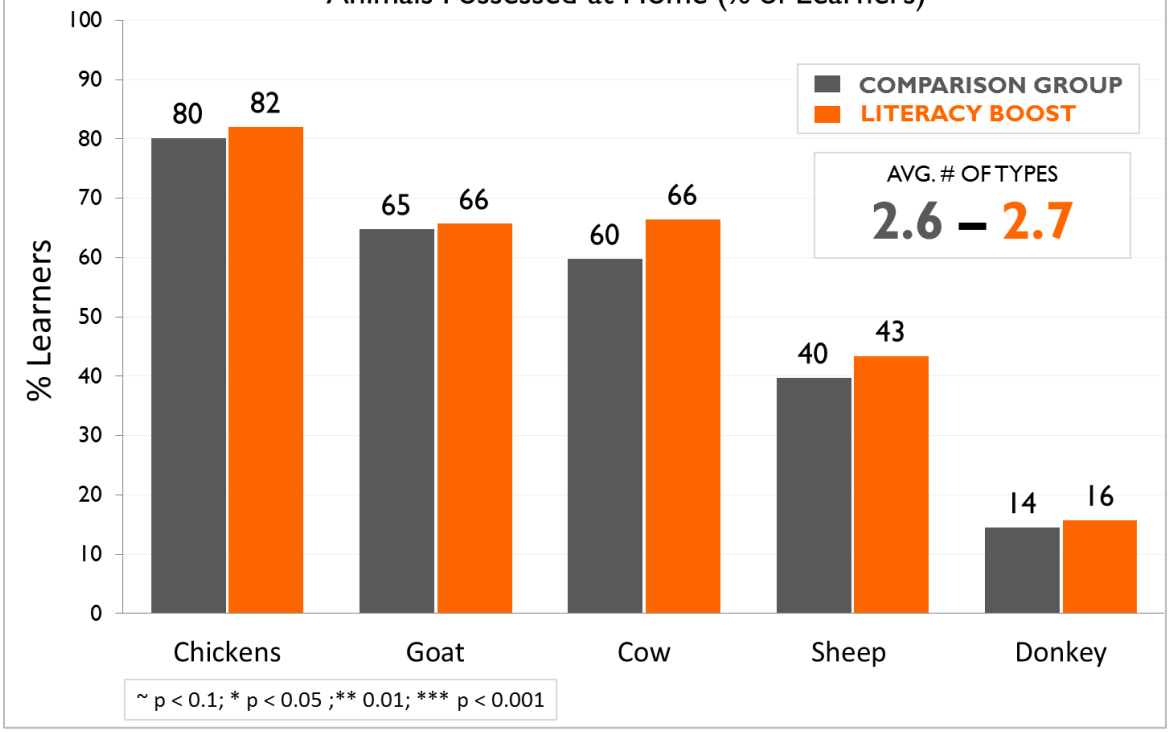
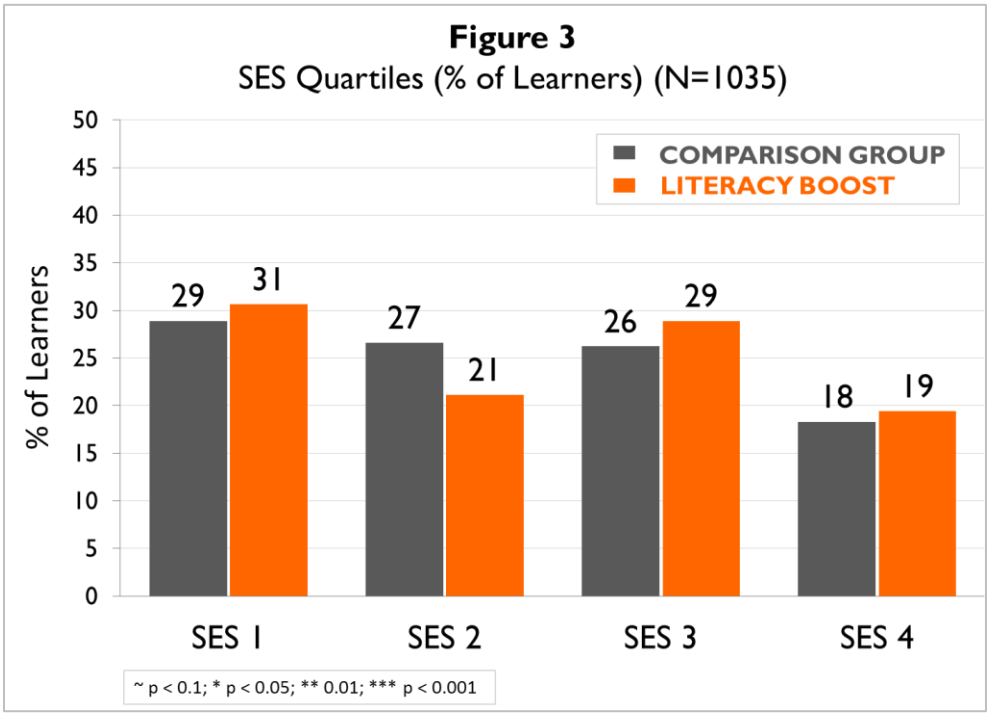


Figure 2b

Animals Possessed at Home (% of Learners)



After creating a composite variable which accounts for the number and types of household possessions, and the types of roof and wall materials, students were categorized into roughly equal SES quartiles ordered from lowest (SES 1) to highest (SES 4) status.[5] A one-way ANOVA demonstrates that Literacy Boost and Comparison Group students are no more or less likely to belong to any particular socio-economic group. **It can thus be inferred that the Comparison Group and Literacy Boost sample have comparable socio-economic statuses.**



Student Health, WASH and Nutrition

Table 2 shows the water, hygiene, and sanitation characteristics for the Literacy Boost and Comparison student samples. Although 95% of learners reported "feeling well" the day of literacy assessments, self-reported data on nutrition and water access demonstrates cause for concern. Forty-three percent of children did not eat breakfast the day of the literacy assessment, and nearly 39% of students report taking no action to treat water. Children at Comparison Group schools are marginally more likely ($p < 0.1$) to attend schools that provide meals, however Literacy Boost and Comparison Group students are equally likely to have eaten breakfast the day of assessment. Simple regression reveals that students who report not eating breakfast at home are more likely to attend schools with breakfast services. Qualitative analysis is necessary to clarify the direction of correlation, e.g. are students more likely to skip breakfast at home because it is available at school, or do schools provide breakfast based on their students' level of food security.

[5] SES was based on the absence or presence of the following items in learners' homes: television, good roof, good walls, electricity, motorcycle, car, refrigerator, bicycle, solar energy. The number and types of animals at a child's home were not found to be statistically indicative of learners' ownership of other non-animal household possessions, and were thus not included.

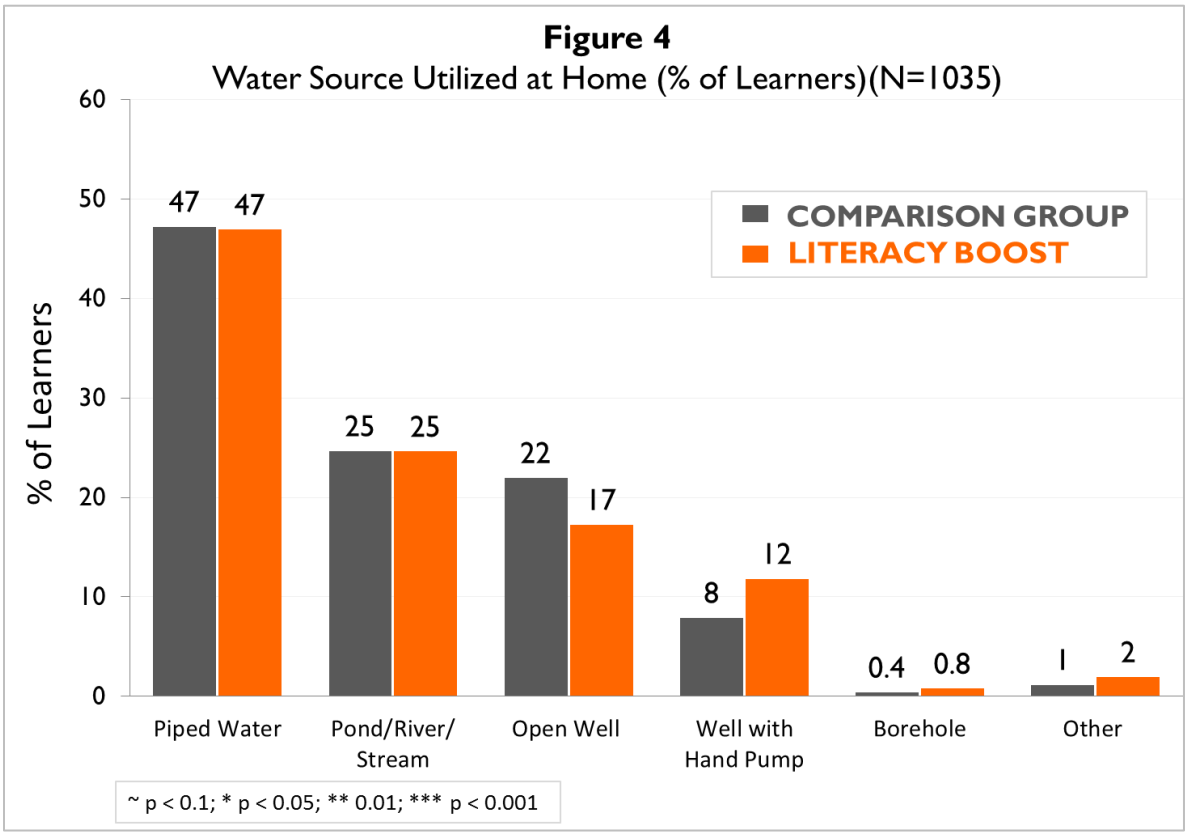
Regarding water treatment methods, boiling water is the most common (48%), while less than 1% of students use chlorine. Less than 4% have access to a flush toilet at home, and the majority (86%) uses a pit latrine. Almost half of students (47%) access piped water, however 25% obtain water from open water sources (pond, stream, etc.), and 20% from open wells. See Figure 4 for details.

