

**Evaluation of the *Leer Juntos, Aprender Juntos* Early Grade Reading Intervention in Peru  
and Guatemala**

Deficits related to learning and access to education for poor and marginalized populations persist in the Latin America and Caribbean (LAC) region, particularly for groups whose mother tongue is not the same as the societal or official language of their country or region (Gove and Cvelich 2011; Kim et al. 2016). Studies have demonstrated that programs involving instructional practices and other supports in children's mother tongue improve academic outcomes in some developing countries (Friedlander and Goldenberg 2016; Piper et al. 2016; Dowd et al. 2017). However, such comprehensive reading programs have not been rigorously evaluated in the LAC region, and their cost-effectiveness is unknown.

To address this need for rigorous evidence, we evaluated *Leer Juntos, Aprender Juntos* (Read Together, Learn Together), an early-grade reading instruction program for LAC communities with linguistically diverse populations. The program is an adaptation of Save the Children's Literacy Boost model, which includes teacher training and community involvement components. We conducted separate but parallel impact evaluations of the *Leer Juntos, Aprender Juntos* program for Peru and Guatemala, funded by the U.S. Agency for International Development.

The evaluation aimed to answer two research questions for each country:

1. What is the impact of the community action component of the program on reading skills in 3rd grade and other outcomes relative to an intervention that does not have the community action component?
2. What is the impact of the teacher training and support component of the program on reading skills in 3rd grade and other outcomes relative to prevailing practice?

In addition to examining the separate effects of each of each intervention component, the evaluation sought to calculate the costs of producing those effects.

### **Setting and participants.**

In Peru, we conducted the study in 145 schools in the Apurímac department, the Andean region of southern-central Peru. The the most widely spoken language in Apurímac is Quechua. In Guatemala, the study was implemented in 150 schools in El Quiché region, located northwest of the country's capital, Guatemala City. The population in the Quiché Department is predominantly of Mayan descent and the most widely spoken language is K'iche.

We recruited about 10 students in 1st grade from each school and followed up with these students through the 3rd grade. The analytic sample included 144 schools and 1,022 students in Peru, and 150 schools and 1,338 students in Guatemala (Table 1).

### **Intervention.**

The *Leer Juntos, Aprender Juntos* program aims to (1) strengthen students' foundational reading skills in mother tongue and Spanish, and (2) strengthen parent and community involvement in building children's reading abilities in their mother tongue and opportunities to practice. The in-school component included teacher training and coaching to help students master core reading skills. The community component included activities that aimed at creating

and providing context-relevant reading materials in mother tongue and promoting reading engagement and a culture of literacy.

Program implementation started in May 2013 and ended in December 2015 in the two countries.

### **Research design.**

We randomly assigned schools to one of three intervention groups: (1) Group A, receiving the teacher training and coaching and the community action components; (2) Group B, receiving only the teacher training and coaching component; and (3) Group C (or prevailing practice group), receiving the prevailing early-grade reading instruction approach currently being implemented in each country in the region and districts where the study took place (Figure 1). Because Save the Children planned to roll out the program in phases, we also carried out the study in two phases (Phases I and II). The design used stratified random assignment, in which we first grouped schools with similar characteristics (within phase) into strata and randomly assigned to the three groups within these strata.

All the schools included in the study were subject to national-level programs to promote literacy among multilingual populations and also to local decisions about education priorities and practices. Therefore, with this impact evaluation we sought to assess the effects of the program above and beyond the coexisting efforts in all three study groups.

### **Data collection and analysis.**

We collected data at baseline (2013 Phase I; 2014 Phase II), midline (2014 Phase I; 2015 Phase II), and endline (2015 Phase I; 2016 Phase II). In all data collections, we observed schools and classrooms and interviewed teachers. We administered individual assessments to children in the baseline and endline (reading skills in Spanish) data collections. At the midline, we observed schools and classrooms, interviewed teachers, and conducted a household survey.

We examined differences between study groups in measures at the school- and at the child-level with regression analyses that accounted for the design of the random assignment of schools, the data cohort, and the clustering of children within schools. For analyses of children's reading skills measures in the 3rd grade, our strategy to estimate program impacts followed an intent-to-treat approach. These analyses controlled for several variables at the child, household, and school levels measured at baseline.

