



Save the Children®

Literacy Boost

Baglung, Nepal

Baseline Report

June 2013

Amy Jo Dowd

I. Introduction

This report examines the results of a learner background survey and reading assessment conducted in September 2012 through January 2013. The survey and reading assessment covered 261 grade 2 learners throughout 14 schools in the Baglung area of Nepal. The 14 schools are split into 7 primary schools designated to receive Literacy Boost and 7 comparison primary schools receiving no intervention. The Literacy Boost program 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 concepts about print, letter awareness, 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. How comparable are learners in Literacy Boost schools versus comparison schools in terms of reading skills and background characteristics?
2. What can the baseline tell us about learners' emergent reading skills? What does this mean for Literacy Boost programming?

To investigate these questions, this report will first describe the research methods used; including sampling, measurement, and analysis. Next, in order to see if groups are statistically similar, the comparability of Literacy Boost and comparison schools will be examined through clustered t-tests. The comparability of Literacy Boost and comparison learners' scores for each of the emergent literacy skills, exploring learners' strengths and weaknesses in each skill will also be examined. The report will then examine what are the literacy skills that are already present in the sample, and what areas should Literacy Boost focus on.

II. Methods

Sampling

The sample for this baseline assessment encompasses 261 grade 2 learners, divided between 7 schools set to receive the Literacy Boost intervention (n of learners = 140) and 7 comparison schools (n of learners = 121).

At each of the Literacy Boost and comparison schools where data was collected, 20 children in grade 2 were sampled. Ten boys and ten girls were randomly selected where there were more than 20 learners in the classroom.

It is important to note that the data collection in Literacy Boost and comparison schools occurred four months apart. Literacy Boost students were assessed in September 2012, while comparison students were assessed in January 2013. It is essential that endline assessments take place in the same months as they did for each group in the baseline. Literacy Boost students should again be assessed in early June, while comparison students should again be assessed in late October. However even if they do, the delay in data collection at baseline means that differences between the groups at endline cannot be confidently attributed to the Literacy Boost intervention itself.

Measurement

All learners in the sample were asked about their background characteristics (age, household possessions, household building materials, etc.).

After collecting this background data, all learners were also given an emergent literacy test composed of five components administered through four sub-tests: concepts about print, letter awareness, single word recognition (reading of most used words), and reading fluency & accuracy (words per minute read correctly and total percentage of passage read correctly; both within the same sub-test).

Learners were also given an emergent numeracy assessment administered through five sub-tests: counting, identifying numbers, completing number patterns, comparing number size, and solving mathematical word problems using addition and subtraction.

Analysis

The critical purpose of this analysis is to test whether the Literacy Boost learners and the comparison 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 end-line, we can know how much Literacy Boost has, or has not, contributed to learners' accelerated reading development.

To test the comparability of learners in the Literacy Boost and comparison 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.

III. Children's Background

Literacy Boost and comparison students are on average 9 years old, nearly all have books in their households, and all speak Nepali at home. There are several statistically significant differences between Literacy Boost and comparison students. 74% of Literacy Boost students have completed an early childhood development (ECD) program and only 6% have repeated

grade I. However, only 36% of comparison students have completed an ECD program, but 24% have repeated grade I. In addition, far more comparison students reported working (88%) than Literacy Boost students (61%).

Although Literacy Boost students and comparison students have similar scores on an aggregate socio-economic index, differences on two types of possession stand out. Literacy Boost students were much more likely to report owning farmland (93%) than comparison students (35%) but were much less likely to report having a toilet in their house. In sum, the several significant differences between Literacy Boost and comparison students in their background characteristics may make it difficult to compare the learning gains of these two groups at endline.

Table 1:

Selected Background Characteristics	N	Literacy Boost	Comparison	Sig. Diff.
Completed ECD	256	74.3%	35.8%	*
Age	261	9.0	8.9	
Repeated Grade 1	259	6.5%	24.0%	*
Repeated Grade 2	260	2.2%	9.9%	
Separate Study Room	259	37.0%	28.1%	
Child Works	261	61.4%	88.4%	*
Radio	260	64.7%	66.9%	
Electricity	260	87.8%	87.6%	
Books	261	97.1%	99.2%	
Television	258	29.2%	33.1%	
Toilet	261	60.7%	87.6%	*
Farmland	260	92.8%	34.7%	***
Number of Possessions	261	3.3	3.1	

***p<.001, **p<.01, *p<.05

IV. Children’s Reading Skills

Concepts about Print

The first sub-test of the reading assessment consisted of 10 ‘concepts about print’ (CAP) questions. These questions concern familiarity with books – where to start, which way to read, what is a letter, what is a word, etc. Across the sample, learners correctly answered 71% of CAP questions, indicating a moderate to high level of familiarity with print. There were no significant differences between Literacy Boost students and comparison students.