Clustered t-tests reveal that Comparison Group and Literacy Boost students are comparable across almost all water, hygiene, health and sanitation variables. Comparison Group learners, however, are more likely to report having received treatment the last time they had malaria (see Table 2 below).

Table 2 - Water, Hygiene, and Sanitation by Sample Group

Water, Hygiene, and Sanitation Characteristics	***N[a]***	***CG*** *(N=519)*	***LB*** *(N=516)*	***Sig. Diff?***
Feels well today (%)	1035	95.2	94.2	---
Does something to make their water safe to drink (%)	977	58.2	64.3	---
Obtain piped water (%)	1035	47.2	46.9	---
Slept under mosquito net during previous night (%)	1034	64.7	59.9	---
Have ever had malaria (%)	1025	41.6	42.0	---
Treated the last time they had malaria (%)	435	97.7	92.2	*
Have a flush toilet at home (%)	1032	4.5	2.9	---

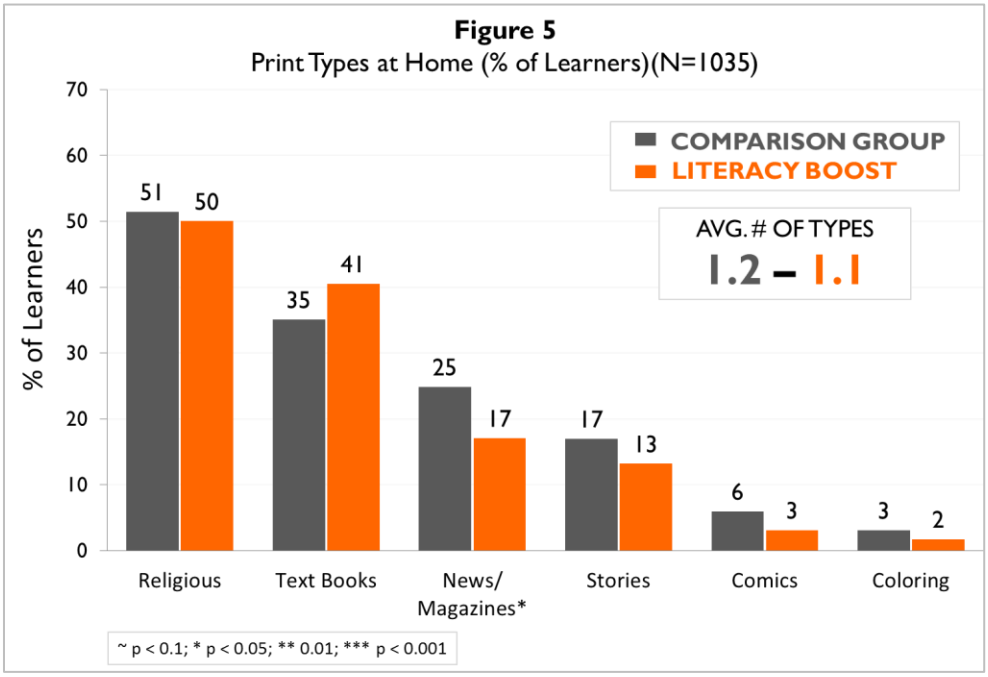
[a] Sample sizes vary due to the number of missing cases, as some learners did not know the answers to questions.
~ p < 0.1; * p < 0.05 ** 0.01; *** p < 0.001



Household Literacy Environment

An important aspect of reading development concerns the home literacy environment (HLE). How are children exposed to the printed word in the home? How much access do they have to books and print to practice their nascent reading skills? Many Literacy Boost activities are centered on helping parents and communities to enhance the HLE. As such, it is important to measure learners' HLE score at baseline, so that we can gauge how it changes over the course of Literacy Boost programming. Figure 5 below displays the different types of printed materials that learners may or may not have at home.

The majority (70%) of learners have at least one type of reading material at home, with an average of 1.2 out of 5 book types.[6] The most common reading materials mentioned are religious books (51%) and textbooks (38%) while the least common are coloring books, magazines and story books. Only 17% of children report having child-friendly books at home. Comparison Group learners are statistically more likely to possess newspapers and magazines at home, but no other significant differences exist across the four other print material types.

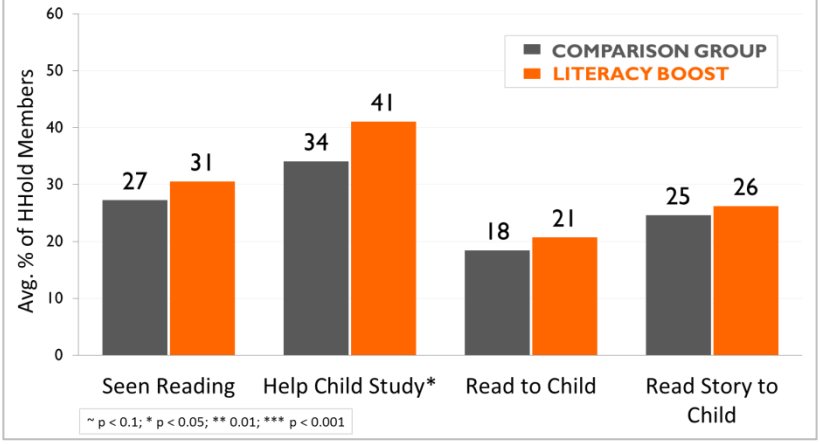


The HLE is not only about materials in the home, but also about how those materials are used to engage children in reading and learning. Hess and Halloway (1984) identified five dimensions of the home literacy environment that are theoretically related to reading achievement in children. The first is value placed on literacy, which is operationalized by asking the learners whether they see anyone reading at home. The second is press for achievement, which we operationalize as individuals telling the student to study. The third is the availability and use of reading materials, defined as the amount of printed materials at home (see Figure 6a). The fourth dimension is reading with children, operationalized by asking the learners whether anyone reads to them at home. The last is opportunities for verbal interaction, which measured by the number of family members telling stories to learners.

[6] Possible book types include: religious books, text books, newspapers/magazines, story books, comics, and coloring books.

Forty percent of children did not see a household member read in the prior week, and nearly 1 in 3 children report that no family members provided help studying. Literacy Boost students report a statistically higher average percentage (41%) of family members helping them study than do CG students (34%), but report equivalent rates of familial academic participation otherwise.

