IMPACT EVALUATION

LITERACY BOOST IN LAOS BOLIKHAMXAI DISTRICT

Save the Children®

Endline Report

January 2018

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Introduction

Overview

This report examines the results of a learner background survey and reading assessment conducted in October 2017 as the endline evaluation of a pilot Literacy Boost project in Bolikhamxai Province in Laos. Funded by Save the Children Korea, Literacy Boost aims to improve children's emergent literacy skills through teacher training, community reading activities, and age-appropriate local language material creation. In multiple contexts around the world, Literacy Boost has had a demonstrable impact on early grade reading skills, including 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 through an adaptable assessment of students' background characteristics, school and home learning environments, and emergent literacy skills (letter awareness, single-word reading, fluency, accuracy, and reading comprehension). Data from these assessments are used to contextualize program design, evaluate changes over time, and inform subsequent phase of Literacy Boost programming. The key research questions explored in this report include the following:

- Of the cross-section of students at endline, how comparable are background characteristics and reading skills among Literacy Boost learners versus comparison learners?
- What does the endline assessment tell us about students' reading skills? What does this mean for continuing Literacy Boost programming in this area?
    - Did the Literacy Boost program exhibit impact on learners' reading skills?
    - For which types of learners was impact the greatest/least?
- How does learners' development of reading skills over time vary by learner background and community literacy environment? What does this mean for targeting Literacy Boost's intervention components?

Country and Education Context

Lao People's Democratic Republic (PDR) is a landlocked country bordering Myanmar, Cambodia, China, Thailand, and Vietnam, with a land area of more than 236,000 km^2. About 6.8 million people live in its 18 provinces, with 25 percent below the age of 10. Sixty-three percent live in rural areas. The country is largely mountainous, with the most fertile land found along the Mekong plains. Lao is a diverse society with 49 ethnic groups and 85 living languages (Ethnologue 2015). Ethnic communities are categorized into four main groups: Lao-Tai (67 percent), Mon-Khmer (21 percent), Hmong-Lu Mien (8 percent), and Chinese-Tibetan (3 percent). The Lao-Tai represent the cultural 'norm' of the Lao nation and dominate political and educational structures. The Lao-Tai peoples largely reside in the most productive agricultural lands along the Mekong river valley and in the cities and towns, while the other ethnic groups inhabit the midlands and uplands. At least three ethnolinguistic families are found in every district in the northern part of the country.

Ethnicity is a key factor in children's learning. In Laos, a wide variation exists in terms of enrolment, attainment, and completion of primary education among different socioeconomic and ethnic groups. Children from non-Lao-Tai ethnic groups living in rural and remote areas have the lowest indicators of primary education participation and attainment in the country. The net attendance rate in remote rural areas is 70 percent, while in urban areas the rate is 95 percent. The disparity between male and female of primary completion rate is not significantly different (Female 77.0 vs Male 72.8 in 2014). However, there is a difference between completion rates at the sub-national level (provinces in particular). Nearly half of the provinces have a lower completion rate than the average for the country. In some areas, the difference between the province and country completion rate was noteworthy (14 percent points and above) (UNESCO 2015). The 2013 Save the Children Literacy Boost assessment found that ethnicity had the strongest correlation with early reading ability for children, with Hmong and Khmer children scoring significantly lower than Lao-Tai children in all skill areas (Save the Children 2013). Lao continues to be the official language of instruction in the country, although one third of the population does not speak the Lao language, as their home language is different and often aligned with their ethnic identity. One of the consequences of this is high early grade dropout. In 2017, Save the Children in Laos highlighted the issue of using mother tongue instruction in primary schools in two national level advocacy conferences and a learning outcomes situational analysis conducted by the Australian Council for Educational Research (ACER) with UNICEF and the

Research Institute for Educational Sciences (RIES). This analysis widely publicized the importance of teachers using mother tongue to build understanding among non-Lao speaking children in the early grades (UNICEF 2015).

Despite impressive gains towards improved educational access and participation for children in recent years, quality of education and learning outcome are still significant concerns in Laos. Five years of basic education became free and compulsory in 1996. The revised Education Law endorsed by the cabinet approved nine years of compulsory education up to grade nine. The country has achieved a 98 percent Primary Net Enrolment Rate (UNESCO 2015). In a 2012 *National Assessment of Student Learning Outcomes,* over 16 percent of grade three students were pre-functional in Lao language and 54% were pre-functional in mathematics (Ibid.). A 2012 early grades reading assessment (EGRA) conducted through the World Bank Education for All – Fast Track Initiative (EFA-FTI) found that 32 percent of grade three students were non-readers (unable to correctly read 10 words in 60 seconds), and non-Lao speakers were much more likely to be non-readers than proficient Lao speakers. Nationwide survival rate to grade five has reached only 78 percent by 2015 against a Millennium Development Goal (MDG) target of 95 percent (Ibid.). Save the Children conduced a reading assessment of grade two students in three provinces at baseline of three Literacy Boost (LB) projects and found similar results: fewer than 10 percent of grade two students can read with and without comprehension, so 90 percent of grade two students are non-readers.

