Child Literacy Development Pilot Initiative and Research in Laos and Guatemala

Ms. Naoko Kamioka,
Dr. Pooja Reddy Nakamura,
and Dr. Rebecca Stone

AIR — AMERICAN INSTITUTES FOR RESEARCH®

CRS — CATHOLIC RELIEF SERVICES

Acknowledgments

Introduction

Background

From 2016 through 2018 using its own private resources, Catholic Relief Services (CRS) partnered with American Institutes of Research (AIR) to develop and pilot a new child literacy development (CLD) model, and study how this new model affected children's literacy outcomes. The main goal of this model was to address the current gaps in early grade literacy instruction in low- and middle-income countries (LMICs), including:

- A lack of classroom-based formative assessment on basic literacy skills directly linked to remedial methodologies that teachers can use to improve children's literacy skills;

- Limited attention to linguistic issues such as orthographic differences, what constitutes "the right level" in different types of languages, and bi-/multilingualism;

- Limited focus on children's reading readiness, including families' abilities and interest in supporting child literacy development.

CLD PILOT INITIATIVE

PURPOSE

The CLD Pilot Initiative had two main objectives. The first was to develop a child literacy development CLD model to strengthen teachers' capacity in early grade literacy assessment and instruction and to promote families' support for child literacy with the goal of helping a larger number of children improve their literacy skills and learning outcomes in the pilot countries of Laos and Guatemala.

The second objective was to conduct rigorous, mixed-method evaluations on the newly developed CLD pilot to generate evidence on its effectiveness, determine whether the model effectively addressed the gaps mentioned above, and contribute to the global dialogue on early literacy and early childhood education quality.

OVERVIEW OF THE CLD PILOT INITIATIVE

The overall theory of change of the CLD Pilot Initiative is that children's literacy outcomes will improve if teachers have improved literacy instruction skills specific to the language in which literacy is being taught, if teachers understand how to assess pertinent reading skills and tailor teaching to student needs (the "right level"), and if families become more involved and understand how they can support the education of their children. The CLD Pilot Initiative's design, co-developed by CRS and AIR, included the following principal activities:

• Designing a set of pedagogical tools that are constructed to assess reading readiness and early literacy sub-skills tailored to the science of how children learn each language and that are accompanied by targeted remediation methodologies to strengthen children's literacy skills;

• Engaging families and PTAs to assist children with reading at home through training plus simple materials;

• Evaluating if—and how—the new CLD Model relates to improved student literacy outcomes, teachers' literacy instruction practices and perceptions, and family involvement in supporting children's literacy.

PILOT COUNTRIES

Laos and Guatemala were selected as pilot countries for the following reasons:

• CRS has ongoing education programs in these countries with established working relations with governments and other stakeholders, and familiarity with the local context;

• Each country has a different linguistic context (Laos—an alpha-syllabic script with a monolingual Lao language policy, despite the large number of children not speaking Lao, and Guatemala—bilingual literacy instruction in Spanish and an indigenous language—K'iche', both of which use Roman alphabet).

In 2016, CRS and AIR carried out a joint rapid situational analysis in both countries.[1] The team then developed a CLD Pilot Initiative in both Laos and Guatemala tailored to the local context. The section that follows summarizes the local context in Laos and Guatemala, as well as the targeted geographic areas and beneficiaries.

LAOS LOCAL CONTEXT AND TARGET GEOGRAPHIC AREAS/ BENEFICIARIES

Even though about 45% of students nationally are non-Lao speaking ethnic

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1   Reports on the rapid situational analysis in both Laos and Guatemala are available upon request.

population (Lew, 2012) the government policy is to only use Lao language for the teaching of literacy and the medium of instruction at school. The absence of literacy instruction in children's mother tongue (L1), as well as very limited preschool programs to help children develop reading readiness skills, appear to be critical reasons for the low early grade reading scores in Laos and the high incidence of dropout and repetition in grades 1 and 2.[2] Teaching and learning an alpha-syllabic language like Lao adds special challenges due to an extended orthography composed of more than 200 symbols, and the need to acquire tone. And the 45% of students who enter school without Lao language abilities have the added burden of trying to learn to read in a language that they do not speak. The CRS-AIR rapid situational analysis also revealed that many teachers, especially in rural areas, do not necessarily understand how students learn the foundational skills of literacy and numeracy. In addition, they receive little support on how to teach language/literacy either through formal training or through continuous professional support. The teaching and learning materials in the classroom are very limited.

In Laos, the BEQUAL consortium supported by the Australian Department of Foreign Affairs and Trade (DFAT) has been working closely with the Ministry of Education and Science (MoES) and Research Institute for Educational Sciences (RIES) to overhaul the primary school curriculum. According to AIR's review of the BEQUAL-proposed Lao language curriculum, it was believed that [at the time] the proposed scope and sequence of the Lao language curriculum was in line with the evidence of how children learn to read Lao. The government has also started focusing more attention on non-Lao-speaking children, seeking effective ways to help them acquire Lao language literacy. Therefore, it was opportune that the CLD model that CRS and AIR were seeking to develop was in line with such government efforts.

Generally speaking, school governance in Laos tends to overlook parents and non-Lao speakers. Interviews with VEDC members from the Parents' Association during the rapid situational analysis revealed that parents are not fully satisfied with the impact that schools have on their children's academic achievement in general and reading ability in particular. They expressed a clear desire that schools provide more frequent and open opportunities to accept parents' involvement and input regarding school and children's education. They stressed that for the success of any reading program, parents and communities must come first.

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2   The 2012 National Assessment of Student Learning Outcomes (UNESCO, 2015) show markedly low literacy scores for grades 1-3 students in Lao, with, for example, only 23 percent of children in Grade 3 being able to read at an "independently proficient" level. One in ten children in Lao PDR dropped out at Grade 1 and one in five repeated in 2011-12, and low survival rates to Grade 5 (70% in 2011-12).

The CRS team selected Xaibouathong and Xebangfai districts of Khammouane Province for the CLD Pilot Initiative as CRS was already implementing a program with an inclusive education component for children living with disabilities, and thus had already established close working relations with both provincial and district education offices. According to government officials, about 30% of the populations in Khammouane Province are non-Lao speaking.[3] There are three different language groups represented in the two target districts: (i) Lao language—Tai-Kadai language family and the country's official language; (ii) Phu Thai—also Tai-Kadai language family; and (iii) Makong—Mon-Khmer language family and distinct from the Lao and Phu Thai languages. The CLD Pilot Initiative targeted approximately 100 G1 and G2 teachers, plus principals in 34 schools, as well as 30 Village Education Development Committees—(VEDCs).[4] An estimated 1,060 G1 and G2 students and 3,040 parents and/or caretakers were indirect beneficiaries.

