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# 2

## Lifewide Learning for Early Reading Development

Amy Jo Dowd, Elliott Friedlander, Christine Jonason, Jane Leer, Lisa Zook Sorensen, Jarrett Guajardo, Nikhit D'Sa, Clara Pava, Lauren Pisani

### Abstract

*The authors examine the relationships between children's reading abilities and the enabling environment for learning in the context of Save the Children's Literacy Boost program. They conceptualize the enabling environment at a micro level, with two components: the home literacy environment, represented by reading materials/habits at home, and the community learning environment (community reading activities). Using longitudinal reading scores of 6,874 students in 424 schools in 12 sites across Africa and Asia, there was 1) a modest but consistent relationship between students' home literacy environments and reading scores, and 2) a strong relationship between reading gains and participation in community reading activities, suggesting that interventions should consider both home and community learning environments and their differential influences on interventions across different low-resource settings. © 2017 Wiley Periodicals, Inc.*

For decades, the international education community has focused on schools as the primary vehicle for learning (UNESCO, 2012). However, learning assessments in dozens of low-resource settings show that repeated attempts to affect student learning exclusively through schools have largely failed (Pritchett, 2013; Samoff, 2012). Even if educational quality is excellent, focusing only on school-bound factors is an inadequate approach to optimize learning, because students in low-resource settings spend less than 25% of their time in a classroom (Dowd, Friedlander, & Guajardo, 2012). Multiple studies show that learning is influenced by the enabling environment outside of school (National Early Literacy Panel, 2008), whether captured as materials (Park, 2008; Sylva et al., 2011; Wigfield & Asher, 1984), being surrounded by readers (Crain-Thoreson & Dale 1992; Leseman & de Jong, 1998), good reading habits (Barton & Hamilton, 2000; Purcell-Gates, 1996; Street, 1993) or reading together (Bus, 2001; Evans, Shaw, & Bell, 2000; Sonnenschein, Baker, Serpell, & Schmidt, 2000; Teale, 2003). Enabling environment plays a critical role in children's reading development.

Although the evidence cited here comes from print-rich settings in high-resource contexts, more limited evidence from low-resource contexts is consistent. Programme d'Analyse des Systèmes Educatifs de la CONFEMEN (2015) finds significantly better reading performance among second graders with more books at home in 9 of 10 francophone African countries. Studies conducted by Save the Children (STC) largely in rural areas of developing countries go beyond book possession to frame the home literacy environment (HLE) according to Hess and Holloway (1984) as (a) value placed on reading, (b) press for achievement, (c) availability of reading materials, (d) reading to children, and (e) opportunities for verbal interaction. A 2013 seven-country study found an HLE index of these items positively related to baseline reading skills in a third of models (Dowd, Friedlander, Guajardo, Mann, & Pisani, 2013). In Malawi, additional indicators of motivation and reading usage significantly predicted learning even when controlling for HLE, socioeconomic status, gender, repetition, and age (Save the Children, 2013). Evidence to date points to the importance of the enabling environment outside the school walls for early reading development. This study builds on this literature by investigating the influence of the home and community enabling environment in 12 Literacy Boost (LB) program sites.

Literacy Boost, designed by STC in 2008, aims to improve classroom reading pedagogy *and* engage students, families, and communities in reading activities outside of school. Literacy Boost focuses on *lifewide learning*: children's engagement in enjoyable, cognitively demanding literacy-related activities not only in school but also in their homes and communities (Friedlander, Dowd, Borisova, & Guajardo, 2012). At home, Literacy Boost provides child-friendly reading materials and encourages caregivers to undertake literacy-supporting activities like reading and talking with their

children. Outside the home, Literacy Boost provides opportunities to participate in community activities like reading in groups or pairs or borrowing materials from a local mini-library (STC, 2012). At reading camps, for example, groups of about 20 children meet weekly under the guidance of a community volunteer to read and discuss a story, and over time work through a curriculum of 22 sessions of games related to vocabulary, letter knowledge, phonemic awareness, and comprehension.

