



MIDTERM EVALUATION REPORT FOOD FOR EDUCATION “LEARNING FOR LIFE” GUATEMALA

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Submitted by:

Thomas M. Crea, PhD, MSW Liz Gruenfeld, MSW, EdM Augusto Rosales, MSc Gaspar Tambriz, BA Joseph Molinari, MSPH Kelsey Komich, MSW

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Acronyms

APCC	Asociación Proyecto Conrado de la Cruz
CRS	Catholic Relief Services - United States Conference of Catholic Bishops
CTA	Coordinador Técnico Administrativo / Technical and Administrative Coordinator for the Ministry of Education
DIDEDUC	Dirección Departamental de Educación de Guatemala / Departmental Office for the Ministry of Education
DIGEFOCE	Dirección General de Fortalecimiento de la Comunidad Educativa / Department of Educational Capacity Building for the Ministry of Education
DIGEBI	Dirección General de Educación Bilingüe Intercultural / Bilingual Education Office
ELGI/EGRA	Evaluación de Lectura para Grados Iniciales / Early Grade Reading Assessment
FFE	Food for Education
HDDS	Household Diet Diversity Score
IRB	Institutional Review Board
MINEDUC	Ministerio de Educación / Ministry of Education
MTE	Midterm Evaluation
PRODESSA	Proyecto de Desarrollo Santiago
PTA	Parent Teacher Association
UNICEF	United Nations Children's Fund
USDA	United States Department of Agriculture
WFP	World Food Program

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EXECUTIVE SUMMARY

Catholic Relief Services-United States Conference of Catholic Bishops (CRS) is currently implementing a school feeding project focused on improving the literacy of school-age children in four municipalities in the department of Totonicapán, Guatemala. Over a period of 3 years (2013-2016), CRS-Guatemala is implementing the Food for Education (FFE) project, using donated commodities and funds provided by the United States Department of Agriculture (USDA) to accomplish the following: (1) Improve quality of literacy instruction; (2) Improve student attentiveness; and (3) Improve student attendance. The overall project is focused on the strategic objective to improve the literacy of school-age children in four municipalities in the department of Totonicapán.

The purpose of this Midterm Evaluation (MTE) is to identify ways to improve project effectiveness and efficiency and/or to inform specific future decisions. The MTE is a process evaluation that suggests mid-course corrections in program strategy and recommendations for improving effectiveness efficiency. The key evaluation questions for the MTE are the following:

- (1) To what extent are project activities related with student performance (Strategic Objective)?
- (2) To what extent has the quality of literacy instruction improved (Result 1.1)?
- (3) To what extent has student attentiveness improved (Result 1.2)?
- (4) Has student attendance improved, and what is the relationship between attendance and educational performance (Result 1.3; Strategic Objective)?

The sample for the MTE included 120 schools, 301 teachers, 2,040 3rd grade students, 1,792 6th grade students, 319 parents, and 117 school directors. The MTE results related to key indicators are presented below:

Result	Indicator	Baseline	Final Target	Midterm Results
Level of Student Reading Performance				
Improved literacy of school-aged children	Percent of girls who, by the end of 6th grade, demonstrate reading comprehension equivalent to their grade level as defined by national standards at USDA supported schools	25.19% correct	+10%	31.20% correct for girls
	Percent of boys who, by the end of 6th grade, demonstrate reading comprehension equivalent to their grade level as defined by national standards at USDA supported schools	24.31% correct	+10%	31.19% correct for boys

