Learning to read… expected and actual trajectories

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Key issues

Children come to school with the expectation of learning different skills. As children progress from grade to grade, the constructivist expectation is that they improve their skills until they master them and are ready to learn new ones. However, the competencies that the student must develop to master a complex skill, such as Reading are not given the appropriate attention in the early grades.

This document describes the expected and actual learning trajectories of reading in the early grades of primary school in the Western Highlands of Guatemala, which is populated predominantly by poor, rural and indigenous communities. The trajectories described are based on the results of the longitudinal study of learning to read that the USAID-funded Lifelong Learning Project, implemented by Juarez and Associates, has managed since 2015.

Learning to read is often associated only with developing the composite skill of reading fluently. However,

fluency represents only one of various competencies in the continuum of learning to read. Additionally, when the learning continuum is immersed in a multilingual and multicultural context, the competencies that the student progressively masters interact between two languages, which can extend the learning trajectory.

In Guatemala, it is widely assumed that the child will learn to read in first grade, which generally refers to acquiring basic decoding competencies. We know, however, that learning to read is a continuous process that goes beyond primary school; in other words, it does not start or end in first grade. Thus, it is important to understand the sequencing and timing of the trajectory that a student will go through in the early grades, particularly in multilingual contexts. Moreover, it is important to understand that such learning trajectories can be hastened when instruction is done carefully, building on competencies forged through the mother tongue first.

THE EXPECTED LITERACY TRAJECTORY IN THE EARLY GRADES OF PRIMARY SCHOOL IN GUATEMALA

Learning to read is a continuous process that goes beyond primary school; that is, it does not begin or end in first grade. However, it is in the first three grades of elementary school, that Guatemalan children are expected to master reading competencies, to be able to read comprehensively and learn from other subject areas in further grade levels.

In Guatemala, the national curriculum focuses on developing decoding skills in the **first grade** of primary school. Decoding consists of relating the sounds (phonemes) with the symbols (letters) of the alphabet. Additionally, in this grade, children are expected to comprehend literally simple texts they read. In other words, in this grade it is expected that children answer some literal questions from the text (Abadzi, 2012).
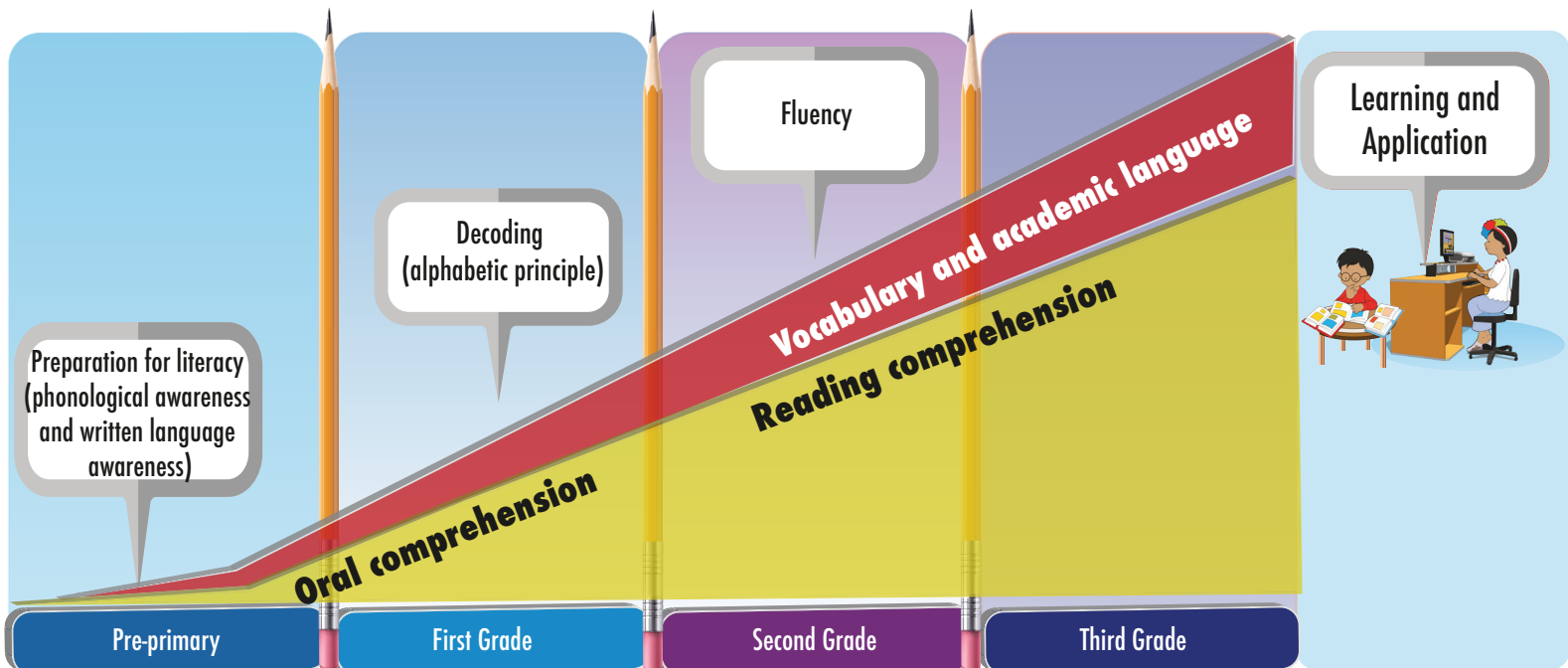
It is also expected that oral competencies of the language in which children will learn to read and emergent reading skills will be developed from the first years of the child's life at home and in pre-primary school. When children begin first grade, they must be prepared with emergent reading skills. Emergent reading skills include: oral language, vocabulary, oral comprehension, motivation to read and write, phonological awareness, written language awareness, and graphomotor skills (Camargo et al, 2013). Some indicators that demonstrate that children have mastered emergent reading skills are: (a) becoming familiar with concepts of print. For instance, identifying the correct direction to read a text in Spanish and Mayan, (b) identifying some letters, and (c) reading and writing frequently used words, for example, writing his own name.