To estimate how much it costed for the program to generate effects, we used a combination of expenditure data and program implementation records supplied by Save the Children.

### **Findings.**

The program had favorable impacts in the availability of reading instruction materials in the 3rd grade classrooms in Peru and Guatemala (Figures 2 and 3). In Guatemala, those effects did not translate into impacts of any of the intervention components on students' reading skills, but in Peru, the teacher training and coaching component of the program had favorable impacts on (1) the accuracy with which students read pseudo-words and read a short passage with fluency,

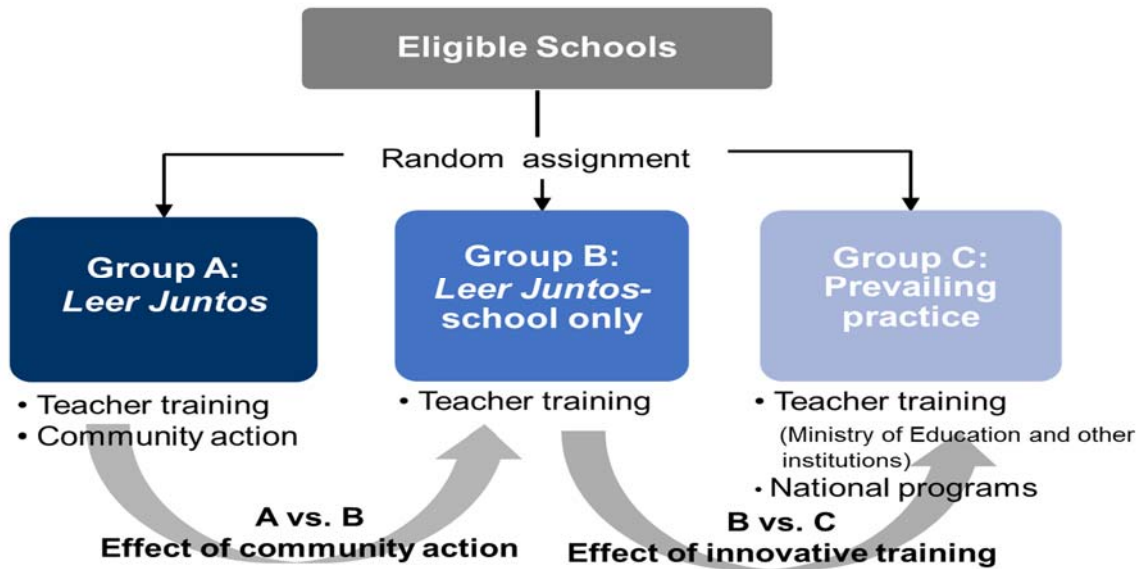
and (2) the percentage of children who are able to read a simple passage and answer at least one question correctly—an indication of basic reading comprehension (Table 2). The sizes of some of the impacts were substantial (Table 3). All of these impacts are being driven by improvements in girls' reading skills (Table 4). We estimate that three years of providing the two program components cost \$527 per child, and the cost of providing the in-school component only is \$434 per child.

## References

- Dowd, A. J., E. Friedlander, C. Jonason, J. Leer, L. Z. Sorensen, J. Guajardo, N. D'sa, C. Pava, and L. Pisani. "Lifewide Learning for Early Reading Development." In A. Gove, A. Mora, y P. McCardle, Editors, *Progress toward a literate world: Early reading interventions in low-income countries, New Directions for Child and Adolescent Development*, 155, 2017, pp. 31-49.
- Friedlander, Elliott, and Claude Goldenberg (eds.). "Literacy Boost in Rwanda: Impact Evaluation of a 2-year Randomized Control Trial." Stanford, CA: Stanford University, 2016.
- Gove, A., and P. Cvelich. "Early Reading: Igniting Education for All: A Report by the Early Grade Learning Community of Practice, Revised Edition." Research Triangle Park, NC: Research Triangle Institute, 2011.
- Kim, Y.-S. G., H. N. Boyle, S. S. Zuikowski, and P. Nakamura. "Landscape Report on Early Grade Literacy." Washington, DC: U.S. Agency for International Development, 2016.
- Piper, Benjamin, Stephanie S. Zuikowski, and Salome Ong'ele. "Implementing Mother Tongue Instruction in the Real World: Results from a Medium Scale Randomized Controlled Trial in Kenya." *Comparative Education Review*, vol. 60, no. 4, November 2016, pp. 776–807.

