

## Using Opportunity to Learn and Early Grade Reading Fluency to Measure School Effectiveness in Guatemala

### Executive Summary

How do we know if and when schools are effective? To most educational planners, the term “effective” is the search for factors and variables that enhance a child’s learning irrespective of their background. While many definitions of school effectiveness exist in the literature, the “Five-Factor” model of school effectiveness suggests that leadership, acquisition of basic skills, a secure environment, high expectations of students, and frequent assessment of performance are critical elements of effectiveness (Sheerans, 2000).

This study argues that to improve school effectiveness, schools and educators should focus on even more basic elements than those posited by other research. The focus should be on providing a basic opportunity to learn by having the school open every day; the teacher present; students present and ready to learn; and instructional time on task. The educational value of that basic opportunity then depends on how teachers and students use the time available during the day, whether materials are present and used by them, and whether class sizes are reasonable. The study further established an opportunity to learn (OTL) index based on 12 factors and measures the extent to which opportunity to learn is optimized in a sample of schools in Guatemala. The study answers the following questions:

- How well do schools provide opportunity to learn?
- How does actual opportunity to learn compare to potential opportunity to learn?
- How does opportunity to learn vary across schools?

### Methodology

Data for the study were collected through first-hand field research in each of the four countries, made possible through collaboration with Save the Children (SC) US and their country office in Guatemala. The sample of schools was drawn from those participating in the SC education programs in each respective country, based on stratification by school size and location. Control schools – those not participating in the NGO supported programs – were also sampled.

Field research teams visited 26 schools and collected data through the use of a series of instruments, including Early Grade Reading Assessments (EGRA); Stallings classroom observation instrument; school observations; and interviews with teachers and principals. Data analysis included regression, ANOVA, and factor analysis along with qualitative analysis of interviews.



### Context

Save the Children has been operating in Guatemala for more than 10 years with programs focused on hunger, malnutrition, emergency preparedness, child/reproductive health, and education. More recently, SC's education interventions have focused on three states within Guatemala: K'iche', Huehuetenango, and Solola (the poorest and most marginalized), as it works to ensure that each child is afforded the basic right to attend school.

Students included in the sample reported speaking four different languages at home: 34 percent of the students spoke K'iche' as their mother tongue, 30 percent Mam, 25 percent Ixil, and 11 percent spoke only Spanish. Students in the study were evenly split by gender. The average age of the students in the sample was 10 and 73 percent reported having participated in kindergarten.

### Results

Schools in Guatemala were open on average 97 percent of the days they should be, and teacher and student attendance rates are fairly high (88 and 92 percent, respectively). However, time loss because of late starts, early close and time-on-task is quite significant. Schools on average are using only 72 percent of the available day for instruction because of late start, early end, and prolonged breaks in the day for recess, and students are on task only 59 percent of the time.

When we combine the time loss caused by school being closed, teachers and students being absent, time lost during the day and students being off task during lessons, schools on average are using only 33 percent of the equivalent available time (days) for instruction (OTL Factor 6). Expressed in terms of the number of days in the school year, this equivalent time comes out to approximately 56 days.

In terms of the remaining OTL factors, on average 63 percent of students in the sample have language textbooks in the classroom. However, students were observed using those books a very small percentage of the time (3 percent of the time). Students were also observed reading any material in class at similarly low percentages of the time (11 percent of the time). In terms of oral reading fluency, students were able to read on average 46 words per minute (wpm). The average class sizes for schools included in the study was 27 students and schools on average reported to be receiving sufficient support visits during the year.

Variation of opportunity to learn across schools was fairly extensive. The smallest amount of variation was found in the first OTL indicators: schools open, with the greatest variation in teacher and student attendance and textbook availability. Time spent on task in classrooms also varied greatly between schools, with the lowest time on task at 47 percent and the highest at 71 percent.

### Conclusions

The main findings suggest that a) a great deal of time that could be used for instruction is being lost; b) little if any reading instruction is taking place in the classroom; and

c) while textbooks exist, their effective use is suspect. Additionally, while students had fairly good knowledge of Concepts about Print (CAP), their reading fluency scores were generally below the acceptable threshold of 60 wpm.

The OTL index further revealed that the variation among schools in each country was considerable and none of the 12 OTL factors was significantly correlated with learning. While sample sizes were small and likely impacted regression results, researchers believe the lack of a relationship is because little or no reading instruction was taking place in the classrooms.

The OTL index and subsequent analysis from this case study provides useful insights into the relationship between schools, instruction and learning—namely that unless there is a minimum amount of instruction, specifically instruction in reading, then we should not expect to find a relationship between opportunity to learn and learning. This finding has important policy implications for those implementing programs or making sector policy.

This study proposes a number of interventions and policies that could improve the classroom environment and help children learn. Teacher and student absenteeism need to be more closely monitored and the factors that impact their attendance addressed. More of the school day needs to be effectively used and more time should be devoted to reading. There needs to be increased investment in teacher training in the areas of literacy development and reading resources need to be provided to schools and students. Curriculum needs to be restructured to help build a strong link between reading and writing. Finally, remediation and more individualized instruction should be introduced.

## Introduction

Developing countries and international agencies are recognizing that gains in access to schooling alone are not sufficient to build the human resource base needed for economic development in the 21st century. This recognition has pushed agencies to increasingly direct attention and investment to improving learning outcomes for students—shifting the focus from increased access to improving quality. Ensuring that lessons learned from approaches to schooling that effectively promote and support student learning outcomes are well-documented and shared is critical to shaping where and how future education investments are used.

Research conducted by the Education Quality Improvement Program (EQUIP2) on complementary education programs showed how NGO-supported programs are able to cost-effectively promote school completion and learning. Cases studies of various complementary education programs completed in 2007 identified a series of policies and practices that improve the opportunities to learn offered at the school level. For example, the study showed that policies that promote mother-tongue instruction at the school level for early grades helped students build foundational literacy and numeracy skills more effectively than if they began instruction in the official country language. Based on the findings from this research, EQUIP2 developed an opportunity to learn index intended to describe and measure the basic elements required for initial learning

to occur. The concept of opportunity to learn mainly focuses on the time allocated to teaching, learning, and curriculum coverage and is supported throughout the literature (Gillies and Quijada, 2008). The OTL factors that are necessary for basic foundational skills to be developed include the following:

1. Percentage of days school is open;
2. Teacher attendance;
3. Student attendance;
4. Percentage of the school day available for instruction;
5. Percentage of student time-on-task;
6. Equivalent percentage of days available for instruction;
7. Percentage of students with a textbook;
8. Percentage of observed textbook use;
9. Percentage of time spent reading;
10. Grade 3 reading ability;
11. Class size; and
12. School support.

To build on the existing opportunity to learn and effectiveness research, the team elaborated a new study to quantify the relationship between the OTL indicators, time loss in the classroom and student's learning outcomes. One drawback of the EQUIP2 complementary education research was the lack of data in most countries on student learning outcomes. Proxies such as end-of-cycle exams or other standardized tests had to be used, which only include students who make it to the end of the cycle, focus on discriminating between high achieving students, and therefore do not reflect the full range of performance of students in the system (Kellaghan, 2004). Because Guatemala lacked a national or school level reading assessment that could easily be used as the learning measure, the team drew on the refinement and growing use of early grade reading assessment (EGRA) methodologies, which offered EQUIP2 a chance to further its research on school effectiveness.

EGRA provides a fairly easy to design and implement methodology to quickly assess a variety of early literacy skills, and therefore to gauge school and/or system effectiveness at fostering acquisition of those skills. The EdData II project in particular has been instrumental in promoting and improving the use of EGRA as a measure of school effectiveness and has now supported its application in almost 20 countries. However, one of the drawbacks of EGRA is that it has a floor effect. It fails to measure the skills of students who are below the "floor" of being able to read letters, words, or connected text. Working with Save the Children, EQUIP2 introduced the Concepts about Print methodology as an additional assessment tool to ensure the evaluation of pre-reading skills in students who are non-readers.

The combination of the opportunity to learn framework, EGRA, and CAP are what inspired the design of the current EQUIP2 research on effective schools. This research is based on the idea that school effectiveness, as measured by whether the school enables

children to learn to read, is a function of how well the school assures a foundational opportunity to learn and whether it draws on teaching approaches that make the best possible use of the instructional time that is available. This study posits that school effectiveness is a function of the optimization of opportunity to learn, time spent on learning tasks and the instructional methods that make good use of the available opportunity to learn (Benavot and Amadio, 2004). Through a partnership with Save the Children, EQUIP2 was able to access schools in the areas of Guatemala where SC operates to successfully conduct the study.

Building on EQUIP2's complementary education and opportunity to learn research, this study seeks to answer the following questions.

- How well do schools provide opportunity to learn?
- How does actual opportunity to learn compare to potential opportunity to learn?
- How does opportunity to learn vary across schools?

## Context

Guatemala is one of the northernmost countries of Central America and is the region's most populous nation. Its 13 million inhabitants represent a cosmopolitan mix of Mestizo (59 percent) and multiple Amerindian groups which speak a total of 24 distinct languages, including Spanish and various Mayan dialects (CIA, 2009). Spanish, however, is not universally spoken. A significant part of the population does not even speak it as a second language.