Under the assumption that students have developed emerging literacy skills and orally dominate the language in which they will learn to read and write, in first grade children begin to learn decoding skills. However, In Guatemala students who have not yet developed emergent reading skills are expected to acquire them during the first months of first grade, which creates additional challenges for both these children and their teachers.

Throughout the first three grades of primary school, children are expected to demonstrate proficiency in six early literacy skills, which include: (a) phonological awareness, (b) alphabetic principle, (c) vocabulary, (d) fluency, (e) comprehension, and (f) writing (Gove, 2011; Camargo et al. 2013). Ideally, by the end of the first grade all children should be able to decode automatically, without thinking "consciously" the sound of each letter or word they read. In addition, even when children have developed basic emerging literacy skills before coming into first grade, it is important to understand, of course, that not all children

Expected trajectory of learning to read in the mother language (Spanish or Mayan language)

Learning and Application

Fluency

Decoding (alphabetic principle)

Vocabulary and academic language

Reading comprehension

Preparation for literacy (phonological awareness and written language awareness)

Oral comprehension

Pre-primary | First Grade | Second Grade | Third Grade

learn to read and write at the same pace. Therefore, there will be students who will become fluent in reading during the first year of primary school, yet different levels of fluency should be expected. Although decoding simple texts is an important achievement in children's learning, it is insufficient for them to understand what they read. Thus, in order to decode automatically, it is necessary to exercise fluency intentionally and systematically in the classroom and at home. This, at the same time, will facilitate reading comprehension.

The more fluently a text is read, the longer it is stored in working memory, and thus, the greater chance there is to connect it with previous knowledge and to understand it (Abadzi, 2012). These international studies and the study carried out by Del Valle (2017) in Guatemala show that Guatemalan students who read between 45 to 60 words per minute can answer 4 to 5 reading comprehension questions about the text.