Has the Quality of Literacy Instruction Improved?				
Improved quality of literacy instruction	1.1 Percentage of teachers in target schools who demonstrate use of new and quality teaching techniques or tools	64.9%	80%	87.5% of teachers
More consistent teacher attendance	1.1.1 Percentage of teachers at target schools who attend and teach school at least 90% of scheduled school days per school year	88.8%	90%	81.7% scheduled school days attended by teachers over the school year 7.8% of teachers teach at least 90% of scheduled school days
Improved literacy instructional materials	1.1.3b Percentage of classrooms in target schools with literacy instructional materials (textbooks, workbooks, etc.) sufficient for effective instruction	75.4%	100%	100% of schools have been provided literacy instructional materials.
Increased skills and knowledge of teachers	1.1.4 Percent of teachers in target schools who demonstrate use of new and quality teaching techniques or tools	0.0%	70%	87.5% of teachers use new and innovative teaching techniques
Increased skills and knowledge of school administrators	1.1.5 Percent of school administrators in target schools who demonstrate use of new and quality teaching techniques or tools	0.0%	75%	87.0% of school principals use new and innovative teaching techniques
Has Student Attentiveness Improved?				
Improved students' attentiveness	1.2 Percent of students in classrooms identified as attentive by their teachers	27.0%	80%	82.2% of students are attentive based on classroom observations
Reduced short term hunger	1.2.1 Percent of 3rd grade students in target schools who indicate they are not hungry during the school day	15.8%	60%	86.9% of 3rd grade students are not hungry ¹
	1.2.1a Percent of 6th grade students in target schools who indicate they are not hungry during the school day	8.2%	60%	73.2% of 6th grade students are not hungry
Have students improved their attendance?				
Improved student attendance	1.3 Percent of boys regularly (80%) attending USDA supported	60.0%	85%	80.8% of boys from 3 rd grade attended school 80% of scheduled days

¹ As indicated by the question: "With the food from this project, are you less hungry at school?"

	classrooms/schools			per month
				76.8% of boys per 6 th grade attended 80% of the scheduled days per month
	1.3a Percent of girls regularly (80%) attending USDA supported classrooms/schools	71.7%	85%	75.1% of girls from 3rd grade attended 80% of the scheduled days per month 73.0% of girls from 6th grade attended 80% of the scheduled days per month
Increased economic and cultural incentives (or decreased disincentives)	1.3.1 Number of school children who participate in extra-curricular school activities	1,820	3,505	2,400 children enrolled in Spaces to Grow.
Reduced health related absences	1.3.2 Average number of school days missed by students due to illness (for each school and in aggregate)	2.5 days	2	4.1 days 66.3% of students missed school from 1-5 days per year
Improved school infrastructure	1.3.3 Number of educational facilities (school buildings, classrooms, and latrines) rehabilitated / constructed as a result of USDA assistance	0	312	244 facilities constructed or rehabilitated.
Increased student enrollment	1.3.4 Percent increase in boys enrolled in school as a result of USDA assistance	0%	4% 18,437 ²	- 1.0% 18,245 boys enrolled (2014-2015)
	1.3.4a Percentage increase in girls enrolled in school as a result of USDA assistance	0%	4% 17,765 ³	- 2.6% 17,307 girls enrolled (2014-2015)
Increased community understanding of the benefits of education	1.3.5 Percentage of parents in target communities who can name at least three benefits of primary education	96.4%	80%	35.9% of parents who mentioned at least three benefits of primary education

² This number was obtained from the 2014 baseline report.

³ This number was obtained from the 2014 baseline report.

School governments	Number of school governments established	213	221	162 school governments established at midterm 375 school governments (baseline and midterm combined)
	Number of school governments strengthened			67.5% of school governments strengthened (directors)
Improvement plans	Number of existing school improvement plans	142	221	142 have a school improvement plan
Increased Capacity of Government Officials				
Increased government support	1.4.3 Percentage of MINEDUC disbursements (financial or material) which arrive on time to the appropriate institution.	13.1%	10%	21.4% of the disbursements arrived on time in 2014 ⁴
Increased engagement of local organizations and community groups	1.4.4 Number of PTAs contributing to their school as a result of USDA assistance	69	221	215 schools have a PTA that contributes to their schools
	1.4.4a Number of PTAs that have developed a school improvement plan	18	133	62 (53.0% of sampled schools) have PTAs that helped develop a school improvement plan where one is being developed.
Increased capacity of government organizations	1.4.1 Number of DDEDUC and DIGEFOCE staff who have increased their capacity to implement their roles and responsibilities	0	20	14 staff have been trained

⁴ Information provided by school principals.