Letter Identification

The second sub-test examined learners' letter awareness. Learners were shown a chart of 49 letters and asked to name the letter or pronounce the letter sound. On average, Literacy Boost and comparison learners correctly identified 78% (38 letters). There were no significant differences between Literacy Boost students and comparison students.

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 textbook.

On average, learners in Literacy Boost and comparison schools were able to read 58% of MUW. There is no statistically significant difference between the two groups, meaning that we cannot determine whether learners in Literacy Boost schools as a whole would be able to read more MUW than learners in comparison schools.

Fluency and Accuracy

Fluency (words per minute read correctly) and accuracy (percent of the passage read correctly) are presented together here because they are measured together in a single sub-test in which learners read a passage aloud. 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.

The average fluency rate for Literacy Boost students was 15 words per minute, and their accuracy was 50%. Comparison students had a similar fluency rate of 11 words per minute but a significantly lower accuracy rate of 22%. It is surprising that Literacy Boost and comparison students have very similar scores in all of the reading skill assessment besides accuracy, but have vastly different accuracy scores. Taking the accuracy data at face value, students in comparison schools may be too different from students in Literacy Boost schools to use as a comparison group at endline. At the very least, any impact analysis done at endline should control for these baseline differences.

V. Children's Numeracy Skills

Counting

To measure children's ability to count, children were given 19 stones and were asked to count to various numbers. The average child in a Literacy Boost school was able to successfully count to a given number in 85% percent of cases. Comparison children had a similarly high rate of success of 93%.

Recognizing Numbers

In this sub-test, children were shown cards with numbers on them and were asked to state the number aloud. Children in both Literacy Boost and comparison schools had lower scores on this sub-test than on the counting sub-test, indicating that even though most children know how to count, many are unfamiliar with printed numbers.

Completing Patterns of Numbers

Children were then given lists of numbers in ascending and descending order with some numbers missing and asked to state the missing numbers. Children had the lowest average scores on this sub-test, as it required them to both recognize numbers and fill in patterns. Literacy Boost children in the sample had lower average scores than comparison students in the sample, but the difference was not statistically significant. This means that one cannot determine whether Literacy Boost children and comparison children as a whole had different average scores.

Comparing Numbers

In this numeracy sub-test, children were shown two numbers and asked to state which number was higher. Students in Literacy Boost and comparison schools only answered correctly approximately 66% of the time. Since children should be able to randomly guess correctly 50% of the time, a success rate of 66% does not indicate that children had a strong understanding of which numbers are larger than others.

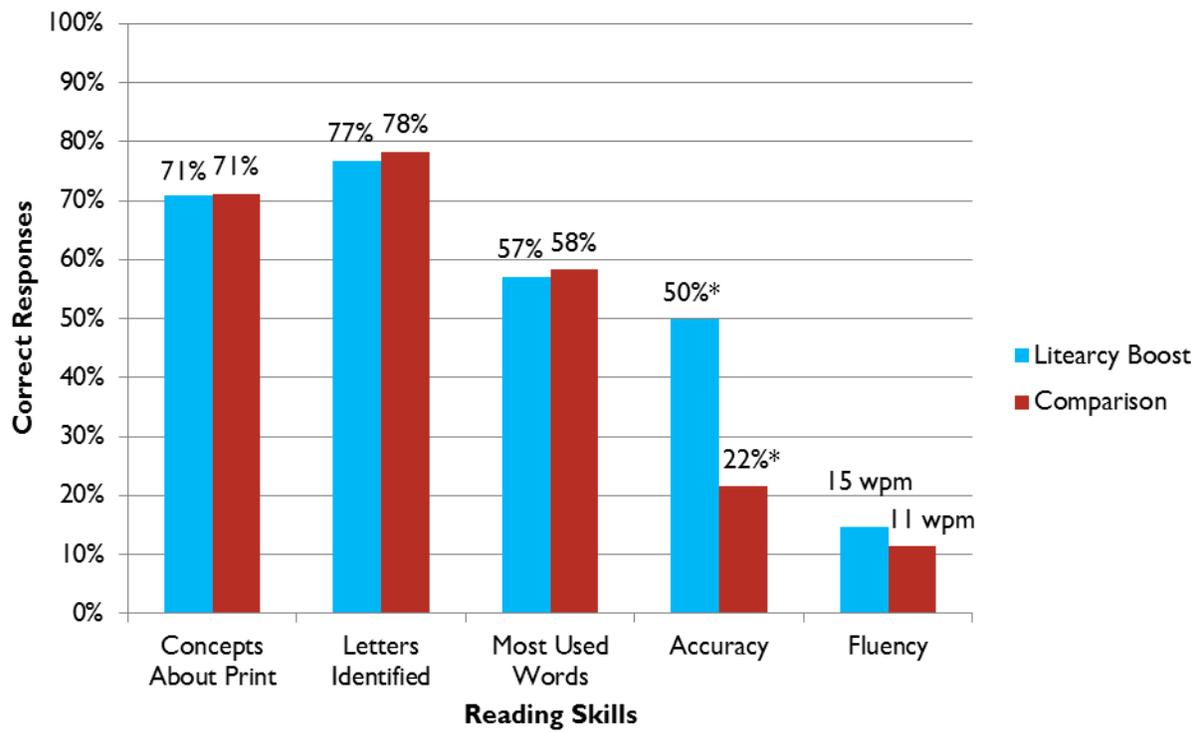
Mathematical Word Problems

Finally, children were asked simple word problems that required them to use addition and subtraction. Children in Literacy Boost and comparison schools were able to respond correctly slightly more than 50% of the problems, indicating some ability to perform basic addition and subtraction.

