



Literacy Boost

BELAJAR Indonesia

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Executive Summary

This report describes the results of a baseline survey of second grade students' reading skills and background characteristics in the Belu district of Indonesia. The baseline was conducted in order to inform Literacy Boost BELAJAR programming in Belu by exploring students' strengths and weaknesses in literacy development and identifying groups of students who are struggling to read at grade level.

On average, students in this sample are 8 years old and 52% are female. 75 percent of students speak Bahasa Tetun Belu at home, 32 percent speak Bahasa Indonesia, and 7 percent speak Bahasa Dawan. 14 percent speak more than one language at home, with the majority speaking both Bahasa Indonesia and Bahasa Tetun Belu.

An important factor in children's literacy development is their home literacy environment (HLE). Almost all children in this sample report having some kind of reading material at home, but the vast majority of these materials are textbooks and religious books, only 28% of students surveyed have child friendly reading materials at home (such as story books). On average, students have only one family member who reads to them or tells stories to them, while between 30% and 40% live in homes without anyone who reads to them or tells stories to them. Together with the limited number of child-friendly reading materials reported to be in homes, these data suggest that children are living in relatively literacy-poor environments. The creation and distribution of child-friendly reading materials as well as the development of community reading activities should be an important focus of Literacy Boost programming so that all children can experience richer literacy environments.

Only 19% of students are readers (able to read 5 words in a reading passage correctly in 30 seconds), and many still struggle with foundational skills like letter knowledge and single word recognition. However, there is a group of students who perform significantly better than their peers. Students with the most basic literacy skills have the farthest to go in order to become independent readers, and will require the most attention during Literacy Boost activities in and out of school. Meanwhile, students who are already readers should strive towards learning gains in more advanced skills, like reading with comprehension.

The equity analysis indicates that the following groups of students are most at risk of not achieving grade level reading skills: students struggling to understand Bahasa Indonesia, students from the poorest households, students who repeated a grade, and students with few home reading materials and those who experience few home literacy interactions. Together, these findings demonstrate the need to encourage reading both inside and outside of the classroom through Literacy Boost teacher training and Community Action activities.

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1. Introduction and Context

1.1 Introduction

This report examines the results of a learner background survey and reading assessment conducted in August 2015. The survey and reading assessment covered 357 grade 2 learners throughout 20 schools in the Belu area of Indonesia. All 20 schools in this sample are participating in Save the Children's Literacy Boost program, which includes teacher training, community reading activities, and age-appropriate local language material creation to support emergent literacy skills among early-grade children. These skills include letter knowledge, single word reading of most used words, reading fluency, reading accuracy, and reading comprehension. As part of Literacy Boost, learners are periodically assessed in each of these skills through an adaptable assessment tool to inform programming and estimate program impact. The data gathered from these schools is analyzed to present a snapshot of the emergent literacy skills of grade 2 learners in these schools and to inform the adaptation of SC's Literacy Boost program to this context.

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

1. What can the baseline tell us about learners' emergent reading skills? What does this mean for Literacy Boost programming?
2. How do learners' reading skills vary by student background, school environment, home literacy environment, health and other dimensions of equity? What does this mean for targeting Literacy Boost's two strands of intervention?

To investigate these questions, this report will first describe the context of Literacy Boost programming in Indonesia, and the research methods used; including sampling, measurement, and analysis. Next, the report examines what literacy skills are already present in the sample, and what areas Literacy Boost should focus on. The report then investigates the relationship between students' family background, home literacy environment, and school characteristics using regression analysis.

1.2 Context

Belu is a poor, mostly rural district that borders East Timor and has low educational attainment indicators and high levels of illiteracy. Belu was ranked 17th out of 20 Nusa Tenggara Timur (NTT) districts in the human development index in 2007. Most of Belu's population lives in rural areas with poor infrastructure and the southern part of the district is particularly prone to annual flooding.

Save the Children has pre-identified 10 sub-districts in Belu for participation in this programme. Seven of these are considered 'rural' and the other three are peri-urban or urban in close proximity to the town of Atambua. The rural sub-districts have a total of 109 primary schools and the peri-urban

district of Atambua has 26. All of the areas are poor, and particularly the rural areas have significant populations of immigrants from East Timor and other populations from different ethnic groups.¹ Literacy Boost programming in Belu started in 2012 through the LB-ANCP project, and was expanded through the BELAJAR program in 2013. Results from the impact evaluation of the LB-ANCP program indicate that students participating in Literacy Boost made significant gains in oral and reading comprehension over their peers in comparison schools. The impact evaluation of the 2013 BELAJAR found no significant differences in reading gains between Literacy Boost and comparison students overall, although findings suggest that Literacy Boost enabled struggling students to catch up with their peers.

The evaluation for this round of BELAJAR programming will track Literacy Boost students' progress towards reading with comprehension and explore the relationship between learning and background characteristics like the home literacy environment, language and socioeconomic status. To do so, the evaluation will assess reading skills among students in schools participating in Literacy Boost at baseline (before program implementation) and endline (after one year of program implementation).

11. Methods

2.1 Sampling

The sample for the baseline assessment includes 357 grade 2 learners, divided between 20 schools set to receive the Literacy Boost intervention. Schools were selected based on recommendations from Education Department of Belu District, in discussion with BELAJAR team. Schools were selected based on a needs assessment, with the objective of reaching the most vulnerable schools in the Belu district, particularly those that receive limited support from the government and other organizations.

At each of the Literacy Boost schools where data was collected, 20 children in grade 2 were sampled. If there was more than one section of standard 2 at a given school, one section was randomly selected. Where there were more than 20 learners in the classroom, ten boys and ten girls were randomly selected. Some exceptions to this rule exist. In some schools, there were less than 20 students. In these cases, all learners in the classroom were assessed. In total, there are 171 boys and 186 girls in the sample, making the sample 47.9 percent female and 52.1 percent girls.

2.3 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 and 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

¹ SCNZ Indonesia Belajar Activity Design Document, 2013

and reading habits in their home (who they had seen reading in the week prior to the assessment, who had read to them, etc.).