GUATEMALA LOCAL CONTEXT, TARGET GEOGRAPHIC AREAS AND BENEFICIARIES

Guatemala is a multicultural and multilingual country. In addition to Spanish, 22 Mayan languages are spoken, as well as Xinca and Garífuna. Forty percent of the entire population is Mayan, and in the Department of Totonicapán (where CRS' education programming is taking place), over 97% of the population is ethnically Mayan. Guatemala's peace accords established a bilingual education system (EBI) stating that in the areas where an indigenous population is predominant, schools should be bilingual. The departmental Ministry of Education in Totonicapán aims

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3   No objective data exists on the language skills of these ethnic minority children.

4   In 2008, Ministerial Decree 1 made provision for the establishment of VEDCs to promote education decentralization. The VEDC members include the village head, school principal, representative of community groups, and the head of the Parents' Associations. The VEDC is responsible for overseeing the educational development of all children in villages, including school management, promoting enrollment and completion, and learning achievement.

for children to develop both Spanish and their mother tongue, K'iche', language skills as well as their indigenous cultural identity; yet, the CRS-AIR rapid situational analysis revealed that in practice, the education system is missing many of the vital components necessary to make bilingual education fully functional: only 10% of teachers in the department are bilingual in Spanish and K'iche'; thus, teaching is often done predominantly in Spanish. There is also no standard bilingual literacy instruction model that teachers can follow. The government has created language curriculum and textbooks in both Spanish and K'iche', but they do not reach all the schools. Teacher training is insufficient with little monitoring or coaching to ensure that teachers are teaching bilingually. Due to these and other reasons, children have difficulties developing language and literacy skills in Spanish and their indigenous language.

While the formal Parent-Teacher Associations (PTAs) exist in all schools, MINEDUC set up the General Directorate for Strengthening the Education Community (DIGFOCE) in 2015 to promote family and community participation. DIGEFOCE is responsible for setting up mechanisms for parents to be informed about their children's education process and academic performance, and for promoting active collaboration between parents and schools. However, the rapid situational analysis found that schools have engaged the PTAs and parents for school feeding and infrastructure, yet to a much lesser degree for matters related to children's education and literacy.

Since 2013, CRS has been implementing the Learning for Life, McGovern-Dole (MGD) project funded by the U.S. Department of Agriculture (USDA) that combines school feeding and literacy in Totonicapán. CRS partners with PRODESSA, a Guatemalan NGO, to implement their bilingual reading comprehension curriculum called Kemom Ch'ab'al (Weaving Words and Ideas, in K'iche') for Grades 1–6 students. The second phase of Learning for Life (October 2016–September 2021) added special interventions to help G1 teachers teach basic literacy in both K'iche' and Spanish through the PRODESSA-created early grade bilingual literacy teaching methodology called Jardin de Letras—JdL (Garden of Letters). The CLD Pilot Initiative was embedded in this on-going project, adding another resource (the CLD Toolkit) to support teachers in their efforts to assess and respond to individual student's literacy skills. The CLD Pilot Initiative in Guatemala directly targeted G1 teachers and students and their parents in 331 schools in the municipalities of San Bartolo Aguas Calientes, Santa Lucía la Reforma, San Andrés Xecul, Momostenango, Santa María Chiquimula, and rural Totonicapán.

CLD Pilot Initiative Interventions

Given the amount of time needed to pursue official government agreement on the CLD Pilot Initiative and for the preparatory arrangements in each country, the actual school-based implementation of the piloting was limited to one school year (Laos: September 2017 through May 2018; Guatemala: February through September 2018). The CLD Pilot Initiative and evaluation activities evolved differently in Laos and Guatemala in order to be sensitive to the local context and circumstances on the ground. The following chart lists the common features between the Laos and Guatemala pilots, as well as the distinct features per country.

COMMON FEATURES
• Development of classroom-based literacy assessment toolkits accompanied by remedial methodologies • Teacher training in the use of toolkits followed by coaching • Provision of supplementary literacy materials tailored to the language and local linguistic environment • Testing of the toolkits for one school year with evaluation research

| DISTINCT FEATURES PER COUNTRY	
LAOS	**GUATEMALA**
• Independent pilot initiative (not embedded in the ongoing education project, but building on the Inclusive Education Initiative) • Aligning with the government policy for only Lao-language literacy • In-depth qualitative study • Quantitative data from FA conducted by teachers (only supplementary) • PTA (VEDC) training to reach parents to support child literacy at home	• Pilot initiative embedded in the ongoing USDA MGD Project • Supporting the government policy of bilingual literacy in Spanish and indigenous languages for indigenous children • Quantitative study through randomized control trial • Barrier analysis on families' perception and practices related to child literacy, followed by home visits to promote family's involvement in literacy activities

SCHOOL-BASED INTERVENTIONS

The Classroom-based Literacy Assessment Toolkits, trainings and coaching support aim to enhance teachers' knowledge of the skills that are most challenging for their students to learn and to provide teachers with the tools necessary for focused remediation, with a focus on improving the pertinent skills in each language.

CLASSROOM-BASED LITERACY ASSESSMENT TOOLKITS

The CLD Pilot Initiative provided teachers with a set of pedagogical tools along with training on effective use of these tools. This package includes two Toolkits—a Reading Readiness (RR) Toolkit and a Formative Assessment (FA) Toolkit—and

supplementary literacy aids that teachers can use to assess students' literacy skills and provide targeted remediation to bolster students' skills in particular areas. Exhibit 2 provides a visual illustration of the iterative cycle between data gathering and teaching, rooted in the three main programmatic features.