In 2012, STC partnered with World Vision (WV) to test Literacy Boost in more countries where similar systems of child sponsorship in low-resource settings aim to better support learning. Today, Literacy Boost reaches over 1.5 million children in 32 countries, often in multiple sites within a country. Using longitudinal data from 12 sites across Bangladesh, Burundi, Ethiopia, Indonesia, Malawi, the Philippines, and Rwanda, this article investigates how home and community enabling environments contribute to children's learning. Although the sites are diverse, the underlying Literacy Boost principles, hypothesis, and data collected to test it are consistent.

## **Literacy Boost: Testing a Hypothesis Across Contexts**

Literacy Boost has two intervention components—teacher training and community action—detailed in Table 2.1.

Teacher training consists of periodic and reflective inservice sessions, delivered at or near school sites by STC/WV in partnership with local teachers and their supervisors. Community activities are delivered in villages in partnership with community leaders and volunteers.

In each low-resource site, Literacy Boost tests the overarching hypothesis that more children will learn to read with comprehension if effective teacher training, child-friendly materials, and opportunities to practice are combined with the use of reading skills in daily life. Ongoing site-level evaluations enable STC/WV to test this hypothesis, estimate impact, and refine the program to stimulate greater and more equitable learning. The current investigation is a secondary analysis of 12 baseline–endline datasets from 2012 to 2015 that have detailed HLE and community participation variables. We investigate two hypotheses in each site:

- H1:* At baseline, the enabling environment of the home, specifically reading materials and literacy habits, will be positively associated with students' reading achievement, controlling for demographic and school characteristics.
- H2:* At endline, the enabling environment of the community, specifically, the amount of community reading activities in which a student participates, will be positively associated with how much the student learned, regardless of starting achievement level, baseline HLE, demographic and school characteristics.

**Table 2.1. Literacy Boost Intervention Components**

<i>Program Component</i>		<i>Description</i>
Component 1: Teacher Training	Inservice Teacher Training	Monthly, scaffolded training sessions led by STC/WV and ministry of education partner staff on applying best practices in reading pedagogy
School Book Banks	Mini-libraries of noncurriculum reading materials	
Component 2: Community Action	Reading Buddies	Paired shared reading between a younger and older child who is a more capable reader
	Reading Camps	Regular group reading activity led by a community volunteer including a read-aloud and literacy games
	Make and Takes	Activities where children create their own reading-related material to take home, typically part of reading camps
	Reading Awareness Workshops	Workshops for community members on the importance of reading and activities to support children's early reading development (see Dowd, O'Donnell, Ochoa, & Borisova, 2010)
	Read-A-Thons	Contests where children compete to read as many books as possible in a set amount of time
	Community Book Banks	Mini-libraries of noncurriculum reading materials

## Methods

The following methods were used to assemble the datasets used in the analyses presented in this article.

**Sample.** Each dataset has between 25 and 85 schools/classrooms (details in Table 2.2), and in each school (or classroom, in the case of large urban schools in the Philippines), 20 students—10 boys and 10 girls—were randomly selected to participate in the study. Datasets include between 338 and 827 students in grades 1–4. Consent for the students' participation was obtained from the local ministry of education officials as well as school leadership, and all students gave oral assent.

**Data.** Longitudinal reading assessment and background data were collected from the same students at baseline (prior to program implementation) and endline (at the end of program implementation, which varies by site from 9 to 30 months, see Table 2.2).

**Measures.** The measures used for assessing reading and both the home and community enabling environments follow, along with how they were used in the analyses.

**Table 2.2. Sample Size and Program Implementation Statistics by Site**

Country- Implementer-Site	Grade	N Schools/ Classes	N Students	% LB	Duration (months)	N Community Reading Activities Offered
Bangladesh-STC	2	52	789	32%	22	5
Burundi-WV	3	28	395	51%	24	5
Ethiopia-WV	3	36	599	45%	12–15	4
Ethiopia-STC	3	25	336	67%	18	3
Indonesia-STC-1	3	36	581	57%	15	4
Indonesia-STC-2	2	35	465	52%	22	4
Indonesia-STC-3	1	35	582	58%	9	4
Malawi-STC-1	3	30	600	67%	10	2
Malawi-WV-2	4	30	487	48%	30	4
Philippines-STC	2	47	754	56%	18	4
Rwanda-WV-1	3	29	459	45%	30	4
Rwanda-STC-2	2	85	827	41%	15–25	4