The Literacy Boost Pilot Project

Funded by Save the Children Korea, the Literacy Boost project piloted the LB package in the remote mountainous district of Viengthong in Bolikhamxay province. This project sought to pilot the LB model and contextualize for the Laos context with children in primary schools from disadvantaged ethnic groups. In the mountains, communities are small and scattered, so the public services become expensive and inaccessible. Establishing a full-fledged primary school is not feasible as per government criteria, so many schools are incomplete primary schools with multi-grade classes and teacher shortages. Viengthong is ethnically diverse with 48 percent and 46 percent of children from Lao-Tai and Hmong ethnic groups, respectively. The remaining population is comprised of other ethnic minority groups. The district is considered one of the poorest and most educationally disadvantaged district (as categorised by the Government of Lao PDR, 2010). Repetition rate is high, especially grades 1-2 (26 percent and 11.2 percent respectively). Lower proportion of students moving from grade 1 to 2 and grade 2 to 3 with promotion rates of 72.6% and 86.7% respectively). With this backdrop, Save the Children implemented the LB package in 20 primary schools of Viengthong district with an aim to improve reading and Lao language skills for early grade students.

The overall goal of the project was to improve the reading and Lao language skills for early grade students, in rural Viengthong district, Bolikhamxay province. The four specific objectives include:

1. Increase access to appropriate reading and literacy learning materials;
2. Improve quality of literacy teaching in early grades (1-3);
3. Increase parental and community support for children's literacy learning;
4. Building the evidence base for literacy advocacy in the Lao PDR.

While the target group of the project was grade two students in 20 schools in Viengthong district, all children in grades 1-3 benefited from the interventions of providing adequate literacy and teaching-learning materials, classroom reading corners, better learning environment, improved classroom instruction by the teachers equipped through teacher training, participation in community reading activities, and increased parental engagement in their education. The project was designed to guide schools and communities to better support the literacy development of their children. Major activities were:

- Reading assessment (baseline and endline project assessment, comparing to control schools without LB interventions);
- Teacher training focusing on the five core reading skill areas, followed by coaching-monitoring visits;
- Community action to mobilize community for improved literacy results by promoting reading outside of the classroom through a range of engaging and effective activities like book banks, reading clubs and reading buddies to reinforce the school-based reading promotion;
- Literacy materials: Each school is provided with a book bank to ensure access for children to supplementary reading materials and to facilitate reading in school.

Methodology

Sampling

The baseline sample consisted of a random sample of 501 grade 3 students in 35 government primary schools in Bolikhamxai District taken in October 2015. Twenty of these schools were identified as intervention schools, while 15 were designated as comparison schools. Statistical tests of significance between comparison and Literacy Boost schools at baseline determined that the groups were similar on all measured background characteristics (students' socioeconomic status and home literacy environment, among others). In all schools where data was collected, a target sample size of 20 children in grade 3 was used. If there were fewer than 20 students in the classroom, all students were selected for assessment. If there was more than one classroom of grade 3 students at a given school, one classroom was randomly selected. Ten boys and ten girls were randomly selected where there were more than 20 learners in the classroom.

Table 1 displays the sample composition at baseline and endline for both condition groups. The endline sample consisted of a repeated cross-section sample of 473 grade 3 students in October 2017. The sample was taken in the same 35 government primary schools from the baseline in Bolikhamxai District using the same methodology outlined above.

Table 1: Sample composition (baseline and endline)

	Intervention Group		Comparison Group		Total
	Boys	Girls	Boys	Girls	
Baseline	139	154	111	97	501
Endline	148	131	96	98	473

Measurement

The reading assessment used in this study was developed using the Laotian national grade-three language arts curriculum, following the methodology of the adaptable Literacy Boost assessment tool, which has been shown to have strong validity and reliability in sites around the world (Dowd, Pisani, and Borisava 2016). **Table 2** outlines the dimensions and descriptions for each element of the assessment. The baseline and endline data collection phases assessed students on the following literacy skills: letter awareness, single-word recognition (reading of most-used words), word decoding (pronunciation of imaginary words), independent reading (ability to read at least five words correctly in a reading passage), reading fluency (words in the same reading passage read correctly per minute), reading accuracy (total percentage of the passage read correctly), and a set of comprehension questions linked to the same reading passage.

The reading test begins with the letter chart, presented on a grid, in which children are asked to identify as many letters (or Lao characters, in this case) as they can. Likewise, for the reading of most-used and decodable words, students are presented with grids of most-used words selected from the Laotian national grade-three language arts curriculum and imaginary words created by local primary education specialists. Finally, students are presented with a reading passage based on common words and grammatical/content structures from the language arts curriculum. If the student can read at least five words correctly in 30 seconds, he or she is classified as a reader and completes the passage. The assessor marks the words that the student misses as he or she reads, and this information is used to compute accuracy and fluency. Then the assessor asks the reading comprehension questions, which are based on the passage. If the student cannot read at least five words correctly in 30 seconds, the assessor then reads the passage to the student and asks comprehension questions as a measure of listening comprehension. The same sub-tests were administered at baseline and endline with a different reading passage that was equated at baseline.

The full assessment was piloted and revised in-country prior to the baseline and endline data collection phases. Data were collected by a team of trained enumerators. All instructions to students were given in Lao and students were assessed on Lao reading skills.

The Literacy Boost assessment also includes measures of the home literacy environment (HLE). Numerous studies point to the role of the HLE in influencing early reading skills – in particular, children's exposure to print at home and opportunities to engage in reading with other household members (Hess and Halloway 1984; Dowd et al 2016). As such, the Literacy Boost assessment includes measurement of the HLE, conceptualized as the presence of print materials at home and reading habits of family members at home, as reported by students.