Exhibit 2. CLD Toolkit

Subskill Information

Assessment

Remediation

Tracking

Both toolkits include four iterative steps in the pedagogical process: (a) information provided to the teacher on each subskill, (b) an assessment is conducted by the teacher for each subskill, (c) the teacher records the students' subskills scores in the tracker, and (d) teacher conducts the targeted remedial activities for the precise reading subskill with which the child may be struggling.
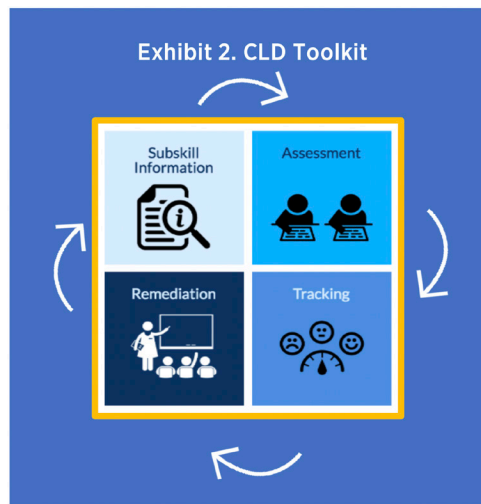
Below are examples of RR and FA Toolkits (Exhibit 3) developed in Guatemala with a list of assessed literacy subskills measured and remediated in each of the toolkits, followed by the examples of the Guatemala Bilingual and Lao-language FA Trackers (Exhibit 4). In Guatemala all skills were measured in both K'iche' and Spanish, except letter names, which were only assessed in Spanish, and concept of print, which is not language specific. In Laos, the same skills were measured in Lao, but phonological awareness included both syllable, phoneme and tonal awareness to better align with the phonological features of Lao. Teachers filled out a one-page tracker that the student scores, which easily allowed them to find the corresponding sections (☺, ☹ or 😐) for the targeted remedial activity.

Exhibit 3: Reading Readiness Toolkit and Formative Assessment Toolkit (Guatemala)

Toolkit	Literacy Skill	Toolkit	Literacy Skill
Reading Readiness Toolkit — Paquete de herramientas educativas para la preparación para la lectura. PARA MAESTROS DE PRIMER GRADO. CRS / AIR	Oral Language / Concept of Print	**Formative Assessment Toolkit** — Paquete de herramientas de pruebas formativas. PARA MAESTROS DE PRIMER GRADO. CRS / AIR	Oral Vocabulary Knowledge / Phonological Awareness / Letter Names / Decoding / Reading Comprehension

Exhibit 4: Guatemala Bilingual and Lao-language Formative Assessment Trackers

Nombre del estudiante	Idioma del examen	Habilidades de lectura y niveles de evaluación formativa														
		Conocimiento de vocabulario oral			Conciencia fonológica			Nombrar las letras			Decodificación			Comprensión de lectura		
		1-2	3	4-6	0-4	5-8	9-12	0-33	34-66	67-100	0-5	6-10	11-16	0-1	2-3	4
		☹	😐	☺	☹	😐	☺	☹	😐	☺	☹	😐	☺	☹	😐	☺
1	Español															
	Quiché															
2	Español															
	Quiché															
3	Español															
	Quiché															

Student Name	Lao Language Reading Skills and Formative Assessment Levels											
	Oral Vocabulary Knowledge			Phonological Awareness			Decoding			Reading Comprehension		
	0-3	4-7	8-10	0-4	5-8	9-11	0-5	6-10	11-16	0-1	2-3	4
	☹	😐	☺	☹	😐	☺	☹	😐	☺	☹	😐	☺

Teachers implemented the RR Toolkit at the start of the school year to determine if children are ready to begin print instruction in K'iche' and/or Spanish in Guatemala and in Lao in Laos. They then conducted reading readiness activities with children who did not demonstrate readiness before moving on. Following this, three to four times throughout the school year, teachers implemented the FA Toolkit, following up each time with remedial activities for students who were struggling with particular skill[s].

OTHER SUPPLEMENTARY MATERIALS

The following are the supplementary materials provided to teachers in addition to RR and FA Toolkits:

- **Guatemala:**

  - Alphabet dominos (K'iche')

  - Syllable wheel (Spanish)

  - Alphabet wheel (Spanish)

  - Laminated poster scenes with question prompts (Spanish and K'iche')

- **Laos:**

  - Flashcards

  - Symbol blocks

  - Laminated poster scenes with question prompts

TEACHER TRAINING AND COACHING

The CLD Pilot Initiative also trained and coached teachers in how to use the Toolkits, implement the assessments, track student progress, and provide remediation whenever necessary.

LAOS

Training and support for teachers on the use of the toolkits included a five-day comprehensive training prior to the school year (August 2017) and ongoing monitoring of and support for teachers from pedagogical coaches throughout the project life cycle. AIR developed a facilitator's guide and led an initial training of trainers (TOT) with the District Education and Sports Bureau (DESB) pedagogical

advisors and CRS staff community mobilizers (CMs), who then trained teachers and acted as coaches.

Training and support for teachers on the use of the toolkits was combined with PRODESSA training on the use of the Jardin de Letras reading curriculum. Teachers were provided with a one-day training at the beginning of the school year and a follow-up training part way through the school year. In addition, PRODESSA coaches visited teachers at least once per quarter to provide support in the application of the assessments and remediation activities.

Engaging Families and PTAs for Supporting Child Literacy

LAOS

CONTEXTUAL ANALYSIS

At the beginning of the CLD Pilot Initiative, CRS conducted a contextual analysis on knowledge, attitudes and practices among parents, VEDCs and children (5-8 years old) in the selected communities, including ethnic (Phutan and Makon) villages and Lao villages, as well as urban versus rural settings. The purpose was to inform development of the activities for engaging VEDCs and parents for literacy promotion outside of school.

The following table highlights the key findings from the contextual analysis and how each finding influenced the design of the activities on engaging parents and VEDCs for CLD outside of school.

Table 1: Key Findings from the Contextual Analysis and How the Findings Were Used

KEY FINDINGS	HOW KEY FINDINGS WERE USED IN THE DESIGN OF ACTIVITIES TO ENGAGE PARENTS AND VEDCS FOR CLD
Parents saw the importance of child literacy development.	Rather than focusing on the importance of child literacy and parental involvement, the Initiative focused on specific best practices to positively impact child literacy development at home.
Parents lacked information about creative activities and materials that they could use to help children learn literacy, particularly parents who do not read.	VEDC trainings included very concrete activities and materials that parents could make/use with their children in an enjoyable interactive way no matter the parents' literacy level.
Many parents were unaware that VEDCs have a role in supporting children's literacy development.	Emphasized VEDC's role in promoting literacy, particularly during the parent/VEDC meetings to be held on children's progress in Lao literacy.
Parents and VEDCs seemed to understand and value gender equity in education.	VEDC training modules should go beyond the promotion of girls' education to include children living in poverty, both genders, all ethnicities and children with disabilities.