*Reading Assessment.* Students were assessed in the language of instruction using the Literacy Boost assessment adapted and piloted by STC/WV researchers in each context. The average interrater reliability for Literacy Boost reading measures across 20 sites was 0.95, calculated using the intraclass correlation (see Dowd, Pisani, & Borisova, 2016 for detailed instrument specifications). We choose three outcomes ranging from basic to advanced skills to investigate Hypothesis 1: untimed letter identification (percentage of letters correctly identified by name or sound), fluency (words correctly read from a grade-level reading passage per minute), and comprehension (percentage of reading comprehension questions correctly answered). To investigate Hypothesis 2, the outcomes of interest are the baseline-to-endline gain scores for each skill.

*Home Enabling Environment.* The home enabling environment uses student reports of Hess and Holloway's (1984) five HLE dimensions. Although we acknowledge the limitations of such data, the cost of obtaining parent report and ideally triangulating by home observation is prohibitive.<sup>1</sup> We generate two indices representing materials and habits. The reading materials index sums the different reading material types at home, with child-friendly materials multiplied by three to give greater weight to age-appropriate resources such as stories and comic books. The reading habits index sums the number of times in the past week household members (a) were seen reading, (b) read to the student, (c) helped or encouraged the student to study, and (d) told the student a story. We standardize both indices to allow cross-index considerations. To account for family size differences, the number of household members is included in each model.

*Community Enabling Environment.* We conceptualize the community enabling environment as the degree of participation in Literacy Boost community reading activities, using endline student reports of

participation in specific activities in the past week. Possible activities included (a) meeting with a reading buddy, (b) borrowing books from a book bank, (c) attending a reading camp, (d) participating in a “make-and-take” activity to create reading materials to take home, and (e) participating in a read-a-thon. We sum the student reports of participation in these activities and divide by the total number of possible activities within a given site to create a community enabling environment variable that we standardize for comparison across predictors.

**Background Characteristics.** Student background data such as sex, age, socioeconomic status (SES), and grade repetition serve as individual-level covariates. School characteristics such as remoteness, teacher experience, class size, and school library serve as school-level covariates. Table 2.3 provides select descriptive statistics for each site sample.

**Analysis.** To investigate our hypotheses, we collapse school/classroom/community levels as we have one classroom per school/community and fit the following two sets of multilevel regression models separately for each site with standard errors clustered at the school/classroom level:

$$\text{Model 1: } LIT_{ij} = \gamma_{00} + \gamma_{10}ReadMat_{ij} + \gamma_{20}Habits_{ij} + X'_{ij} + W'_j + e_{ij} + u_{0j}$$

$LIT_{ij}$  represents baseline literacy score for student  $i$  in school  $j$ ,  $ReadMat_{ij}$  and  $Habits_{ij}$  represent the HLE indices,  $X'_{ij}$  is a vector of student-level covariates and  $W'_j$  represents a vector of school-level controls. Table 2.4 displays the covariates used by site. The error term consists of  $u_j$ , school-level random effects, and  $e_{ij}$ , unobserved student ability and characteristics. The coefficients of interest,  $\gamma_{10}$  and  $\gamma_{20}$ , capture the relationship between children’s baseline reading abilities and each HLE index.

$$\text{Model 2: } LIT\ gain_{ij} = \gamma_{00} + \gamma_{10}ReadMat_{ij} + \gamma_{20}Habits_{ij} + \gamma_{30}CMTY_{ij} + X'_{ij} + W'_j + e_{ij} + u_{0j}$$

In Model 2,  $LIT\ gain_{ij}$  is the change in scores for student  $i$  in school  $j$  and the coefficient  $\gamma_{30}$  describes the association between reading gains and participation in community reading activities ( $CMTY_{ij}$ ) while controlling for baseline reading scores, HLE, and student and school-level covariates. We drop the comparison group in this model to better isolate the relationship between community reading activity participation and reading gains. Thus, all students in Model 2 had teachers who received Literacy Boost training and we leverage community reading activity participation variation to estimate the relationship between the enabling environment and reading gains. For both models, we calculate effect sizes