Subsequently, **second grade** of primary education in Guatemala becomes crucial in the development of fluency and reading comprehension. Both fluency and reading comprehension are fundamental skills necessary to learn other areas of the curriculum. It is in this grade level that automatization of reading fluency must be emphasized. A child achieves reading fluency when he is able to read accurately, with adequate expression (intonation and rhythm), and speed. Children can begin to learn from texts when they can read them fluently (Abadzi, 2012).
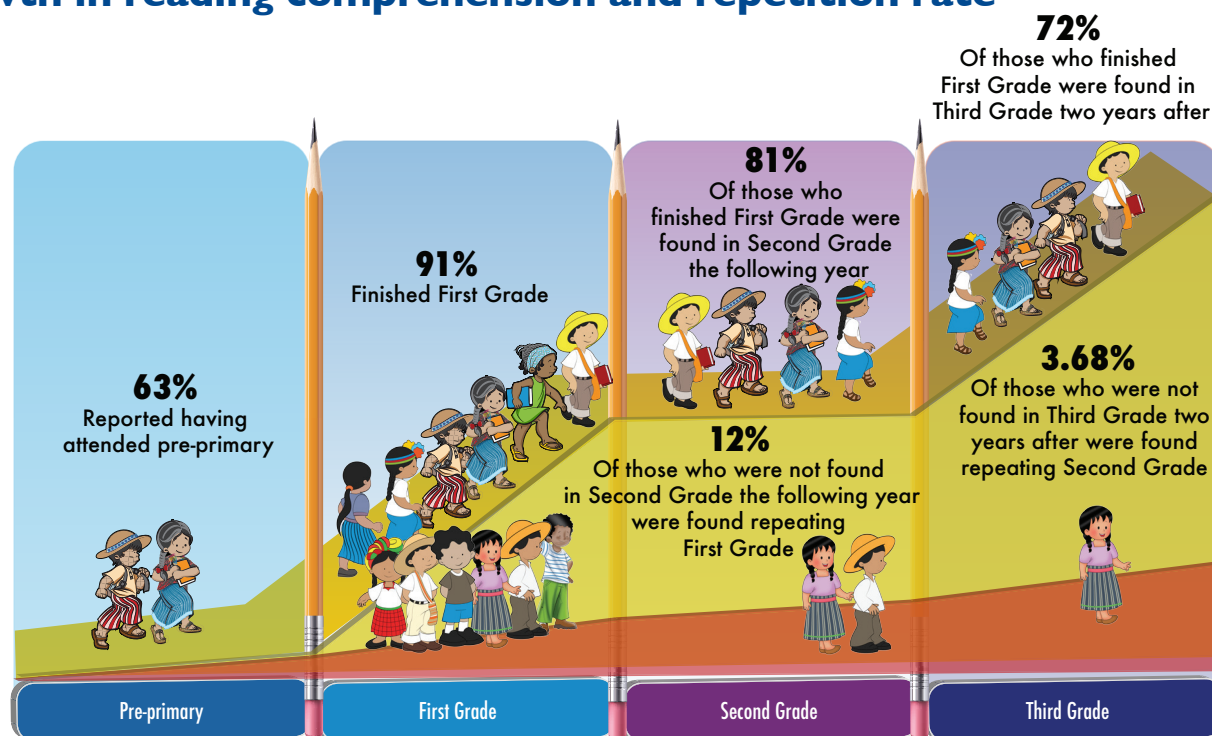
Reading automatization requires explicit teaching and practice at the second grade level. Accordingly, four key teaching elements play an important role in developing fluency: (a) complexity of sounds, particularly those in bilingual settings, (b) leveled texts, (c) vocabulary and academic language, and (d) reading comprehension skills. Languages have sounds and letters, some more complex than others. For example, digraphs in Spanish (dl and tr, among others) and glottalized digraphs in Mayan languages (tz ', ky', tx ', among others) are complex sounds in Guatemala. This implies that students in second grade receive explicit instruction of such sounds. In addition, in order to develop fluency, it is necessary to use leveled texts. Leveled texts are those written at the reading level

of students and increase in reading complexity as children progress their reading skills. Next, it is crucial to increase vocabulary and academic language through other areas of the curriculum. Lastly, it is necessary to teach and develop reading comprehension skills, both literal and inferential and critical in second grade. Comprehension strategies can be developed orally, through read aloud techniques, even before students have sufficient fluency to apply them into texts. As a child increases his/her reading fluency and vocabulary, he/she will have greater opportunities to understand what he reads and relate it to his/her previous knowledge. In the United States children are expected to read an average of 85 words per minute by the end of second grade and in Mexico the cut point is 80 words per minute. Such cut scores represent the minimum fluency a student has to perform to be able to understand texts at their grade level and then learn from them (Abadzi, 2012).

However, as mentioned above, learning to read and write is a continuous process. There are contextual, methodological and individual aspects that influence such learning. For example, if a child begins first grade without having attended pre-primary school, has had little or none access to literate material in his/her home, and little vocabulary in the language of instruction, he/she will require more time to learn emergent reading skills and need classroom adaptations to prepare him to read. Consequently, if in second grade the student receives few opportunities to develop fluency, and develop comprehension skills, he/she will be in disadvantage when moving on to third grade.