ACTIVITIES

The CLD Pilot Initiative placed VEDCs as a central force to outreach parents and community to help children read at home—a way to connect school and families/communities better, as well as for sustainability. First, the Initiative conducted VEDC training to strengthen their capacity on the roles and responsibilities of VEDCs and to increase their skills on how best to raise awareness about the critical roles that families and community can play and to demonstrate concrete ways to help children's literacy at home. Then VEDCs conducted quarterly meetings with parents to share the classroom literacy assessment results, and to encourage parents to support their children at home by using the locally available items and the CLD Take Home Kits distributed by the project (see Photo X). CRS' Community Mobilizers helped to increase interactions between VEDCs and parents at the VEDC parents' meetings, explained how to use the CLD Take Home Kits, and provided advice throughout the pilot implementation.

GUATEMALA

BARRIER ANALYSIS

CRS/PRODESSA conducted a barrier analysis of 90 families selected from the target geographic areas to find principal barriers for parents in relation to supporting their children with reading, homework or their education more broadly. The principal factors that parents mentioned included their economic situation and literacy level (level of schooling). Many parents, especially mothers, expressed feeling impotent in helping their children with schoolwork, particularly reading, due to their lack of literacy skills.

ILLUSTRATIVE ACTIVITIES DESIGNED FOR HOME VISITS

- Talking to children constantly to develop oral language fluency;

- Taking children to the market or other areas to develop vocabulary;

- Asking children to draw letters or numbers in the dirt;

- Providing reading materials at home to become more familiar with print mediums;

- Asking children to read to parents or explain their homework to them.

ACTIVITIES

Taking these barriers into consideration, home visits were designed to demonstrate a set of concrete and simple ways to help children develop a literacy foundation. The activities shared through these visits could be practiced as part of daily life with little extra time or resources needed (see Text Box). Due to the limited budget of the CLD Pilot Initiative, the home visits were piloted with about 90 families.

Research and Study Findings

Laos

RESEARCH ON SCHOOL-BASED INTERVENTIONS

Initially, CRS and AIR planned to conduct a mixed-methods study that included a randomized controlled trial and a rigorous qualitative evaluation. Because of unforeseen logistical challenges, the evaluation was redesigned into a rigorous qualitative evaluation.

RESEARCH QUESTIONS:

a. How do teachers perceive the toolkits in terms of the teacher training, the coaching, and the overall user-friendliness of the toolkits and trackers?

b. Are teachers and coaches implementing the RR and FA Toolkits with fidelity (i.e., as outlined in the toolkits and training)?

c. How do teachers perceive the effectiveness of the RR and FA Toolkits in improving students' reading ability?

METHOD

AIR designed and executed a qualitative evaluation that includes key informant interviews with program stakeholders, focus group discussions with students, and observations of G1 and G2 classes. The study included two rounds of qualitative data collection: one at midline in January/February 2018[5] and one at end line in late April/May 2018. Additional data was collected at two time points to better understand the implementation process at different stages in the program's life cycle.

AIR employed a purposive sampling strategy in which study participants were selected based on key theoretical characteristics of interest (Bernard, 2017). Given the CLD Pilot Initiative's interest in understanding differences across urban/rural

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5   Instead of a baseline study, a midline study was conducted after teachers started using the FA Toolkit.

areas, as well as across the three ethnolinguistic groups in the target areas, at midline AIR purposively sampled one urban and one rural school from each of the three ethnolinguistic groups included in the project—namely, Makong, Phu Thai and Lao. AIR also divided our sampled schools evenly between the Xebangfai and Xaibouathong districts to capture program processes across the two implementation districts.

On the basis of the findings from midline, AIR modified the sampling for end line to investigate further the differences between high- and low-performing schools involved in the program (as opposed to focusing more heavily on urban/rural differences). To do this, AIR selected schools from the highest and lowest performing schools from each of the three ethnolinguistic groups.

Notably, although the original study design aimed to include two Makong schools in the end line sample, the initial school information misclassified a Lao-area school and a Khmu-area school as Makong schools. Because of this misclassification, the final end line sample included three Lao schools and one Khmu school, which proved advantageous because the Khmu school provided important information about toolkit implementation with speakers of languages that are more linguistically distant from Lao.

AIR used four types of qualitative methods: key informant interviews (KIIs), guided classroom observations, focus group discussions (FGDs) with students and structured notes from monthly coaching visits. AIR sampled diverse stakeholders who played key roles in program implementation, including teachers, principals, government officials and students. The table below lists the qualitative instruments used at schools with sample size and research questions that each instrument is for.

Table 2: Qualitative Instruments

QUALITATIVE INSTRUMENTS	SAMPLE SIZE	RESEARCH QUESTIONS		
		Q1: PROGRAM USABILITY	Q2: FIDELITY OF IMPLEMENTATION	Q3: PERCEIVED EFFECTS
Classroom Observations (G1 and G2, 1 per school)	23 observations total for midline/end line	●	●	
FGDs/Students (G2, 1 FGD per school)	12 FGDs with G2 students for midline/end line		●	●

QUALITATIVE INSTRUMENTS	SAMPLE SIZE	RESEARCH QUESTIONS		
		Q1: PROGRAM USABILITY	Q2: FIDELITY OF IMPLEMENTATION	Q3: PERCEIVED EFFECTS
KIIs/Teachers (G1 and G2, 2 KIIs per school)	52 KIIs for midline/end line	●	●	●
KIIs/Principals (1 KII per school)		●	●	●
KIIs/Literacy Coaches (4 total)		●	●	●
KIIs/CRS Staff (2 total)			●	●
KIIs/PESS & DESB Officials (4 total)			●	●
Coaches' Observation Notes		●	●	●

ANALYSIS

AIR used a collaborative coding and analysis process to compare research findings and build on emerging themes. Using NVivo, AIR examined differences in qualitative responses between different subgroups of respondents (e.g., urban teachers versus rural teachers), developed thematic summaries for each research question, coded a selection of transcripts, and compared researchers' coding patterns by using an inter-rater reliability test. For areas in which coding patterns strongly diverged, AIR came to a shared understanding of code definitions to ensure consistency within the analysis.