**Table 2.3. Sample Descriptive Statistics by Site: Average and Standard Deviation (in parentheses)**

Country/Site	Bangla- desh	Burun- di	Ethio- pia-1	Ethio- pia-2	Indone- sia-1	Indone- sia-2	Indone- sia-3	Mala- wi-1	Mala- wi-2	Philip- pines	Rwan- da-1	Rwan- da-2
% female	50%	51%	49%	49%	48%	51%	50%	49%	49%	50%	49%	50%
Average age	8.5 (1.1)	9.2 (1.6)	10.1 (1.7)	10.8 (1.5)	7.5 (1.0)	6.7 (0.7)	7.8 (1.1)	8.9 (1.6)	10.6 (1.6)	7.4 (1.0)	7.8 (1.5)	7.7 (1.7)
Unstandardized average reading materials index	2.0 (1.8)	1.2 (1.2)	2.2 (.79)	2.4 (1.5)	3.2 (2.1)	3.9 (2.2)	4.6 (1.9)	3.1 (2.3)	.81 (1.25)	3.6 (2.0)	2.4 (2.2)	2.9 (2.9)
Unstandardized average reading habits index	7.4 (3.5)	8.2 (7.0)	9.1 (6.0)	3.3 (3.0)	5.8 (3.5)	8.3 (4.8)	7.1 (4.1)	0.9 (0.8)	4.8 (4.4)	7.6 (4.5)	7.1 (5.2)	12.4 (6.5)
Unstandardized average % community reading activities	0.91 (1.6)	1.4 (1.5)	2.4 (1.5)	1.4 (1.3)	2.1 (1.4)	0.73 (1.1)	2.1 (1.5)	1.1 (0.7)	2.0 (1.4)	0.33 (0.69)	1.3 (1.3)	0.96 (1.1)
participated in Average endline % letters known	82% (20%)	95% (15%)	80% (27%)	95% (14%)	89% (17%)	90% (20%)	86% (18%)	69% (24%)	58% (30%)	92% (17%)	84% (27%)	70% (34%)
Average endline fluency (WCPM)	26.6 (22.8)	29.7 (16.6)	21.2 (22.7)	38.3 (24.5)	34.4 (28.2)	33.9 (26.3)	23.2 (21.4)	19.9 (18.6)	12.3 (19.2)	51.3 (29.9)	21.3 (16.0)	11.4 (14.7)
Average endline % comprehension	55% (38%)	55% (32%)	29% (36%)	72% (39%)	63% (40%)	54% (36%)	36% (33%)	48% (43%)	28% (43%)	53% (22%)	43% (36%)	52% (46%)

Note. WCPM = words correct per minute.

**Table 2.4. School, Student Covariates by Site**

	Bangladesh	Burundi	Ethiopia-1	Ethiopia-2	Indonesia-1	Indonesia-2	Indonesia-3	Malawi-1	Malawi-2	Philippines	Rwanda-1	Rwanda-2
Required Student-Level Variables												
Female												
SES												
Nhhold												
Age												
Baseline skill												
Tested student-level variables												
Grade repetition												
Early childhood development												
Study time												
Chores/workload												
Missed school last week												
Home language												
Breakfast												
School far from home												
Tested school-level variables												
Remoteness												
Teacher experience												
Class size												
School library												
Library borrowing												
Female teacher												

Note. Nhhold = number in household; SES = socioeconomic status.



by dividing the coefficient beta by the standard deviation of the outcome variable.

## Results

The following results were found for each hypothesis.

**Hypothesis 1.** In all seven countries, in 7 out of 12 sites, either reading materials or reading habits predict baseline skills and in one site, both are predictive. HLE predicts the letters score twice as often as it predicts fluency or comprehension. Five of 12 sites feature a statistically significant but small positive relationship between reading habits and baseline skills, ranging from 0.085 to 0.223 SD whereas one site shows a negative relationship ( $-0.15$  to  $-0.23$  SD). Three sites feature a small statistically significant positive relationship between reading materials and baseline skills (0.10 and 0.07 SD), and one site features a small statistically significant negative relationship ( $-0.017$  SD).