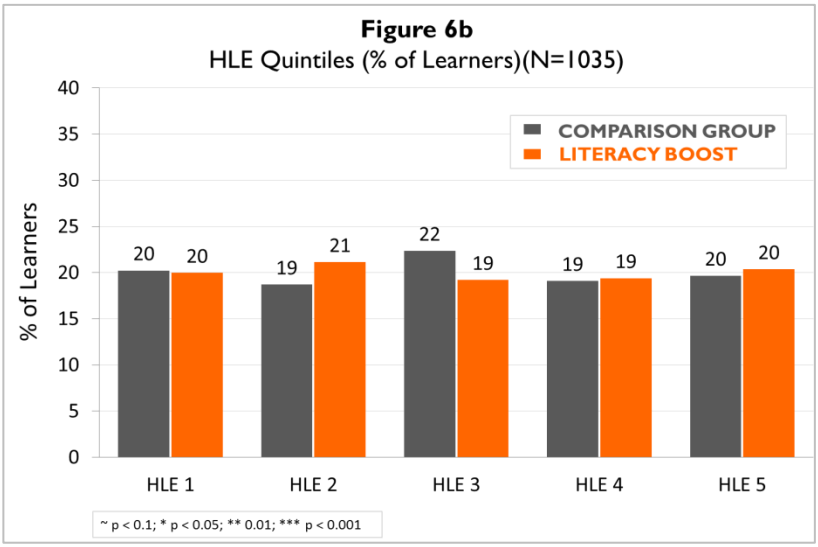
Figure 6a
Household Members Engaging in Literacy Activities (Avg. %) (N=1035)



Parental Awareness workshops will be integral to ensure parents, particularly those with low literacy skills, support their children's literacy acquisition. Likewise, increasing children's access to child-friendly print materials should be prioritized.

In order to compare LB and CG learners across the dimensions of home literacy environments, an HLE composite was created, reflecting both the presence of print types at home and the percent of household members engaging in literacy activities. Learners are then categorized into 5 roughly equal HLE quintiles, ranked from least (HLE 1) to most (HLE 5) literacy-rich environments. As illustrated in Figure 6b, LB and CG students are no more or less likely to be classified in any particular quintile**. It can thus be assumed that the two learner groups come from statistically equivalent home literacy environments.**

Figure 6b
HLE Quintiles (% of Learners)(N=1035)



Students were also asked if they engaged in reading activities with community members and people outside the home and school. Approximately 60% of students have read to, been read to by, lent a book to, or received a book from a community member outside their home or school. Literacy Boost and Comparison Group students are equally likely to report participation in each community activity.

School Environment

Looking to the comparability of students' school environments, Table 3 shows that all schools possess latrines and separate latrines for boys and girls, but that 13% of schools do not have access to any water source nearby. There are no statistically significant differences in the distances between Literacy Boost and Comparison Group schools and the closest tar roads or district centers. Only 5% of schools have libraries, and even less (5% of CG and 0% of LB schools) feature designated reading corners.

Although all schools allow students to take textbooks home, schools should prioritize increasing the availability of both designated reading spaces child-friendly texts. Given the low prevalence of child-friendly materials in students' homes, creating school reading corners and libraries is highly important.

Table 3 - School Characteristics by Group

School Characteristics	***N of Schools***	**CG** (N=20)	***LB*** (N=20)	***Sig. Diff.***
Distance from District Center (km)	40	42.1	44.3	---
Distance to Closest Tar Road (km)	40	10.8	12.6	---
Standard 2 Size (average N of Students)	40	80.3	89.9	---
Different Shifts Attend School (%)	40	95.0	95.0	---
N of Male Teachers (average)	40	5.4	4.3	~
N of Female Teachers (average)	40	5.9	8.6	*
Teachers are Government-Certified (%)	40	98.7	96.3	---
School Provides Breakfast (%)	40	45.1	15.1	*
Nearest Water Source (min walking)[b]	33	14.8	10.3	---
No Water Source Nearby (%)	38	14.8	10.3	---
School has Latrines (%)	40	100.0	100.0	---
School has Separate Boys & Girls Latrines (%)	40	100.0	100.0	---
School has Health Programs (%)	19	90.0	88.9	---
School has a Library (%)	40	5.0	5.0	---
School has Reading Corners (%)	40	5.0	0.0	---
Students can Borrow Books to Take Home (%)	22	90.9	100.0	---
Students are Able to Bring Home Textbooks (%)	40	100.0	100.0	---

[a] Sample sizes vary due to the number of missing cases, unless otherwise noted.
[b] Asked only to schools with access to water sources. Schools with water sources inside the school marked as 0 minutes.
~ p < 0.1; * p < 0.05 ** 0.01; *** p < 0.001

In terms of class sizes, Table 4 illustrates a pattern in which the average number of Literacy Boost and Comparison Group students per Standard is roughly equal until Standard 4, when Literacy Boost schools exhibit significantly higher average numbers of students per Standard . Similar patterns extend across gender. **This pattern may indicate high dropout rates; further investigation should be conducted before Phase 2 programming begins to ensure that community action and Teaching Training reflect Phase 2 learners' needs.**

Table 4 - Average Number of Students Per Standard Per School

School Standard	***N of Schools***	***Comp. Group*** (20 schools)	***Literacy Boost*** (20 schools)	***Sig. Diff.***
All Children				
Standard 1	40	44.8	44.2	---
Standard 2	40	39.7	44.5	---
Standard 3	40	33.0	36.7	---
Standard 4	40	34.7	45.7	*
Standard 5	40	25.0	34.2	~
Standard 6	40	31.2	40.6	~
Standard 7	40	24.0	35.9	*
Boys				
Standard 1	40	45.3	46.5	---
Standard 2	40	40.6	45.5	---
Standard 3	40	34.2	35.1	---
Standard 4	40	34.2	46.0	*
Standard 5	40	24.4	29.2	---
Standard 6	40	25.6	35.2	*
Standard 7	40	21.0	29.4	*
Girls				
Standard 1	40	44.8	44.2	---
Standard 2	40	39.7	44.5	---
Standard 3	40	33.0	36.7	---
Standard 4	40	34.7	45.7	*
Standard 5	40	25.0	34.2	~
Standard 6	40	31.2	40.6	~
Standard 7	40	24.0	35.9	*
~ $p < 0.1$; * $p < 0.05$ ** 0.01; *** $p < 0.001$				

Differences between Boys & Girls

Gender equity in education is a key priority in the international education community. Although girls and boys are comparable across the majority of demographic variables, a few key statistically significant differences exist (as seen in Table 5). First, boys are significantly older on average (9.3 years) than girls (8.8 years). Girls and boys are equally likely to have repeated at Standard 1 or Standard 2, to have attended preschool, and do chores, but boys are more likely to report spending 'a lot' of time (24%) on chores than are girls (18%). On the other hand, girls are more likely ($p < .01$) to do more types of chores than boys (avg. of 3.2 versus 3.8 types). When it comes to chore types, girls are more likely to report cooking, while boys are more likely to tend animals or do farm work. Girls are only marginally ($p < 0.1$) more likely than boys to have books at home, but *are* more likely to have religious books (45% of boys vs. 57% of girls). No statistically significant differences exist regarding the percentage of household members that read to or help girls and boys study.

Table 5 - Comparing Backgrounds of Boys and Girls

Background Variables	***N***[a]	***Boys*** (N=523)	***Girls*** (N=512)	***Sig. Diff.***
Average Age (years)	959[b]	9.3	8.8	***
Number of Household Members (average)	1035	5.8	5.6	---
Repeated Standard 1 or Standard 2, or both (%)	1035	39.3	33.8	---
Does Chores (%)	1035	98.7	96.7	---
Number of Types of Chores Performed (average)	1035	3.2	3.8	*
Spends 'A LOT' of Time on Chores (%)	1035	23.9	18.0	*
Misses School to Perform Chores (%)	1011	27.9	26.7	---
Does Chores Before & After School (%)	1011[c]	54.7	52.7	---
Cooking	1035	14.5	44.0	***
Looks after Younger Children	1035	18.2	37.7	**
Tends Animals	1035	63.3	29.9	***
Farm Work	1035	21.4	12.5	*
Works Outside the Home for Wages (%)	1033	11.2	11.2	---
Misses School to Perform Work Outside of Home (%)	139[d]	19.4	13.0	---
Ate Breakfast at Home Today (%)	1034	56.9	56.3	---
Feel Well Today (%)	1035	94.1	95.3	---
Has Books at Home (%)	1035	66.4	73.2	~
Has Religious Books at Home (%)	1035	44.9	56.6	*
Has Child-Friendly Books at Home (%)	1035	15.3	19.3	---
Household Members Help Child Study (%)	1035	37.7	37.4	---
Household Members Read to Child (%)	1035	19.3	19.8	---

[a] Sample sizes vary due to the number of missing cases, unless otherwise noted.
[b] Many children did not know their precise age.
[c] Only children who perform chores were asked.
[d] Only children who work outside the home were asked.
~ $p < 0.1$; * $p < 0.05$ ** 0.01; *** $p < 0.001$