After collecting this background data, all learners were also given an emergent literacy test composed of six components administered through four sub-tests: letter awareness, single word recognition (reading of most used words), reading fluency and accuracy (words per minute read correctly and total percentage of passage read correctly; both within the same sub-test), and a set of comprehension questions linked to the fluency & accuracy passage. Instructions were given in Bahasa Indonesia, and children were assessed on letter identification, most used words, reading fluency, reading accuracy, and listening/reading comprehension in Bahasa Indonesia. In some cases, assessors used local languages to provide instructions to students who had trouble understanding Bahasa Indonesia. Detail on interrater reliability is provided in Appendix A.

Table 1: Literacy Boost Assessment Instruments

Student background	Examples
General	Sex, age, language spoken at home, work/chores
School-related	Attendance, repetition history
Socioeconomic status	Type of home, household size, household amenities/possessions
Health	Breakfast, lunch, height, and weight
Home Literacy Environment	Description
Access to print	Types of reading materials present in home
Reading activities at home	Presence and percentage of family members who children see read, and who engage in literacy activities with children
Reading Outcome	Description
Alphabet knowledge	Number of letters/sounds known of 26
Single word reading	Number of single words read correctly of 20
Fluency	Number of words in a short story read correctly in a minute
Accuracy	Percentage of words in a short story of 100 words read
Comprehension	10 questions related to the short story

III. Analysis

The critical purpose of this analysis is to present a profile of children’s reading skills. Summary statistics are used to analyze students’ background characteristics and reading performance in each of the reading sub-tests.

In order to identify which groups of students may need extra support through Literacy Boost programming, this report explores the relationships between literacy skills and student background characteristics and home literacy environment through univariate and multivariate regression analysis.

3.1 Children’s Background

The students are between six and eleven years old (eight years old on average). The most common languages spoken at home are Bahasa Tetun Belu (74 percent) Bahasa Indonesia (32 percent), and Bahasa Dawan (7 percent). 14 percent of learners speak more than one language at home, with the majority speaking both Bahasa Indonesia and Bahasa Tetun Belu.

Almost half (42 percent) of students have repeated at least one grade (33 percent repeated Grade 1, 17 percent repeated Grade 2, and 8 percent repeated both grades). On average, students live with five other family members and have two of five common amenities in the region (electricity, toilet, motorcycle, refrigerator and television). 82 percent of students report living under a roof made of zinc, typically an indication of relative wealth in this area. Finally, nearly all students (95 percent of boys and girls alike) help with household chores, while 9 percent of girls and 5 percent of boys report working. Most students report studying “sometimes” during the afternoons, evenings, and weekends.²

Given that students spend a substantial amount of time on chores, Literacy Boost should suggest literacy-supporting activities that can be carried out during chores through Parental Awareness sessions. Appendix B presents summary statistics of all background variables.

3.2 Children’s Health and Nutrition

In order to explore the link between health and learning, the survey asked children whether they had eaten breakfast and lunch on the day of the assessment, and what they had eaten. Nearly all children reported eating breakfast and lunch (95 and 99 percent, respectively). As Figure 1 shows, more than 80 percent of students consumed some form of vegetable or meat protein in each of these meals. However, 7 percent of children did not consume protein in breakfast or lunch. Children’s height and weight were also measured, in order to explore the relationship between nutritional status (as measured by body mass index).

Figure 1: Students nutritional intake, breakfast and lunch

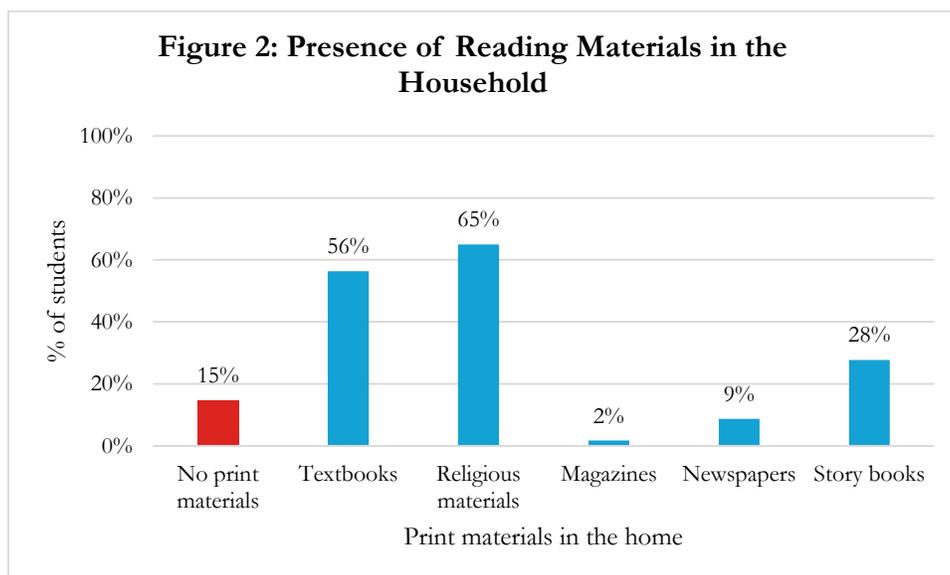


² Questions about the amount of time spent studying were reported on a Likert scale, with 0 “Never/no time,” 1 “Some time” and to 2 “A lot of time.”

Handwashing is another important aspect of health. Students in this sample report washing their hands before eating (77 percent of students), after defecation (12 percent) and after playing (21 percent). Likewise, nearly all students (95 percent) report sleeping under a mosquito net – an important way to prevent against mosquito-borne diseases, such as malaria.