**Hypothesis 2.** In five of seven countries, in 7 out of 12 sites, participation in community reading activity participation is, on average, significantly and positively related to reading gains across skills with effect sizes that range from small (0.06 SD) to quite large (0.99 SD). Effect sizes for fluency and comprehension (average 0.34 and 0.35 SD, respectively) are more than twice that for letters (0.16 SD). Figure 2.1 graphs reading comprehension gains against the standardized percent of activities in which the student reported participating.

## Discussion

Our discussion takes each hypothesis separately, and we then conclude with suggested directions for future research based on our findings and interpretations of them.

**Home Enabling Environment and Reading Skills.** Our findings support our hypothesis that the home environment influences reading skills, even taking other background characteristics into account. The prevalence of findings predicting letter knowledge suggests that HLE may most crucially relate to foundational skills. This study replicates in numerous print-limited, low-literacy contexts across Asia and Africa the well-established relationship between HLE and early reading. Of interest for further study is why some sites within the same countries fail to find this relationship.

This study attempted to tease apart the influence of materials versus habits to advance our understanding of the HLE-reading achievement relationship found using a combined materials and habits index (Dowd et al., 2013). Reading habits significantly predict achievement more often than reading materials, with only 4 of 36 models in Table 2.5 showing a significant materials–skills relationship. This is not to say that materials are unimportant for reading skills development—habits may well mediate the

**Table 2.5. Correlation Between HLE Indices, Coefficients (Standard Errors), and Effect Sizes by Hypothesis**

Country	Outcome	H1: Home enabling environment predicting baseline reading scores					H2: Community enabling environment predicting endline reading gains					
		Reading Materials Index			Reading Habits Index		Correlation between HLE indices			Effect Size		Significance
		beta (SE)	Effect Size	Significance	beta (SE)	Effect Size	Significance	beta (SE)	Effect Size	Significance		
Bangladesh	Letters	0.018 (0.009)	0.075	*	0.023 (0.007)	0.096	***	0.29	0.007 (0.010)	-0.003		
	Fluency	-0.310 (0.812)	-0.018		1.225 (0.631)	0.070			3.56 (1.283)	0.207	**	
	Comp	0.015 (0.047)	0.047		0.022 (0.013)	0.071			-0.021 (0.033)	0.184		
Burundi	Letters	0.021 (-0.010)	0.074	*	0.021 (-0.020)	0.072		0.24	0 (0.006)	0.001		
	Fluency	-0.394 (-0.318)	-0.051		0.573 (-0.447)	0.074			0.604 (0.880)	0.040		
	Comp	-0.006 (-0.015)	-0.019		0.035 (-0.018)	0.115			0.012 (0.020)	0.033		
Ethiopia-1	Letters	0.028 (-0.011)	-0.017	*	0.022 (-0.012)	-0.037		0.21	0.088 (0.030)	0.383	**	
	Fluency	1.507 (-0.590)	0.014	*	0.611 (-0.566)	0			15.638 (3.581)	0.845	***	
	Comp	0.018 (-0.011)	-0.038		0.010 (-0.011)	0.042			0.355 (0.056)	0.986	***	

(Continued)

**Table 2.5. Continued**

Country	H1: Home enabling environment predicting baseline reading scores						H2: Community enabling environment predicting endline reading gains				
	Reading Materials Index			Reading Habits Index			Correlation between HLE indices				
	Outcome	beta (SE)	Effect Size	Significance	beta (SE)	Effect Size	Significance	beta (SE)	Effect Size	Significance	
Ethiopia-2	Letters	0.010 (-0.011)	0.050		0.018 (-0.009)	0.088	*	0.10	0.030 (0.007)	0.120	***
	Fluency	-0.515 (-1.131)	-0.022		1.150 (-0.847)	0.050			9.258 (1.219)	0.270	***
	Comp	-0.003 (-0.022)	-0.006		0.022 (-0.019)	0.048			0.131 (0.0203)	0.219	***
Indonesia-1	Letters	-0.003 (0.018)	0.046		0.021 (0.016)	0.064		0.35	0.023 (0.011)	0.059	*
	Fluency	1.464 (0.812)	0.100		0.932 (0.707)	0.063			2.360 (1.548)	0.104	
	Comp	0.022 (0.014)	0.080		0.012 (0.014)	0.045			0.043 (0.022)	0.106	
Indonesia-2	Letters	0.006 (-0.010)	0.022		0.025 (-0.010)	0.094	*	0.27	0.023 (0.009)	0.119	*
	Fluency	0.892 (-0.709)	0.045		1.685 (-0.785)	0.085	*		0.895 (1.166)	0.049	
	Comp	0.001 (-0.014)	0.002		0.070 (-0.012)	0.196	***		0.037 (0.024)	0.096	
Indonesia-3	Letters	0 (-0.012)	0.002		-0.016 (-0.014)	-0.065		0.39	0.016 (0.007)	0.095	*
	Fluency	0.099 (-1.021)	0.005		-1.351 (-0.999)	-0.068			2.740 (1.368)	0.135	*
	Comp	0.019 (-0.013)	0.069		-0.021 (-0.013)	-0.076			0.096 (0.017)	0.275	***