The assessment also includes a series of background questions (gender, age, household assets, etc.) used to conduct equity analyses based on sociodemographic characteristics. Questions about students' participation in Literacy Boost community reading activities are also included.

Table 2: Literacy Boost assessment components

Dimension	Examples/Description
Student Background	**Examples**
General	Sex, age, language spoken at home, ethnicity, work/chores
School-related	Attended ECD, repeated grade
Socioeconomic status	Housing material, household size, household assets/possessions
Home Literacy Environment	**Description**
Reading materials at home	Materials present at home, types of materials
Reading habits at home	Presence and percentage of family members whom children see read, members who engage in literacy activities with children, whether children use reading skills at home, whether children help others with reading skills
Participation in Literacy Boost Activities	**Examples**
Self-reported participation in community reading activities	Use of the book bank, number of books borrowed from the book bank, number times the student read with the reading buddy last week, participation in the reading camps last week, participation in make-take session
Reading Outcomes	**Description**
Letter Identification	Number of letters/characters correctly identified • Baseline and endline: 33
Common Word Identification	Number of single words read correctly • Baseline and endline: 20
Imaginary Word Decoding	Number of single words read correctly • Baseline and endline: 20
Reading Passage	1. Ability to read independently: Ability to read at least 5 words correctly in 30 seconds 2. Fluency: Number of words in a short story read correctly in a minute 3. Accuracy: Percentage of words in a short story read correctly 4. Comprehension: Ten questions related to a short story read aloud by student or assessor

Data Analysis

This report presents a comparison of the outcomes for students assessed in schools that received Literacy Boost programming ("intervention group") and students in schools that did not receive Literacy Boost programming ("comparison group"). The results are shown after accounting for baseline values for both intervention and comparison group and the difference in means at endline using a quasi-experimental difference-in-difference analytical design. Results are regression-adjusted using multilevel regression models clustered at the school level to account for school-level characteristics and the hierarchical nature of the data (i.e., students nested within schools).

The results presented are average results across the intervention and comparison groups. Summary statistics will be used to analyze learners' performance in each of the reading sub-tests. Comparison of means through two-tailed t-test to assess the comparability of the intervention and comparison groups at baseline and endline. Finally, this report will utilize multilevel regression models to explore relationships between literacy skills and student background characteristics and home literacy environment. Where the results benefit from visual representations of sub-sets of the dataset, charts and graphs illustrate the findings to further support the analysis. Finally, this report also investigates the impact of Literacy Boost on students.

Results

In this report, we report results as the difference between the average student in intervention and comparison schools. In the tables and charts of results on the following pages, we report statistical significance with asterisks, with three asterisks (***) indicating a p-value of less than 0.1 percent, two asterisks (**) indicating a p-value of less than 1 percent, one asterisk (*) indicating a p-value of less than 5 percent, and an accent mark (~) indicating a p-value of less than 10 percent. The higher the p-value, the less confident we are that the measured estimate reflects the true impact – in other words that the difference is not due just to chance. Results with a p-value of more than 10 percent are not considered to be statistically significant.

Endline Sample Characteristics

Student & Household Characteristics

Table 3 displays the proportions of the sample by student background characteristics, condition, and phase. At endline, the average age of Literacy Boost students was 11.94 years of age, while for the comparison group it was 13.54. At baseline, the average student age was 8.74. While these are substantively different average ages, this does not represent a statistically significant difference in age. Similarly, the sex composition of both condition groups sampled at baseline and endline are statistically the same.

On average, 70 percent of students had attended an Early Childhood Development (ECD) program before enrolling in primary school. While there was no difference at endline between the condition groups, this does differ at a statistically significant level from the baseline population in which only 43 percent of students had attended an ECD program. Grade repeaters were also statistically similar at endline, but differed between baseline and endline for grade one and grade three repeaters. The home language composition of the assessed students differed at a statistically significant level between the condition groups at endline, with greater proportions of students speaking Mein in the comparison group and fewer speaking languages from the Laotai family. However, these differences are somewhat moderated when comparing total proportions at baseline and endline – there is only a small significant difference in the proportion of Mein speakers and none for Laotai. There was a much greater proportion of Khmu speakers at baseline.

We have attempted to account for these differences by controlling for key background characteristics in the regression models that follow. While this may address differences on characteristics that were observed at baseline and endline, it is possible that there are unobserved characteristics that are not being controlled for, thus introducing bias in the findings.

Table 3: Student background characteristics at endline

	Intervention Group	Comparison Group	Total (endline)	Total (baseline)

Female (%)	47%	51%	48%	50%
Age (years)	11.94	13.54	12.60	8.74
Attended ECD	70%	71%	70%	43%***
Repeated Grade 1	17%	23%	19%	28%**
Repeated Grade 2	16%	18%	17%	17%
Repeated Grade 3	12%	17%	14%	4%***
Home language: Mein	47%	70%***	56%	50%*
Home language: Khmu	9%	2%***	6%	13%***
Home language: Laotai	46%	26%***	38%	40%
SES: Sum of 11 household assets	6.20	6.09	6.16	5.61***
Total observations	279	194	473	501

Differences significant at p<0.001(***), p<0.01 (**), p<0.05 (*) and p<0.10 (~)