In **third grade,** students are expected to reinforce basic reading skills, but it is also expected that students begin such grade level with sufficient fluency in order to apply reading comprehension strategies. Reading comprehension is a term that is frequently generalized, even though it can represent different skills and levels. There are at least three levels of reading comprehension: literal, inferential and critical. Literal comprehension is observed when children answer questions about the text that can be located in such text. For example: Who played in the garden? What color was the dog? Where did she sing? According to Abadzi (2012), literal comprehension does not need explicit teaching and can begin with very simple texts. Children can locate the answer to literal questions

Growth in reading comprehension and repetition rate

72%
Of those who finished
First Grade were found in
Third Grade two years after

81%
Of those who
finished First Grade were
found in Second Grade
the following year

91%
Finished First Grade

63%
Reported having
attended pre-primary

3.68%
Of those who were not
found in Third Grade two
years after were found
repeating Second Grade

12%
Of those who were not found
in Second Grade the following year
were found repeating
First Grade

Pre-primary	First Grade	Second Grade	Third Grade

in the text, once they have sufficient reading fluency in a grade level text. Differently, inferential or interpretative comprehension, such as prediction, and finding the main idea, require higher cognitive skills. Thus, inferential comprehension skills require reading fluency as a prerequisite. However, fluency is insufficient to answer inferential questions because they require explicit and systematic teaching.

Furthermore, to comprehend at higher cognitive levels it is essential that vocabulary and academic language be developed and have morphological awareness (the form of words) and semantic awareness (ability to give a meaning to a word). Research indicates that morphological awareness represents a good predictor of reading comprehension performance. Inferential comprehension allows the child to make conjectures or hypotheses of the text read. A higher level of reading comprehension is represented by critical comprehension. This level requires the student to evaluate and make critical judgments of the text. For instance, agree or disagree with the text. It is important to emphasize that to develop reading comprehension of high cognitive levels it is important to consider the type of text that is read. Narrative texts tend to be understood more easily than informational

texts, particularly those that have a higher load of academic language.

Finally, metacognition plays an important role in reading acquisition. Metacognition refers to the skill that allows a student to identify whether he is understanding what he reads or if he needs to read or apply other strategies to understand a text. In conclusion, the learning continuum of the reading in the early grades of primary school requires that the student advances in skills as he progresses in grades; so that, at the end of the third grade the student reads with fluency and comprehension. When the student links what he reads with his/her previous learning and gives it a meaning, he/she will begin learning. To achieve this, it is necessary to ensure that each child acquires basic skills of emerging literacy and early literacy and that they receive opportunities to develop such skills, as well as to grow their set of reading skills.

THE EXPECTED LITERACY TRAJECTORY IN THE EARLY GRADES OF PRIMARY SCHOOL IN BILINGUAL CONTEXTS OF GUATEMALA.

In bilingual contexts, learning to read requires taking into consideration the different languages to which the child is exposed. International studies in bilingual education

recommend that children learn to read and write in their mother language (L1) first, and then, transfer reading skills to the second language (L2). This recommendation is based on the fact that students have oral mastery of sounds, expressions, vocabulary and linguistic structure of the mother tongue. As mentioned in the previous section, oral comprehension is one of the prerequisites to learn to read.