3.3 Children’s Home Literacy Environment

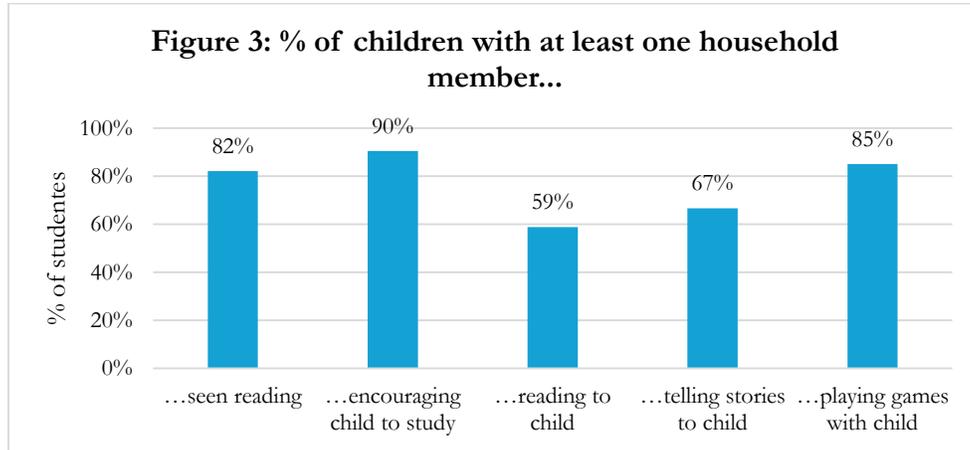
An important aspect of reading development concerns the home literacy environment (HLE). How are children exposed to the printed word in the home? How much access do they have to books and print to practice their nascent reading skills? Many Literacy Boost activities are centered on helping parents and communities to enhance the HLE. As such, it is important to measure where learners’ HLEs begin, and how they change over the course of time. Figure 2 displays the different types of printed materials that learners may or may not have at home.



Most children have some type of reading material at home, although a substantial percentage (15 percent) do not. The most common reading material in students’ homes is religious materials, and the least common reading materials are magazines and newspapers.

The HLE is not only about materials in the home, but how those materials are used to engage the child 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 we operationalize by asking the learners whether they see anyone reading at home. The second is press for achievement, which we operationalize as individuals telling or helping the student to study. The third is the availability of reading and print materials, which we operationalize as the amount of printed materials at home (see Figure 2). The fourth dimension is reading with children, which we operationalize by asking the learners whether anyone reads to them at home. The

last is opportunities for verbal interaction, which we operationalize as family members telling stories to learners. In accordance with the Indonesian context, this survey also asked students whether anyone at home plays games with them. Figures 3 and 4 the home literacy interactions among students in this sample.



As demonstrated in Figure 3, 82 percent of students saw at least one of their household members read in the past week, 90 percent of students were encouraged to study by at least one household member, and 85 percent indicate that at least one household member plays games with them. Slightly fewer children have at least one household member who read to them or told them stories in the past week (59 percent and 67 percent, respectively).

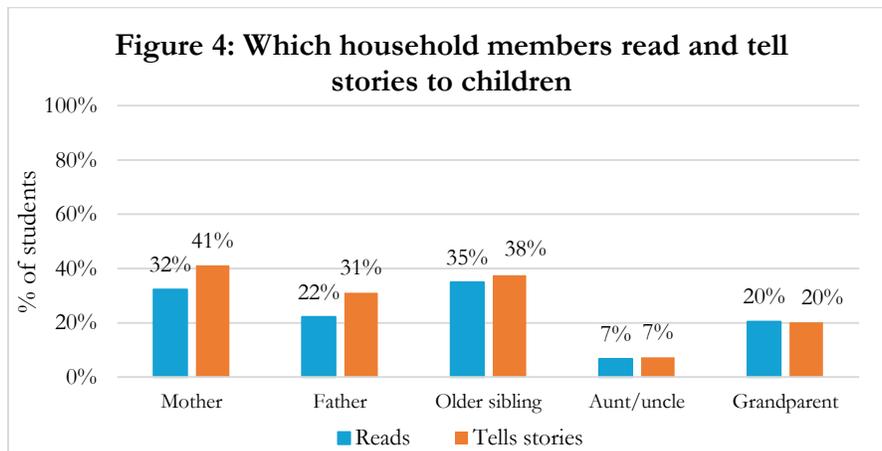
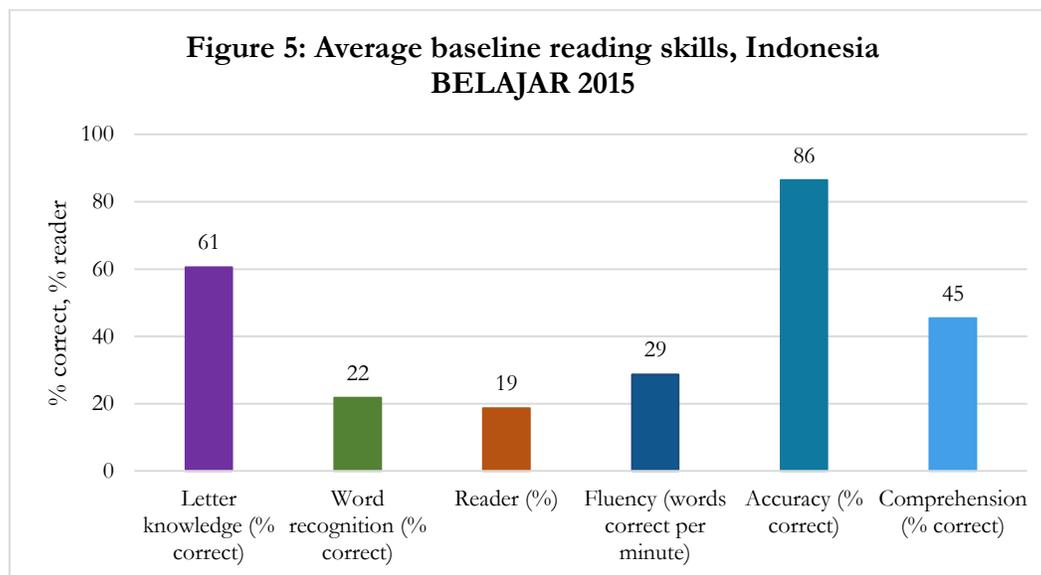


Figure 4 takes a closer look at the home literacy environment by describing which family members are most commonly reported to read and tell stories to children. The low percentages across all members demonstrates the need to engage all family members in promoting children’s literacy development. Here, it is important to reiterate that **all family members can play an important role in children’s literacy development, even those who cannot read and write themselves. Telling stories is one important (and currently under-utilized) way to promote literacy skills.**

3.4 Children’s Reading Skills

Children’s reading skills at baseline are presented below in figure 5. Students are for the most part able to identify letters in the Bahasa Indonesia alphabet, but will require additional support both inside and outside of schools in order to become independent readers with comprehension. The following sections describe students’ performance in each sub-test included in the baseline assessment.