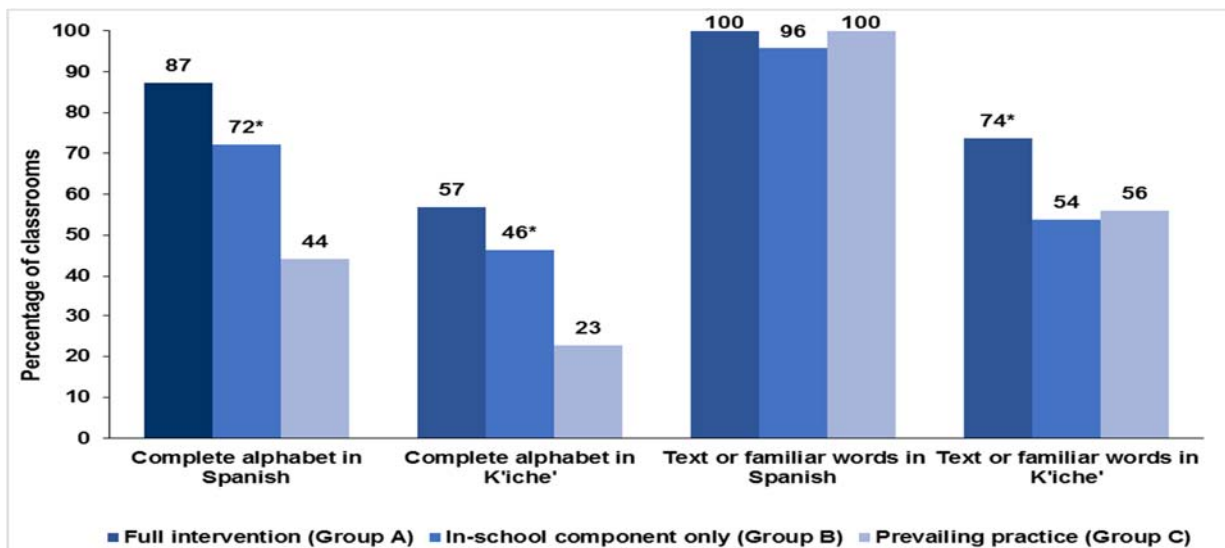
## Figures

Figure 1. *Leer Juntos, Aprender Juntos* evaluation design



Source: *Leer Juntos, Aprender Juntos* evaluation plan (Glazerman et al. 2013)

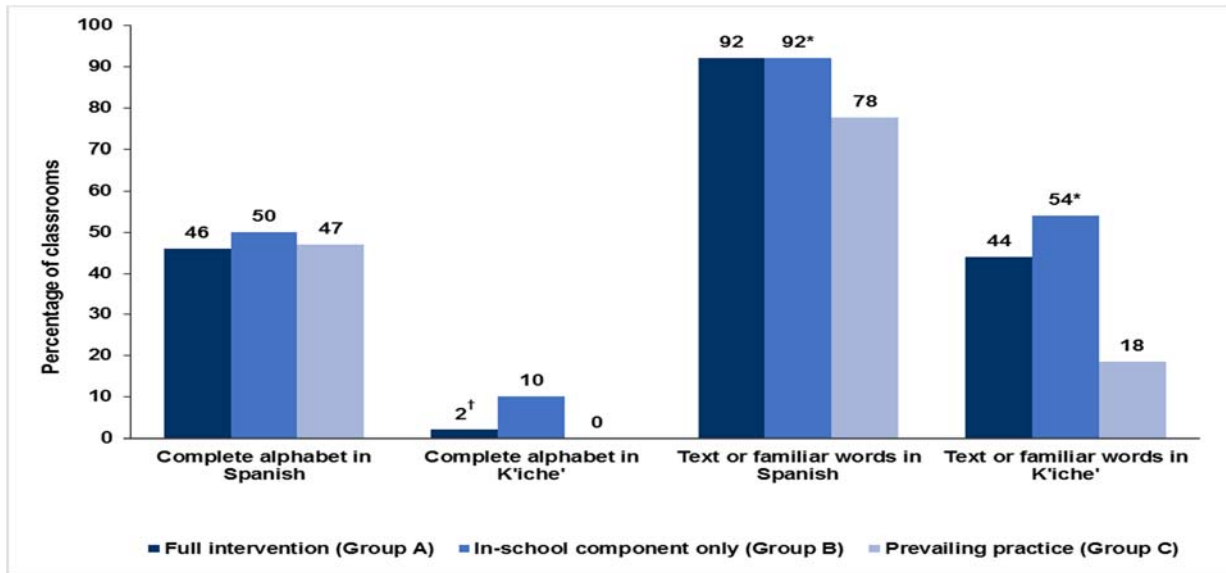
Figure 2. Classrooms in Peru with reading instruction materials visible to students