No statistically significant differences were found in the English or Kiswahili reading skills between boys and girls, however when controlling for age, social equity, home literacy environments, and chore burdens, girls are significantly likely to score better than boys on basic Kiswahili reading sub-tests (see Appendix B for detailed multi-level regression models). **Although age is not significantly correlated with Kiswahili sub-test scores, the significant difference ($p < .01$) between the mean ages of girls (8.8 years) and boys (9.3 years) may affect learning. Qualitative analysis may provide supplementary information to build a comprehensive picture of classroom and learning dynamics. Gender analysis will be performed at endline in order to assess if gender affected children's literacy skill gains.**

Table 6 - Comparing Literacy Skills of Boys and Girls

Literacy Skills	*N*[a]	*Boys* (N=523)	*Girls* (N=512)	*Sig. Diff.*
Kiswahili				
Readers (%)	1035	53.3	59.3	---
Readers with Comprehension (%)	1035	10.7	8.0	---
Letters Correctly Identified out of 35 (%)	1035	58.2	64.3	---
Most Used Words Correctly (MUW) Identified (%)	1035	69.1	76.2	---
Accuracy (%) (Non-Readers receive zero scores)	1035	51.1	56.8	---
Accuracy (%) (Readers only)	583[b]	95.9	95.7	---
Fluency (Non-readers receive zero scores)	1035	18.5	21.8	---
Fluency (Readers only)	583[b]	34.7	36.8	---
English				
Readers (%)	1034	3.4	3.5	---
Readers with Comprehension (%)	1035	1.3	0.05	---
Letters Correctly Identified out of 37 (%)	1035	14.1	13.3	---
Most Used Words Correctly (MUW) Identified (%)	1035	13.5	14.3	---
Accuracy (%) (Non-Readers receive zero scores)	1035	2.8	2.8	---
Accuracy (%) (Readers only)	37[b]	81.9	75.7	---
Fluency (Non-readers receive zero scores)	1035	1.0	1.0	---
Fluency (Readers only)	37[b]	30.5	27.3	---

[a] Sample sizes vary due to the number of missing cases, unless otherwise noted.
[b] Only readers undertook the reading comprehension assessment sections (non-readers received listening comprehension scores).
~ $p < 0.1$; * $p < 0.05$ ** 0.01; *** $p < 0.001$

Reading Skills

Sample Group Comparability & Reading Skills

No statistically significant differences were discovered when comparing the reading skill scores of LB and CG learners. Comparison Group learners will thus provide a reliable sample to measure LB students' skill gains against at endline. Following Table 7.1, the report presents an overview of English assessment results followed by a detailed analysis Kiswahili reading skills.

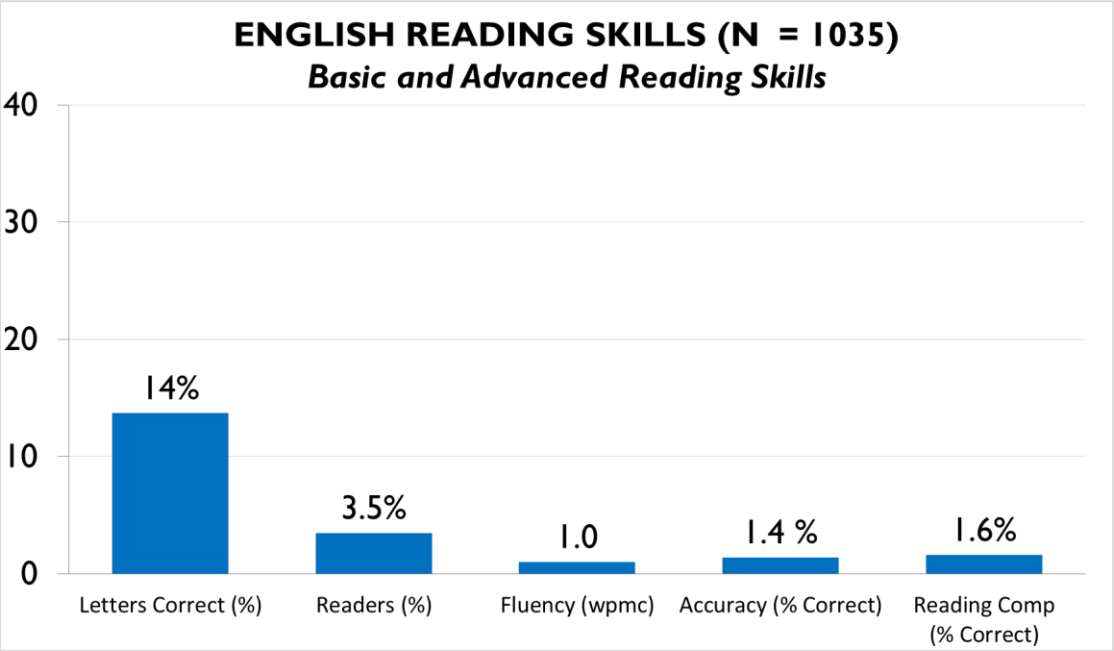
Table 7.1 – Key Kiswahili Reading Skills by Sample

Literacy Skill	*N*[a]	*CG* (n=519)	*LB* (n=516)	*Sig. Diff?*
Kiswahili				
Letters Correctly Identified out of 35 (%)	1035	63.7	58.7	---
Most Used Words Correct (%)	1035	75.9	69.3	---
Accuracy (%) (All learners)	1035	56.8	51.1	---
Accuracy (%) (Readers only)	1035	95.7	95.9	---
Fluency – wpmc (All learners)	1035	21.3	19.0	---
Fluency – wpmc (Readers only)	583[b]	35.9	35.6	---
Readers (% of learners)	1035	59.3	53.2	---
Reading Comprehension (%) (All learners)	1035	23.5	23.0	---
Reading Comprehension (%) (Readers only)	583[b]	39.7	43.4	---
Readers with Comprehension (%) (Readers only)	581[b]	15.3	18.2	---
English				
Letters Correctly Identified out of 35 (%)	1034	14.0	13.4	---
Most Used Words Correct (%)	1035	14.5	13.4	---
Accuracy (%) (All learners)	1035	3.2	2.5	---
Accuracy (%) (Readers only)	1035	82.2	74.6	---
Fluency - wpmc (All learners)	1035	1.1	0.9	---
Fluency – wpmc (Readers only)	37[b]	29.7	27.9	---
Readers (% of Learners)	1035	3.9	3.1	---
Reading Comprehension (%) (All learners)	1035	1.5	1.8	---
Reading Comprehension (%) (Readers only)	37[b]	38.0	58.8	---
Readers with Comprehension (%)	37[b]	15.0	41.2	---

[a] Sample sizes vary due to the number of missing cases, unless otherwise noted.
[b] Only readers counted.
~ $p < 0.1$; * $p < 0.05$ ** 0.01; *** $p < 0.001$

ENGLISH SKILLS: OVERVIEW

As previously highlighted, Literacy Boost Tanzania's primary focus is to support Kiswahili literacy acquisition. Assessing English reading abilities, however, provides critical information about local learners' preparedness to transition to English-only instruction in Standard ---. Additionally, the pedagogy and teaching methods fostered at LB Teacher Trainings can *and should* be adopted to English language instruction. Learners' English reading skills are considerably less developed than their Kiswahili skills. Learners struggled across foundational and advanced reading skills, and only 37 out of 1035 learners qualified as English readers. Students' English letter recognition abilities remain rudimentary; on average, learners correctly identified only 14% of English letters and 14% of English MUWs.