When students recognize the sounds of their mother tongue, it facilitates association between sounds (phonemes) and letters (graphemes) prior to decoding. On the contrary, if students learn to read in a second language (L2) first, they would be challenge by having to learn the linguistic structure of a new language, in parallel with their literacy development. This practice not only implies greater challenge for the student, but, it also explains in some way the high rates of failure and repetition in first grade in Guatemala. According to Daniel, J. (2003): "years of research have shown that children who start their education in the mother tongue have a better start and exhibit a better performance than those who are exposed to a language new when entering school "(p. 1).
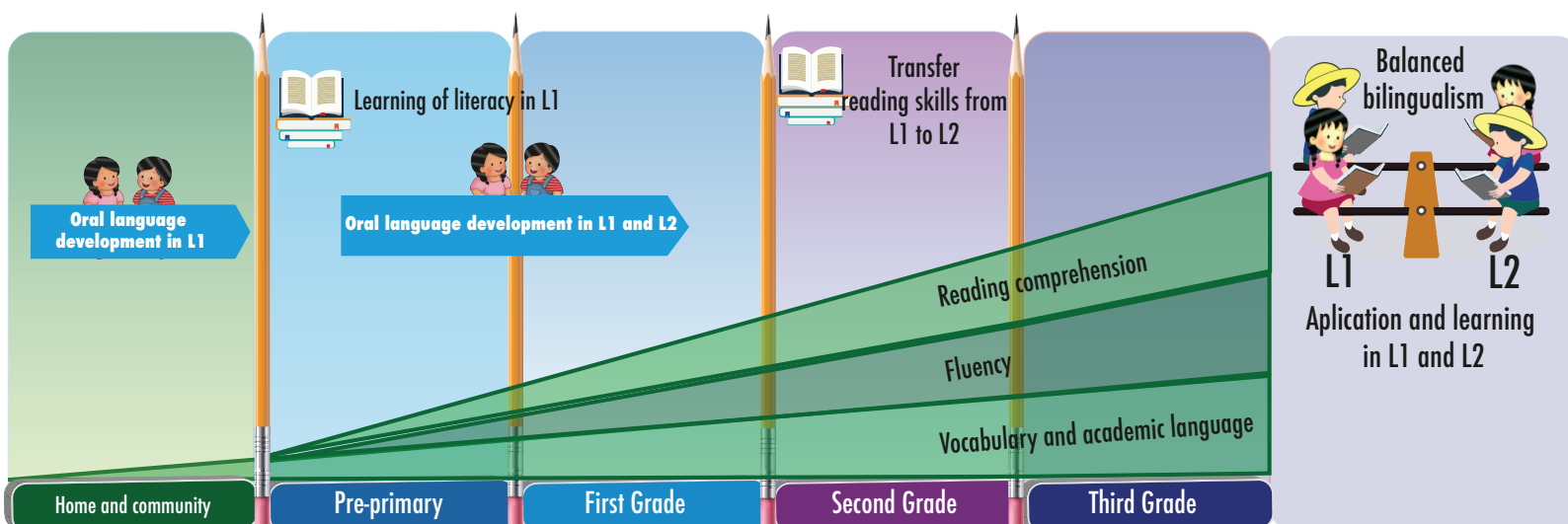
According to the Guatemalan National Curriculum, in preprimary and first grade of primary school, students should develop oral language of the second language. In **second grade,** the focus should be on transferring literacy skills from L1 to L2 (L1 refers to the mother tongue and L2 to the second language). From third grade up, students should continue developing vocabulary, fluency, comprehension and writing skills of the mother tongue and the second language. This trajectory facilitates achieving an additive bilingualism. Aiming for an additive bilingualism, implies valuing the two languages and recognizing the advantages of being a bilingual person.

As a result, basic reading skills that are expected to be developed in **first grade** must be done in the student's mother tongue (L1). This presupposes that emergent reading skills were also done in their mother tongue in preprimary school or in the community.

It is important to recognize that a student learns to read and write only once in languages that use the same alphabet. Then the person transfers reading skills to a second or third language. However, a student in bilingual contexts will not learn to read again because such person has already mastered reading skills in the mother tongue. In this sense, second grade becomes crucial again. It is in this grade that transferring reading skills from one language to the other should be facilitated in bilingual contexts. However, such transfer presupposes that a successful preparation was carried out in previous grade levels. Specifically, in bilingual contexts, the second language must be developed orally in first grade so that, in second grade, reading skills learned in

Expected trajectory of learning to read in bilingual contexts

Oral language development in L1

Learning of literacy in L1

Oral language development in L1 and L2

Transfer reading skills from L1 to L2

Reading comprehension

Fluency

Vocabulary and academic language

Balanced bilingualism

L1   L2

Aplication and learning in L1 and L2

| Home and community | Pre-primary | First Grade | Second Grade | Third Grade |

the first language can be transferred to the student's L2. In general, when literacy is transferred to a second language, vocabulary, structure, expressions and characteristics of the second language are facilitated through oral language. Then, second grade teachers help their students to find common sounds and letters of the second language (L2) with their mother tongue (L1). Subsequently, the transfer focuses on explicitly teaching the different sounds and letters between both languages. For example, the "f" does not exist in Mayan languages, so indigenous children must learn it explicitly to avoid replacing it with the letter p. For example children substitute the word "café" (Spanish word for coffee) for the word "cape".