Source: *Leer Juntos, Aprender Juntos* Classroom Observation Form—Final Follow-ups 2015 and 2016.

\* Difference in means between Groups B and C is statistically significant at the 0.05 level

**Figure 3. Classrooms in Guatemala with reading instruction materials visible to students**



Source: *Leer Juntos, Aprender Juntos* Classroom Observation Form—Final Follow-ups 2015 and 2016.

† Difference in means between Groups A and B is statistically significant at the 0.05 level

\* Difference in means between Groups B and C is statistically significant at the 0.05 level

## Tables

Table 1. Number of schools and students in the study

Schools and students	Peru	Guatemala
Number of schools were randomized into study groups	145	150
Number of schools that completed endline data collection	144	150
Number of students who were in schools at random assignment	1,074	1,480
Number of students who completed endline assessments	1,022	1,338

Source: *Leer Juntos, Aprender Juntos* School Infrastructure Observation, Classroom Observation, Teacher Survey, Household Survey, Emergent Literacy Skills Assessment, and Reading Skills Assessment—Baseline 2013 and 2014, Midline 2014 and 2015, and Final Follow-ups 2015 and 2016.



Table 2. Impacts on the literacy outcomes of students in Peru and Guatemala

Literacy outcome	Leer Juntos (A)	Leer Juntos-school only (B)	Prevailing practice (C)	Impact of community action (A–B)	Impact of in-school component (B–C)
<b>Peru</b>					
<b>Decoding</b>					
Number of pseudo-words read correctly in one minute (of 50)	23.3	22.6	21.0	0.7 (0.520)	1.6 (0.146)
Accuracy score (percentage)	69.6	69.7	64.3	-0.1 (0.973)	5.4* (0.039)
<b>Fluency</b>					
Number of words read correctly in one minute (of 154)	42.0	40.9	38.6	1.1 (0.629)	2.3 (0.321)
Accuracy score (percentage)	73.9	78.0	71.8	-4.1 (0.079)	7.2* (0.027)
<b>Reading comprehension</b>					
Number of questions answered correctly (of 15)	4.8	4.8	4.3	0.0 (0.879)	0.5 (0.082)
Percentage of girls who achieved basic reading comprehension skills	79.1	82.9	74.4	-3.8 (0.332)	8.5* (0.023)
<b>Guatemala</b>					
<b>Decoding</b>					
Number of pseudo-words read correctly in one minute (of 50)	21.6	22.8	21.7	-1.2 (0.267)	1.10 (0.255)
Accuracy score (percentage)	68.8	72.4	73.1	-3.6 (0.096)	-0.7 (0.752)
<b>Fluency</b>					
Number of words read correctly in one minute (of 112)	41.7	43.7	42.1	-2.0 (0.318)	1.6 (0.356)
Accuracy score (percentage)	74.6	79.6	78.8	5.0* (0.023)	-0.8 (0.754)
<b>Reading comprehension</b>					
Number of questions answered correctly (of 15)	3.1	2.9	2.8	0.2 (0.254)	0.1 (0.708)
Percentage of boys who achieved basic reading comprehension skills	63.1	64.4	65.3	-1.3 (0.653)	-0.9 (0.763)
<b>Number of students in Peru</b>	<b>358</b>	<b>338</b>	<b>326</b>		
<b>Number of students in Guatemala</b>	<b>439</b>	<b>458</b>	<b>441</b>		

Source: *Leer Juntos, Aprender Juntos* Students' Reading Skills Assessment—Final Follow-ups 2015 and 2016.