MIDTERM EVALUATION REPORT

FOOD FOR EDUCATION “LEARNING FOR LIFE” GUATEMALA

A. Introduction and Background:

The links between childhood nutrition, literacy and development have long been established (Brown & Pollitt, 1996) with research showing significant developmental consequences for children experiencing malnutrition (Jyoti, Frongillo, & Jones, 2005). Children in Guatemala experience one of the highest rates of malnutrition in the world, particularly in indigenous areas where estimated rates range between 69.5%⁵ and 80.0%⁶. UNICEF notes that the high rate of malnutrition in Guatemala, particularly for indigenous populations, results in chronic malnutrition and related lowered school performance, and heightened risk for loss of intellectual ability and school dropout². Statistics provided by UNICEF suggest that only 40% of children who start primary school will finish, and on average, indigenous girls only attend primary school for 3 years².

Interventions frequently target early childhood development (Ruel et al., 2013) but the effectiveness of school-based feeding programs is often harder to evaluate given their dual goals of education and health (Alderman & Bundy, 2013). Some suggest that school feeding programs are in fact programs of social protection, where food transfers help create a social safety net for highly vulnerable populations (Alderman & Bundy, 2013; Ruel et al., 2013). In terms of education outcomes, school feeding programs in Cambodia have been shown to be effective in promoting school attendance, but less so in school achievement over time, although these programs were cost effective (Cheung & Berlin, 2014). In Ghana, one study found that the time required for school feeding reduced the time and quality of educational activities (Essuman & Bosumtwi-Sam, 2013). Despite immediate gains in reducing hunger, school feeding programs often fall short of achieving educational goals given problems in targeting, food quality, and systems of delivery. More research is needed on how these programs can best target vulnerable children and increase educational access.

Background

Catholic Relief Services-United States Conference of Catholic Bishops (CRS) is currently implementing a school feeding project as a means of improving the literacy of school-age children in four municipalities in the department of Totonicapán, Guatemala. Over a period of 3 years (2013-2016), CRS-Guatemala is implementing the Food for Education (FFE) project, using donated commodities and funds provided by the United States Department of Agriculture (USDA) to accomplish the following: (1) Improve quality of literacy instruction; (2) Improve student attentiveness; and (3) Improve student attendance. The overall project is focused on the strategic objective to improve the literacy of school-age children in four municipalities in the department of Totonicapán.

⁵ <http://www.wfp.org/countries/guatemala/overview>

⁶ http://www.unicef.org/guatemala/english/overview_18012.htm

Key Evaluation Questions

The purpose of this MTE is to identify ways to improve project effectiveness and efficiency and/or to inform specific future decisions. The MTE is a process evaluation that suggests mid-course corrections in program strategy and recommendations for improving effectiveness efficiency. The key evaluation questions for the MTE are the following:

- (1) To what extent are project activities related with student performance (Strategic Objective)?
- (2) To what extent has the quality of literacy instruction improved (Result 1.1)?
- (3) To what extent has student attentiveness improved (Result 1.2)?
- (4) Has student attendance improved, and what is the relationship between attendance and educational performance (Result 1.3; Strategic Objective)?

B. Methods

Study Sites and Target Population

The four municipalities included in this project are the following: (1) Momostenango; (2) San Andrés Xecul; (3) Santa Lucia la Reforma; and (4) San Bartolo Aguas Calientes. The project focuses on several key actors, including preschool and elementary students, teachers, administrators, volunteer parents and government officials. The target population comprises those actors in the 225⁷ schools in 4 municipalities.

Sample

From the population of schools, the study drew from a simple random sample of N=120 schools. In each school, all available 3rd and 6th grade students were given the Early Grade Reading Assessment and Food Intake Survey (see measures section). Each school principal was interviewed using a structured protocol. Teachers and parents were also randomly selected for structured interviews, and all available parent volunteers were invited to participate in a focus group⁸. The sample numbers are provided in Table 1.