Home Literacy Environment

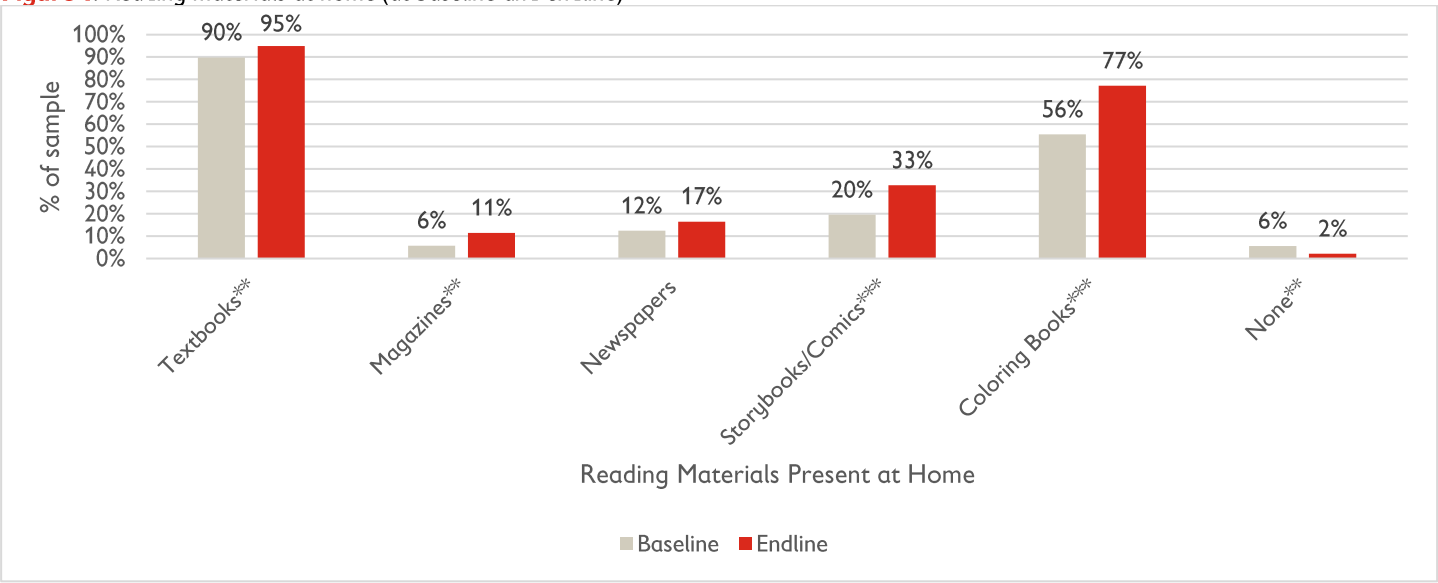
As described above, an important aspect of reading development concerns the HLE. The HLE domain includes measurement of materials in the home and how those materials are used to engage the child in reading and learning. Hess and Holloway (1984) identified five dimensions of the home literacy environment that are theoretically related to reading achievement in children. The first is value is 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. 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.

Many Literacy Boost activities center 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. This section describes the different types of printed materials that students had at home at baseline and endline and the different types of literacy-supporting activities they are involved in with their household members.

Reading Materials at Home

Figure 1 illustrates the different types of printed materials available in the home as reported by students at baseline and endline. At endline, 98 percent of children reported having at least one kind of reading material at home compared to 94 percent at baseline. A greater proportion of these students at endline reported having child-friendly reading materials such as storybooks or comics and coloring books. Children also reported having other types of reading materials such as textbooks and magazines at home in higher proportions at endline compared to baseline. These significant differences between endline and baseline do not suggest a causal relationship with the Literacy Boost intervention. Indeed, when comparing reported reading material presence at endline between intervention and comparison conditions, there are not any significant differences, confirming a parallel increasing trend in reading material presence across the target district.

Figure 1: Reading materials at home (at baseline and endline)