It is worth noting that students have different linguistic mastery. Therefore, knowing the oral linguistic profile of children before starting first grade allows the teacher to identify the language in which their students should learn to read and write, and thus, transfer reading skills to a second or third language successfully.

THE ACTUAL LITERACY TRAJECTORY IN THE WESTERN HIGHLANDS OF GUATEMALA.

From the longitudinal study of learning to read that the USAID-funded Lifelong Learning Project has implemented through Juarez and Associates from 2015 to 2017, test data of three cohorts of students have been collected in each of the early grades. Students have been evaluated in the corresponding reading skills by grade level. Reading skills growth between levels is presented below.

GROWTH IN LETTER RECOGNITION

Recognizing and naming letters is one of the first skills a child masters in learning to read. Figure 1 shows the increase in percentage of students who recognize a sample of five letters of the alphabet from preprimary to second grade.

As it is observed in Figure 1, transparent letters, such as the vowels and the "p" are recognized earlier by a child than less transparent letters. The vowel "o" is recognized by most students, even before first grade. On the contrary, less transparent letters, but with high frequency in the Spanish language, such as "c" and "b" show progress

from first to second grade of primary school. However, letters with more than one sound, like the letter "c" is recognized only by half of the students, even at the end of the second grade. It is expected that by the end of second grade, all letters of the alphabet are recognized by all students in the second language (L2).

Figure 1: Growth in letter recognition
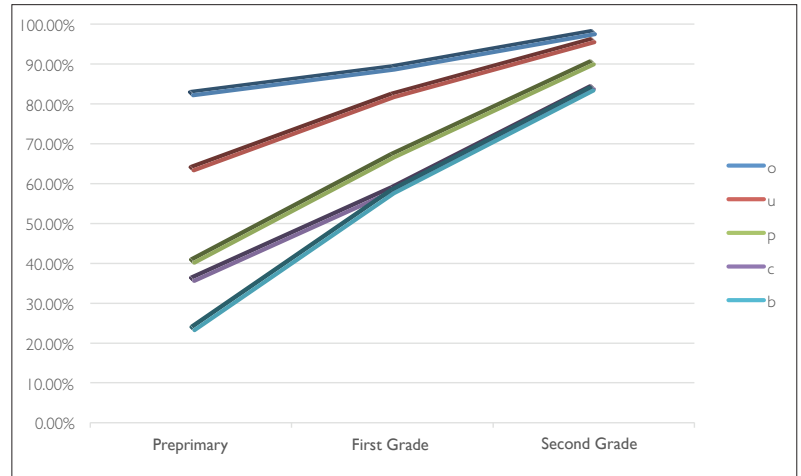
GROWTH IN ORAL COMPREHENSION

To assess reading comprehension students answered various questions about a story that was read aloud to them. Results show that more second-grade students respond to literal questions than first-grade students (see Figure 2). However, the percentage of students who can answer questions with new vocabulary is the same, regardless of the grade. This result is a warning about the need to develop vocabulary in the initial grades to favor reading comprehension in later grades.

Figure 2: Growth in oral comprehension
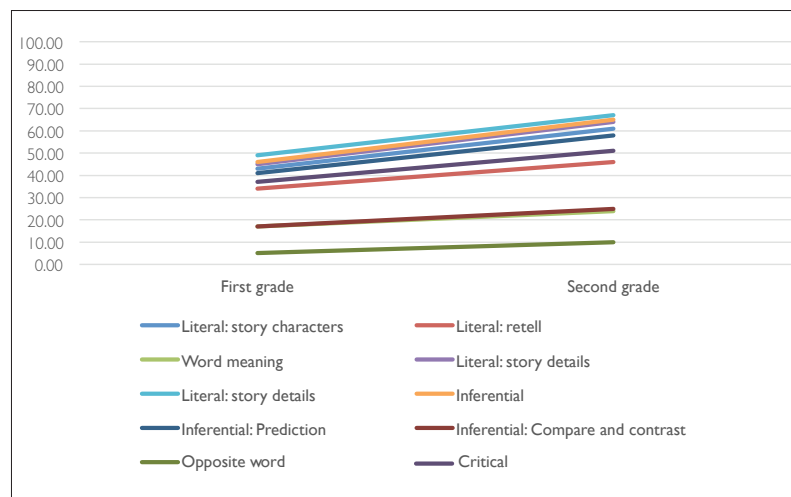
GROWTH IN DECODING SKILLS

When first-graders have a certain mastery of the alphabetic principle, they can recognize sounds and identify corresponding letters to form words. A frequently used task to measure decoding is through dictation. To measure growth in this task from the end of preprimary school, students performed a dictation of three words: luna, oreja and comida (Spanish words for moon, ear and food). Of the total number of children evaluated to date, 12% wrote the three words phonetically correct when they finished preprimary school. By the end of the first and second grade, children performed a dictation of a sentence. Results show that students progressed in writing the words of the dictated sentence phonetically correct from first to second grade (see Figure 3).