Table 1: Sample

Municipality	Total Schools	Total %	Schools	%	Teachers	Students		Parents	Directors
						3 rd	6 th		
Momostenango	125	59	69	57.5	209	1,373	1,165	195	69
San Andres Xecul	22	10.4	9	7.5	26	274	285	21	9
Santa Lucia la Reforma	35	16.5	17	14.2	26	171	206	41	14
San Bartolo Aguas Calientes	30	14.2	25	20.8	40	252	136	62	25
Total	212	100	120	100	301	2,040	1,792	319	117

⁷ 13 schools in Momostenango do not participate in the school feeding program. As a result, the population of schools under consideration for this study is N=212.

⁸ Focus group qualitative analysis relied on a representative sample (N=85; Momostenango=44; Santa Lucia la Reforma=22; San Bartolo Aguas Calientes=9; San Andres Xecul=10).

In addition to the numbers listed above, CTAs were also interviewed using a semi-structured protocol (N=9). Overall, children totaled N=3,832 and adults totaled N=717.

Measures

Multiple data collection tools were employed for data collection. These include:

i. Early Grade Reading Assessment (EGRA) / Evaluación de Lectura para Grados Iniciales (ELGI)

The EGRA/ELGI is a 30-question reading assessment test developed in Spanish by PRODESSA.

ii. Food Intake Assessment

Children taking the EGRA/ELGI were also asked to complete a survey on food and hunger as related to FFE, as well as an index of breakfast foods eaten during the day of data collection.

iii. Focus Groups for Parent Volunteers

Parent Volunteers at each school were invited to participate in a focus group, of no more than 8 participants each. These focus groups followed a semi-structured protocol, and assessed volunteers' perceptions of the program's relevance, effectiveness, adequacy, and gender equity.

iv. Interviews with Teachers, School Administrators, PTA members, Key Stakeholders

Structured interviews were completed with randomly selected teachers within schools as well as with principals, parents, and key stakeholders. Structured interviews with school principals assessed enrollment and dropout rates.

v. Structured Classroom Observations and Child Attentiveness

A protocol was developed to assist enumerators to observe teachers in the classroom context, and establish the extent to which teachers have improved their teaching skills using the Kemom Ch'ab'al methodology, as well as the extent to which children were paying attention in class during the period of observation.

vi. Baseline and Administrative Data

Baseline evaluation data were used to replicate findings from the baseline report, for accurate comparison to MTE data. CRS administrative data were linked to data collection forms, so that data entry was prepopulated with accurate information.

RESULTS

CHILD LITERACY (STRATEGIC OBJECTIVE)