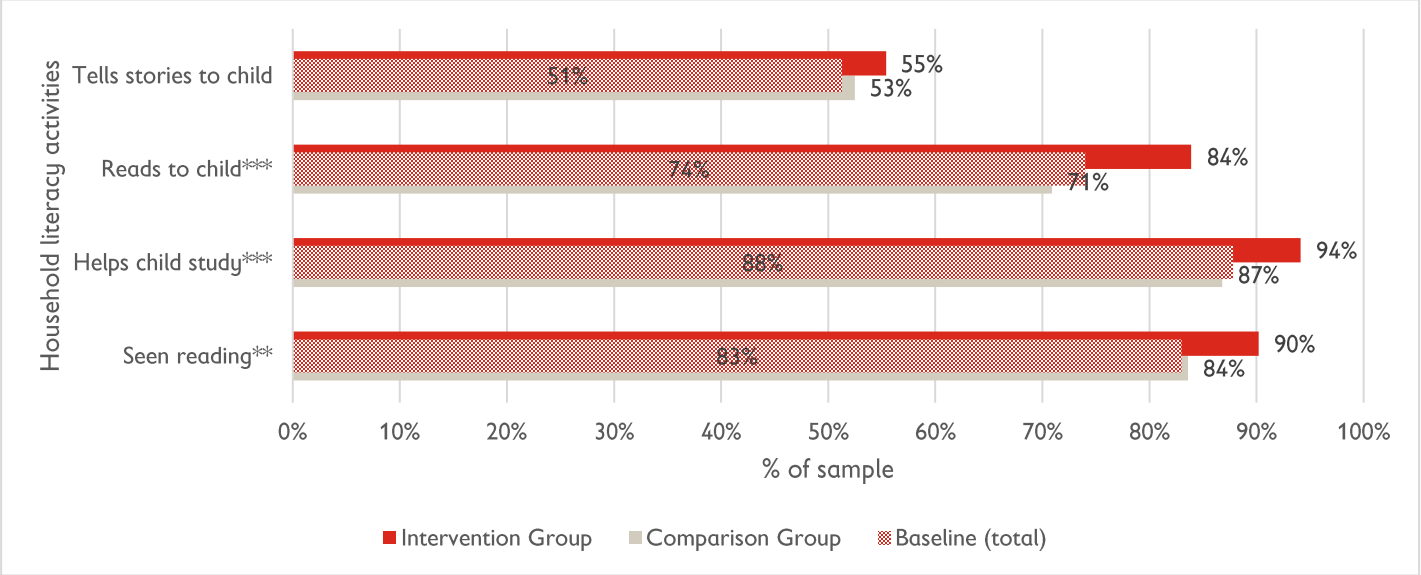


Differences significant at p<0.001(***), p<0.01 (**), p<0.05 (*) and p<0.10 (~)

Household Literacy Activities

Figure 2 illustrates the household reading habits, as reported by students, for both condition groups at endline and the total baseline sample. At endline, students in the intervention group reported greater engagement with household members through reading and help with studying when compared with the comparison group. Students in communities that had received Literacy Boost also reported seeing a member of the household reading in greater proportions. The reported reading habits for the intervention group increased from the baseline values at which the comparison group largely remained. There was no statistically significant difference between condition groups for telling stories to the child, which consistently remained the lowest reported activity across condition group and phase.

Figure 2: Household reading habits (at baseline (by total) and endline (by condition group))



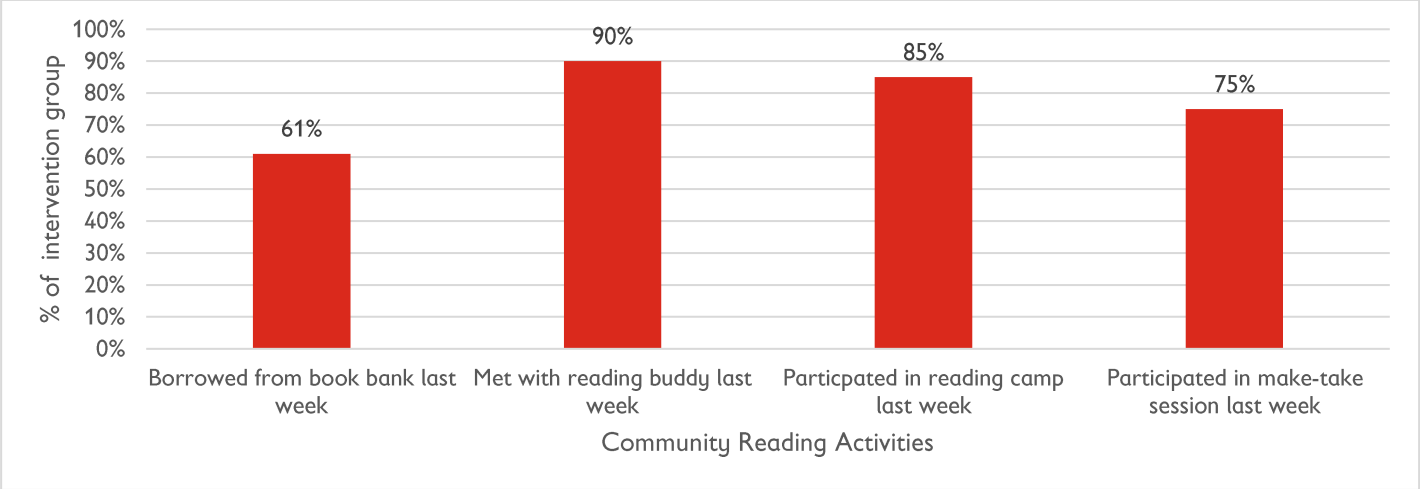
Differences significant at p<0.001(***), p<0.01 (**), p<0.05 (*) and p<0.10 (~), for intervention and comparison groups

Participation in Community Reading Activities

Students in intervention schools were asked about their participation in the following community reading activities in order to understand dosage of the intervention among learners: borrowing a book from a book bank, meeting with a reading buddy, attending a reading camp, and participating in a 'make-take' session. These activities represent the core of the community action component of Literacy Boost.

Figure 3 illustrates the proportional participation in Literacy Boost activities, as reported by students in the intervention group at endline. The activities with greatest participation include meeting with a reading buddy, participating in a reading camp, and participating in a make-take session. These represent the key activities associated with reading camps, which were conducted on a weekly basis in the target district. The book bank was a classroom-level activity that relied on self-motivated students to borrow books, possibly leading to the lower participation in comparison with the organized activities.

Figure 3: Student reported participation in Literacy Boost activities



Impact Analysis

The previous analyses explored relative differences between condition groups and phases while employing t-tests to test for statistical significance of those differences. While this provides an understanding of how groups differ between phases and any changes over time, it does not allow us to derive conclusions about the impact of the Literacy Boost intervention. In this section, we fit multivariate regression models controlling for key background characteristics clustered at the school level to estimate the impact of the program on student literacy outcomes. These literacy outcomes include: letter identification, most-used word pronunciation, decodable word pronunciation, reading fluency, reading accuracy, reading comprehension, and the proportion of the sample that were designated as readers.