RESULTS

Q1: Toolkit Usability

When investigating toolkit usability, AIR specifically examined the effectiveness of the teacher training, the coaching provided through the program, and the overall ease of use of the toolkits. Teachers and principals found that the training greatly enhanced teachers' ability to implement the toolkits because it gave them an opportunity to experiment with more engaging teaching materials like the Lao symbol cards, and it helped them to learn new instructional practices for literacy instruction. Although teachers and principals largely found the coaching visits to be helpful for the implementation of the toolkits, several teachers remarked

that they needed additional coaching specifically on the remedial activities. When asked about the overall ease of use of the toolkits, teachers agreed that the toolkit instructions were clear and the toolkits were easy to use. When asked about challenges related to toolkit usability, teachers often cited toolkit activities that were challenging for students as opposed to discussing challenges related to teachers' use of the toolkits.

Q2: Implementation Fidelity

To understand CLD implementation fidelity better, AIR examined how closely stakeholders followed the planned processes for communication, implemented assessments and remedial activities, and carried out coaching. Regarding communication processes, AIR found that staff followed official government processes for working in and communicating with participating communities, and that government officials indicated that effective communication greatly improved the overall program implementation. Regarding the fidelity of toolkit implementation, AIR found that teachers implemented the assessments with a high degree of fidelity and that, over the course of the program, coaches and CRS staff were able to identify and correct several errors teachers made while assessing.

Data from interviews, as well as from coaches' monitoring data, demonstrated that coaches had a high level of knowledge about the proper implementation of the toolkits, and provided a range of feedback to teachers to support the proper implementation of program components. However, coaches, principals and teachers indicated that only a minority of teachers consistently (on a weekly basis) implemented remedial activities, and many teachers reported struggling with remedial activities because of a lack of understanding of the toolkits, lack of time and lack of ability to implement activities given large class sizes.

Q3: Perceived Effects

AIR found that nearly all interviewees perceived some positive effects on students' reading skills and, in particular, believed that students' motivation to learn and overall reading ability improved as a result of the program. While some respondents perceived differential outcomes between male and female students, assessment scores indicated that male and female students performed similarly on the assessments over time. Teachers and principals agreed that the CLD Pilot Initiative improved teachers' teaching methods, enhanced teachers' motivation and excitement for teaching, and enabled teachers to assess and know their students' performance incrementally.

RESEARCH ON ENGAGING FAMILIES FOR CHILD LITERACY

At the end of the school year, CRS conducted an end-line qualitative study with focus groups with mothers/fathers, children and VEDCs focusing on the research questions below:

- Has the project achieved the intended outcome of VEDCs supporting parents to engage students on literacy at home?

- Is there a difference between rural versus urban?

- Is there a difference between Lao and non-Lao villages?

- Were VEDCs the appropriate structure to work with on parental engagement to support literacy at home?

- What are the barriers [and facilitating factors] for VEDCs to organize and act autonomously to build capacity of parents and caretakers to support child literacy at home?

- What were the unintended positive or negative effects or outcomes of the project?

The following summarize the major findings:

- The CLD Pilot Initiative achieved the intended impact of parents engaging children on literacy at home through the combination of the VEDC parents' meetings and the CLD Take Home Kit. Training Module 6 (Parent Support for CLD) was cited by VEDCs and parents as most relevant and useful, presenting concrete and simple ways for parents to help children improve foundation skills for literacy at home.

- There was a notable difference between urban and rural communities, as well as Lao- versus non-Lao-speaking communities in terms of VEDCs'/parents' support for child literacy. VEDCs in rural communities identified more barriers for parents to support their children's learning than in urban communities due to the parents' limited Lao language capability, as well as parents having less interest in sending children to school.

- Among two ethnic groups, the Makong VEDC/parents have higher rates of Lao language illiteracy; thus, the Makong parents and VEDC members, especially in rural communities, did not seem to understand how children develop Lao language fluency/literacy and how parents can support children's literacy learning at home.

- VEDCs were considered an appropriate structure through which to work on parental engagement for dealing with primary education quality at the community level. Yet, VEDC members interviewed felt they did not have enough

time due to livelihood and family responsibilities. VEDC members viewed the VEDC's primary role as encouraging parents to send their children to school; the end line did not show, unfortunately, that VEDCs now consider it a more permanent part of their mandate to encourage parents to engage children on literacy at home.

- An unexpected outcome through engaging VEDCs and parents was that parents and VEDCs noted improvements not only in children's reading and phonological awareness abilities, but also in their soft skills such as politeness, enthusiasm and motivation, even though the CLD Initiative did not include specific interventions to target these attitudes.

Guatemala

RESEARCH ON SCHOOL-BASED INTERVENTIONS

AIR developed and piloted the CLD Toolkits in collaboration with CRS and PRODESSA staff. PRODESSA coaches were involved in training the teachers to use the toolkits, then provided support to teachers implementing the literacy toolkits during four visits throughout the school year. The coaches also collected fidelity-of-implementation data during the classroom visits. AIR designed the methodology used to assess the effectiveness of the literacy-related interventions in the Learning for Life project—KC, JdL and the CLD Pilot Toolkits. The program was implemented in 85 schools in Totonicapán during the 2018 school year in both urban and rural areas.

RESEARCH QUESTIONS

AIR assessed the impact of the reading program on reading ability—including all pertinent reading subskills—to ascertain whether the program effects were concentrated in any particular area of reading ability. Through two clustered RCTs, the following three research questions related to impact were addressed:

1. Does the package of school feeding (SF), Kemom Ch'ab'al (KC), Jardín de Letras (JdL) and the AIR-CRS Assessment Toolkit (CLD) impact student reading outcomes?

2. What is the added benefit of Jardín de Letras (JdL)?

3. What is the added benefit of the AIR-CRS Assessment Toolkit?

Table 3, on the following page, provides a quick summary of the different interventions that were evaluated.