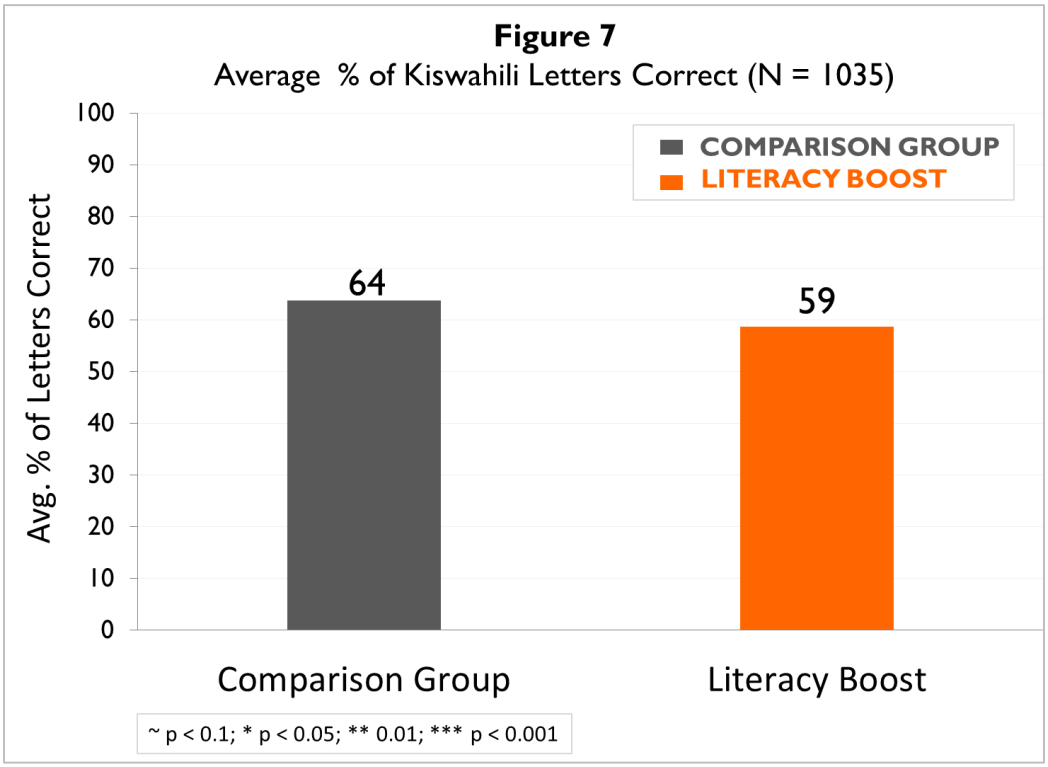


The extremely low sample size of English readers (37 out of 1035 children) precludes a robust analysis of statistically significant differences between LB and CG learners; however, it is clear that learners will require substantial report before transitioning to English-only instruction in Standard --. Only 3.5 % of all learners are currently English readers, and less than 1% read with comprehension. **In addition to encouraging teachers to utilize Literacy Boost methods in both Kiswahili and English language instruction, LB Tanzania Education staff should consider collaborating with CVA to advocate for students' English preparedness needs.**

KISWAHILI READING SKILLS

Letter Identification

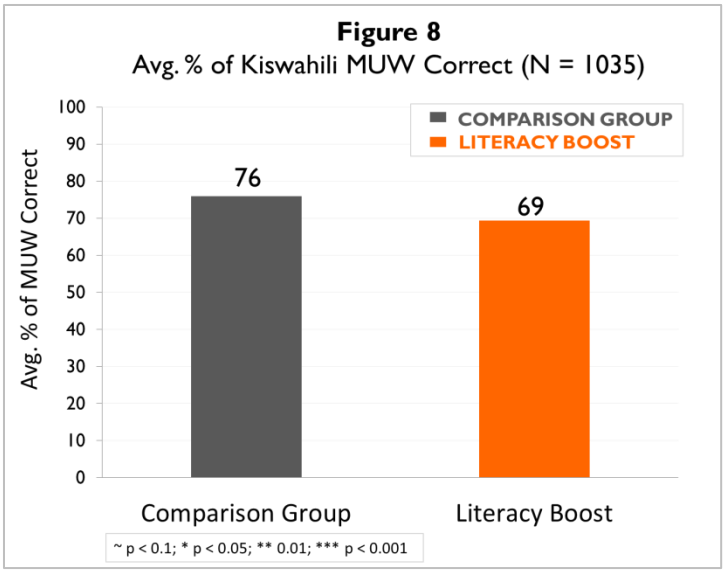
No statistically significant differences were found between LB and CG learners across basic and advanced reading skills in either English or Kiswahili. Because learners' familiarity with printed materials was so high, this assessment excluded a Concepts About Print section. Children were first tested on their letter awareness by reviewing a chart of letters and then naming the letter, pronouncing the letter sound, or giving a word that began with that letter. There is no statistically significant difference between the proportion of letters correctly identified by LB or CG learners.



Students struggled the most with Kiswahili letters 'j', 'G', 'v', 'l', and 'L' (< 54% of learners were able to correctly identify). The letters most commonly correctly identified were the vowels 'o', 'e', 'i', and 'a' (> 75% of learners correctly identified). **Teachers should focus on helping students, particularly non-readers, to improve letter awareness, a key foundation in reading.**

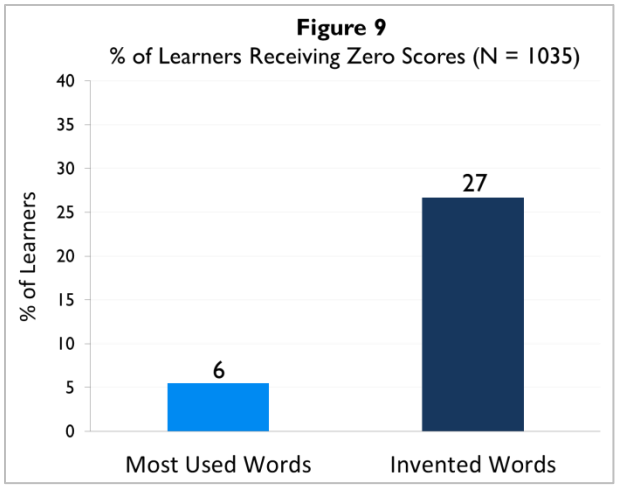
Word Recognition: Most Used Words

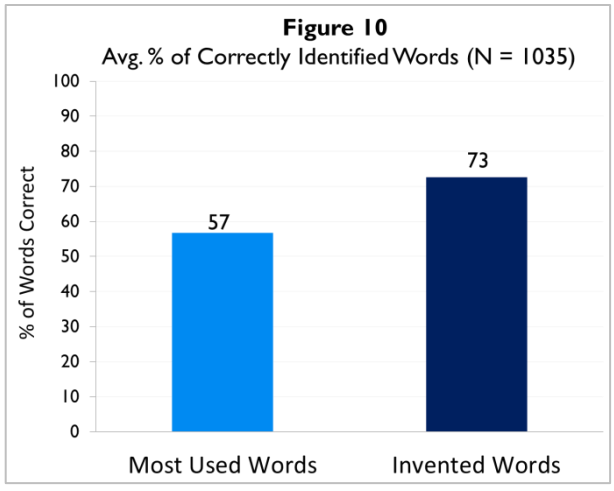
Learners demonstrated promising Kiswahili word recognition skills, correctly identifying an average of 73% of MUWs. More than 80% of learners correctly identified the Kiswahili words 'kaka', 'baba', 'mama', and 'dada', but less than 66% could identify 'shangazi', 'nyumba', 'ng'ombe', and 'machungwa'. Despite only 56% of students being classified as Kiswahili readers, less than 6% of learners received zero scores in identifying MUWs. In fact, a slight majority of students (53%) identified 100% of the 20 MUWs correctly. Given that children are better able to identify vowels than consonants, it is not surprising that students struggled with words that contained more than two or more consonants in a row, like 'machu**ngw**a'. **Teachers should prioritize all students' mastery of letter identification, but will also need to provide special assistance in helping children learn more complex sounds.**



Decoding Invented Words

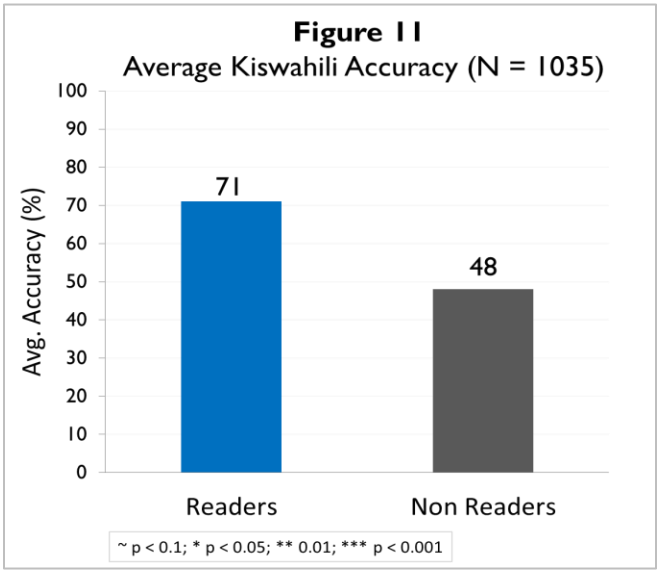
Phonetic awareness was also tested using an Invented Words sub-test, a relatively new addition to Literacy Boost literacy skill assessments. In this section, students were asked to decode made-up words (also referred to as 'non-sense' words). This methodology provides an additional matrix to assess children's phonetic awareness, forcing students to rely on phonetic reasoning rather than visual recognition. Literacy Boost students and CG learners demonstrated equivalent decoding skills. When presented with 20 made-up words, learners were able to correctly decode an average of 57% percent of words (versus 73% of MUWs). Here, however, nearly 27% of students were received zero scores, meaning they were unable to correctly decode a single made-up word. **The Invented Word subtest provides a clearer indicator of children's phonetic abilities, and demonstrates the importance of prioritizing letter awareness and combined-consonant sounds.**