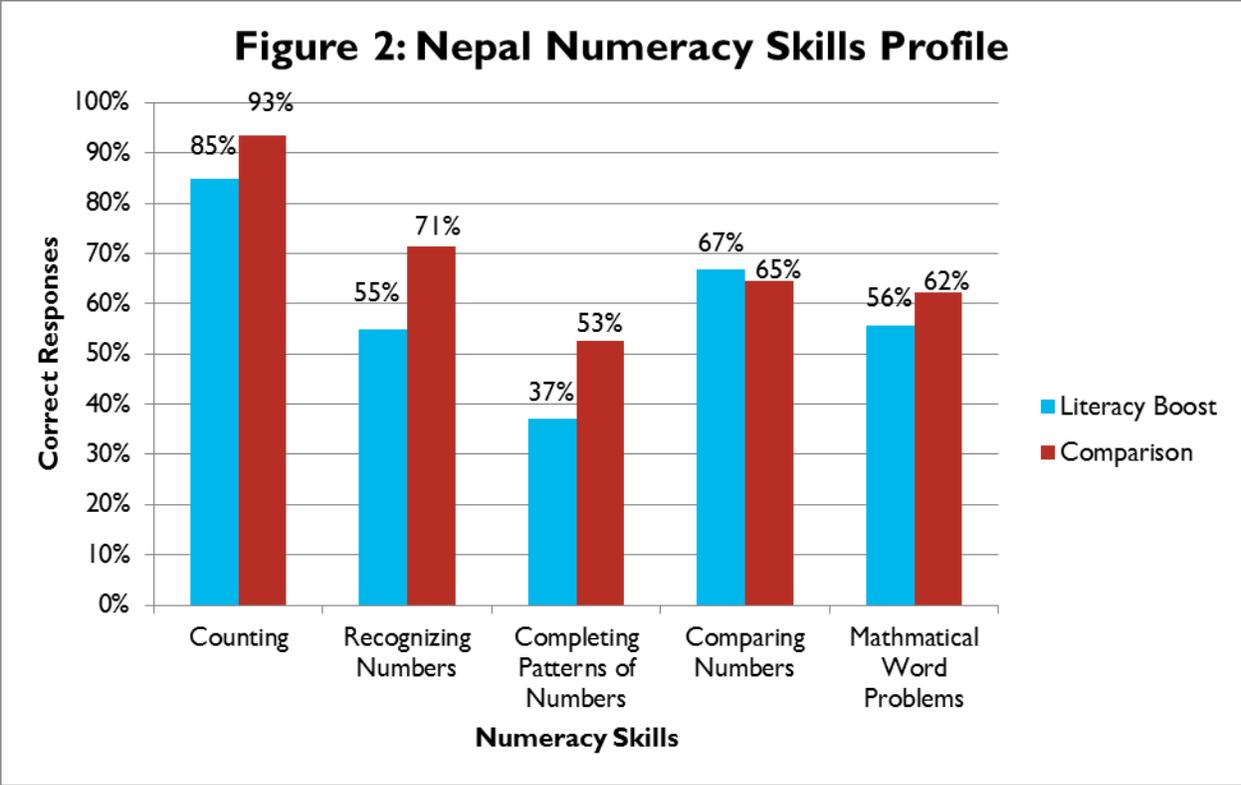
VI. Literacy Boost Reading Skills Profile

This section summarizes the reading and numeracy skills data in Literacy Boost and comparison schools.

Figure 1: Nepal Reading Skills Profile



*Statistically significant at $p < .05$



VII. Conclusion

Literacy Boost students in the Baglung area of Nepal completed ECD in higher proportions than comparison students, repeated grade I in lower proportions, and worked in lower proportions. Despite taking the emergent reading and numeracy assessments nearly five months earlier than comparison students, Literacy Boost students had similar average reading and numeracy scores in all skills with the exception of higher accuracy scores. The differences in several background characteristics and the length of time between the assessment of Literacy Boost and comparison students means that the comparison group may not provide an adequate counterfactual to the learning that occurs in Literacy Boost schools. To keep conditions as similar as possible, the endline assessments should take place at the same times of year: September in Literacy Boost schools and January in comparison schools.