Figure 3: Growth in dictation
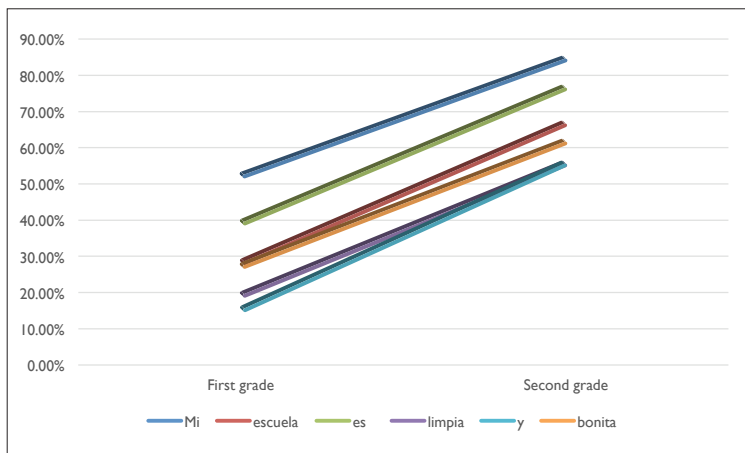
Another task used to check the progress in decoding skills is reading nonsense words. First grade students read on average **12** nonsense words per minute by the end of the school year. Second grade students read on average **29** nonsense words per minute by the end of the school year.

SIGHT-READING FAMILIAR WORDS

The task of reading familiar words in a limited time is one of the predictors of reading fluency (Del Valle, 2017). Figure 4 depicts growth of three sampled words that students read from preprimary to second grade. Two familiar words, "sol" and "mamá" (Spanish words for sun and mom), show that more students can sight-read when advancing in grades. The third word "mesa" (word for table in Spanish) shows that when conditioned to a time limit less students sight-reading in first grade than in preprimary when no time

limit was given. However, more than 50% sight-read it by the end of second grade with a time limit.

Figure 4: Sight-reading familiar words
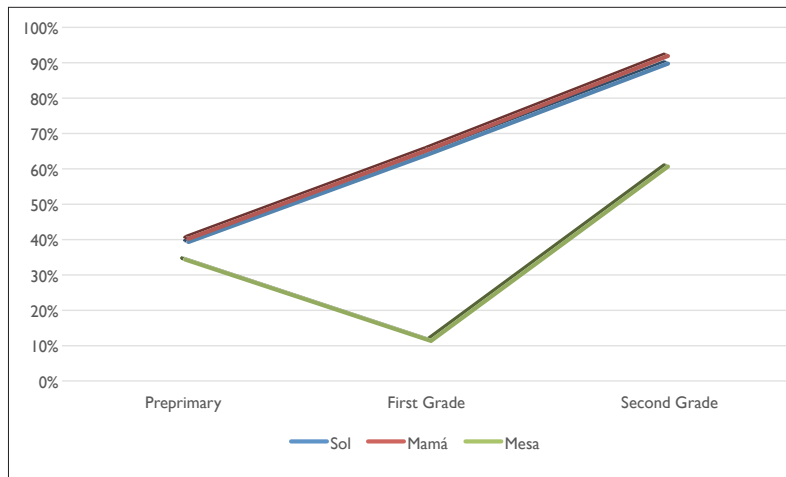
GROWTH IN READING FLUENCY

Reading fluency was assessed with the Early Grade Reading Assessment (EGRA). Results from the assessment show that first grade students finish the school year reading an average of 31 words per minute, out of a maximum of 100. This result is exactly the same as the national average obtained by the Ministry of Education (Del Valle, 2017). By the end of second grade students in the Western Highlands finish the school year, reading 61 words per minute on average (see Figure 5). The previous results demonstrate that students grow in reading fluency from one grade to the other. However, despite the substantial gain in fluency, on average students could only respond to one half of all literal comprehension questions about the text they read by the end of second grade. Such results represented a gain of two points from the number of questions they could answer in first grade.