Table 3. Key Interventions Studied in the RCT

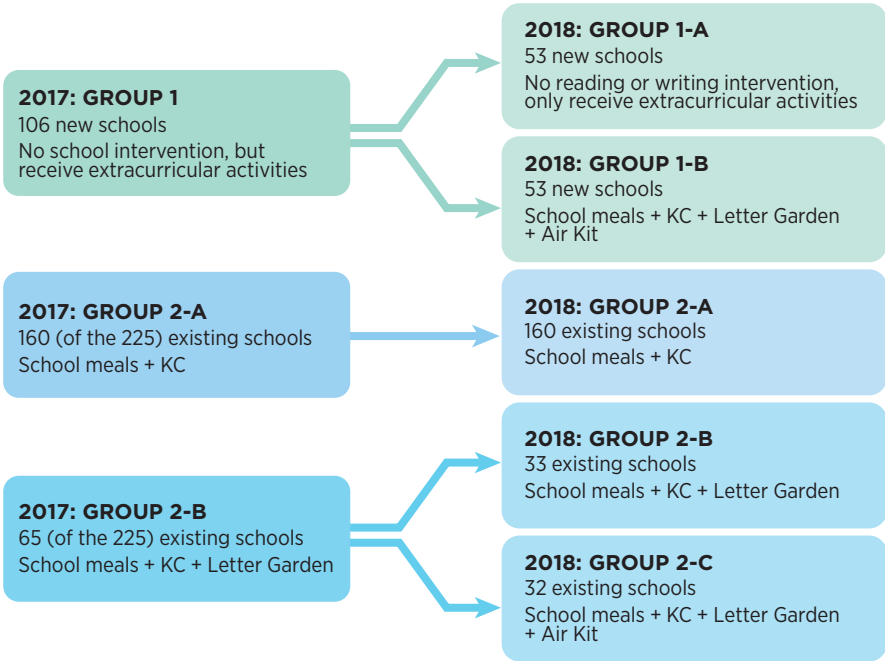| KEY INTERVENTIONS STUDIED	
Kemom Ch'ab'al	Bilingual (K'iche'/Spanish) reading comprehension methodology for 1st through 6th grades of primary school
Jardín de Letras	Bilingual (K'iche'/Spanish) early grade reading methodology for 1st grade students
AIR/CRS CLD Toolkit	Toolkit that supports teachers to identify pre-reading readiness and bilingual literacy skill development of first grade students. Includes exercises to strengthen student literacy abilities.

METHODS

Research in Guatemala designed by AIR was a two-part RCT that assigned interventions to 331 schools, including 225 schools that already participated in the MGD Phase 1 and who continued in Phase 2, plus 106 new schools that started in Phase 2. In December 2016, AIR randomly assigned schools to the three categories used in 2017, based on the following criteria:

1. Schools not exposed to the KC bilingual reading methodology nor the meals provided by the project, but that follow the Basic National Curriculum (106 schools)—control group.

2. Schools previously and continuously exposed to meals and the KC methodology (160 schools)—comparison group.

3. Schools previously and continuously exposed to meals and the KC methodology, in addition to the new JdL methodology (65 schools).

At the beginning of 2018, AIR further randomly split the groups (see Figure 1) to examine the impact of different interventions during the 2018 school year as follows:

• Group 1 was divided into two: Group 1-A continued as a control group, but received school meals (53 schools), and Group 1-B began receiving the complete intervention package (53 schools).

• Group 2-A continued under the same modality as in 2017.

• Group 2-B was also divided into two: Group 2-B continued receiving the same interventions as in 2017, and Group 2-C began receiving the complete intervention package, including the teacher toolkit.

Figure 1. RCT Design

2017: GROUP 1
106 new schools
No school intervention, but receive extracurricular activities

2018: GROUP 1-A
53 new schools
No reading or writing intervention, only receive extracurricular activities

2018: GROUP 1-B
53 new schools
School meals + KC + Letter Garden + Air Kit

2017: GROUP 2-A
160 (of the 225) existing schools
School meals + KC

2018: GROUP 2-A
160 existing schools
School meals + KC

2018: GROUP 2-B
33 existing schools
School meals + KC + Letter Garden

2017: GROUP 2-B
65 (of the 225) existing schools
School meals + KC + Letter Garden

2018: GROUP 2-C
32 existing schools
School meals + KC + Letter Garden + Air Kit

In order to answer the three research questions, the team conducted a baseline at the start of the 2018 school year, and an end line at the end of the school year testing the same cohort of G1 students with the National Standardized tests—Evaluación de Lectura para Grados Iniciales (ELGI in Spanish) and Etab'al sik'inem wuj pa nab'e junab' (ESWUJ in K'iche'). AIR conducted the baseline evaluation and ADOC (a local organization) conducted the end line. In addition, qualitative research was also conducted to examine whether the CLD Pilot Initiative affected teachers' practices and behaviors in the classroom for bilingual literacy instruction, as well as to determine the fidelity of implementation of the toolkits. Data collectors applied the ELGI and ESWUJ at baseline in 175 schools between February and March of 2018, and in 172 of the same schools in September of 2018 for end line. A total of 1,467 first grade students (730F, 737M) were tested during the final evaluation.

RESULTS

In terms of the K'iche' language, there is a treatment effect on reading comprehension observed for group 1-B compared to the rest of the groups, with 10% of first grade students reaching the reading comprehension section on the

K'iche' ESWUJ test, versus 7% or lower for the other intervention and control group. There are also significant treatment effects detected for other reading skills in K'iche', as noted in Table 4 below, suggesting that the interventions of Jardín de Letras, Kemom Ch'ab'al and the CLD Toolkit have potential for better supporting K'iche' and bilingual language learning. Given the limited printed materials and preschool enrollment before children enter primary school, the higher-level literacy skills, including reading comprehension and writing skills, are the skills to be strengthened in G2 and G3.

Table 4. Treatment effects were also observed for the following variables on the ESWUJ test:

	Compares	Group	N	Mean	SD	Standard Error (SE)	Significance
Letter knowledge	Groups 2-A and 2-B	2-A	274	5.37	15.88	.959	.002*
		2-B	220	9.64	14.38	.97	
Letter sounds	Groups 2-A and 2-B	2-A	274	17.97	17.79	1.075	.001*
		2-B	220	23.02	15.68	1.057	
Reading comprehension	Groups 1-A and 1-B	1-A	321	.67	1.5	.084	.004*
		1-B	315	1.05	1.89	.106	
Writing skills	Groups 1-A and 1-B	1-A	321	1.79	3.33	.186	.017**
		1-B	315	2.42	3.35	.189	

Percent value: *1%, **5%

In Spanish, there were no statistically significant differences between the various interventions and control groups on any of the reading constructs; however, Spanish scores were also higher overall than K'iche' scores on all constructs indicating higher initial levels of Spanish mastery. Totonicapán has a highly mixed demographic in regard to "mother tongue." In some communities, the mother tongue is still K'iche', while in others, it is now Spanish. Additionally, it is apparent that the educational system focuses more on teaching Spanish than on teaching K'iche', which could be because many of the teachers are not from the same

communities as their students, speak different variations of the language, or did not learn to read and write K'iche' (only speak/listen). Finally, in the focus groups made up of mothers and fathers in the baseline assessment, a lack of interest in ensuring that their children learn K'iche' was identified, especially in young parents, as they do not see how it will benefit their economic development.