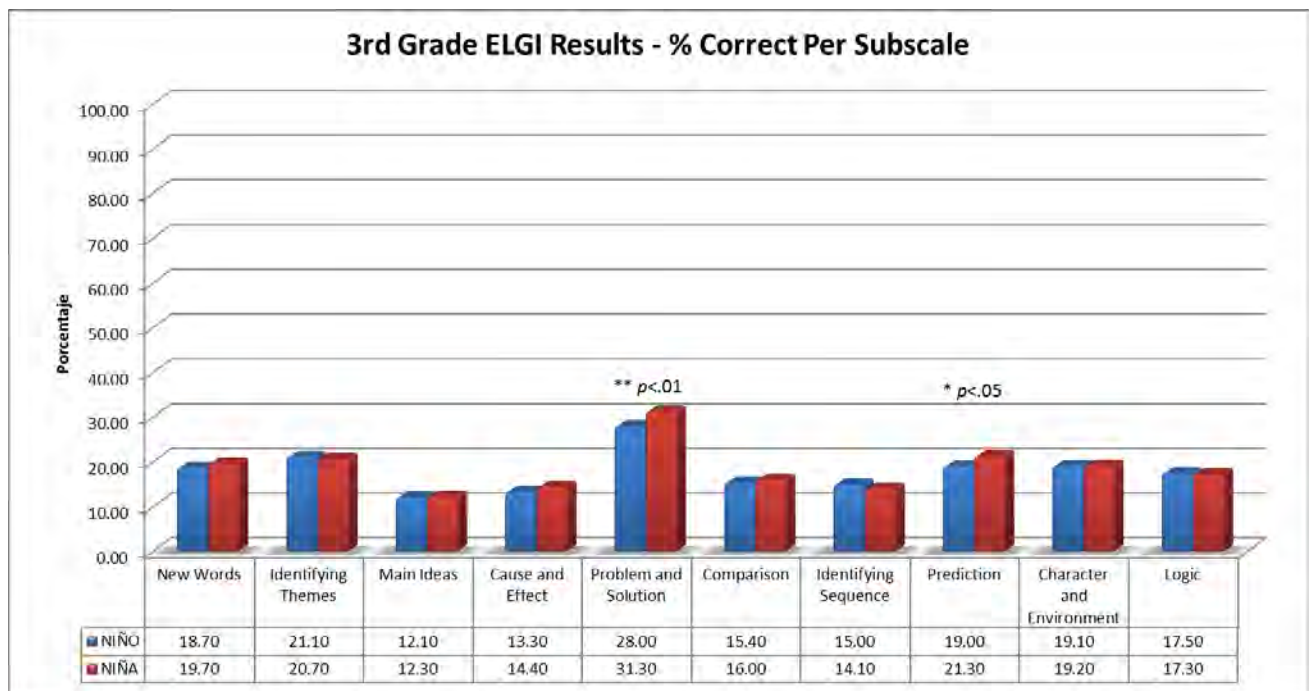
For boys and girls, literacy rates increased compared with baseline results (see Table 2). Of note, these rates are calculated as the mean percentage of correct responses out of 100.00% for each subgroup (see Table 2). These numbers do not reflect the actual literacy rates of children, which should be calculated as the percent of children who score 60% or higher on ELGI assessments. Using this standard, no 3rd grade children achieved literacy (0.0%), and N=29 6th grade children achieved literacy (1.6% of N=1,793).

Table 2: % Correct Responses on ELGI Assessments

	BASELINE	MIDTERM
6th Grade		
Girls	25.19%	31.20%
Boys	24.31%	31.19%
3rd Grade		
Girls	9.19%	17.59%
Boys	8.88%	18.87%

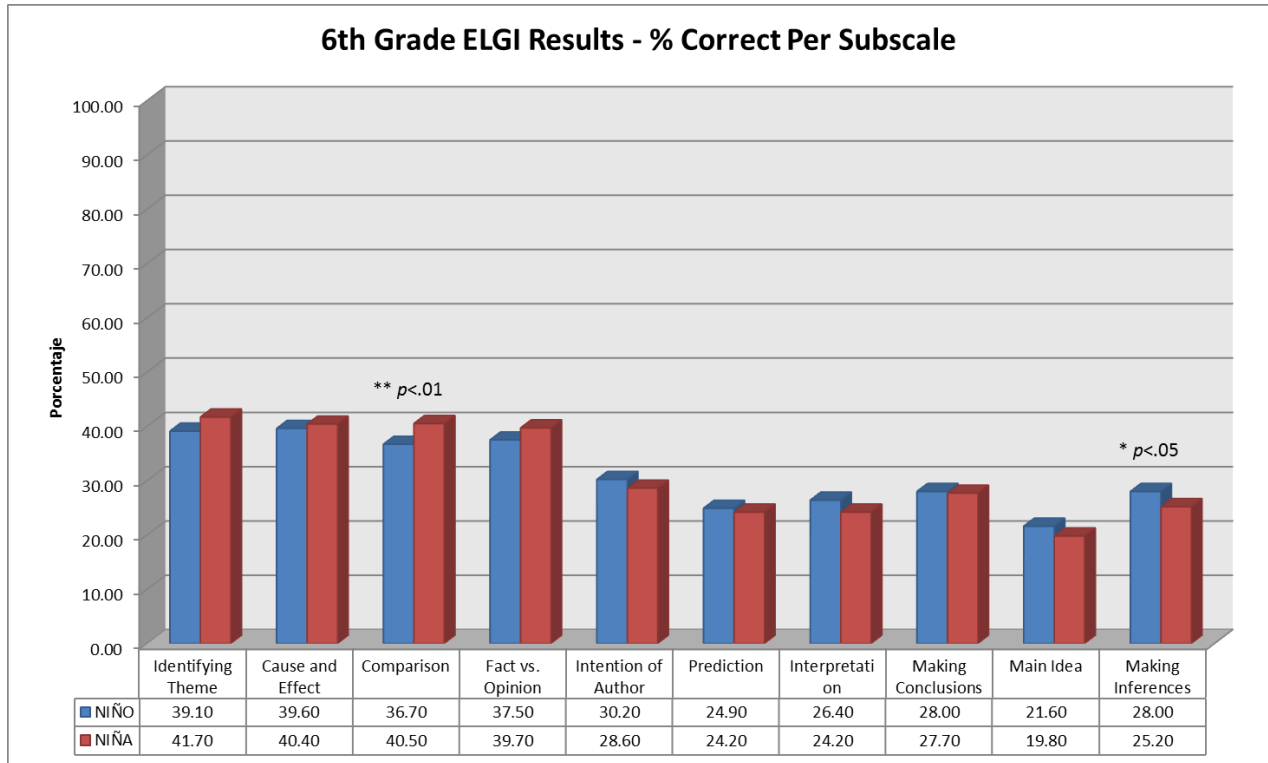
Some variation emerged on the 10 ELGI subscales which comprise the overall assessment. Boys and girls performed similarly on each subscale, with girls scoring slightly higher on *Problem and Solution* ($p < .01$) and *Prediction* ($p < .05$) subscales. Overall, the highest scores were for *Problem and Solution* and *Identifying Themes* subscales, and lowest for *Cause and Effect* and *Main Ideas* subscales. Scores for all subscales were higher in the MTE compared with Baseline, with the exception of *Logic*.