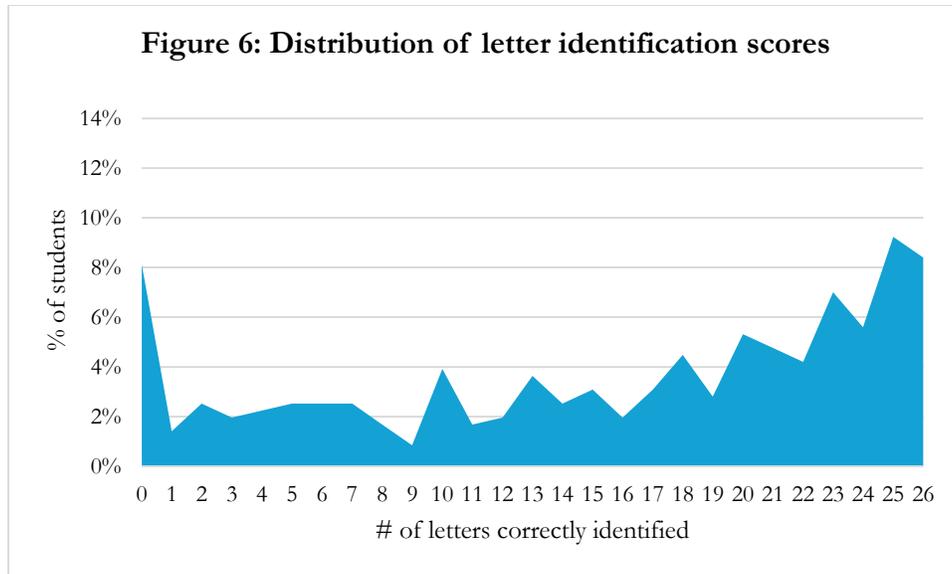
Note: Letter knowledge, word recognition, and reader values include the full sample (N=397), while fluency, accuracy and comprehension scores include only readers (N=74).

Letter Identification

The first literacy sub-test examined learners’ letter awareness. Learners were shown a chart of 26 letters and asked to name the letter or pronounce the letter sound. **On average, learners correctly identified 60 percent (15 letters)** out of a combined total of 13 uppercase and 13 lowercase letters. Girls identified 60 percent and boys identified 59 percent.

The most difficult upper and lowercase letters were: Y, f, v, Q, x and G, and the most often named correctly were: i, O, A, S, K and u (see Appendix D for a complete list of mean of scores per letter).

As can be seen in Figure 6, the distribution of scores is slightly bimodal; meaning that students’ scores tend to cluster at the extremes: identifying zero letters correctly, or identifying close to all 26 letters correctly. **Literacy Boost should give teachers the tools and skills to conduct formative assessment and identify struggling children. Literacy Boost programming should prioritize these struggling children for Reading Buddies, and also offer other types of remedial interventions specifically targeting these children.**



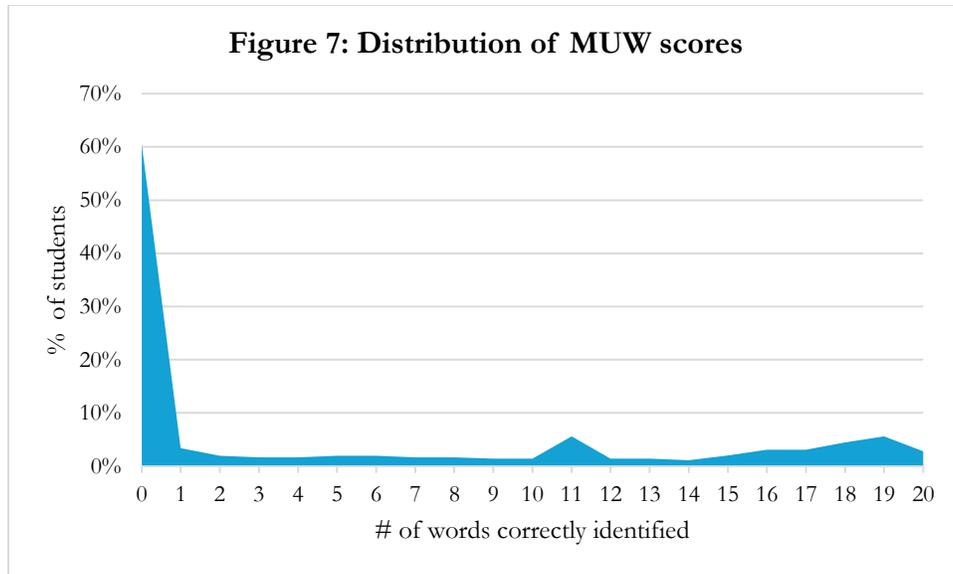
Word Recognition: Most Used Words

The most used words (MUW) sub-test consists of a chart of 20 words that the student is asked to read. These 20 words were identified as ‘most used’ by tabulating the number of times a word appeared in learners’ language arts textbooks.

On average, learners in sampled schools were able to read 22 percent of the MUW. Boys identified 20 percent and girls identified 23 percent.

Learners had the easiest time reading words consisting of one syllable, such as *di* (at), *itu* (that) and *ayo* (come). The words that presented the greatest difficulty for students were words consist of 1 syllable that end with two different sounds, such as *teks* (text), and words more than 3 syllables such as *mendeskripsikan* (describe) and *menggunakan* (use) or (see Appendix D for a complete list of mean of scores per letter).

As Figure 7 shows, the distribution of most used word scores was not normal. More than half of the sample (60 percent) were not able to correctly identify any words, while 15 percent correctly identified at least 16 words out of 20.



Proportion of Readers and Nonreaders

After the most used words sub-test, students were asked to read aloud a passage of connected text of 100 words in length. This passage is based on stories found in students’ language arts textbooks. At this point in the assessment, assessors classify students as either ‘readers’ or ‘nonreaders.’ Readers are defined as students who were able to read at least 5 words correctly in the first 30 seconds of reading. In this baseline sample, **19 percent (68 students) read at least 5 words correctly in 30 seconds and are thus considered readers** (21 percent of girls are readers and 17 percent of boys). All other students were classified as nonreaders.