FIDELITY OF IMPLEMENTATION FINDINGS

Teachers report low fidelity of implementation of the toolkit assessments. Qualitative data in the monitoring questionnaire show that many teachers struggled to 1) find the time to assess students, and 2) understand how to conduct the assessments. In the second round of monitoring data, 30 teachers requested additional support on assessments, specifically asking for help administering the assessments and asking for more time. Since the Ministry of Education rolled out a similar, Spanish-only formative assessment toolkit shortly after the project rolled out its toolkit, several teachers also noted using the Ministry of Education (MINEDUC) test instead of the formative assessments included in the project's toolkit. Monitoring data also revealed that teachers were instructed to stop CLD assessments during the second trimester of the program because of the overlap between the CLD assessments and the ministry test.

Teachers reported higher uptake in the program's remedial activities, but still reported overall low fidelity of implementation. While 55% of teachers reported carrying out remedial activities during the first data collection period, this figure dropped to 22% of teachers during the subsequent monitoring visits two months later. Teachers primarily cite a lack of time (N=21 teachers) during the first monitoring visit and (N=53) during the second monitoring visit as the main obstacle to implementing remedial activities. It's also important to note that the percentage of teachers who did not understand the remedial activities is quite low at only 5%.

Two factors that may have influenced toolkit implementation are 1) teachers were asked to administer a similar government assessment during the CLD Pilot Initiative, and may not have understood how to merge the two initiatives by applying the toolkit remedial activities in response to the government assessment results as these did not directly align; 2) PRODESSA coaches, who were primarily charged with supporting the Jardín de Letras (JdL) curriculum, were also used to support teachers in implementing the CLD Toolkits. Having to support teachers on the implementation of both initiatives may have reduced the amount of time they could spend on each.

ASSESSMENTS WITH MINISTRY ASSESSMENTS TO INCREASE UPTAKE RESEARCH ON ENGAGING FAMILIES FOR CHILD LITERACY

Due to difficulties in locating the same 90 parents who interviewed for the barrier analysis and received home visits, a comparison could not be made in terms of parents'/guardians' practices to help children's literacy prior to and after the home visits; instead, a survey was conducted at the end of the school year to collect data for a set of indicators determined to examine the status of "Engaging Families for Child Literacy." The survey results noted below are a representative sample of all parents, not those who had home visits.

Figure 2: Indicators and Survey Results Regarding Parent/Guardian and PTA Support for Child Literacy and Education

- 70 % of Parents and guardians practice at least three behavioral changes related to the education and reading of their children one or more times a week - Pre 0% | Post 72.5%
  Note: The three behaviors measured were: accompanying their child while doing homework, ensuring their child reads at least 2 times per week, and asking their children how they are doing in school

- Parents and guardians support girls and boys equally in educational and reading activities - Pre 0% | Post 72.4%
  Note: 16.3% supported girls more and 8.4% supported boys more

- PTAs collaborate at least once a month to support girls and boys with reading - Pre 0% | Post 6.7%
  Note: This question was asked to parents, rather than PTA members, to provide more objective answers

- PTAs support girls and boys equally in educational and reading activities- Pre 0% | Post 97.8%

CONCLUSIONS

Albeit small-scaled, the CRS-AIR CLD Pilot Initiative generated a great deal of valuable experience, useful tools and research findings that can contribute to the field of early literacy intervention design and research in LMICs. Key takeaways from the CLD Model design and implementation and research are summarized below, followed by recommendations.

Positive Outcomes and Challenges

CLD Model Design

POSITIVE OUTCOMES

Three special features distinguish the CLD Pilot Toolkits from other literacy packages: Implementers of CLD activities in LMICs encounter a wide variation of distinct language characteristics and linguistic environments. The CLD Pilot Toolkits have the following three special features that help teachers in CLD instruction under various linguistic circumstance as they are a) designed to assess and enhance reading readiness; b) tailored to the different language types and orthographies and the local linguistic environment, and c) designed for second language learners in varying contexts of bilingualism and multilingualism, including those for whom the language of instruction does not match the home language.

Assessment data specifically linked to remedial teaching: Various global literacy assessments to date have been principally summative, and even when they are meant to be diagnostic, they are rarely explicitly linked to remedial teaching methods for teachers. To address this gap, the CLD Toolkits were developed not only as a diagnostic tool that teachers can use to assess and track each child's literacy level, but to conduct remedial teaching and contextualize literacy instruction according to the basic literacy competencies (the "right level") of the class as a whole and students individually.

Engaging parents for child literacy support at home: Both Laos' and Guatemala's experiment to engage parents to support children's literacy at home showed that parents, even with limited education and literacy skills, can help children to practice oral language and reading skills once they are taught simple and concrete ways to do so. For children to acquire pre-literacy and early grade literacy skills, they must practice consistently and frequently, and school hours are not sufficient by any means. To promote home literacy support in parallel to school-based activities helped children enhance time to read and develop pre-literacy and literacy skills

CHALLENGES

Time and classroom management while implementing toolkits (challenges):
One of the biggest implementation challenges noted by teachers in both Laos
and Guatemala was finding the time and classroom management to conduct the
assessments. Most of the assessment tests were designed to be applied one-
on-one; therefore, going through the whole set of tests in the toolkits required
substantial time. This was multiplied in Guatemala where teachers were applying
tests both in K'iche' and Spanish. In addition, teachers had very little previous
experience with managing a classroom and engaging all children in learning
activities while the teacher was with one student.