Access to and quality of education in Guatemala has substantively improved in the past decade. According to UNESCO (2009), in 2006, net enrollment rate jumped to 94 percent, almost reaching the Latin American average of 95 percent. Guatemala has nearly reached full primary school coverage for its school-aged children.

Save the Children began operations in Guatemala in 1999 with programs focused on hunger, malnutrition, emergency preparedness, child/reproductive health, and education. More recently, SC's education interventions have focused on three states within Guatemala: K'iche', Huehuetenango, and Solola (the poorest and most marginalized). SC's main goal is to increase access to quality early childhood development, pre-primary, primary, and secondary education at 80 schools (SC, 2009). SC's education program is based on active teaching, which includes a dynamic, flexible, and creative process through significant activities (SC, 2006). To reach the objectives of this active methodology, SC has focused their interventions on the following activities.

- Promoting Mayan culture by implementing an intercultural bilingual education program
- Offering teachers, administrators, and school board members skill-building training
- Refurbishing and equipping schools with educational materials
- Encouraging parents to become involved in their children's education



The implementation of SC’s educational program was designed to be carried out in phases: diagnosis, identification of children’s needs, planning, execution, monitoring and evaluation, and results. When this program started in 2001, it supported 54 schools. By 2007, the total coverage of this program was 72 schools that enrolled 16,985 children (SC, 2006). Table 1 summarizes the breadth and depth of the SC program in Guatemala.

**Table 1. Universe of schools**

Total Number of Schools	72
Total Enrollment	16,985
% Girls	49%
Number of Schools in Huehuetenango	14
Number of Schools in K’iche’	32
Number of Schools in Solola	16
Number of Schools Receiving Support	72
-for More than 5 years	1
-for 3 to 4 years	57
-for 1-2 years	14

### Sampling and Methodology

Based on a mutual interest to understand what interventions best support student success and effectiveness in schools, EQUIP2 partnered with SC to conduct this case study. SC provided access to a sample of their schools; field support from their offices for data collection, transportation and materials; and hired two Save-University Partnership for Education Research (SUPER) fellows who served as the main researchers/data collectors for the study. The following discussion elaborates on the methodology used for collecting and analyzing the data presented in the case study. The results represent the establishment of a baseline of time loss, instructional time on task, and student reading fluency for a sample of SC and control schools. The purpose of the baseline is to assist SC in refining their interventions to better assist teachers and students in the classroom. It is not an evaluation of SC performance.

### Sampling

The study examines data at the student, classroom and school level. Twenty SC supported schools were randomly selected, representing 15 percent of the 72 schools SC currently supports in Guatemala. The sample was stratified by distance from an urban center and size of school. Schools were then proportionally selected from three of the areas where SC Guatemala currently works: Nebaj, K’iche’, and Huehuetenango. To ensure a point of comparison, six control schools – two from each area – were also selected. The control schools were selected based on the matched characteristics of

distance, size, language and student socio-economic status to ensure comparability. Table 2 summarizes data for the schools.

### Methodology

The research team spent one day visiting each school. A visit consisted of six activities.

- A general observation noting the presence of certain school facilities and whether students and teachers were inside or outside the classroom;
- One hour of observation in Grade 1, 2, and 3 classrooms using the Stallings classroom observation instrument;
- An interview with the principal to obtain information on student enrollment, teachers, teacher and student attendance, support visits received by the school and community participation at the school level;
- Interviews with each of the teachers observed;
- Individual student interviews; and
- Administration of two reading assessments to measure print awareness and basic literacy skills.

**Table 2. Characteristics of sample schools**

	SC Huehuetenango	Control Huehuetenango	SC K'iche'	Control K'iche'	Overall Sample
Number of schools	6	1	14	5	26
Total Enrollment	1,699	208	2,708	1,567	6,182
Enrollment in Grade 3	368	26	442	258	1,094
Average Class Size (Grade 3)	30	26	38	32	26
Average Distance from Urban Center	43 min.	n/a	47 min.	n/a	45 min.
Mother Tongue	Mam	Mam	K'iche' and Ixil	K'iche' and Ixil	n/a
Years of SC Support	3 years	n/a	3 years	n/a	3 years

For the student survey and reading tests, the team randomly selected 20 students from Grade 3 at each school in a boy-to-girl ratio reflective of the gender balance in the full class. The students were first asked a number of questions pertaining to their home environment and attendance at school. The literacy tests included CAP questions to assess pre-reading skills and student familiarity with printed text and books and EGRA components to assess the number of letters recognized in isolation, the number of words read correctly in isolation, and the number of words read correctly in context per minute. The number of words read correctly per minute was used as the measure of reading fluency, a recognized and robust index of reading comprehension that reliably differentiates between strong and poor readers as demonstrated in Matthew Jukes' 2006 study, *Development of Assessments of Reading Ability and Classroom Behavior*. The letter recognition, reading fluency, and reading comprehension assessments similar to the



elements of the EGRA had been developed by a Save the Children Alliance team as part of the four country study of Rewrite the Future (Naylor et al., 2008).

Save the Children staff pilot tested additional passages for this sample by choosing grade-appropriate passages from past editions of government-issued textbooks (passages were altered slightly to prevent the possibility of children who had seen them previously reading from memory). Those students who were able to read at least 40 words in the first minute were asked to finish the passage and answer four reading comprehension questions.

Within each school, each Grade 1, 2, and 3 classroom was observed to record time loss and time-on-task data, and a random sample of 20 Grade 3 students from each of the sample schools was selected to be included in the reading assessments. Table 3 presents the student characteristics for this study.

**Table 3. Characteristics of students in the sample**

Number of Grade 3 students tested	505
Boys	50%
Girls	50%
Language spoken as mother tongue:	
Spanish	11%
K'iche	34%
Mam	30%
Ixil	25%
Average age (years)	10
% over age (older than 10 years)	40%
% who attended kindergarten	73%
% who did not repeat Grade 3	88%
% who live 10 min. or less from school	51%
% who walk 10 to 30 min. to school	39.7%
% who walk more than 30 min. to school	9.5%
Average family size	7
% of students who earn money for work	29%
% who have in their home:	
-a radio	94%
-a toilet	82%
-electricity	79%
-a television	63%
-a refrigerator	22%

The study sample consisted of an even 50 percent gender split. The average age of students in the study was 10 with 40 percent of the sample consisting of overage students. Seventy-three percent of students had attended kindergarten and only 12 percent of students had previously repeated Grade 3. Approximately 34 percent of students spoke K'iche as their mother tongue with an additional 30 percent speaking Mam at home and 25 percent speaking Ixil. Only 11 percent of the study sample spoke Spanish only as a mother tongue. There was no significant variance in characteristics between the students in the SC schools and those in the control schools. In terms of age and mother tongue spoken, 92 percent of students fell within the ages of 9-12 regardless of mother tongue. Moreover, the average age for students was 10 regardless of language. When differences between gender and mother tongue were examined, the same number of boys and girls spoke Mam; 16 more boys than girls spoke Ixil; 13 more girls than boys spoke K'iche; and 8 more girls spoke Spanish. These results were statistically significant at the (0.05) level.

### *Limitations of the study*

While the data from this study are robust and representative of education in these SC supported schools, there are important limitations to the methodology and data. First, while the study selected 15 percent of SC schools as the sample, the sample remains small in comparison to the number of schools in Guatemala. EQUIP2 is unable to make larger assumptions about the population of schools as a whole in Guatemala. Moreover, the small school sample reduced the applicability of regression results because small sample sizes reduce the effect. Total number of students tested was 507; 100 classrooms were observed across 26 schools. Second, because of resource and time constraints, this study included only six control schools, which were matched to the SC schools, but again are not sufficient to draw broader conclusions. Finally, many of the countries where this study will be implemented use mother-tongue instruction to teach early grades. However, creating reading assessments in mother tongue – particularly in countries where more than one native language exists—is complicated and expensive (i.e., Guatemala has 24 native languages in addition to Spanish, many of which are not written languages). All EGRA assessments were applied in Spanish language only. The CAP was applied in both Spanish and mother tongue.

### **Findings**

To look at school-level factors we returned to EQUIP2's opportunity to learn framework. This study used the 12 OTL factors both individually and collectively to determine the effectiveness of each school in the study at maximizing opportunities to learn.