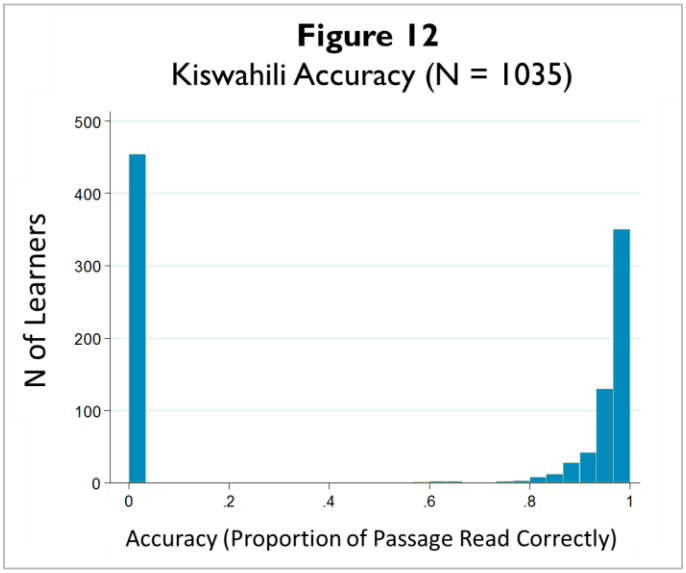




Fluency and Accuracy

Fluency (words per minute read correctly or 'wpmc') and accuracy (percent of the passage read correctly) were measured together in a single sub-test in which students read a passage aloud. The number of words students read correctly in a minute is tracked for fluency. As the student continues to read, the total number of words read correctly from the passage as a whole, no matter how long it takes the student, is computed for accuracy. No statistically significant differences exist between LB and CG learners' fluency or accuracy scores (see Figures 11 and 12 below). On average and accounting for non-readers' zero scores, learners correctly read 54% of the Kiswahili passage correctly and an average of 20 words correctly per minute.





Average scores, however, provide an incomplete picture of learners' abilities, camouflaging the large proportion of children (44%) unable to read any of the passage. The histogram in Figure 13 illustrates the clear split between Kiswahili readers and non-readers. Although Kiswahili readers read with promising accuracy at an average of 96%, non-readers will need targeted support to catch up to their reading peers. **Literacy Boost programming must carefully strategize and balance efforts to both support struggling students to establish foundation skills and to encourage readers to continue strengthening their skills and developing comprehension.**

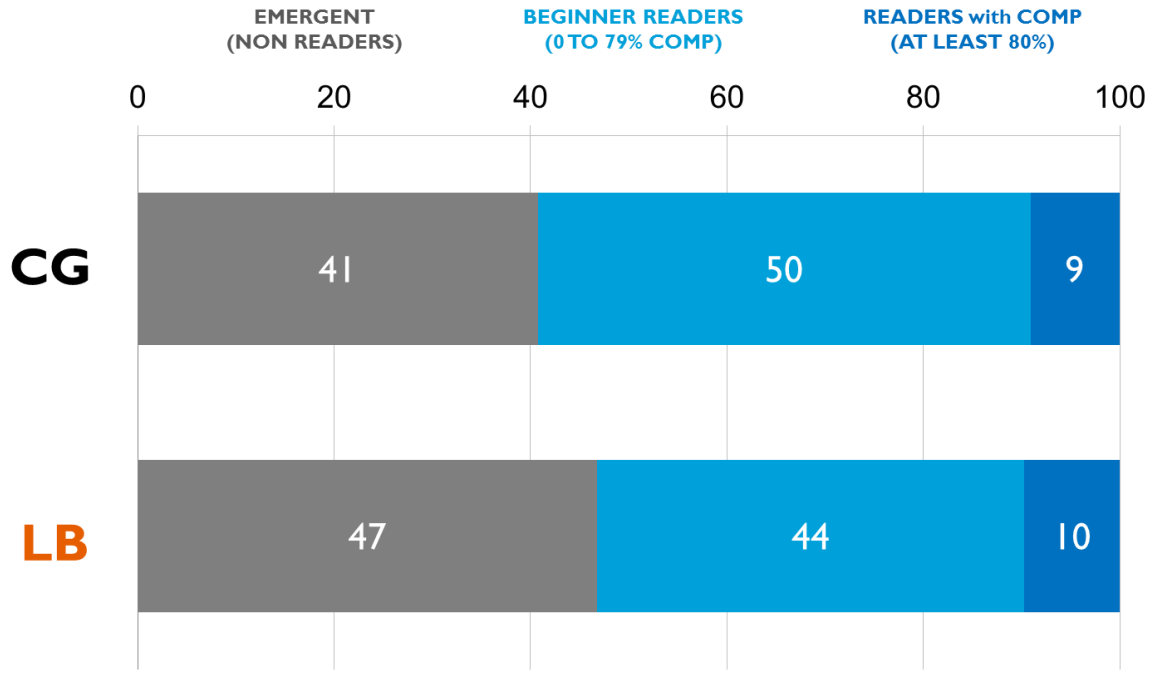
Reading Comprehension

The final reading sub-test asked students a series of ten Kiswahili comprehension questions (related to the reading passage. For those students who were unable to read five words correctly within 30 seconds, the assessor read the passage to the student before asking the comprehension questions. These learners were then given a listening comprehension test based on the same questions as their reading peers received. Figure 14 visualizes the categorization of readers, defining non-readers as 'Emergent' readers; readers with 0 to 79% reading comprehension as 'Beginner'; and readers with 80% comprehension as 'Readers with Comprehension'.

Literacy Boost and CG learners are equally likely to belong to any of the three categories. Ensuring that *all* children become readers is a critical goal for Literacy Boost programming; however, the ultimate goal is for all children to read with comprehension. As seen in Figure 13 below, only 9% of Comparison Group and 10% of Literacy Boost learners currently read with comprehension.

Figure 13

Kiswahili Reading Comprehension Categorizations (% of Learners) (N = 1035)



Analysis: Relationships between Student Background, Household Literacy Environments, Chore Burdens, and Reading Skills

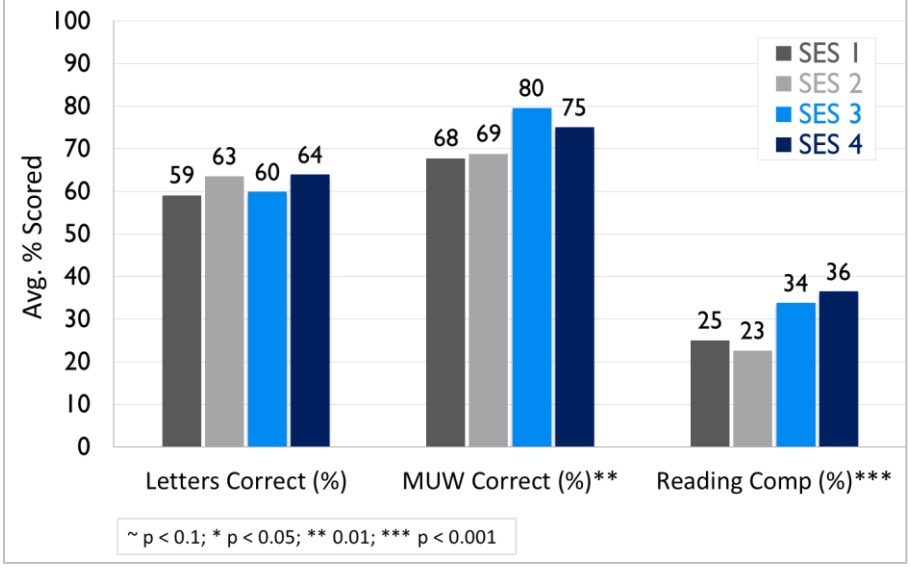
The final section of analysis explores the results and implications of multilevel regression. To arrive at the most explanatory regression model, the significance of social equity backgrounds (SES composite), home literacy environments (HLE composite), ECD attendance, and chore burdens (chore-variable composite) were tested with univariate and multivariate models, using the Kiswahili reading skill sub-test scores as dependent variables. The final multivariate model explains between up to 16.4% of variation in student scores, depending on the dependent variable in question.