Table 4 outlines the effect sizes (or estimated impact of the intervention) in both standardized and absolute values. This report will review the results from the standardized effect size column. The analysis shows impact of the program for two lower order literacy skills: letter identification and decoding words. At 0.37 and 0.44, respectively, these are small effect sizes, but suggest measureable impact of Literacy Boost on foundational literacy skills for the average student.

In addition to overall impact, we explored whether there might be differential treatment effects based on home language (e.g., was the treatment effect stronger for Laotai relative to those who speak Mein at home). We found no such differences between these two groups that were both well-populated in both the intervention and comparison groups at baseline and endline. A third language group, Khmu, was not well-populated in the comparison group, so differential treatment effects were not explored for this language group relative to the other language groups. Similarly, differential treatment effects were explored for boys relative to girls and students from households one standard deviation above the mean of SES versus those at the mean of SES. We found no statistically significant differential treatment effects for boys relative to girls or SES.

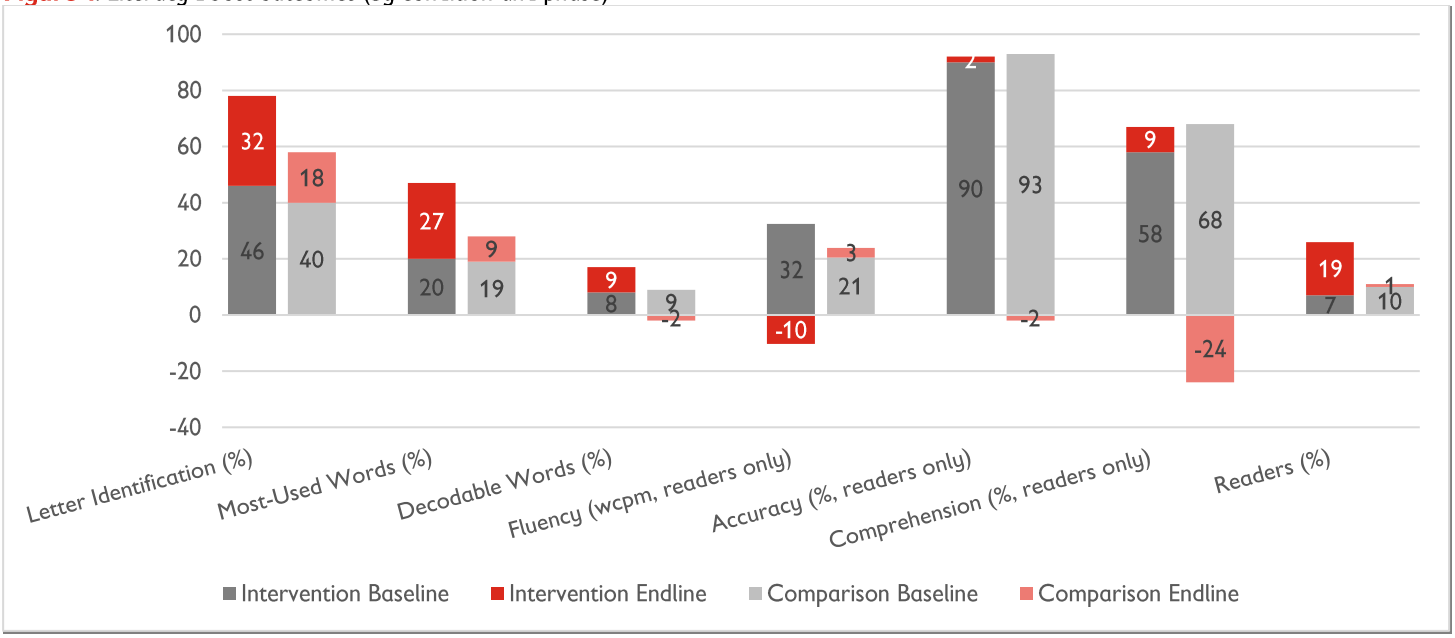
Table 4: Literacy Boost impact by standardized effect size and absolute effect size

Literacy Outcomes	Literacy Boost Effect Size (standardized)	Significance	Literacy Boost Effect Size (absolute)	Significance
% Letters	0.37	*	14.32 percentage points	*
% Most-Used Words	0.37	None	17.57 percentage points	~
% Decodable Words	0.44	**	10.77 percentage points	*
Reading fluency (readers)	-0.41	None	-13.60 words per minute	None
Reading accuracy (readers)	0.60	None	3.99 percentage points	None
Reading comprehension (readers)	0.59	None	14.94 percentage points	None
% Readers	0.34	None	17.43 percentage points	*

Differences significant at p<0.001(***), p<0.01 (**), p<0.05 (*) and p<0.10 (~), standardized effect sizes and significance reported in narrative

Figure 4 below illustrates the impact findings graphically by showing the mean score for each literacy outcome by condition and phase. The endline scores represent the change in score from baseline. For example, for letter identification, the mean score for students in the intervention group at baseline was 46 percent. At endline, the mean score was 78 percent (46 percent + 32 percent). The chart clearly shows relative differences between the condition groups for the lower order literacy outcomes with very little relative difference for the higher order outcomes associated with the reading passage sub-test. The negative scores we observe at endline for both condition groups likely reflects that the reading passages used at baseline and endline were not sufficiently equated and, thus, there is some measurement bias in these estimates related to comparisons of the passages. Another likely explanation for the negative score, at least for fluency, is that there was a larger number of new, hesitant readers among students in the intervention group, lowering the mean at endline. Ultimately, this reflects the shift in readings skills and confidence from emergent to beginner levels, as reflected in the next section.