Fluency and Accuracy

The same passage is used to measure and accuracy. The number of words learners read correctly in a minute is tracked for fluency. As the student continues to read after the first minute, 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. This section presents fluency and accuracy scores for **readers only** in order to better understand the strengths and weaknesses of students who can read a degree of connected text.³

³ As opposed to including the zero scores of the nonreaders, which would lower the average scores for this data.

Figure 8: Distribution of fluency scores (readers only)

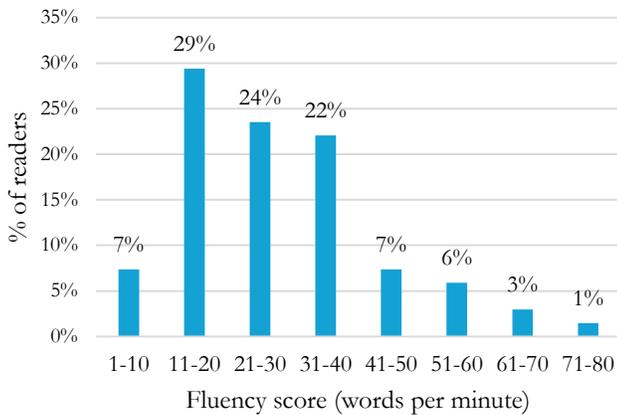
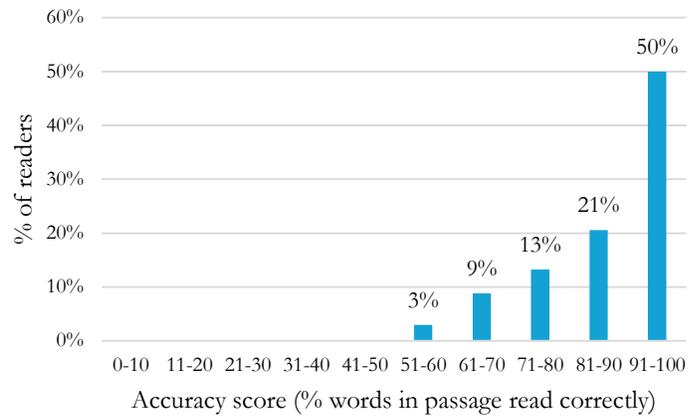


Figure 9: Distribution of accuracy scores (readers only)



Note: Total percentages are slightly less than 100% due to rounding.

The average fluency rate among readers is 29 words per minute (31 for girls and 25 for boys), and their accuracy was 87 percent (for both sexes). As illustrated in Figures 8 and 9, fluency scores among readers tend to cluster between 11 and 40 words per minute, while accuracy scores are fairly high, 50 percent of readers were able to correctly read more than 90 percent of the words in the passage.

Comprehension

The final sub-test quizzed students who qualified as readers on a series of ten comprehension questions related to the reading passage. As in the previous section, this section presents this data for **readers only** in order to better understand the strengths and weaknesses of students who can read a degree of connected text.

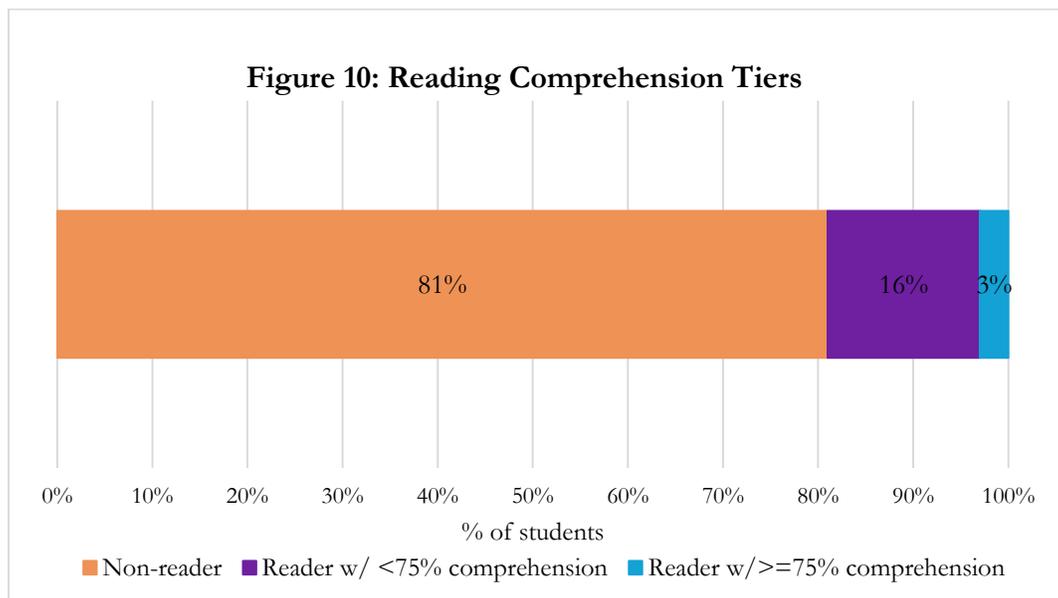
On average, **students who could read answered 45 percent of reading comprehension questions correctly.** Only 26 students answered at least 6 of 10 questions correct (15 girls and 11 boys).

Students were most able to answer factual questions, asking them to recall specific information presented in the story. Some examples include, "What was the name of the main character?" and "Where did the main character go?" The hardest questions for students were the inferential and the evaluative questions. Inferential questions ask students to use the information from the text to make inferences, while the evaluative questions ask student to state an opinion on a feature of the story and support that opinion with reasons for that opinion.

Readers with Comprehension

Students reading with comprehension is the ultimate goal of Literacy Boost. As such, baseline data are used to focus attention on this goal and track progress towards ensuring all children read with comprehension. The Literacy Boost program classifies students who can read into reading tiers based on their comprehension skills: tier 1 includes non-readers (students unable to read 5 words correctly in 30 seconds), tier 2 includes readers who answered less than 75 percent of the comprehension questions correctly, and tier 3 includes readers who answered at least 75 percent of the comprehension questions correctly.

Of the students in this sample, 81 percent are classified as non-readers, 16 percent are readers with less than 75 percent comprehension, and 3 percent are readers with at least 75 percent comprehension. Figure 10 presents the sample composition according to these classifications.