#### *OTL Factor 1: Percentage of days the school is open*

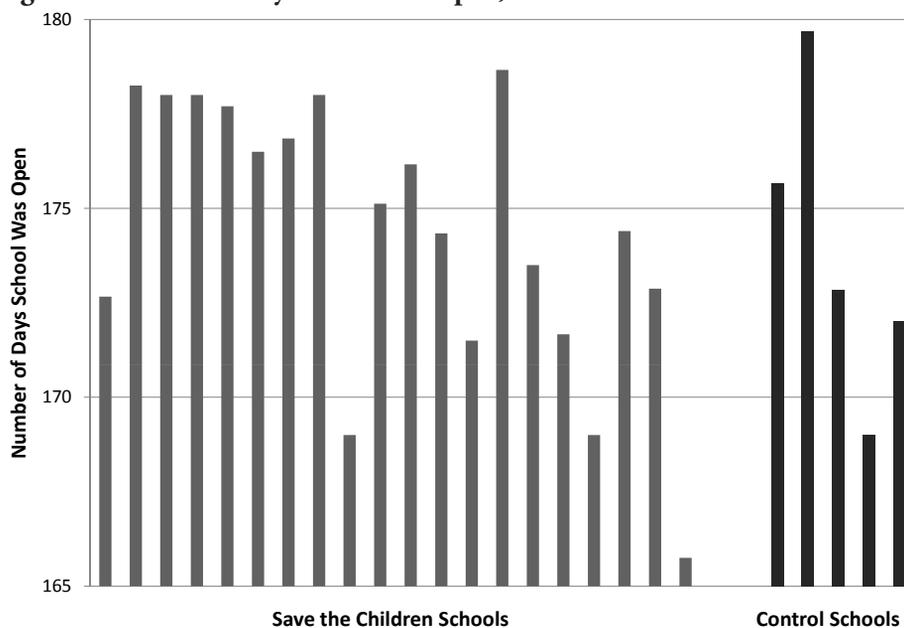
The 2005 Global Monitoring Report proposes that a quality education must start with minimum instructional time of 850-1000 hours per year. In many developing countries, these kinds of target hours are difficult to reach with school days split into shifts, which are required to achieve national coverage with limited infrastructure (Gillies and



Quijada, 2008). In Guatemala, the number of official schools days is 180 (900 hours) and the school day is officially five hours in length.

In order to measure the number of actual days that schools in Guatemala are open, the team triangulated data from attendance books and records, principal reported and teacher reported closures (not including planned holidays). Based on these documents, we were able to calculate that schools in this study lost an average of six days of instructional time per year. When compared to the control schools (in red), SC schools were consistently open more often (i.e., an average of two days more).

**Figure 1. Number of days school was open, school-level variation**



As Figure 1 demonstrates, an overall average can often mask what is happening at the school level. When we examined school level data, we found a great deal of variance in terms of how many days the schools were closed. The variance ranged from one day to 14 days. The majority of the unplanned school closures were because of training days for teachers or unplanned holidays. On average, teachers missed one or two days/month of school because of training provided by the Ministry of Education (MINEDUC); an average of one day/month as a result of training provided by SC.

The World Bank Rural Access Initiative conducted research in the early 2000s that indicated that the location of the school has a significant impact on student attendance and time loss in schools. In the 26 sample schools we visited in Guatemala, students’ average travel time was an 18 minute walk. However, this time varied significantly across schools, ranging from three to 30 minutes depending on the school. Distance traveled was not significantly correlated with student attendance (0.383) or reading performance (0.019); however, interviews and school observations noted that at least 30 minutes a

day (on average) of instructional time was lost when teachers and students arrived late at the schools, which delayed the initiation of the school day.

### ***OTL Factor 2: Teacher attendance***

A measure that is difficult to quantify, teacher absenteeism is a widely recognized problem—particularly in rural areas. High rates of teacher absenteeism is associated with a number of factors, including poor, urban communities; limited monitoring and discipline by school directors; infrequent school inspections; and distance from the branch MINEDUC office (Rogers, et al., 2004 as cited in Gillies and Quijada, 2008). Teacher absenteeism affects the motivation of students, continuity of learning, ability to cover curricula, and the overall quality of learning. If students are to learn, it is critical that teachers be in the classroom.

In Guatemala, teacher absenteeism data was difficult to collect and an average absenteeism rate had to be triangulated between the principal log book and the teachers' student absenteeism logs across the seven months that the schools had been opened. On average across the 26 schools, teachers were absent two days a month, or approximately 11 percent of the year. There was little variance across the schools in terms of teacher absenteeism (i.e., one to five days). This absentee rate is consistent with a study conducted by Chaudhury (2005), which showed teacher absenteeism rates ranging from 11 to 27 percent in countries such as Bangladesh, Ecuador, India, Indonesia, Peru, and Uganda. There was no documented difference in teacher attendance between the SC and control schools.

### ***OTL Factor 3: Student attendance***

Student attendance is another factor that is critical to improved learning. If the student is not present and ready to learn, he or she cannot take advantage of opportunities to learn. Similar to teacher absenteeism, there are few studies that have been able to quantify student absenteeism because school and teacher records tend to be sparse.

An FHI 360 project evaluation study in Guatemala found that children who were promoted from Grade 1 to 2 had a significantly higher attendance and punctuality record than those who did not pass (Chesterfield as cited in Gillies and Quijada, 2008). The data collected by this study indicates that across the sample schools, students were present more than 98 percent of the school year. Because most students traveled only 15-18 minutes to school every day, the high student attendance rate could be because of the close proximity of the school to the students' homes.

The analysis of variance for student absenteeism under the current study showed that the difference in attendance rates by school was statistically significant ( $p < 0.01$ ). The average number of days lost per student over the school year ranged from three to 31 days which represents between 2 and 17 percent of the total learning time available to them.

### ***OTL Factor 4: Percentage of school day available for instruction***

The official school day in Guatemala begins at 7:30 a.m. and ends at 12:30 p.m. Across almost all the schools that were visited, classes did not begin until 8 a.m. Principals and



teachers interviewed indicated that classes were not planned to start until 8:00 a.m., and in several cases teachers arrived later than the students. On average, 24 of the 26 schools lost 30 minutes at the beginning of the day waiting for teachers and/or students to arrive at the school. While there was not a significant correlation between distance traveled to school and official start times, interviews with teachers and school directors clearly indicated that the late start was a result of the distance students had to travel—and that they consistently arrived late.

In addition to the late start, recess—normally scheduled for 30 minutes—ran over time between five to 30 minutes depending on the school. The average extra time for recess across the sample was 20 minutes. When counted together with actual recess, this represents an average loss of 50 minutes of class time. While EQUIP2 is not advocating for removing recess time, it is important to note that recess is lost instructional time and when it extends beyond its planned 30 minutes, lost instructional time is increased. If the average time taken for recess is then aggregated with a 30 minute late start, and an average 15 minute early close to the school day for the purposes of classroom management (i.e., cleaning blackboards, straightening the room) activities, the useable instructional time has been reduced by more than an hour. Over the course of the year, this daily lost time adds up to an average total loss of 38 instructional days (See Annex III for calculations). Again, the variation in time loss ranged from a low of 23 days to a high of 75 days.

### ***OTL Factor 5: Percentage of student time-on-task***

For the purposes of this study, measured time on task refers to the engaged time that students are paying attention to materials with instructional goals; time on specific academic activities; and academic learning time, compared to the allocated time for each subject. In Guatemala, total instructional time in one day is five hours, 180 days per year, for a total of 900 hours.

Using the Stallings classroom observation instrument, the EQUIP2 team observed 100 Grade 1, 2, and 3 classrooms to document how teachers were using instructional time and whether teachers and students were engaged in learning activities. It should be noted that the Stallings classroom observation instrument measures the percentage of time the teacher is engaged in a task. However, for students, it measures the percentage of students that are engaged in activities over the course of the observation period. The following analysis presents the findings of this study.

### **Classroom instructional use of time**

The Stallings classroom observation instrument considers both teachers and students as “off task” when they are not engaged in academic learning activities. Off-task activities include discipline, classroom management, socializing, unengaged in the activity, or when out of the room. On-task activities include: reading aloud, demonstration/lecture, discussion/debate, practice/drill, seatwork, verbal instructions, reading silently, and interpreting text.

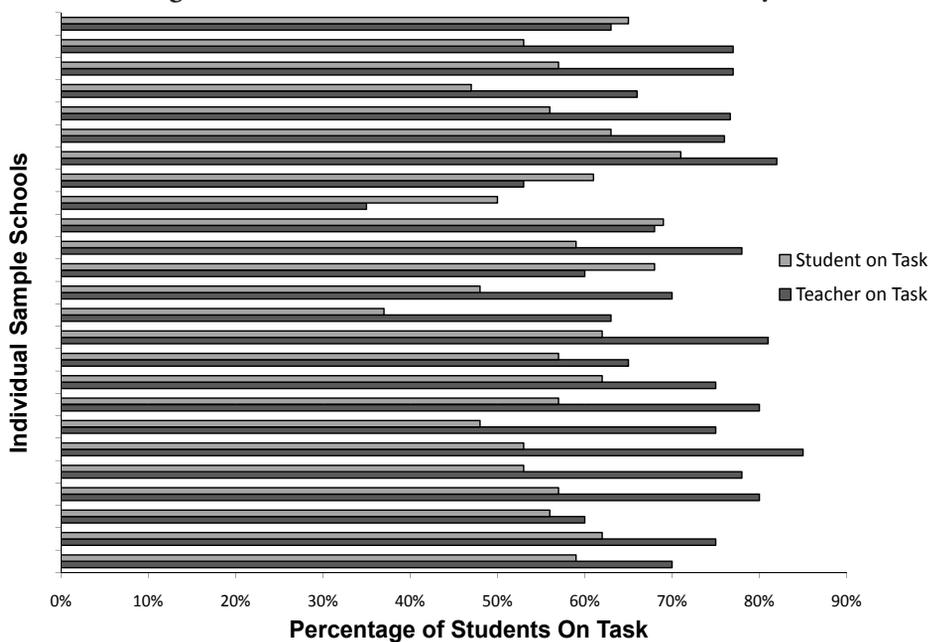
When examining variation across the 26 schools, we found some variance in terms of the percentage of time that teachers were on task, though it was not significant. Overall

teachers were on task 70 percent of the time with the range of time-on-task running between 53 and 85 percent. There was no statistical difference between the SC and control schools in terms of teachers and students on task.