(Continued)

**Table 2.5. Continued**

Country	H1: Home enabling environment predicting baseline reading scores						H2: Community enabling environment predicting endline reading gains					
	Reading Materials Index			Reading Habits Index			Reading Materials Index			Reading Habits Index		
	Outcome	beta (SE)	Effect Size	Significance	beta (SE)	Effect Size	Significance	Correlation between HLE indices	beta (SE)	Effect Size	Significance	
Malawi-1	Letters	-0.007 (-0.016)	-0.020		0.077 (0.017)	0.223	***	0.48	0.026 (0.017)	0.091		
	Fluency	-0.150 (-0.726)	-0.009		3.570 (0.911)	0.208	***		3.860 (1.507)	0.216	*	
	Comp	-0.018 (-0.026)	-0.019		0.040 (0.023)	0.097			0.104 (0.047)	0.188	*	
Malawi-2	Letters	-0.003 (-0.005)	-0.017		0.012 (-0.01)	0.065		0.32	0.052 (0.052)	0.084		
	Fluency	0.012 (-0.112)	0.005		-0.048 (-0.101)	-0.019			6.672 (3.665)	0.340		
	Comp	-0.009 (-0.006)	-0.057		-0.002 (-0.005)	-0.016			0.078 (0.102)	0.171		
Philippines	Letters	0.015 (-0.008)	0.062		-0.036 (-0.01)	-0.154	***	0.25	0.004 (0.005)	0.023		
	Fluency	1.640 (-0.863)	0.062		-6.204 (-1.029)	-0.233	***		0.673 (0.765)	0.031		
	Comp	0.013 (-0.009)	0.049		-0.042 (-0.011)	-0.154	***		0.011 (0.008)	0.042		
Rwanda-1	Letters	0.029 (-0.015)	-0.043		0.004 (-0.014)	0.002		0	0.108 (0.049)	0.264	*	
	Fluency	0.042 (-0.289)	0.050		0.154 (-0.194)	0.002			9.348 (3.222)	0.582	**	

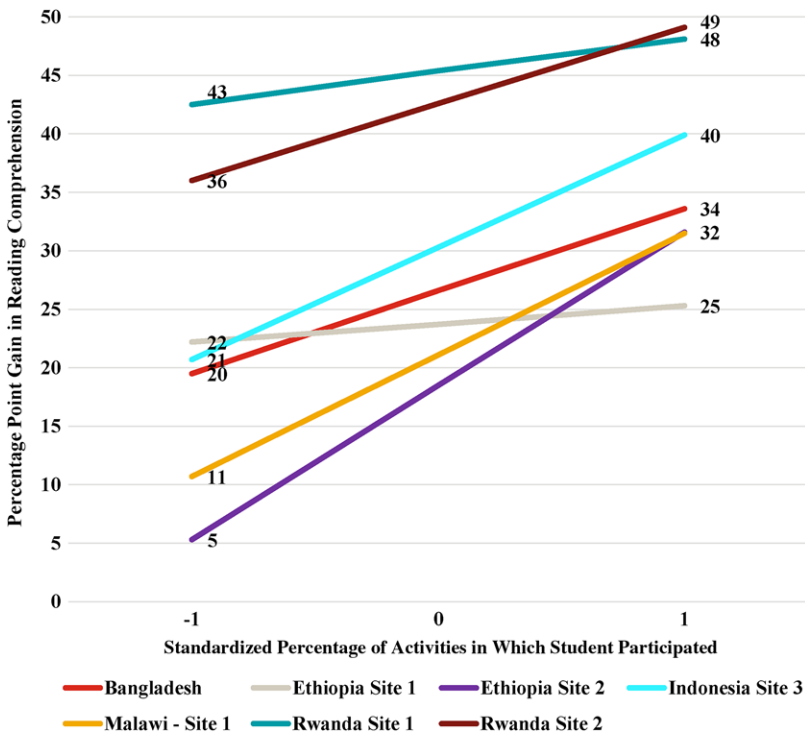
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**Table 2.5. Continued**