Figure 1. 3rd Grade ELGI Subscale Results



Students in 6th grade scored higher on subscales, and overall ELGI scores, compared with 3rd graders (see Figure 2). Boys and girls scored similarly on all subscales, with girls scoring slightly higher on the *Comparison* ($p < .01$) and *Making Inferences* ($p < .05$) subscales. The highest scores emerged in the *Identifying Themes* and *Cause and Effect* subscales, and the lowest scores were for the *Main Idea* and *Prediction* subscales.

Figure 2. 6th Grade ELGI Subscale Results



QUALITY OF LITERACY INSTRUCTION (RESULT 1.1)

Teachers' Use of New Techniques and Tools (Result 1.1). **87.5%** of teachers report using one or more new or innovative teaching approaches. These approaches included looking at images (58.9%), reviewing the title (53.7%), and looking at the structure of the text (36.4%). Teachers also mentioned other activities, such as choral reading (77.5%) and reading aloud in turns (59.7%).

Several PTA Focus Groups described collaborating with teachers to support and improve boys and girls education. Groups described teacher collaboration [“(We) talk with teachers to improve education”; “(we) support the teacher”] and teacher monitoring [“(we) evaluate and monitor the carrying out of educational responsibilities”; “(we) ensure that teachers are ok”].

Teacher Attendance (Result 1.1.1). CTAs and directors were asked to estimate the percentage of time teachers attended school during the school year. Assuming 170 days of school per year, CTAs and directors differed somewhat in their perceptions (see Table 3)⁹. For CTAs, estimated percentages of teacher attendance ranged from 85.3% in 1st and 2nd grades, to 86.4% in 3rd and 6th grades, for an

⁹ Directors were asked to estimate the number of days teachers attended school in 2015. Percentages were calculated based on the assumption of 170 days per school year, which represented the highest number of days reported by a director.

average of **85.8%** (15.0%). For directors, estimated percentages ranged from 76.7% in 5th and 6th grades to 77.1% in all other grades, for an average of **77.0%** (12.0%). However, in examining the numbers who achieved 90% attendance during the school year, only **7.8%** achieved this benchmark.