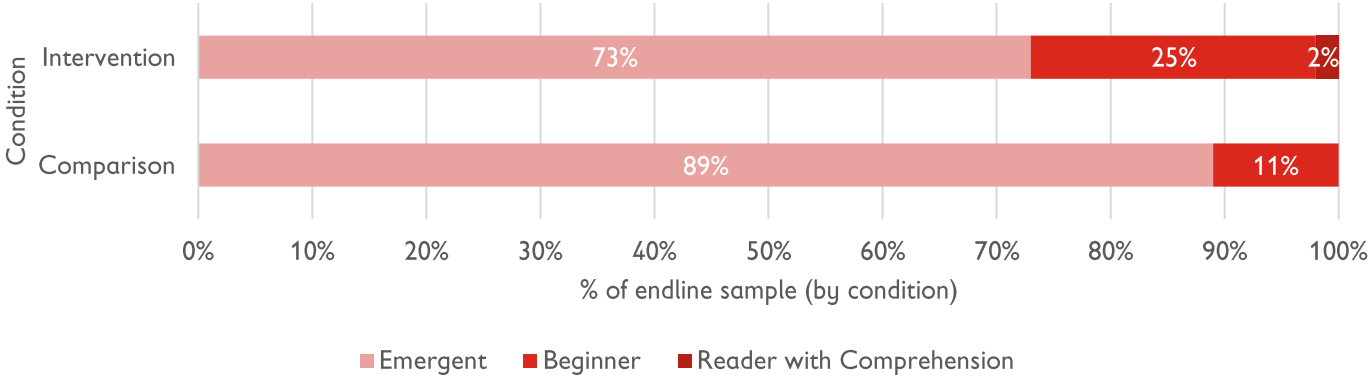
Figure 4: Literacy Boost outcomes (by condition and phase)



Readers with Comprehension

The ultimate goal of Literacy Boost is to ensure all children can read with comprehension. Literacy Boost programming classifies students based on the following skills: emergent reader (students not tested on the reading passage – non-readers), beginner reader (students who were tested on the reading passage, but who answered less than 75 percent of the reading comprehension questions correctly, and reader with comprehension (students who were tested on the reading passage who could answer at least 75 percent of the reading comprehension questions correctly). **Figure 5** provides a snapshot of how many students are achieving the overall goal of reading comprehension at endline. At a marginally significant level (p-value: 0.068), the Literacy Boost program has been successful in moving students from the "emergent" reader category into the "beginner" reader category in greater proportions than students in schools that did not receive Literacy Boost.

Figure 5: Percent of sample reading with comprehension at endline



Equity Analysis

The final analysis uses the same multivariate regression model from the impact analysis above to explore predictors of literacy outcomes from baseline to endline (see **Appendix A** for full regression output).

Sex

The strongest and most consistent predictor of outcomes is sex. Controlling for age, SES, HLE, language spoken at home, grade repetition, enrollment in an ECD program, and participation in Literacy Boost, **girls outperformed boys in four of the six outcomes measured**.

Language

While language was a significant predictor of literacy outcomes at baseline, **Lao speakers only outperformed other language groups on the letter identification sub-test**. This is likely explained by unobserved differences between the condition groups at baseline and endline that cannot be accounted for in this analysis.

Socioeconomic Status

Higher SES status, as measured by the standardized measure of number of household assets in the home is, surprisingly, **negatively associated with reading outcomes, such as fluency and accuracy**. This is surprising given that a higher socio-economic status is typically associated with other factors that influence children's educational outcomes such as literacy and educational level of parents or income.

Grade Repeaters

Repeating at least one grade is a significant predictor of lower foundational skills as measured on the Most Used Words and Decodable Words sub-tests.

Conclusion

Save the Children implemented the Literacy Boost pilot project in 20 government schools in Bolikhamxay Province, Laos. Consisting of teacher and administrator training, provision of reading materials to classrooms, and community reading activities, this program takes a community-centered approach to literacy skill development by focusing on skill development both inside and outside the classroom.

Using a repeated cross section research design, this impact evaluation measured literacy outcomes for different random samples of students in 20 intervention and 15 comparison schools at baseline and endline two years later. All students in the interventions schools had benefitted from two years of the Literacy Boost program.

In this evaluation, we have found that Literacy Boost has had a measurable impact on some foundational skills, such as letter identification and decoding words. With effect sizes of 0.37 and 0.44, respectively, this impact is small, but suggests that the average student has benefited from the Literacy Boost program when compared with counterparts in schools that did not receive the program. Most importantly, Literacy Boost has also been successful in moving students from emergent reading levels to basic reading levels – a key objective of the program.

However, even with the additional strong focus on literacy pedagogy through the program, and Literacy Boost's clearly demonstrated potential for impact, too many children in rural communities are still unable to achieve reading skills at the level anticipated by the curriculum. Overall, students are scoring far below 50 percent on even foundational skills sub-tests and only 21 percent can read at least five words in 30 seconds at the third grade level.