Country	H1: Home enabling environment predicting baseline reading scores						H2: Community enabling environment predicting endline reading gains			
	Reading Materials Index			Reading Habits Index			Correlation between HLE indices			
	Outcome	beta (SE)	Effect Size	Significance	beta (SE)	Effect Size	Significance	beta (SE)	Effect Size	Significance
Rwanda-2	Comp	0 (-0.011)	0.030		0.009 (-0.010)	0.086		0.139 (0.044)	0.422	**
	Letters	0.004 (-0.006)	0.014		0.028 (0.009)	0.089	**	0.523 (0.200)	0.082	***
Fluency	Comp	0.178 (-0.172)	0.024		0.820 (0.253)	0.109	**	1.530 (0.375)	0.135	***
	Comp	0.0002 (-0.006)	0.008		0.031 (0.008)	0.123	***	0.066 (0.014)	0.159	***

Letters: percentage of letters correctly identified; Fluency: words correctly read per minute; Comp: percent of reading comprehension questions correctly answered.  
 \* = significant at  $p < 0.05$ . \*\*  $p < 0.01$ . \*\*\*  $p < 0.001$ .  
 Note. H1 and H2 = Hypotheses 1 and 2; SE = standard error.

**Figure 2.1. Predicted Reading Comprehension Gains by Participation in Community Activities**



effect of having reading materials at home. Further, the significant positive correlation of the indices in 11 of 12 sites (average  $r = 0.20$ , see Table 2.5) suggests collinearity could be obscuring some relationships. It is also possible that in different settings, certain features of an environment hold more importance for young learners, making habits the primary contributor to learning during this stage. Finally, as research has shown that different languages and orthographies might be more or less difficult to learn to read (Trudell & Schroeder, 2007), the variety of books available in the home may not be as important for learning as the availability of knowledgeable household members who engage children in literacy activities. Overall, these findings signal the importance of materials and habits and the need to understand more fully their role in supporting children’s reading development.

**Community Enabling Environment and Reading Gains.** Our findings show participation in community reading activities is typically positively related to students’ reading gains and the magnitude of the effect is greater for advanced skills. Children who took advantage of opportunities to

read aloud together, discuss texts in pairs or groups, or borrow books made progress toward reading with comprehension at faster rates than students who participated in fewer or none of these opportunities. Several mechanisms could underlie this important shift. These interactions may promote critical thinking skills development, practice with mentorship may provide added value to in-school learning, participating in activities with friends may provide motivation for exchanging ideas with others, and having access to books and success in reading them may build intrinsic motivation for reading independently.

Despite the positive relationship between community activities and reading development, because Literacy Boost students' levels of participation were not randomly assigned, we cannot conclude that the community enabling environment causes reading gains. Literacy Boost students' opportunities to practice varied depending on (a) the amount they chose to participate and (b) the specific community-based activities offered in their locality. This poses two challenges to causal conclusions. First, students who choose to attend activities may be substantively different from those who did not attend, although we attempt to account for this with controls for baseline reading skills, background, and demographic characteristics. Second, participation was dependent on program implementation fidelity and uniformity. The frequency with which community activities were available—which is, to some extent, a measure of implementation quality—could have limited the extent to which a student participated, regardless of his/her motivation to do so. Reflections on implementation quality from each program technical lead reported mixed success in implementing target strategies in two of the three sites not finding this relationship, but more detailed implementation quality data are not available. These, as well as other unaccounted-for external factors that may have influenced both implementation quality and/or participation, limit our conclusion to correlation rather than causation. A more complex research design would be needed (e.g., see Friedlander, Gasana, & Goldenberg, 2014) to separate the contributions of these interrelated factors and allow us to estimate the unique impact of community enabling environment on learning.