Figure 2 demonstrates the variations in time on task by school, teachers and students. In 16 schools, teachers were on task more than 70 percent of the time and in five schools teachers were on task at least 80 percent of the time. In these cases, 14 schools had students who were on task at least 50 percent of the time. In five cases, students were on task for a larger percentage of time than teachers. While the teacher time-on-task is reasonable, student time-on-task is still low in most of the sample schools, particularly because in many cases students are on task only 50 to 60 percent of the time they are in class, which is already significantly reduced because of daily time loss and absenteeism. By comparison, U.S. teachers reported that only 64 percent of instructional time was related to academics—the remainder being used in maintenance, enrichment and recess. (Massachusetts 2002 Research Digest as cited in Gillies and Quijada, 2008). However, in the United States, daily time loss and absenteeism are less of an issue, which increases the number of overall days students have for instruction.

The result of this analysis indicates that teachers in the sample schools could use additional support with classroom management as well as use of instructional time for academic learning.

**Figure 2. Percentage of students on task when teacher was on task, by school**



### Teacher off task and on task

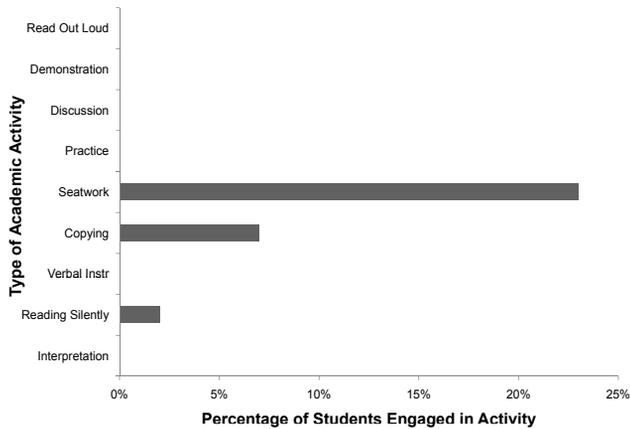
Based on observations in this study, on average when teachers were off task, 68 percent of students were also off task (i.e., engaged in social interaction or just not engaged).



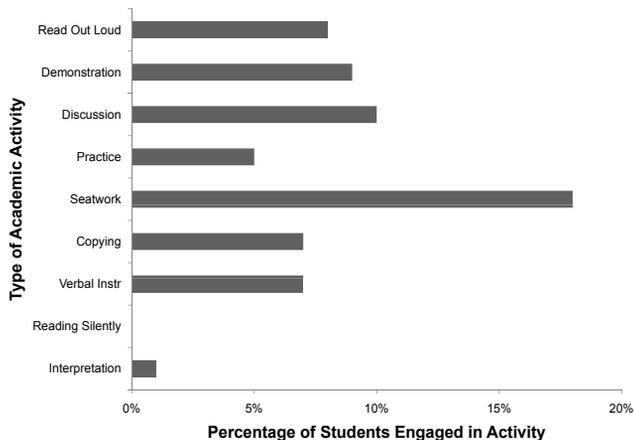
When the teacher was on task, on average only 32 percent of students were off task. However, while teacher on and off task was positively correlated to student performance, the results were not statistically significant. It is important to note that being on-task does not necessarily mean that quality teaching and learning is occurring in the classroom. The category simply implies that teachers and students were engaged in academic activities. While the team was interested in the correlations among time-on-task and student performance, it was also critical to document the amount of time being lost in the classroom and understand what the teachers were doing to engage students in academic activities.

Figure 3 indicates that when teachers were off task, students read silently (2 percent); copied text from the blackboard (7 percent); or did seatwork (23 percent). The rest of the students (68 percent) were either engaged in social interaction or some other “non-academic” activity.

**Figure 3. Student activities when teacher was off task**



**Figure 4. Student activities when teacher was on task.**



When the teacher was on task and working with students to present or oversee academic activities, there was a greater variation in the types of pedagogical approaches being employed by the teacher, and more students engaged in learning. As Figure 4 indicates,

students still spend more time doing seatwork than other types of activities; however, there is increased discussion or debate in the classroom that is related to academic content as well as reading aloud and demonstration.

### Time-on-task by department and subject

In an effort to understand whether time on task differed by region, we disaggregated the results by areas visited (i.e., Nebaj, Huehuetenango, and K'iche'). Table 4 presents a synthesis of the percentage of students on task by subject and geographical area.

**Table 4. Percentage of on-task students by subject and department**

Department	Math	Science	Reading
Huehuetenango	51%	52%	53%
Nebaj	47%	36%	45%
K'iche'	49%	61%	44%

Students in Huehuetenango had little variation in terms of their time on task across subjects. In Nebaj and K'iche', there was more variation in the engagement of students in science classes. There were also differences in the types of pedagogical activities linked to each subject. For math, students were engaged in more practice and drill activities. In science, the majority of students' time-on-task was spent in demonstration and lecture. For reading, students spent most of their engaged time doing seatwork or copying. These categories did not vary when disaggregated by department.

When researchers examined the total time left for instruction when students were on task (i.e., accounting for all previous OTL indicators); Huehuetenango had the most instructional time left at 66 days compared to 55 days in Nebaj and 48 days in K'iche'. While students in K'iche' spend more time on task by subject than Nebaj, it is important to note that there is greater time loss in K'iche' accounted for by the other OTL factors, such as absenteeism and daily time loss caused by late starts, recess, and early close.

### Time-on-task by grade

After examining time-on-task by subject and department, the team wanted to understand whether there were any differences in teacher and student time-on-task by grade. As Table 5 shows, there is little variation in the types of pedagogical activities across the grades.

As indicated in Table 5, the majority of academic learning time is spent copying text from the blackboard or doing seatwork. The percentage of engaged students declines across all activities (except copying, which increases in Grade 3). The percentage of students off task also increases as students get further along in their education. Over the entire sample it was found that students were off task an average of 41 percent of the time, which represents a drastic reduction in the time used for learning.



**Table 5: Percentage of students engaged in academic activities, by grade**

Activity	Grade 1	Grade 2	Grade 3
Reading Out Loud	6%	3%	3%
Demonstration and Lecture	6%	6%	6%
Debate/Discussion	6%	8%	7%
Practice and Drill	6%	4%	4%
Seatwork	24%	22%	18%
Copying	5%	5%	9%
Verbal Instruction	4%	8%	7%
Students Reading	0%	1%	0.4%
Interpreting Text	0%	0%	0%
Students Off Task	40%	41%	44%

**Time loss caused by students and teachers off task**

Out of the 180 official instructional days, students are only receiving an average of 97 days of instruction after accounting for days the school is closed, late start, extended recess, early close, and teacher/student absenteeism (44 percent loss of time annually). When the additional time loss within the classroom caused by students and teachers who are off task is calculated, there are approximately 56 days left of instructional time spent on task that students receive annually.

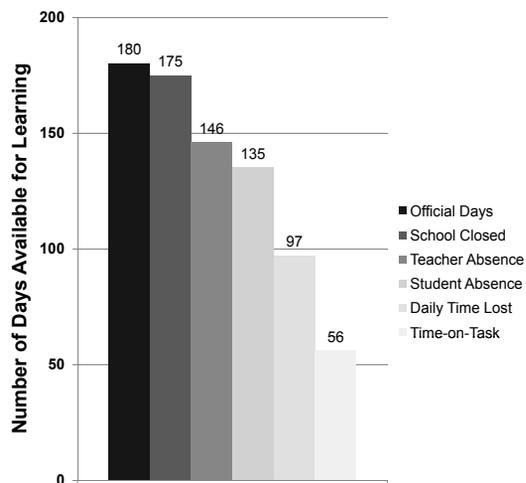
**OTL Factor 6: Equivalent percentage of days available for instruction**

In this study, researchers combined factors 1-5 into a factor termed “equivalent percentage of days for instruction” (Factor 6). The objective was to compare the amount of time actually available for instruction to the amount of time potentially available based on the official school calendar.

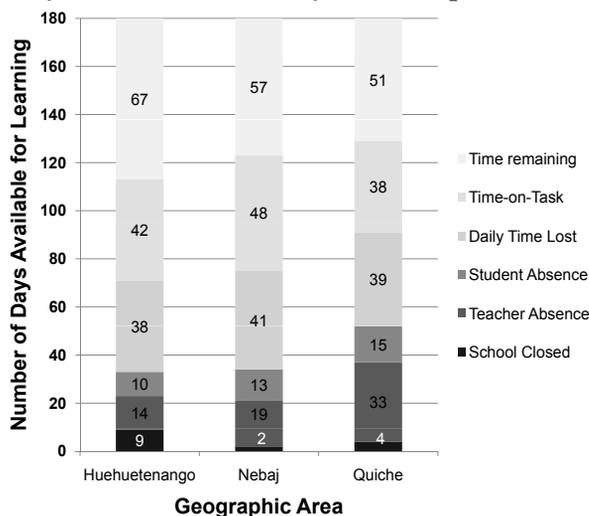
To estimate the number of days available for instruction, researchers subtracted the number of days the school was closed, the number of days lost because of teacher and student absence, the amount of instructional time lost because of late openings/early closes/extended recesses, and the number of days lost because students were off task from the number of days in the school calendar (180 days). Figure 5 shows the total time loss for the OTL factors in Guatemala.