Differentiated teaching: The toolkits were designed to support teachers in
providing remedial support per students' weak literacy skills and the level of
mastery of each skill. (The toolkits' remediation methods are further divided per
students' score range.) However, the interviews with teachers and the study on
fidelity of teachers' toolkit implementation revealed that teachers rarely conducted
this kind of differentiated teaching. Teachers were not utilizing remediation
methodologies frequently nor as intended per students' assessment results, but
instead for the whole class instructions. Teachers are used to the traditional one
standard classroom instruction, and do not always know what to do with the rest of
the class while engaging with one student or a small group of students for testing
or for remediation.

CLD implementation process

POSITIVE OUTCOMES

The partnership between CRS and AIR: The partnership enabled CRS and
AIR to develop a new CLD model and to generate evidence. Through this CLD
Pilot Initiative, CRS and AIR complemented each other's strengths—CRS for
its implementation experience, familiarity with local context, relations with the
government and other stakeholders and expertise in engaging families and
communities for education, and AIR for specialized language/literacy instruction
expertise and high-quality research skills.

Learning science-informed pilots: This endeavor utilized an approach in which
the CLD Pilot Initiative was designed with the goal of being researched. While
scalability of programs is critical, the need for more learning science-informed
pilots is critical in order to improve the effectiveness of the programs that are
chosen to scale.

CHALLENGES

Pilot and research with school rollout: The necessary arrangements with the government, as well as unexpected circumstances, caused delays and complications in pilot implementation in both Laos and Guatemala. Consequently, the duration of the pilot rollout was limited to only one year in both countries. Testing a pilot CLD mode and measuring the effects ideally needs longer than one school year. In general, education programs are bound by a school year; thus, time is a tremendous challenge when piloting a new model with research measuring the students' academic/literacy outcomes and other aspects for school-based interventions.

Changing research designs: Originally the CLD Pilot Initiative planned an impact evaluation through an RCT to examine effectiveness of the newly developed CLD model on children's literacy outcomes in both pilot countries; however, an RCT posed a set of complications such as strict randomization requirement, ethical and political issues related to having treatment versus control schools, securing a certain sample size for enough statistical power, and above all, expense. The government of Laos did not want CRS to select schools randomly, but instead to target schools without external support by other NGOs. Guatemala was able to implement an RCT, but some schools in the control group without the literacy intervention refused testing. In addition, some schools in the control group learned about JdL and the toolkits from other nearby schools and applied it themselves (this, of course, is an encouraging phenomenon, but for the purposes of the RTC is considered as data contamination). And then the RCT in Guatemala did not demonstrate many significant differences in terms of effect of different interventions, due in part to the issues above, as well as the short implementation period. In Guatemala, the number of implementing partners also made conducting the RCT quite difficult. In addition to CRS, this CLD Pilot Initiative involved PRODESSA, AIR, Ministry of Education departments and an external evaluator, etc. This made it difficult to coordinate many moving pieces, different politics and policies and a mix of personalities. On the other hand, the in-depth qualitative studies generated quite a wealth of valuable information about the pilot model.

Sustainability: The CLD Pilot Initiative aimed for sustainability and upscale of the CLD Model. The CLD Pilot Initiative coordinated with the central and local Ministry of Education, and involved education authorities and officials while developing the toolkits and conducting teacher training/coaching as a way to inform the objectives and progress of the Initiative, build government capacity to carry on activities, and integrate the CLD Model into existing curriculum, teacher training and family outreach. Ideally, the CLD Model will become part of the official BEQUAL curriculum as a key step for the sustainability and scalability of the Initiative; this will enable teachers to value its importance and reduce any

conflicting forces on how to use their time. As for Guatemala, while rolling out the toolkits, the government unexpectedly developed a similar FA tool (in Spanish only and without the tracking or remediation aspects) and obliged teachers to be trained on it. Therefore, CRS and AIR hope that in the remaining MGD project years (through September 2021) we can work with MINEDUC and departmental education authorities to incorporate key elements from the CLD Toolkit into the government FA tool and teacher training.

RECOMMENDATIONS/NEXT STEPS

1. Integrate the CLD assessments and remedial activities with ministry assessments and align with the national curriculum to the extent possible so that they become a part of the expected daily processes for teachers, and are not seen as something to do in addition to the curriculum.

2. Reduce the time required to implement assessments by piloting more group-based assessments.

3. Provide more support for implementing remedial activities, including demonstrations by coaches, especially:

   a. Awareness raising regarding the importance of teaching to the student's "right level" for improving literacy;

   b. Additional strategies for group activities;

   c. Detailed training on the differences between the subskills and how and why certain skills take longer to acquire (this may be challenging given the training and education levels of teachers in certain regions, but is still worthwhile to consider);

   d. Training on differentiated teaching in general and on the use of remediation methodologies in the toolkits in particular.

4. Improve the toolkits by taking the following actions:

   e. Further simplify the text throughout the toolkit, especially for the remedial teaching activities so that instructions convey the critical information without being overly detailed;

   f. Provide a greater emphasis on visuals.

5. Provide enough materials for each student to use supplementary materials.

6. Conduct larger scale mixed-method evaluations of the CLD Pilot Initiative in various contexts.

7. Related to engaging families and community for children's literacy support, explore and test the model for sustained behavior change. Measure and monitor behavior change, for example, using the KAP (Knowledge, Attitude and Practice) Survey to see where in the KAP spectrum parents are to fine-tune the model, and evaluate for the future learning.

Global Implications of the CLD Pilot Initiative

As the global education community focuses squarely on tackling the issues of improving learning outcomes in LMIC contexts, the CLD Model provides an example of a program that takes into consideration cognitive learning processes and how they may be different in diverse linguistic, social and cultural contexts. This linkage between the micro learning mechanisms and the macro social and political structures in which the program is implemented is a key part of helping solve the global learning crisis.

Another key implication is all the different ways evidence and data interact in solving the global learning crisis. Evidence from learning science is at the heart of effective program development, followed by data usage for improving learning outcomes in the classroom, followed by evaluation data on the impacts of the program, including why or why not there may be an impact. The CLD Pilot Initiative attempted to encapsulate this entire gamut of evidence and data usage with the aim of improving learning outcomes.

Lastly, CRS, AIR and its partners have learned a lot by designing and implementing this CLD Pilot Initiative with research, and remain committed to improving learning outcomes from children in linguistically complex environments. CRS and AIR intend to continue improving and implementing the pilot interventions, as well as seek opportunities to collaborate and test the CLD Model in the same pilot countries and additional countries in the future.