Multilevel regression analysis reveals that in addition to girls, students who attended an ECD programme or spend more time studying are likely to receive higher Kiswahili reading sub-tests scores. Boys and girls, however, score equally on reading comprehension tests, Children who have repeated Standard 1 or 2 are likely to score worse across lower and higher level sub-tests, and children who work outside the home or have the heaviest chore burdens are likely to perform worse that than their peers on reading comprehension tests (see Appendix B for detailed multivariate regression models). **On the whole, learner backgrounds appear to have a stronger influence on reading comprehension abilities than they do on basic reading skills. It will be critical at endline to monitor and compare the skill gains of students from statistically disadvantaged backgrounds to identify if these trends continue.**

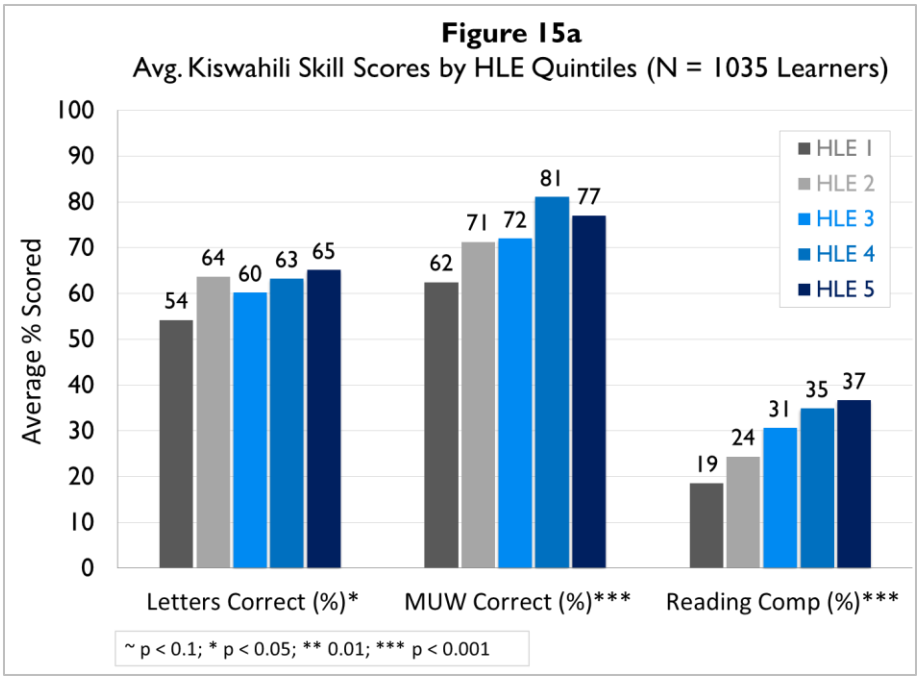
Using univariate analysis, SES, HLE, and chore burden composites, mean scores for three primary Kiswahili reading skills are explored: Kiswahili letters correct (%), MUW correct %, and reading comprehension % (where non-readers receive zero scores). Statistically significant differences exist between SES quartiles' mean MUW correct and reading comprehension scores, but not for the percent of letters correct (see Figure 14).

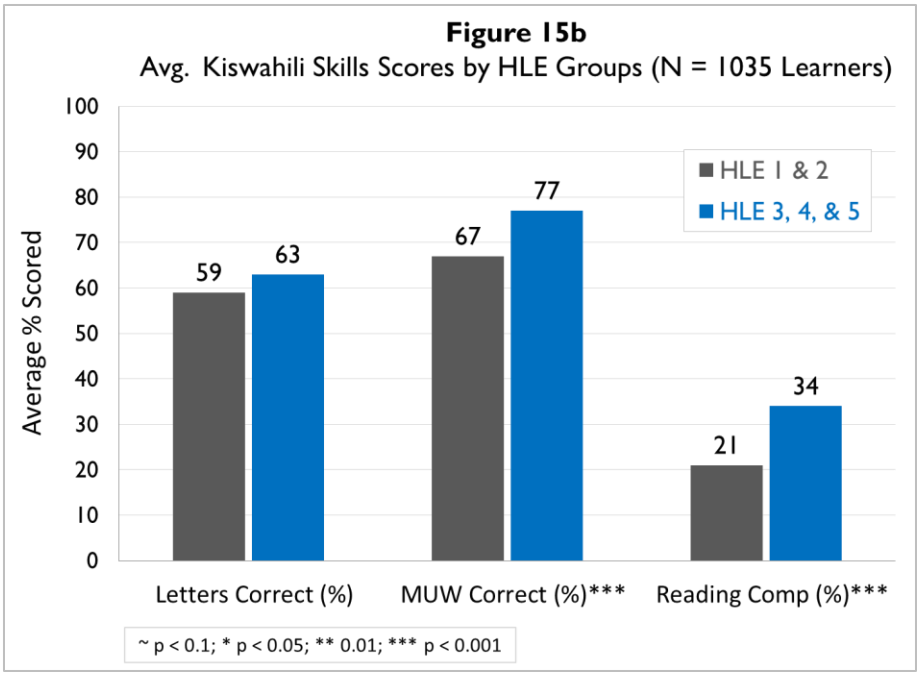
Figure 14

Avg. Kiswahili Skill Scores by SES Quartiles (N = 1035 Learners)

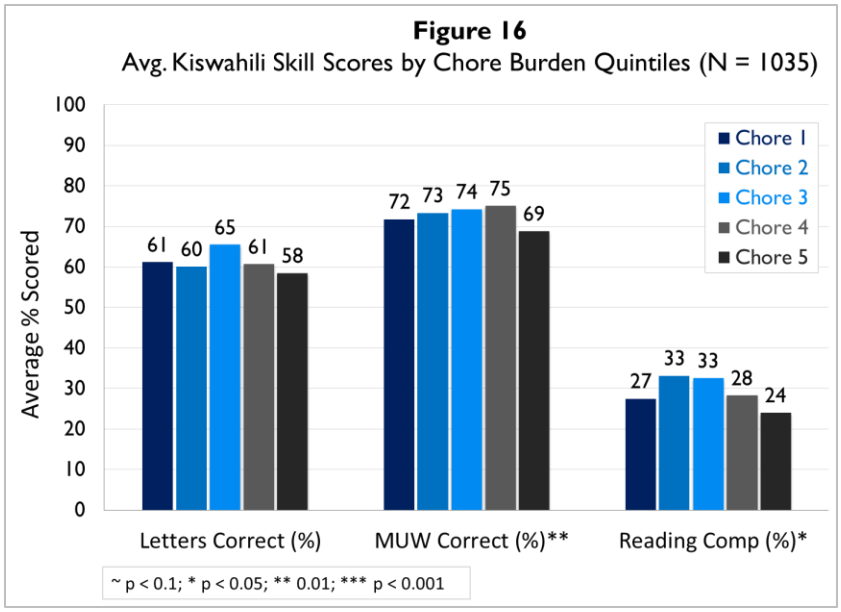


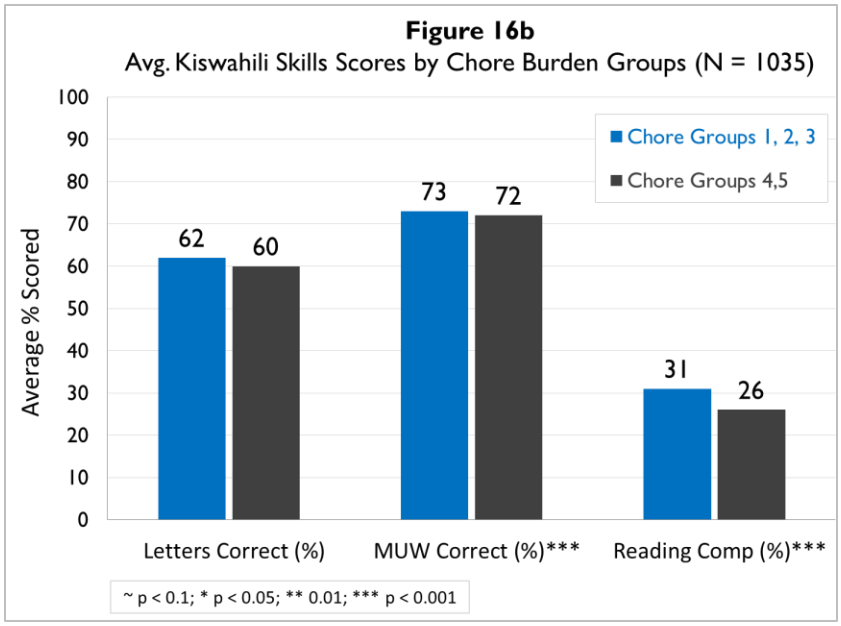
As demonstrated by Figure 15a, the mean scores for all three reading subtests exhibit statistically significant differences across HLE quintiles. In the multivariate regression, however, HLE is only significantly correlated with reading comprehension scores. Given the imprecise nature of SES, HLE, and chore burden composites, aggregation can provide more interpretable depictions of data trends. Figure 15b aggregates HLE bottom two and top three quintiles to compare mean scores.