In Guatemala, the greatest loss of instructional time occurs from the late start, early close, and extended recess—or daily time loss. This was true for both the SC and the control schools in the sample. Of the 180 official instructional days, students are only receiving an average of 97 days of instruction (44 percent loss of time annually). When the total time was disaggregated by SC and the control schools, SC performed slightly better with 61 days of total instructional time compared with 51 days in the control schools.

**Figure 5. Total time loss for OTL indicators**



**Figure 6. Days of lost instruction by OTL component and geographical area**



The overall school results vary slightly by area, as shown in Figure 6. In Huehuetenango, the greatest loss of time occurs with daily time loss (i.e., late start, recess, early close). However, there is less teacher and student absenteeism as well as time-on-task loss than in the other areas and an overall average of 67 days of instructional time remaining for instruction when all the OTL indicators are taken into account.

In Nebaj, there is a greater loss of time caused by “daily time loss, while teacher and student absenteeism are about equal to the time loss for these components in Huehuetenango. However, students are losing six more days to time loss in the classroom (42 compared to 48), leaving only 57 days of instructional time remaining when all the OTL indicators are calculated.



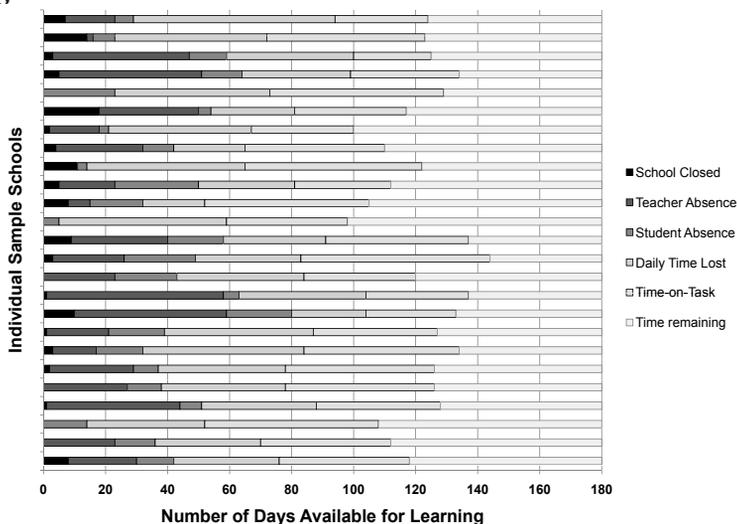
The schools in the area of K'iche' had the highest teacher absenteeism rate of the three areas and are losing almost 39 days of instruction because of late starts, extended recesses and early closings of the school. This area retains the least number of instructional days: 51.

Across the three areas, an increased focus on ensuring that school started on time and that recess only ran for 30 minutes (i.e., instead of 15-20 minutes longer) would add an average of 4.5 additional hours a week of instructional time, or almost 33 days over the school year.

At the school level, there was greater variation in the components of the opportunity to learn. Schools varied in the time remaining for instruction from 32 to 82 days. Daily time loss and time lost to time-on-task were the two areas where the major losses of time occurred. The chart below shows the time loss by school.

As Figure 7 illustrates, schools varied significantly in time loss for the first four factors. Instructional time remaining ranged from a low of 56 days to a high of 129 days, with the daily time loss generally having the greatest impact on effective time remaining for instruction.

**Figure 7: School-level variation**



In addition to the snapshot tool used to collect information on classroom activities and time on task, the research team designed a general observation instrument based on the Guatemalan standards for what teachers and students should be doing in the classrooms. For example, teachers were rated on their ability to manage time effectively, their classroom management skills, and the manner in which they engage students in learning. For each activity or competency, teachers were rated on a scale of zero to three: zero meaning the activity was not observed; one if the teacher executed the activity poorly; two for somewhat well, and three for very well.

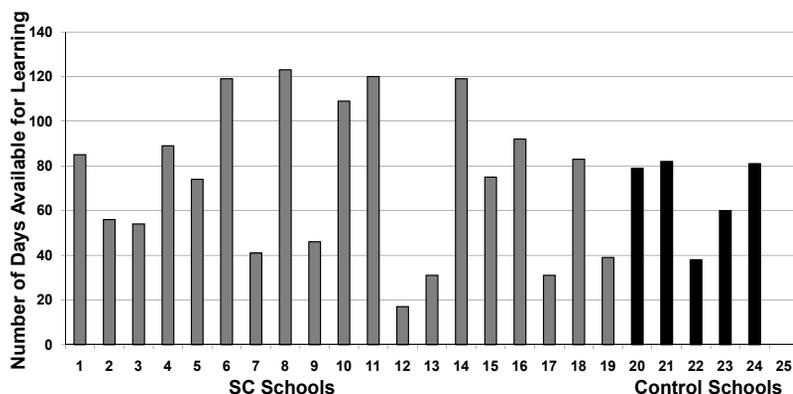
In terms of the pedagogical skill level of teachers through the overall sample, the average score for classroom management skills, time management skills, and for the use of

different instructional resources was 2, or somewhat well. Overall, teachers were rarely observed teachers engaging students in activities to develop problem solving skills or higher order and critical thinking skills. Teachers were also more likely to be observed giving students feedback, or supervising seatwork. Students are rarely led in reading activities (0.87) or asked to use their reading skills to assimilate information in other subjects (0.23). The study shows that teachers need more support to build connections between the different subjects they are teaching, and to help students connect their learning to their own life experiences and problems. The activities with the highest averages included effective use of different instructional resources and strategies (1.74); asking students probing and open-ended questions (1.59); providing students with the opportunity to voice and debate their own opinions (1.03); engaging the teacher in open-ended discussions and asking questions about content (0.95).

### ***OTL Factor 7: Percentage of Students with a Textbook***

As Figure 8 demonstrates, classroom observations revealed a great deal of variation in the percentage of students who have language arts books. The range went from 0 to 123 percent, indicating the school had more books than students. Nearly 100 percent of students in all the schools had notebooks and pencils. In terms of notebooks, only three schools indicated less than 95 percent of students with notebooks. In terms of pencils/pens, seven SC schools fell under the 95 percent threshold and could use additional support in the provision of these types of materials to students.

**Figure 8: Percentage of reading textbooks by schools**



### **Materials, furniture, and school environment**

Materials relate to a broad category of items such as textbooks, instructional guides, workbooks, audio-visual materials, and supplementary readers in libraries, classrooms, or homes. Of these, textbooks are the most commonly utilized, or at least studied and documented, input for classroom instruction (Gillies and Quijada, 2008).

As part of this study the team conducted school observations, classroom observations, and interviewed principals about the availability of materials (i.e., textbooks, pencils, pens, notebooks) and furniture in their school. When principals were asked to report on the availability of chairs, desks, and reading materials at their schools, 64 percent



reported that their schools had enough basic furniture for all of their students. For SC schools, 68 percent of principals reported having enough basic furniture. For the schools without enough furniture, 79 percent had only half or less than half of the necessary amount of chairs and desks needed for their students.

When the schools were disaggregated by SC and control, SC schools were able to provide 74 percent of students with textbooks compared to 52 percent at the control schools, though it was not always clear whether the books on the shelves were being used. The better performance by SC schools is supported by the fact that SC interventions ensure schools have sufficient materials to support student learning. Table 6 provides a summary of the percentage of students who have each of the types of materials available in the classroom.

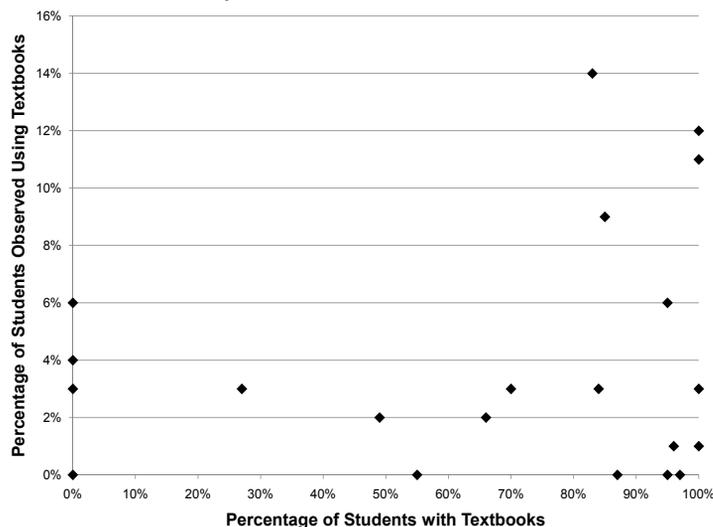
**Table 6. Percentage of students with learning materials, disaggregated by Save the Children and Control schools**

	Language Arts Textbooks	Notebooks	Pencils
Save the Children	74%	98%	95%
Control	52%	99%	96%
Combined Average	70%	98%	95%

**OTL Factor 8: Percentage of Observed Textbook Use**

Few students were observed using textbooks in Guatemala, with a great deal of variation among schools. Figure 9 combines OTL factors 7 and 8 to show how textbook availability and use were interrelated in the schools studied. The vertical axis plots the percentage of observations during which textbook use was noted and the horizontal axis plots the percentage of students with a language arts textbook. Each data point represents a school.