Table 3. *Teacher Attendance by Grade*

	<u>CTA Reports</u> % of School Year	<u>Director Reports</u> % of School Year
First Grade	85.3% (14.9%)	77.1% (12.0%)
Second Grade	85.3% (14.9%)	77.1% (12.0%)
Third Grade	86.4% (15.2%)	77.1% (11.8%)
Fourth Grade	85.9% (15.0%)	77.0% (12.0%)
Fifth Grade	85.3% (14.9%)	76.7% (12.3%)
Sixth Grade	86.4% (15.2%)	76.7% (12.0%)
AVERAGE	85.8% (15.0%)	77.0% (12.0%)

Parents were also asked to estimate the number of days per school year teachers attended class. Parents' responses ranged from 100 days to 180 days, with a mean of 148.0 days (SD=25.0). On average, then, parents perceived teachers attending class **82.2%** of the school year, in keeping with CTAs' and directors' observations.

On average, taking the CTA, Director, and Parent mean observations, the estimated overall average teacher attendance is **81.7%** of scheduled school days attended by teachers.

These estimates, based on perceptions of various stakeholders, are necessary to provide this indicator given the apparent lack of record-keeping related to teacher attendance. One recommendation of this report is to institute a consistent means of keeping records on teacher attendance using mandated electronic databases (see Recommendations).

School Materials (Result 1.1.3b). According to data provided by CRS and based on delivery reports signed by school directors and kept by PRODESSA, **100%** of schools have now received literacy instructional materials. Nearly all school principals (91.5%) reported receiving school materials. Yet, principals were evenly split on the adequacy of these materials: 47.1% stated the materials were sufficient to cover all children in the class, while 41.9% stated these materials were not sufficient. Yet, principals were generally satisfied with the quality of these materials, with 78.6% stating the materials were of good or very good quality.

Data collectors completed structured observations of randomly selected classrooms (see Table 4). Classrooms scored highest for adequate lighting and ventilation (88.1%), desks being orderly (88.0%; reversed scored), teachers' having materials (81.0%), and the blackboard being in good condition (78.3%), and lowest for desks being in a circle or U (39.0%), desks being clean and tidy (65.1%) and desks being in good condition (68.2%). Items were summed and standardized on a scale from 1-100. The quality of classroom conditions ranged from 32%-100%, with an average score of 66.2% (SD=11.5%).

Table 4. Observations of Classroom Conditions

	N	Range	Mean (SD)	% Agree or Strongly Agree
The desks are in a circle or U	277	1-5	3.0 (1.1)	39.0%
The desks are disorderly (reversed)	276	1-5	2.4 (0.8)	12.0%
The desks are in good condition	276	1-5	3.6 (0.8)	68.2%
The classroom is clean and tidy	275	1-5	3.6 (0.9)	65.1%
Lighting and ventilation are adequate	277	1-5	4.0 (0.7)	88.1%
The blackboard is in good condition	277	1-5	3.8 (0.8)	78.3%
The teacher has classroom materials for the children	274	1-5	3.9 (0.7)	81.0%
OVERALL CLASSROOM CONDITIONS	270	32%-100%	66.2% (11.5%)	--

Kemom Ch'ab'al Methodology (Result 1.1.4.). 80.4% of teachers reported using the Kemom Ch'ab'al teaching methodology. Principals reported only moderate supervision of teachers in regards to the Kemom Ch'ab'al Methodology. 25.6% stated they supervised teachers "a lot" or "very much", while 38.5% indicates "some" and 29.1% stated "a little" or "very little". Principals varied in their reporting of the steps of the methodology (see Table 5). Most reported Scanning the Reading (86.0%) and Reading (80.0%), about 2/3rd reported Do Exercises About the Reading (68.4%), while less than half reported Review Exercises and Reflect on the Content of the Reading. Overall, 17.4% of directors were able to identify the 5 steps of the methodology.

Teachers also varied in reporting steps of the methodology (see Table 5). Most reported Scanning the Reading (80.1%) and 2/3rd reported Reading (67.5%) with fewer reporting Do Exercises About the Reading (58.1%). Fewer than half reported Review Exercises and Reflect on the Content of the Reading. Overall, **18.7%** of teachers were able to identify the 5 steps of the methodology.