Figure 5: Words per minute (WPM)
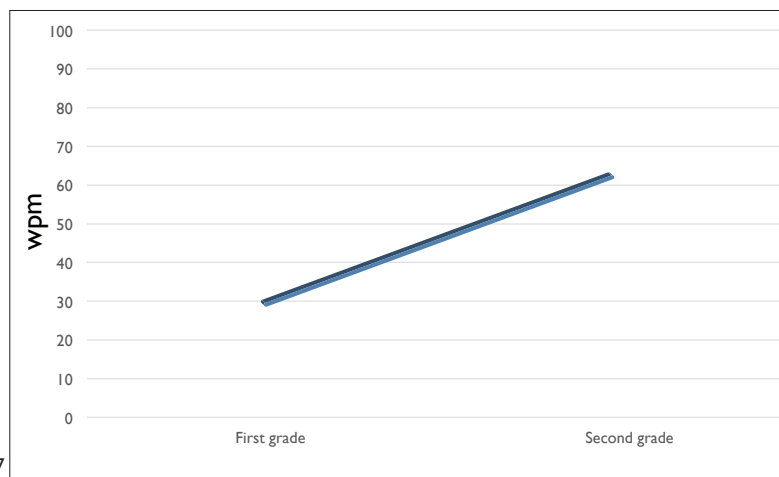
Having a gain in reading fluency and in reading literal comprehension can only partially influence overall reading ability. It is necessary to assess the degree to which students' fluency skills will allow them to comprehend what they read. In the longitudinal study of learning to read that the USAID-funded Lifelong Learning Project has implemented from 2015 to 2017, reading fluency was statistically correlated to the ability estimated in the second grade reading test, consisting mostly of items of inferential reading comprehension.

Statistical analysis, specifically a discontinuous regression analysis, showed that students are required to read at least **80 words per minute** in second grade, so that fluency has an effect on reading comprehension results as determined by the second primary test. These results are similar to those established in Mexico (Abadzi, 2012). However, only 32% of Guatemalan students in the Western Highlands of Guatemala achieved that level of fluency at the end of second grade. Although the relationship between reading fluency and reading comprehension is positive, as mentioned above, fluency is insufficient to achieve comprehension.

GROWTH IN READING COMPREHENSION
When estimating the gains from first to second it is observed that the students have little gains in reading comprehension between these two grades. On the contrary, greater growth is observed between the second and third grades. Second grade seems to be a grade in which student stabilizes, or transitions from one status to another: one of acquiring decoding and fluency skills to one in which he/she comprehends what he reads.

CONCLUSIONS
Results of the the longitudinal study of learning to read that the USAID-funded Lifelong Learning Project has implemented through Juarez and Associates from 2015 to 2017 demonstrate that students in early grades of primary school in the Western Highlands are progressing in reading competencies. In addition, results from this study demonstrate that students acquire reading skills before first grade and beyond this grade. However, students' progress is not sufficient to learn from other areas of the curriculum after third grade. Therefore, is it necessary to implement explicit teaching methodologies that facilitate learning of each of the competencies of the learning to read trajectory. Even more so, it is important that such methodologies are appropriate for bilingual contexts of Guatemala.

POLICY RECOMMENDATIONS

1. **Teachers should assess oral language proficiency** at the beginning of preprimary and first grade levels by using the appropriate tools, and plan instruction according to linguistic profiles in L1.

2. **Teachers should formatively assess all competencies** of reading ability from first grade up, to understand if students are achieving the expected competencies in the trajectory of learning. Thus, it is essential that the educational community understands such learning trajectory of learning to read to assess accordingly.

3. The Ministry of Education should **prioritize development of oral comprehension** in the early grades of primary school since it becomes the foundation of reading comprehension, especially in bilingual settings.

4. **Second grade** teachers should be given explicit support and tools to help students transfer reading skills to L2. to the second language. Thus, the Ministry should give special emphasis in this grade as part of the continuum of the learning to read trajectory.

5. Early-primary teachers should be trained to **create and use their own reading resources**.

6. Teachers should be trained to evaluate their students' **progress in learning** to read by using the appropriate assessment tools.

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