**Figure 9. Percentage of students observed using a textbook for a given level of textbook availability**



It is interesting to note that the majority of data points for schools in Guatemala cluster in the lower-right side of the graph. This indicates high textbook availability in a school was associated with relatively low observed textbook use.

### *OTL Factor 9: Percentage of Time Spent Reading*

Classroom observations revealed that reading instruction was almost nonexistent. Students were rarely observed reading aloud, reading silently, or interpreting text. This occurred less than 12 percent of the time in Guatemala.

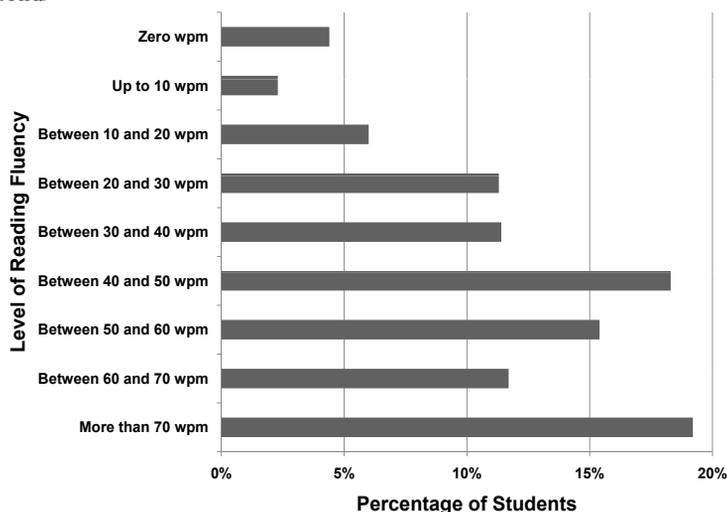
While more than 90 percent of students in the study had access to language arts textbooks, researchers rarely observed textbook use in class. Reading passages and stories were easy to locate, but were rarely in the mother tongue. In fact, the only schools possessing Mayan story books were those supported by Save the Children, and even then these books were usually locked in the principal’s office. No structured approach to reading was observed in any classroom in this study.

### *OTL Factor 10: Grade 3 Reading Fluency*

Reading ability is both an outcome of opportunity to learn and is a critical factor determining whether students can continue to learn and advance through school. If students do not acquire an adequate level of reading ability early on in their schooling, they fall further and further behind, thus their continued opportunity to learn depends on their level of reading ability.

Given the lack of focus on reading and reading instruction, it was not surprising to find reading performance among students in Grade 3 was low, averaging 47 wpm. However, approximately 30 percent of students were able to read 60 wpm or better and 19 percent of students could read 70 wpm or more; 33 percent were between 41-60 wpm; and only 35 percent were below 40 wpm (see Figure 10). Research conducted by Helen Abadzi (2008) suggests that students learning English or Spanish should be able to read 80–90 wpm by Grade 3.

**Figure 10. Reading fluency results for all students, percentage of students who can read**





When results were disaggregated by mother tongue, students who spoke K’iche outperformed the other language groups (57 wpm) compared with 40 wpm for Mam speakers and 41 wpm for Ixil Speakers. Table 7 summarizes findings by language group.

**Table 7. Reading fluency, by language groups**

Language	Average correct wpm	Average words read correct in passage
Mam	40	91
Ixil	41	90
K’iche	57	94
Spanish	55	95

When results were disaggregated by department, students in K’iche’ outperformed students in Nebaj and Huehuetenango. Students in K’iche’ were able to read an average of 60 wpm compared to 40 wpm in Huehuetenango and 42 wpm in Nebaj. Students in the SC schools slightly outperformed the control schools. However, the one control school was a significant outlier, with students outperforming all other schools in the sample. This outlier skewed the results for the control schools. Once this outlier was removed from the control sample, SC schools outperformed control schools.

There was a strong correlation between how students performed in the CAP and EGRA components of the study. Concepts about Print were used to probe the pre-reading skills in the students with the lowest reading fluency scores. The 80 students who read 40 wpm or less were still able to answer an average of 7.5 out of 10 questions correctly on the Spanish CAP. The students who answered less than five questions on the CAP correctly were asked to retake the CAP in their mother tongues (MT). When the CAP was applied in MT to students reading less than 4 wpm, they also were able to answer an average of 7.5 questions correctly in MT on the CAP. This result indicates students in Grade 3 are acquiring pre-literacy skills and understand Concepts about Print in either Spanish or MT.

**Table 8. Student reading fluency by CAP scores in Spanish and mother tongue**

	0-40 wpm	41+ wpm
Number of Students	80	192
Average # of correct CAP questions in Spanish	7.5	8
Number of Students	107	126
Average # of correct CAP questions in MT	7.5	9

As shown in Table 8, students who were able to read 41 wpm or more answered an average of eight CAP questions correctly in Spanish. Those who took the CAP in their mother tongue answered an average of nine questions correctly. On average, students who read less than 60 wpm retake the CAP in MT.

When the team examined the number of reading comprehension questions students were able to correctly answer, 52 percent of students who read 40 wpm or less answered two reading comprehension questions correctly. Of the students who read more than 40 wpm correctly, 46 percent answered two reading comprehension questions correctly and 45 percent answered all three questions correctly. These results indicate that while students are reading slowly, they do seem to understand what they read and are therefore acquiring a basic level of reading fluency.

Table 9 identifies the best- and lowest-performing schools. As the table demonstrates, all but one of the top performing schools were SC-supported schools with reading fluency scores that ranged from 59-67 wpm. Students in this group were able to answer two to three reading comprehension questions correctly, and on average completed reading the entire paragraph with 94 percent accuracy.

**Table 9. Top and lowest performing schools**

Top Performing Schools	Average wpm	% not reading	SC or Control	Years supported by SAVE	SC Support <sup>a</sup>
11	67	0%	C	n/a	n/a
2	67	0%	S	3	1,2,4,5
3	64	0%	S	5	1,3,4,5
4	59	0%	S	3	1,3,4,5
5	59	0%	S	3	1,3,4,5

Lowest Performing Schools	Average wpm	% not reading	SC or Control	Years supported by SAVE	SC Support <sup>a</sup>
1	25	10%	S	3	1,2,4,5
2	26	20%	C	n/a	n/a
3	33	0%	S	3	1,2,4,5
4	34	0%	S	3	1,2,4,5
15	37	15%	S	3	1,2,4,5

a. SC interventions are as follows: 1) pre-primary support (materials, pedagogy, technical Assistance); 2) primary support Grades 1-6 (materials, pedagogy, technical assistance); 3) primary support Grades 1-3 (materials, pedagogy, technical assistance); 4) teacher training; 5) community involvement.

Students in the lowest performing schools were unable to reach the 40 wpm threshold with the Grade 3 text and had several students who were unable to read at all. When the students in this group were dropped to an easier text—Grade 2, Unit 4—their performance on the reading fluency did not improve, indicating the students were struggling with the fundamentals of reading in general.



### Understanding variations in student outcomes—individual factors

To try and understand the variations in reading performance both at the aggregate level (i.e., by area) and individual student level, the team examined individual factors such as gender, age, repetition rates, mother tongue language, and socio-economic indicators.

#### Gender and age

There was no significant correlation between the age of the student and performance on the reading assessments, though students between the ages of 10-12 tended to have higher fluency scores. Repetition rates were also generally not statistically significant against reading fluency.

Gender was also not significantly correlated with reading outcomes. However, girls outperformed boys on the reading fluency assessment. On average, girls read 49 wpm correctly compared to 46 wpm for boys. Twenty-five percent of girls read up to 32 wpm correctly; 50 percent read at least 49 wpm correctly; and 75 percent or more read 67 wpm correctly, compared to 29 wpm, 46 wpm, and 62 wpm, respectively, for boys.

#### Socioeconomic indicators

Data gathered to determine the children's socioeconomic status included information about the type of roof, walls, and floors and the number of rooms children had in their homes, the number of children and adults living in the home, and whether families had basic utilities such as a radio, electricity, or a toilet. The differences found for each category were minimal. More than 90 percent of the students attending SC schools had either tile or metal roofs, 80 percent had adobe or cinderblock walls, and 60 percent had dirt floors. Only 22 percent of children had a refrigerator, while the majority of the sample reported having a radio, electricity, a television, and a toilet. There was little variation across the sample.

Similar to children attending SC schools, 90 percent of children in the control schools had tile or metal roofs, 75 percent had adobe or cinderblock walls, and 50 percent had dirt floors. Over 80 percent of children reported having electricity, a radio, and a toilet inside their home.

#### Language

The language spoken in the students' homes was the main factor that was correlated with students' performance on the reading fluency assessments.

Spanish most often served as the language of instruction within the Grade 3 classrooms included in the sample. However, for many children in this study, Spanish was not the language spoken in the home. Only 11 percent of students reported that they used Spanish in their homes. Within both the overall sample and the sample of SC schools, the differences in results for reading fluency between students speaking K'iche' and Mam, K'iche' and Ixil, Spanish and Mam, and Spanish and Ixil were statistically significant (see Table 10).