IV. Learning Equity and Struggling Students

4.1 Association between background characteristics, HLE and literacy skills

Univariate and multivariate regression analyses were performed to examine the relationship between reading skills and the following dimensions of equity: sex, socio-economic status (SES), home literacy environment (HLE), home language, health (body mass index, calculated based on height and weight)⁴,

⁴ The body mass index (BMI) is one way to identify students who are under or overweight. However, the reliability of this measure requires precise age data (age in months), which this survey does not have. Moreover, BMI among children is highly variable and context dependent. As such, BMI is not necessarily an appropriate indicator of malnutrition. Univariate regressions in this data find no evidence of a relationship

work, prior early childhood development (ECD) program attendance, grade repetition, and distance to school⁵. **Of these factors, the ones that are significantly related to reading scores at baseline are socioeconomic status, grade repetition, the number of reading materials in the home, home literacy interactions, and language.** Specifically, students who had difficulty understanding the literacy assessment instructions in Bahasa Indonesia, and were thus given instructions in a language other than Bahasa Indonesia, performed worse than their peers⁶. Table 1 below summarizes these findings.

Table 1: Disadvantaged groups at baseline

Sub-test	SES	Grade repetition	Reading materials	Home literacy interactions	Language
Letters		Repeated at least one grade level*	1 or fewer reading material at home***		
MUW	Poorest***	Repeated at least one grade level*	1 or fewer reading material at home*		Low levels of Bahasa Indonesia comprehension*
Reader	Poorest**	Repeated at least one grade level*	1 or fewer reading material at home***	Few home literacy interactions~	Low levels of Bahasa Indonesia comprehension*

Significant at ~ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

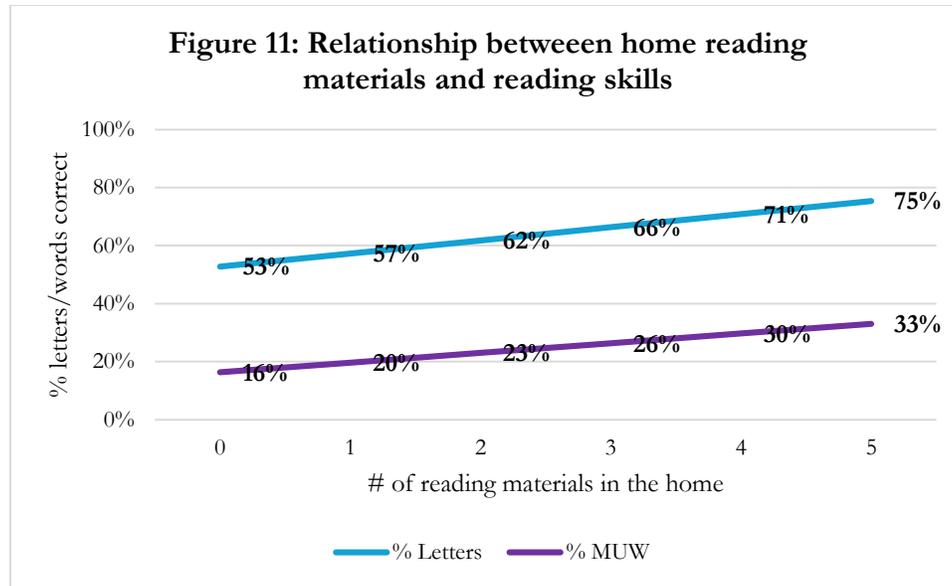
Note: These groups were identified through univariate regression models, which assess the relationship between each individual background characteristic and reading score. Each univariate regression model accounts for clustering at the school level.

These findings clearly demonstrate the importance of supporting families to increase the number of reading materials in the home through Literacy Boost activities such as Book Banks, Reading Camps (where children can make their own books to take home), and Literacy Festivals. Figure 11 illustrates how students' reading skills increase with each additional reading material in the home.

between BMI and reading skills, but these findings should be interpreted with caution, given the weaknesses of the BMI measure.

⁵ Students' SES is calculated as the total number of household possessions, standardized. The home literacy variables include reading materials (the sum of all reading materials, with child-friendly materials weighted double) and the sum of reported home literacy interactions, with "read to child" weighted double.

⁶ Interestingly, students' home language was not found to be significantly related to reading skills. This may be because some students are listed as speaking Bahasa Indonesia at home, but were given instructions in a different language. Of those students who were assessed in a different language, 17 percent speak Bahasa Indonesia at home, and 93 percent speak Bahasa Tetun Belu. It may be that some students report speaking Bahasa Indonesia at home, while their primary language is not Bahasa Indonesia.



The relationship between reading materials available at the home and children’s reading skills remains significant in multivariate regression models, in which reading scores are set as a function of individual and school level characteristics. Grade repetition and language also remain significant (see Appendix C for detailed results of the multivariate regression analysis).

Restricting the sample to include only readers, multivariate regression analysis finds that grade repetition and household size are negatively related to fluency and comprehension, while age is positively related to comprehension (older students achieve higher levels of fluency, accuracy, and comprehension than younger students). There are undoubtedly other factors that play an important role in influencing reading skills, but the small sample size of readers (68 students) reduces the statistical power necessary to observe statistically significant relationships.

4.2 Between-school versus within-school inequality

Of particular interest to the Indonesian country office is whether there is greater variation in students’ reading skills between schools or within schools. Table 2 presents the results of an analysis of these different types of variation (using outcomes for which there is data for the full sample of 357 students: letter knowledge, most used words, and whether or not the child is a reader). **For all skills, there is greater variation within schools than between schools.** Regardless, the differences in scores between schools is statistically significant, suggesting that there are important differences in average reading skills between schools. This implies the need to provide school-wide support to enable low-performing schools to catch up to their more advantaged counterparts, in addition to providing individual support to struggling students.

Table 2: Percentage of variation in reading scores due to...

	...between school variation	...within school variation	Total variation
Letters	28%	72%	100%
MUW	42%	58%	100%
Reader	44%	56%	100%

V. Literacy Boost Endline Benchmarks

The primary goal of Literacy boost is to empower all children to read grade-level text with comprehension. Therefore, **one benchmark to strive towards is to double the percentage of students who can read independently: this would imply that at endline, 40 percent of students can read at least 5 words correctly in 30 seconds.**

The BELAJAR team has established the following benchmarks for letter knowledge, word recognition, fluency, and comprehension:

- Students can correctly identify 80% of letters
- Students can correctly identify 80% common vocabulary words
- Students can accurately read 35 words per minute from a simple reading passage.
- Students can correctly answer at least 65% comprehension questions from the simple reading passage.