There are opportunities for leveraging success and identifying key gaps, however. The strongest and most consistent predictor of reading skills is sex – with girls outperforming boys in four of the six assessed literacy outcomes. At baseline, language was also identified as a key predictor, with non-Lao speakers falling behind their Lao-speaking peers. While the findings for language are inconclusive at endline, the ways in which language, sex, and the current curriculum interact will have important implications for future programming.

Program Implications

The LB pilot project was the foundation of LB in Laos, so it was a learning hub for all other subsequent LB projects in Laos in other provinces. This project also created an opportunity to allow mistakes during the implementation process and document the learning to modify strategies and interventions in other LB projects appropriate for the Lao context. The government education officials are now trained on the package, which will create sustainable impact after the project ends. As the LB package is usable within the existing curriculum and practices without making substantial changes in the system, it was easy for the teachers, district, and provincial education officials to use the LB package to deliver their present curriculum more effectively. The LB pilot project worked as a building block for Save the Children Laos. Henceforth, the full LB package has been implemented by the LEARN project funded by Dubai Cares. The large-scale BEQUAL program of the Ministry of Education and Sports (MOES) has also been implementing part of the LB package in other provinces and Save the Children started another large project with Catholic Relief Services (CRS) with funding support from the United States Department of Agriculture (USDA) to cover six districts of another disadvantaged province. Government officials and new staff of those projects have made learning visits to this pilot project before their implementation. This project was a motivator and demonstration center for others to see the work on the ground and learn from the real life practices outside of the classroom-based trainings.

All 20 schools developed their sustainability plan for how to continue some selected activities of LB after the project ends. Documentation from the phase-out meeting with government at the provincial and national levels show that government partners expressed commitment to continue the activities as per the sustainability plan at the community level. The greatest benefit of this pilot is that other LB projects are able to use the contextualised and translated modules, manuals, guidelines and tools. The first ever impact evaluation of LB in Laos will increase opportunities for collaboration with other quality education providers in the country. For example, World Vision has already requested Save the Children to use LB in their working provinces in their upcoming strategic phase. However, the impact of LB in this pilot project suggests further research is needed to investigate further some areas such as reading with comprehension and operational efficiency.

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Appendices

Appendix A: Regression Output

VARIABLES	% Letters	% MUW	% Decodable Words	Fluency (wcpm)	Accuracy (%)	Reading Comprehension (%)	% Readers
Literacy Boost	0.373*	0.370	0.444**	-0.408	0.596	0.587	0.335
	(0.211)	(0.262)	(0.206)	(0.846)	(0.409)	(0.702)	(0.240)
Student is female	-0.0260	0.109*	0.0608	0.327*	0.541**	0.409**	0.0924*
	(0.0612)	(0.0601)	(0.0610)	(0.178)	(0.227)	(0.177)	(0.0522)
Age	-0.00195***	-0.000511	-1.45e-06	-0.0410	0.102	0.120*	-0.000169
	(0.000404)	(0.000321)	(0.000135)	(0.0828)	(0.0818)	(0.0601)	(0.000252)
Sum of HH possessions (standardized)	0.0348	0.0159	0.0129	-0.215*	-0.154*	-0.121	0.0169
	(0.0323)	(0.0292)	(0.0343)	(0.119)	(0.0847)	(0.0957)	(0.0307)
Sum of reading materials (standardized)	0.0202	-0.0217	-0.0366	-0.122	-0.0287	0.107	0.0232
	(0.0249)	(0.0237)	(0.0394)	(0.100)	(0.116)	(0.117)	(0.0289)
Speaks Mein at home	-0.310**	-0.199	-0.0668	-0.186	0.621	-0.396	-0.156
	(0.123)	(0.153)	(0.113)	(0.494)	(0.475)	(0.514)	(0.165)
Speaks Khmu at home	0.190	-0.0333	0.0524	0.0989	0.885**	-0.452	-0.0259
	(0.118)	(0.178)	(0.120)	(0.550)	(0.412)	(0.560)	(0.173)
Speaks Laotai at home	0.177*	-0.0256	-0.0246	-0.0457	0.224	0.676	0.0468
	(0.102)	(0.126)	(0.0943)	(0.492)	(0.325)	(0.554)	(0.142)
Speaks Other at home	-0.116	0.0680	0.0133	0.777***	0.302	-0.153	-0.199
	(0.299)	(0.187)	(0.179)	(0.210)	(0.391)	(0.319)	(0.160)
Ever repeated a grade	-0.100	-0.221***	-0.102*	-0.0737	-0.146	-0.0300	-0.0837
	(0.0627)	(0.0680)	(0.0592)	(0.148)	(0.285)	(0.199)	(0.0679)
Attended ECD	0.0225	-0.0983	-0.143*	0.0999	0.0891	0.0372	-0.223**
	(0.0724)	(0.0728)	(0.0720)	(0.312)	(0.293)	(0.210)	(0.0836)
Constant	-0.185**	-0.0409	0.0668	-0.599	0.319	0.0827	0.0272
	(0.0822)	(0.136)	(0.0978)	(0.510)	(0.379)	(0.559)	(0.170)
Observations	965	965	965	133	133	133	965
R-squared	0.395	0.300	0.166	0.262	0.345	0.384	0.165

Differences significant at p<0.001(***), p<0.01 (**), p<0.05 (*) and p<0.10 (~)