**Table 10. Reading fluency of students by language**

	K'iche'	Mam	Ixil	Spanish
Overall	57	41*	42*	55
Save the Children	53	42*	40*	52
Control	52	42*	41*	53

\* = average student wpm correct significantly lower than average among both K'iche' and Spanish groups.

In the overall sample, on average students who spoke K'iche' at home had a reading score of 57 wpm. Those who spoke Spanish scored an average of 55 wpm, while those who spoke Ixil and Mam read an average of 41 wpm, respectively. As previously discussed, schools in the K'iche' area were closer to urban centers, so researchers speculate that students might have access to more print materials in Spanish than in the other regions.

The average reading scores by mother tongue for children within SC schools differed only slightly from the overall sample and were also statistically significant ( $p < .000$ ). On average K'iche' and Spanish speakers' scores were very close: 53 and 52, respectively. Mam speakers scored slightly higher than Ixil speakers: 42 and 40, respectively.

The differences in results for the reading fluency scores by mother tongue for the control schools were also statistically significant ( $p < .000$ ). Children who spoke Mam and Spanish at home had the highest average reading score (59), while children who spoke Ixil and K'iche' at home had the lowest score. Of the children who spoke only Spanish, K'iche', Mam, or Ixil at home, Spanish speakers' average reading score was almost the same as those speaking K'iche' (53 and 52, respectively). The average reading score for children who spoke Ixil was just below those who spoke Mam (41 and 42, respectively).

### Attendance

There was also a correlation between student absenteeism and performance on the reading assessments, but the correlation was not statistically significant. Students who were absent more often performed worse on the reading assessment. While age was not correlated with student reading performance, Grade 2 absentee rates were negatively correlated and significant at the (.005) level. For each additional day the student missed in Grade 2, there was a 0.125 drop in correct words per minute.

### OTL Factor 11: Class Size

While class sizes in the study varied significantly—ranging from 10 to 55 in Grades 1 through 3—more than two-thirds of classrooms had fewer than 30 students. The average class size across the 26 schools was 27 students per teacher. When the data was correlated with the results for the reading assessment, average class size had no relationship with student reading fluency or performance on the CAP. However, we did find that larger schools performed better on the reading assessment, though it was also not statistically significant. We speculate that larger schools performed better due to their proximity to urban areas and therefore, more access to print materials. However,



there was also no significant correlation between class size and distance of schools from a town district.

**OTL Factor 12: School Support**

In principle, government systems of education provide ongoing training and supervision/support for teachers. However, as the EQUIP2 complementary education research (2007) demonstrated, regional or district education support personnel rarely if ever visit all the schools in their jurisdictions, especially those in the most remote parts of the country.

As Table 11 indicates, the schools and teachers in this study are being visited and observed by either principals or external school support personnel. In terms of formal observations, 48 percent of principals indicated they never formally observed their teachers. However, nearly 76 percent of principals indicated that they did informally observe teachers at least once or twice a month. The nature of these informal observations included verifying teachers were following their lesson plans; verifying student attendance; and verifying teachers were following the methodologies they had been asked to use in the training program.

**Table 11. Characteristics of school support services**

	Overall	SC
Formal Principal Observations of Teachers:		
Never	48%	53%
Weekly or Twice per Month	32%	15%
Informal Principal Observations of Teachers:		
Never	8%	---
Weekly or Twice per Month	76%	74%
Principal Reviews Lesson Plans Weekly	58%	58%
Principal Meets Individually with Teachers:		
Never	27%	---
Daily, Weekly, or Twice per Month	40%	56%
Principal Meets with Groups of Teachers Daily, Weekly, or Twice per Month	60%	---
School Support Visits from External Stakeholders:		
Once per Month	45%	100%
Twice per Month	19%	---
Once per Year/Never	10%	---

In addition to formal and informal observations, 58 percent of principals indicated that they reviewed teachers’ lesson plans weekly. Principals also indicated that they met individually with teachers daily, weekly, or twice a month. Principals in the SC schools

met with teachers on a more regular basis (56 percent of principals had individual meetings).

The total number of visits that schools received by August of 2008 ranged from zero to 30 with 50 percent of schools within the overall sample reporting between one and seven visits this year. Forty-five percent of schools in the overall sample reported that they receive support visits from outside personnel or education officials once a month, but few of those visits focused on supporting teacher's pedagogic improvement. Another 19 percent of schools reported being visited twice a month, while 10 percent said they were only visited once a semester or once a year. All but one school reported they had been visited in the year of 2008; the remaining school was last visited in 2007.

Within the sample of SC schools, 100 percent of the schools reported receiving visits from someone from SC; 47 percent reported an education staff member from the local municipality had visited the school; and 32 percent were visited by someone from MINEDUC. By comparison, 33 percent of control schools were visited by an education staff member from the local municipality, 17 percent by MINEDUC, and 33 percent by other organizations. In the majority (65 percent) of cases, these visits were a surprise.

For the overall sample, the length of time that the outside personnel stayed at the school ranged from just one hour to a full day (five hours), while the majority (64 percent) of visits lasted between three to five hours. During most visits (63 percent), personnel observed teachers teaching, but in only about half of the schools the visitor met with teachers individually or in groups (50 and 46 percent, respectively). In only about 20 percent of the schools did the visitors work with the principal on administration or management issues (26 and 17 percent, respectively). Teachers indicated they would like to have the school support personnel spend more time working with them on their pedagogical approaches because they thought this support was generally lacking.

Finally, all 25 schools reported having a school management committee (SMC), the majority of which met monthly (50 percent) or weekly (29 percent). In 65 percent of schools, the SMC met with the principal weekly or twice a semester but in terms of teachers, in the majority of schools (56 percent) the committee only met with them once or twice a month. Eighty percent of schools reported their SMC receives special training in how to support schools.

### **Financial support**

The previous complementary education research demonstrated that when communities contribute to the financial aspects of running the schools, there is a higher level of accountability for performance expected by all stakeholders—especially the community. When researchers examined aspects of financial support, they found the following.

- All schools within the sample report receiving financial support from the government to pay for teachers' salaries
- 68 percent report receiving funding from the government for materials
- 48 percent report for infrastructure and only 6 percent receive funds for other expenses



- Within the sample of SC schools, 64 percent receive financial support from SC for materials and equipment, while only 13 percent receive funding from SC for infrastructure
- Only nine schools in the entire sample report receiving funding from the community, support that is provided for infrastructure and other expenses such as snacks

While financial support provided to the schools comes mostly from the government, parents played an important role at the schools through donated labor to help maintain and improve the schools. Sixty-three percent of principals within the sample reported parents support the school through building and maintaining property and infrastructure. At 25 percent of schools within the sample, parents help to raise or manage school funds.

In the complementary education research, school support services played a critical role in improving the effectiveness of the complementary models when compared to government schools. While all participants indicated the importance of this support—even requesting additional support—none of the factors were correlated with improvements in student learning.

## Conclusions

Developing countries and international agencies recognize that gains in access to schooling alone are not sufficient to build the human resource base needed for economic development and are increasingly directing their attention and investment to improving learning outcomes for students. To improve learning, students must be given a basic opportunity to learn—meaning the teacher needs to be in class every day; students need to be present; they need materials to learn; and they need to spend increasing time-on-task. This study examined whether a sample of schools in Guatemala provides students with a basic opportunity to learn. Conclusions are presented below.

### *What variation is there in schools' provision of opportunity to learn and how does actual opportunity to learn compare to potential opportunity to learn?*

The potential opportunity to learn in Guatemala is approximately 180 days or 900 hours of instructional time, of which students are entitled to a 30 minute recess during the school day. When the actual levels of opportunity to learn provided by the schools was examined, the team found that students across the 26 schools were receiving approximately 56 days of solid instructional time on task—a loss of almost 70 percent of instructional time resulting from factors such as unexpected school closings, daily time loss, absenteeism, and unfocused time-on-task. The greatest loss of time in all 26 schools was a result of classes starting late – an average of 30 minutes per day; extended recess that tended to run 15-20 minutes longer than planned; and early close for classroom management activities.

In terms of variations across the schools, the number of instructional days ranged from a high of 82 days (46 percent of total available time) to a low of 32 days (18 percent of available instructional time). The SC schools outperformed the control school, offering approximately 10 days additional instruction per year. Schools in the area of Huehuetenango offered the most instructional days (66) on average.

In terms of the school characteristics that were examined that could influence OTL, the only significant factor that impacted student learning was the language spoken at home. Overall, students who spoke K'iche—or a combination of K'iche and Spanish—outperformed students who spoke Mam, Spanish, and Ixil in the home. While more research is needed to better understand why students in this language group performed better, EQUIP2 speculates that students in the K'iche' area were closer to urban areas and had more access to print material both in school and in the home. Additionally, the schools in K'iche' were the only schools where researchers found the presence of the Mayan storybooks provided by SC.

### *What is being done by teachers with the existing opportunity to learn to assist students in building foundational reading skills?*

As the classroom observations reflected, approximately 40 to 44 percent of in-class time is being lost to teachers and students off task (i.e., discipline, social interaction, unengaged time, and classroom management). Of the time spent on task, students across the three grades spend the majority of their time doing seatwork or copying from the blackboard. However, when the teacher is fully engaged with the students, there is a wider variety of pedagogical approaches used in the classroom.