Despite these limitations, our findings of consistent relationships after several months' intervention support continuing to promote and study the impact of reading activities outside of school. The community should be regarded as another critical enabling environment—a setting that can be galvanized and supported to encourage children's learning.

**Directions for Future Research.** The findings from this analysis suggest several ways forward. First, more nuanced implementation data would enable an investigation of why the effects of home and community enablers differ across sites. Future studies should incorporate ongoing, systematically collected monitoring data to measure implementation fidelity and consistency: detail on which activities are being offered, where, when, and to whom, alongside student participation information would enable a greater

understanding of variation in participation. Monitoring data on the quality of interactions in these settings could also help tease apart the intertwined factors of availability and quality of activities for students, motivation to participate, and actual participation. Household observations of home reading/home learning interaction quality and triangulation of student-reported HLE would strengthen the measurement elements of this work. Second, impact evaluation designs that systematically vary the amount and type of community reading activities available within a site would establish the impact of different opportunities on children's reading skills development to inform investment of limited resources for maximum reach and impact. Finally, in-depth qualitative investigations of who is participating and why could lead to better mobilization and motivation strategies, enabling children's full and equitable participation in community reading activities.

## Conclusion

This study underscores the importance of providing multiple, varied opportunities for children's lifewide learning by showing repeatedly, and in a variety of contexts, that these activities are positively related to reading achievement. Despite certain limitations, our findings speak to the need to increase and better understand students' lifewide learning opportunities. A concerted effort must be made to give children the support and opportunities that have proven important for early literacy development. Programs aiming to help children learn to read should include efforts to improve the home and community enabling environments and study their impact.

## Note

1. In a 2016 Ethiopia endline, matched parent-child reading materials reports correlated at only  $r = .26$ , so only direct observation could help establish which has greater accuracy.

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AMY JO DOWD holds a Doctorate of Education from Harvard University as well as a Master of Arts in International Education and Development from Stanford University. She heads the Save-University Partnership for Education Research (SUPER), a program that brings university-based researchers together with Save the Children field staff to collaborate on research projects of mutual interest.

ELLIOTT FRIEDLANDER holds a Master's degree in International Comparative Education and a PhD in Literacy Studies from Stanford University. He is the Research Director for Save the Children's Literacy Boost in Rwanda: a Randomized Control Trial, and is a Senior Specialist on the Save the Children Education Research team.

CHRISTINE JONASON holds a Master of Arts in International Relations and International Economics with a concentration in International Development from the School of Advanced International Studies at Johns Hopkins University. She is a Learning Research Specialist in the Department of Education and Child Protection at Save the Children US.

JANE LEER received an MA in International Education Policy Analysis from Stanford University. She is a Basic Education Learning Research Specialist.

LISA ZOOK SORENSON received Master of Public Health in Epidemiology & International Health from the University of Michigan. She is a Senior Specialist in Research, Monitoring & Evaluation, Education & Life Skills at World Vision.

JARRET GUAJARDO holds a Masters of International Development Economics from Johns Hopkins. He is a Basic Education and Literacy Research Senior Specialist in Save the Children's Department of Education and Child Protection.

NIKHIT D'SA holds a Master of Arts in Developmental Psychology from Teachers College, Columbia University; a Master of Education in International Education Policy from Harvard University; and a doctoral degree in Human Development

*and Education from the Graduate School of Education at Harvard University. He is a Senior Specialist for Youth Research at Save the Children.*

*Clara Pava holds a Master's in Public Administration in International Development from Harvard University as well as a Master's in Economics from Los Andes University in Colombia. She is a Senior Research Specialist in Save the Children's Department of Education and Child Protection.*

*Lauren Pisani received a Master's Degree in International Education Administration and Policy Analysis from Stanford University. She is a Senior Learning Research Specialist at Save the Children.*