Figure 12 displays average baseline scores for letter knowledge, MUW, fluency, accuracy, and comprehension scores in relation to benchmarks. The blue portion of the bars represents the baseline averages, and the orange portion corresponds to the gains necessary to reach benchmark scores for each skill (these are percentage point gains for letter knowledge, word recognition, accuracy, and comprehension, while fluency gains are represented in words per minute). Table 3 presents the benchmarks for each skill, and the corresponding program implications are described below.

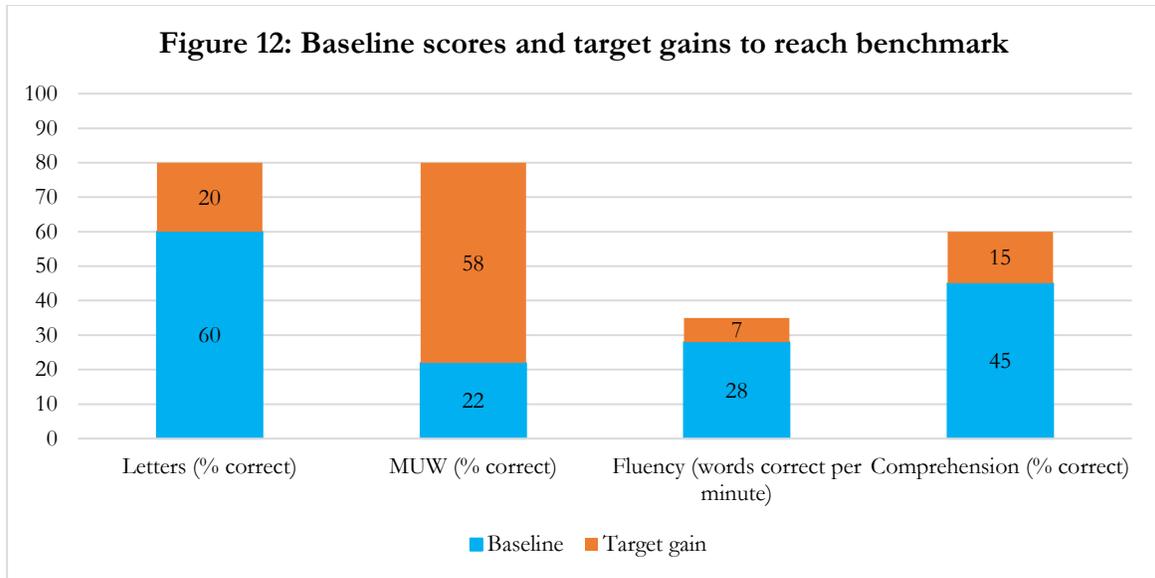


Table 3: Literacy Boost Benchmarks and corresponding program implications

<u>Skill</u>	<u>Baseline</u>	<u>Suggested Benchmark</u>	<u>Program implications</u>
Letter identification (% correct)	60%	80%	The program team will introduce teachers to different strategies of teaching letters, for instance Letter of the Day Activity, particularly for difficult letters such as Y, f, v, Q, x and G.
Most Used Words (% correct)	22%	80%	The program team will introduce phonemic awareness concepts and different activities to teach phonemic awareness for students. Teachers usually teach letters and syllables, instead of letter sounds and individual sounds in a word, therefore the program team will also emphasize teaching phonemic awareness to address students' challenges in reading difficult words, such as the word <i>teks</i> , as found in this assessment. The program team will also help teachers provide lists of words commonly found in text books and display the list in the classroom for children, so children can easily memorize the words and thus they can read these words automatically when they find these words in a text.
Fluency (words per minute)	28	35	The program team will introduce different activities for teachers to teach fluency and accuracy, such as choral reading, echo reading and reader's theater. Through these activities, teachers can model a fluent reader who reads accurately, fluently and with correct expression.
Reading Comprehension (% correct, readers only)	45%	60%	The program team will introduce different strategies for teachers to teach comprehension, such as prediction, asking questions, summary, and visual representation. This will include a discussion of activities to strengthen

			children’s factual, inferential and evaluative comprehension.
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In addition, Community Action activities will support children’s literacy skills through the following:

- **Reading camps** will provide different activities to help improve children’s literacy skills
- Children who still struggle will get help from their friends or students from higher grades through the **Reading Buddies** program
- The program team will encourage parents to attend parents meeting. It should be noted that this is still a challenge, so the program team will try different ways of approaching parents, for instance inserting the messages (from parents awareness workshop) in community/religious meetings, **motivating parents and family members to be involved in children’s education** through radio, and providing simple tips in a leaflet for parents and family members on how they can support children’s literacy skills at home.

Note about Benchmarks

While Save the Children has used this approach to reading assessment and intervention in Afghanistan, Bangladesh, Burundi, El Salvador, Ethiopia, Guatemala, Indonesia, Kenya, Laos, Malawi, Mali, Mozambique, Pakistan, Peru, the Philippines, Rwanda, South Africa, Sri Lanka, Uganda, and Zimbabwe comparison across countries and languages is less helpful than more detailed contextual information for setting expectations of impact. For each measure used in these assessments, the upper end of the range of scores can be used to consider what is currently possible among these children. These scores will constitute the benchmarks which the Literacy Boost program will attempt to help learners achieve by the time of end-line assessment.

VI. Conclusion and General Program Recommendations

Results of this assessment clearly showed that more than 50% students in this sample are struggling to be readers, and many still have not mastered lower-order skills such as letter knowledge and word recognition. Literacy Boost should give teachers skills to improve their instruction in teaching these important skills for children so they can catch up with their peers. Teachers need to be encouraged to regularly monitor children’s progress through formative assessments so they can easily identify struggling children and adjust their teaching practices to children’s needs.

Among these children are those who speak languages other than Bahasa Indonesia and come from poor families. Thus, Literacy Boost activities in the communities should benefit these children through reading camps, provision of books in the book bank, reading buddies, and by encouraging all family members to support children’s literacy skills through engagement in simple literacy-oriented activities at home. Family members who are literate can produce any writing materials such as list of spices in the kitchen, list of gardening tools, or writing simple stories for children, while family members who are illiterate still can support children’s literacy skills by telling stories.