Within subjects, results showed teachers spend more time in practice and drill activities in math; demonstration-type activities in science; and seatwork when focused on reading activities. These types of pedagogical approaches are consistent with the particular subject areas. However, it is important to note that across the 26 schools and 100 classrooms, researchers observed almost no direct reading instruction, nor did observations reveal students reading aloud, to themselves, or analyzing/interpreting text.

While the students in this case study were generally able to read at an average of 50 wpm, the fluency speed is still lower than one would expect by the time students reach Grade 3. An increased focus on reading instruction and time to read would assist students in solidifying their foundational reading skills as they ready for the upper grades of primary school.

## **Policy implications**

Decades of school improvement work have focused on assisting children to learn. Yet, school quality still poses a challenge for educators and policy-makers alike (World Bank, 2006). As this study has demonstrated, students are losing important instructional time in the classroom; reading at relatively low levels; and in some instances, lack the learning materials to improve or even assist performance. The following discussion provides



insights into possible interventions that could improve the classroom environment and help kids learn.

This research brings into question several issues about school effectiveness in a series of sample schools in three regions of Guatemala. The findings show schools vary considerably in the nature and quality of the opportunities to learn provided; vary in the level of reading fluency students obtain by Grade 3; and the amount of time teachers and students spend on task. While the variation in Guatemala is at the higher end of the spectrum compared to studies conducted in Nepal and Ethiopia, there is much room for improvement—particularly in reading and time loss

The amount of useful instruction in a typical lesson was very limited and instruction in reading was almost non-existent: less than 10 percent of the time remaining for instruction. Most of the reading that was observed was reading text for particular lessons. Students were not seen reading story books, participating in reading activities, or even reading silently—activities often associated with reading acquisition. Most of the observed interaction around text was related to reading simple texts off the blackboard or from textbooks as it related to other subject matter. There appeared to be no structured approach to the teaching of reading in the schools included in this study.

Given that Save the Children is investing resources to support schools, where and how can the organization better maximize the impact of that support in terms of both assuring a more consistent opportunity to learn and contributing to better acquisition of literacy. The following issues should be considered as ways to possibly obtain more impact.

***Teacher and student absenteeism need to be more closely monitored and the factors that impact them addressed***

While teacher and student absenteeism was less of an issue in Guatemala than in other cases researched by EQUIP2, it is still an area where SC or other school support providers can do additional work. Systems for local accountability in other contexts have proven useful in combating teacher absenteeism. In several community school models such as Bangladesh’s BRAC, Guatemala’s PRONADE, and the Mali Community Schools use SMCs and parent-teacher associations (PTAs) to ensure that teachers and students are present in the schools. Guatemala also pilot tested the use of cell phones as a way of collecting and reporting education management information system (EMIS) absentee data to MINEDUC on an on-going basis.

In addition to monitoring, policy-makers should explore ways to support absent teachers. In the United States, there is a system to provide substitute teachers to schools when the main teacher is absent. In Guatemala, there are huge numbers of certified teachers without teaching posts. Is there a way to use and deploy these teachers in an effective way to ensure that when teachers are absent, classes can continue uninterrupted? While more costly, this solution might ensure that students spend more time in school learning than currently occurs in the sample schools.

Finally, many schools have parent and community committees (i.e., PTAs and SMCs). Policy-makers could explore ways to engage the community in improving the “reading culture” around schools. Perhaps communities could explore after school reading clubs, or reading camps that engage literate community members to support children learning to or improving reading skills.

These are a few of many possible options that would increase the opportunity to learn and help mitigate some of the effects of teacher absenteeism.

### *More of the school day needs to be effectively used and more time should be devoted to reading*

The biggest loss of time is occurs when teachers and students are off task and when the school starts late and ends early. Teachers and principals indicated that school often begins at 8:00 a.m. instead of 7:30 a.m. because educators are waiting for students to arrive; they end early because teachers often need to leave for afternoon shifts in other schools; and recess extends beyond the allocated 15 minutes because of lag time in getting students back into the classroom. Principals, SMCs, and PTAs need to assist schools and teachers to begin and end school on time so students receive the benefit of more instructional time.

### *Investments in teacher training need to do more than assure official certification*

Teachers need to learn specific teaching strategies that are focused on helping students learn to read (either as part of or in addition to their certification-based training). Most students in this study recognized letters fairly well, could complete the CAP pre-literacy tasks successfully, and read at an average of 50 wpm. However, many students were still not making the transition from initial foundational reading skills to actually reading with fluency. While there are teacher and student standards in place for the type of teaching that should happen in the classroom, it was not clear that an actual reading curriculum existed in Guatemala. Teachers appear to lack techniques such as those mentioned above that build site vocabulary or teach basic decoding. Ensuring teachers have the skills to carry out the following types of reading activities will improve students’ reading abilities.

1. **Focus on oral language development.** Literacy starts with oral language. Children in most countries are familiar with certain local songs. Teachers should use local songs and customs to teach reading and word association.
2. **Use of high frequency sight words.** Sight words are learned through repeated exposure. Teachers should be taught to use word games such as BINGO or flash cards to teach high frequency words. Teachers should be able to write a sentence on the chalkboard that has a high frequency word (e.g., “here”) and draw students’ attention to the word. Students can learn to be word trackers before they read a page to see if they recognize any “old friends” in sentences or paragraphs.
3. **Picture walk.** Most beginning texts carry some sort of illustration. Teachers often rush too quickly to have students focus on the printed words, but beginning readers

first read the pictures, construct a text in their heads, then reading becomes a process of matching the texts they constructed with the text the writer constructed. Focus on ensuring that teachers can do “picture walks” by showing students the pages of the book they are about to read and talking with them about what is in the pictures. (e.g., “What do you see?” “Does that give you an idea about what the author might be saying?”) A picture walk builds motivation and engagement in reading as children become eager to see whether their ideas are the same as the author’s.

4. **Repeated reading.** Whether adult competent readers or children just starting out, it is an absolute certainty that all readers improve accuracy and rate with repeated reading of the same passage. Unfortunately in school, teachers seldom give children an opportunity to do repeated reading, and almost no repeat reading was observed in the classrooms in this study. Teachers should be taught to use techniques such as reading in pairs, reading in small groups, or even just having time in class to read silently to encourage a “culture of reading” in the classroom.
5. **Use of patterned text.** Another way to create instant readers is to use texts that have clear, strong patterns. Think about the song “I Know an Old Lady Who Swallowed a Fly.” She swallowed the fly to catch the spider, etc. By the time the student gets to the fourth verse they have memorized the pattern. They might not be reading letters and words, but this action will get students into the game. It is up to the teacher then to help the child match which word is “Lady.”
6. **Use of dictated sentences.** It is much easier for children to read what they have just said. These texts can be read by students and become the focus of instruction.

### *More reading material needs to be made available*

Teachers often think of reading as reading books, when in fact most reading is not book reading. There appears to be an insufficiently literate environment to support regular reading. Teachers should take an inventory of the print in the school, classroom, or school community. Even in the poorest communities there are some amazing examples of literacy: package labels, T-shirts, bibles, and billboards. These are texts, and teachers can begin supporting children’s literacy by building on their ability to read them.

Schools need storybooks and other printed materials that offer students a variety of opportunities and purposes to read. Teachers also need to be trained to provide students with a structured environment for reading to occur. Activities such as reading corners, reading silently for some time period, and peer reading are activities that increase the amount of time students read in class and strengthen their reading skills.

### *Remediation and more individualized instruction should be introduced*

Given that large numbers of students are not learning to read, schools need to put in place remediation strategies designed to address this problem. Within any classroom teachers might have students across the full range of reading abilities, and therefore should learn techniques to identify where students are at and then tailor instruction to different groups operating at different levels. Simple tools for classifying students along a

logical hierarchy would prove useful – does not know letters, knows letters, able to read simple words, able to read sentences, able to read connected text.

MINEDUC should also invest in enriching the professional dialogue around teaching reading and writing. This enrichment means creating professional libraries in schools and teacher centers; ensuring teachers have access to journals, web resources, even government circulars on reading and literacy; and continue to build a constructive dialogue with the teacher unions around issues of professionalizing the teaching workforce. The teacher union can and must be a partner for promoting excellence.

### *Ensure there is a strong link between reading and writing*

Even kindergarten students learn to read and write concurrently. Reading and writing are mutually informing and reinforcing, so teachers need to focus on ways to ensure students have an opportunity to write stories and practice writing, and then reading what they have written.

When teachers do teach reading skills, they tend to do so in isolation. They generally teach discrete skills as though these were pieces of a giant puzzle and then expect kids to put the pieces together on their own. Often students do not understand how the pieces of the puzzle fit together. Teachers need to teach high-utility reading and writing strategies in the context of authentic reading and writing activities, such as writing a story about a sibling, creating a poem for a parent, reading about a hero, or trying to find out whether the lost kids will make it back home. Teaching reading and writing in authentic contexts provides an opportunity for children to see how the skills of reading and writing can help them read and write better, and it allows them to play with words.

In 2009, AED published *Success in First Grade* highlighting four principles of success: maximizing opportunities to learn, creating learning communities, providing redundant support, and integrating child-oriented systems. These principles are at the core of the recommendations above and provide a foundation to engage policy-makers in discussions on how to ensure that all kids learn to read.



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