Univariate regression analysis suggests that chore burdens and working outside the home are negatively correlated with both MUW correct and reading comprehension mean scores. In our multivariate regression model, working outside the home and chore burdens are significantly correlated (negatively) with Kiswahili reading comprehension scores. **Given that nearly 98% of students do chores in the home, it is likely that the degree to which chores interfere with attendance and the amount of time dedicated to studying, rather than doing chores in themselves, affects learner achievement.** **It is critical that parents are made aware of the effects of attendance and studying on students' progress.**





CONCLUSION: ANALYSIS & PROGRAMME RECOMMENDATIONS

Baseline results indicate that a large proportion of local Standard 2 students struggle with basic literacy skills and that few readers read with comprehension. Although readers demonstrate encouraging phonetic awareness and accuracy, emergent readers need targeted support in order to catch up to their reading peers. Ensuring that both emergent and beginners become readers with comprehension is the ultimate goal of Literacy Boost; given the clear split between readers and non-readers, targeting both groups will require carefully strategized approaches.

As previously summarized, multilevel regression indicates that gender, the amount of time spent studying, work status, ECD attendance, chore burdens, and repeating Standard s, exhibit significant effects on Kiswahili sub-test scores. Although students that attended ECD programmes are significantly more likely to score higher Kiswahili scores across all subtests, other background characteristics influence reading comprehension scores, but not basic, Kiswahili reading skills.

Children face many challenges to education achievement that must be addressed with a holistic approach. Chore and work burdens, the dearth child friendly reading materials at home and at school, absence of school libraries, will remain problematic without the engagement of parents, schools, and citizen advocates. Through the symbiotic combination of Reading Camps, Parental Awareness Groups, and Teacher Trainings, however, Literacy Boost ***can address*** these challenges. In particular Literacy Boost administrators should consider the following suggested action steps:

Parental Awareness Groups

1. Emphasize the importance of ECD programming and its impact on student achievement and healthy development.
2. Encourage all parents to engage their children in reading and studying, regardless of parents' abilities to read.
3. Stress the importance of regular student attendance and of prioritizing study time.
4. Increase availability of child-friendly texts at home.

Reading Camps

1. Identify the different challenges boys and girls face in education, and develop sensitized strategies to motivate students of both genders.
2. Ensure children have access to a variety of quality child-friendly books to borrow at Reading Camp book banks.
3. Ensure that older learners (more likely to have repeated Standard 1 or 2) neither dominate activities nor are overlooked. Older students may need specialized motivation.

Teacher Trainings

1. Encourage and support schools to establish libraries and reading corners, increase the availability of child-friendly texts and encourage schools to allow children to take home books other than textbooks.
2. Support teachers to utilize child-friendly posters and materials in classroom settings.
3. With the help of Education Specialists, develop strategies to sensitively target struggling students without neglecting beginner readers.

4. Engage students to master phonetic and foundational reading skills, and provide targeted instruction on complex consonant sounds.
5. Sensitively motivate both girls and boys, and encourage students to prioritize time spent studying.

By building the capacity of teachers, schools, parents, and communities, Literacy Boost not only has the potential to support learners receiving Literacy Boost in 2015, but also learners in years to come. Literacy Boost requires the participation of multiple stakeholders, and likewise, has the capacity to achieve positive impacts beyond the classroom.

APPENDIX A

Appendix A: Inter Rater Reliability		
Literacy Skill	**Intraclass Correlation**	**Rating**
Kiswahili Most Used Words	.99	Excellent
Kiswahili Letters Correct	.99	Excellent
Kiswahili Fluency	.96	Excellent
Kiswahili Accuracy	.95	Excellent
Kiswahili Reading Comprehension	.98	Excellent
English Most Used Words	.98	Excellent
English Letters Correct	.99	Excellent
English Fluency	.56	Good/Fair
English Reading Comprehension	---[a]	---[a]
Fleiss' benchmarks: excellent (ICC>0,75), good or fair (0.75>=ICCA>0.4) and poor (0.4>=ICC). ᵠTоо few cases of English readers to test for Intraclass Correlation.		

Appendix B: Multivariate Regression

VARIABLES	Letters Correct %	MUW Correct %	Accuracy All Learners	Accuracy Readers	Reading Comp % All Learners	Reading Comp % Readers	Listening Comp Non Readers
Age	0.0160	0.00536	0.00779	0.00454	0.00179	0.00216	0.000334
	(0.0195)	(0.0207)	(0.0265)	(0.00667)	(0.0124)	(0.0168)	(0.00860)
Sex (Female = 1)	**0.0972***	**0.119****	0.0795	0.00286	0.00145	-0.0516	-0.0293
	(0.0412)	(0.0305)	(0.0554)	(0.00948)	(0.0242)	(0.0337)	(0.0260)
School Status (LB = 1)	0.0165	-0.0968	-0.116	0.0148	-0.0172	**0.0929***	-0.0141
	(0.0722)	(0.102)	(0.117)	(0.0167)	(0.0583)	(0.0412)	(0.0256)
Spends No/A Little Time Studying	-0.0351	**-0.116*****	-0.0651	0.0164~	**-0.0807****	**-0.102***	-0.0555~
	(0.0310)	(0.0273)	(0.0429)	(0.00885)	(0.0245)	(0.0367)	(0.0299)
Attended ECD	**0.166****	**0.228****	**0.290*****	0.102	0.0674	**-0.191***	**0.0678***
	(0.0467)	(0.0636)	(0.0587)	(0.0930)	(0.0395)	(0.0807)	(0.0306)
Repeated Standard 1 or Standard 2	-0.00399	**-0.105****	**-0.111****	-0.0271	**-0.0551***	-0.0339	0.00328
	(0.0458)	(0.0276)	(0.0339)	(0.0165)	(0.0236)	(0.0494)	(0.0372)
Works Outside Home	-0.0842	-0.0721	-0.0125	-0.00186	-0.0577~	**-0.0976***	-0.0166
	(0.0490)	(0.0517)	(0.0476)	(0.0100)	(0.0309)	(0.0394)	(0.0304)
Ate Breakfast Today	0.0353	0.000890	-0.0385	0.00632	0.0169	0.0745~	0.00797
	(0.0353)	(0.0315)	(0.0489)	(0.00658)	(0.0336)	(0.0389)	(0.0214)
HLE quintiles	0.0118	0.0189	0.0441~	0.00806	**0.0278***	0.0232	0.00579
	(0.0195)	(0.0245)	(0.0241)	(0.00595)	(0.0110)	(0.0146)	(0.0118)
Social Equity Quintiles	-0.00665	0.0120	0.0153	-0.00237	-0.00828	**-0.0278***	**0.0409***
	(0.0235)	(0.0205)	(0.0235)	(0.00282)	(0.0119)	(0.0125)	(0.0157)
Chore Quintiles	0.00319	-0.00609	-0.00442	-0.00343	-0.0204	**-0.0435****	0.00135
	(0.0168)	(0.0175)	(0.0202)	(0.00236)	(0.0122)	(0.0144)	(0.00613)
% of Hhold Members Seen Reading	-0.0363	-0.0974	-0.147	-0.0280~	-0.0171	0.0420	-0.0378
	(0.0713)	(0.0943)	(0.106)	(0.0144)	(0.0661)	(0.0801)	(0.0677)
School to District Cap/Town (km)	-0.00400~	-0.00278	-0.00368	-0.000666	-0.00198	-0.00215	-0.00208
	(0.00201)	(0.00475)	(0.00614)	(0.000472)	(0.00324)	(0.00228)	(0.00130)
Health Programmes at School	-0.0568	-0.0389	-0.0565	**-0.0215***	-0.00905	-0.0293	0.0511
	(0.113)	(0.0969)	(0.105)	(0.00810)	(0.0494)	(0.0412)	(0.0379)
Constant	0.365	0.634~	0.335	0.845***	0.279~	0.804***	0.0266
	(0.326)	(0.319)	(0.375)	(0.159)	(0.160)	(0.202)	(0.139)
Observations	457	457	457	243	457	242	214
R-squared	**0.058**	**0.154**	**0.108**	**0.141**	**0.084**	**0.164**	**0.138**

Robust standard errors in parentheses

***** p<0.001, ** p<0.01, * p<0.05, ~ p<0.1**