Appendix A: Inter-rater reliability

To test inter-rater reliability, 11 percent of the sample (40 out of 357 students) were assessed by two enumerators simultaneously. Long one-way ANOVA techniques were used to calculate the intra-class correlation within pairs of assessors for a measure of reliability. Table A1 presents the results below. Using Fleiss' benchmarks for excellent ($ICC > 0.75$), good or fair ($0.75 \geq ICC > 0.4$), and poor ($0.4 \geq ICC$); many of the literacy outcome variables exhibited excellent inter-rater reliability. Table 1 shows the percent of agreement between the raters.

Table A1. Interrater reliability and rating

<u>Literacy Skill Sub-Test</u>	<u>Inter-rater Reliability</u>	<u>Rating</u>
Letter Knowledge	.99	Excellent
Most Used Words	.88	Excellent
Fluency	1.0	Excellent
Accuracy	.99	Excellent
Reading Comprehension	.98	Excellent

There was excellent inter-rater reliability on every measure. Raters had perfect agreement on the scoring of fluency, near perfect agreement on the scoring of letter knowledge, accuracy and reading comprehension, and excellent agreement on most used words. Thus, we are confident that the internal validity of the scores is good. However, further training should take place before endline to review the administration and scoring of reading comprehension to ensure better accuracy on subsequent assessments.

Appendix B: Full Background and Home Literacy Environment Statistics

Age (years)	7.9
% female	52%
% home language is Bahasa Indonesia	33%
% home language is Bahasa Tetun Belu	74%
% home language is Bahasa Dawan	7%
% attended ECD program	40%
% repeated G1	33%
% repeated G2	17%
% repeated at least one grade	42%
% repeated both grades	8%
% work	8%
% do chores	96%
% homes with zinc roof	82%
% homes with electricity	52%
% homes with WC	61%
% homes with TV	26%
% homes with fridge	3%
% homes with motorcycle	36%
% homes with computer	1%
Number of family members in household	5.1

Body Mass Index	13.9
% ate breakfast	95%
...breakfast of rice/corn/potatoes with protein	81%
...breakfast of rice/corn/potatoes without protein	18%
...breakfast of cake/snacks	1%
% ate lunch	99%
...lunch of rice/corn/potatoes with protein	87%
...lunch of rice/corn/potatoes without protein	14%
...lunch of cake/snacks	0%
% without protein at lunch or breakfast	7%

No print materials	15%
Textbooks	56%
Religious books	65%
Magazines	2%
Newspapers	9%
Story books	28%
Total types of reading materials	1.6
<i>Someone at home...</i>	
Seen reading	82%

Helps child study	90%
Reads to child	59%
Tells stories to child	67%

Number of people at home...

Seen reading	1.9
Help child study	2.2
Read to child	1.1
Tell stories to child	1.5

Percentage of people at home...

Seen reading	37%
Help child study	43%
Read to child	22%
Tell stories to child	30%

Appendix C. Regression Results

Table C1: Association between reading skills, background and home literacy characteristics

	Letter knowledge	Most Used Words	Reader	Fluency	Accuracy	Comprehension
Age ⁽¹⁾	0.000 (0.026)	0.051 (0.034)	0.393* (0.203)	2.762 (2.592)	0.021 (0.014)	0.110** (0.027)
Sex	0.024 (0.031)	0.040 (0.038)	0.377 (0.278)	8.195~ (4.487)	0.005 (0.025)	0.019 (0.078)
No. household members	0.017 (0.015)	0.018 (0.012)	0.155* (0.0893)	-1.107 (2.082)	-0.004 (0.012)	-0.029* (0.010)
Assessed in >1 language	-0.057 (0.044)	-0.088~ (0.044)	-0.905** (0.453)	-7.597 (5.852)	-0.095 (0.061)	-0.072 (0.122)
SES	-0.012 (0.018)	0.038~ (0.020)	0.255 (0.176)	1.809 (1.683)	0.017 (0.013)	0.068~ (0.035)
Ever repeat G1 or G2	-0.071* (0.032)	-0.105* (0.045)	-1.047** (0.439)	-10.965** (3.242)	-0.064~ (0.034)	-0.122* (0.045)
HLE interactions	0.003 (0.003)	-0.001 (0.003)	0.00440 (0.0310)	0.063 (0.369)	0.000 (0.002)	0.006 (0.003)
Reading materials	0.046* (0.020)	0.033 (0.020)	0.299* (0.173)	0.259 (1.482)	-0.001 (0.012)	0.003 (0.058)
Center to school distance	0.004~ (0.002)	0.005 (0.004)	0.0390 (0.0331)	0.029 (0.216)	0.002 (0.002)	-0.003 (0.002)
Constant	0.469* (0.188)	-0.344 (0.294)	-6.184*** (1.873)	9.766 (15.267)	0.700*** (0.117)	-0.213 (0.209)
Observations	357	357	357	68	68	68
R-squared	0.311	0.156	0.146	0.179	0.189	0.187

Robust standard errors, clustered at the school level are in parentheses.

Values shown are beta coefficients.

All models are OLS linear regression models, except for model 3, which is a logit regression model.

⁽¹⁾ Sample mean age was imputed for the 30 percent of students with unknown age. All models control for whether or not age was imputed.

Appendix D. Item Analysis

Table D1: Mean score per item, by sub test

Letters	Most Used Words	Reading Comprehension
e .70	yang .21	Q1 .67
L .54	dengan .17	Q2 .73
v .35	di .36	Q3 .63
G .45	bahasa .22	Q4 .45
p .59	kelas .28	Q5 .30
S .83	Indonesia .18	Q6 .42
b .59	kamu .32	Q7 .39
Q .41	cerita .26	Q8 .35
r .71	ayo .31	Q9 .11
D .55	bunga .15	Q10 .41
h .45	kembali .20	
w .57	teks .08	
Y .34	itu .33	
K .76	mendeskripsikan .05	
u .73	tanda .22	
N .59	ciri .28	
t .66	menggunakan .12	
A .83	tegak .18	
x .43	tepat .14	
J .50	tumbuhan .16	
c .65		
Z .52		
m .70		
f .35		
O .84		
i .85		