Note: Regression-adjusted means. *P*-values in parentheses.

\* Difference in group means is statistically significant at the 0.05 level.

Table 3. In-school component effects on literacy outcomes in Peru, in standard deviation units

Literacy outcome	Effect size
<b>Decoding</b>	
Number of pseudo-words read correctly in one minute	0.04
Accuracy score	0.17*
<b>Fluency</b>	
Number of words read correctly in one minute	0.08
Accuracy score	0.20*
<b>Reading comprehension</b>	
Number of questions answered correctly	0.13
Percentage of children who achieved basic reading comprehension skills	0.31*

Source: *Leer Juntos, Aprender Juntos* Students' Literacy Skills Assessment—Final Follow-ups 2015 and 2016.

Note: Effect sizes are calculated as the difference in adjusted means between groups A and B divided by the pooled and weighted standard deviation of the two groups (Hedges' *g*) for continuous outcome measures, and as the log odds ratio divided by 1.65 (Cox index) for dichotomous outcome measures.

\* Effect is statistically significant at the 0.05 level.

Table 4. Impacts on the literacy outcomes of girls and boys in Peru

Literacy outcome	Leer Juntos (A)	Leer Juntos-school only (B)	Prevailing practice (C)	Impact of community action (A–B)	Impact of in-school component (B–C)
<b>Girls</b>					
<b>Decoding</b>					
Number of pseudo-words read correctly in one minute (of 50)	23.4	23.9	20.8	-0.5 (0.716)	3.1* (0.014)
Accuracy score (0 to 1)	0.7	0.7	0.6	-0.0 (0.487)	0.1* (0.002)
<b>Fluency</b>					
Number of words read correctly in one minute (of 154)	42.8	43.2	38.2	-0.4 (0.883)	5.0 (0.053)
Accuracy score (0 to 1)	0.8	0.8	0.7	0.0 (0.107)	0.1* (0.001)
<b>Reading comprehension</b>					
Number of questions answered correctly (of 15)	4.9	4.8	4.3	0.1 (0.752)	0.5 (0.102)
Percentage of girls who achieved basic reading comprehension skills	78.8	87.1	72.1	-8.3 (0.094)	15.0* (0.001)
<b>Boys</b>					
<b>Decoding</b>					
Number of pseudo-words read correctly in one minute (of 50)	23.2	21.2	21.2	2.0 (0.166)	0.0 (0.984)
Accuracy score (0 to 1)	0.7	0.7	0.6	0.0 (0.553)	0.1 (0.656)
<b>Fluency</b>					
Number of words read correctly in one minute (of 154)	41.2	38.6	39.2	2.6 (0.368)	-0.6 (0.839)
Accuracy score (0 to 1)	0.7	0.7	0.7	-0.0 (0.379)	0.0 (0.655)
<b>Reading comprehension</b>					
Number of questions answered correctly (of 15)	4.7	4.7	4.3	0.0 (0.943)	0.4 (0.252)
Percentage of boys who achieved basic reading comprehension skills	79.3	78.5	76.9	0.8 (0.875)	1.6 (0.754)
<b>Number of girls</b>	<b>178</b>	<b>175</b>	<b>167</b>		
<b>Number of boys</b>	<b>180</b>	<b>163</b>	<b>159</b>		

Source: *Leer Juntos, Aprender Juntos* Students' Reading Skills Assessment—Final Follow-ups 2015 and 2016.

Note: Regression-adjusted means. *P*-values in parentheses.

\* Difference in group means is statistically significant at the 0.05 level.