Table 5. Principals' and Teachers' Reporting Steps of Kemom Ch'ab'al Methodology

STEPS	% Principals Reported (N=117)	% Teachers Reported (N=246)
Scanning the reading	86.0%	80.1%
Reading	80.3%	67.5%
Do exercises about the reading	68.4%	58.1%
Review exercises	45.3%	46.3%
Reflect on the content of the reading	41.9%	49.6%
ALL 5 STEPS MENTIONED	17.4%	18.7%

Most teachers agreed or strongly agreed (93.1%) that the Kemom Ch'ab'al methodology was relevant to the cultural context of Totonicapán.

On average, teachers reported teaching significantly more in Spanish than K'iché ($p < .001$). Teachers reported teaching **175.3 minutes in Spanish/Castilian** per week (SD=107.0), and **107.5 minutes in K'iché** per week (SD=77.7).

As part of this project, the Education Specialist conducted a thorough review of the Kemom Ch’ab’al methodology and made recommendations for its continued use (see Appendix A for the full report). In this assessment, the Education Specialist found that the Kemom Ch’ab’al Methodology responds accordingly to the National Base Curriculum (CNB in Spanish), that the materials distributed to the teachers and students are of high quality, and that the materials have been well distributed to the schools observed in the MTE. The Education Specialist also found that the structure of the methodology is very strong and conducive to teaching both the Spanish and K’iché languages. Reading topics were well selected and appropriately adapted to the context of the communities in which they were being utilized. In terms of grammatical structure, there were a few minor grammatical errors in the K’iché portion of the textbooks used by the teachers and students, particularly in the teaching of different verb forms and conjugation rules. It is recommended for future production of Kemom Ch’ab’al materials that there be a thorough revision by a specialist in the K’iché language to ensure correct grammatical uses of the language.

Spaces to Grow. According to the original commitment with USDA, the target for the midterm is that 40 schools will have implemented Spaces to Grow (17.8%). According to directors, this number surpassed the target at 24.8%. Relatively few principals knew about Spaces to Grow (33.3%), and most (76.9%, i.e., the non-implementing schools) stated they did not know the specific activities involved with the program or did not answer the question. By contrast, 79.5% of principals expressed interest in having Spaces to Grow at their school. According to CRS monitoring reports to USDA, 1,200 children were enrolled in Spaces to Grow in school year 2014-2015.

Administrator’s Use of New/Quality Techniques (Result 1.1.5). 95.7% of directors report using the Kemom Ch’ab’al teaching methodology. **87.0%** also report using new and innovative teaching techniques. Most commonly, directors reported looking at images (70.0%), reviewing the title (67.0%), and looking at the structure (33.0%). Directors also offered a number of other techniques, such as discussing dynamics and themes of readings (21.0%), conducting reflection and analysis (9.0%), exploring and modeling the reading (9.0%), motivating the students (8.0%), and playing games (5.0%).

PTA focus groups repeatedly described their collective role in supporting and sometimes overseeing the overall functioning of the school. They stated, “(We) ensure each day that everything goes along correctly at the school, since by taking turns, there’s someone at the school from the PTA”.

Yet, PTA focus groups cited minimal participation in improving student literacy. Focus groups in Momostenango described their participation in terms of teacher support [“(We) work in teams with teachers to improve children’s reading”], and parent support (describing PTA support of a literacy program run by parents).

STUDENT ATTENTIVENESS (RESULT 1.2)

Student Attentiveness (Result 1.2). Data collection supervisors were instructed to conduct classroom observations for randomly selected teachers in schools. A series of 5-point Likert-scale items were used to assess aspects of student attentiveness in the classroom during the period of observation (see Table 6). The data for each item are displayed in Table 6, which show the average score of each item, and the percent of respondents who replied “Agree” or “Strongly Agree” to each statement. For the single item, “Children are attentive for long periods of time (about 15 minutes) in the classroom,” the average score

Table 6. Observations of Student Attentiveness

	N	Range	Mean (SD)	% Agree or Strongly Agree
Children are attentive for long periods of time (about 15 minutes) in the classroom.	269	2-5	3.9 (0.6)	82.2%
The children seem distracted during class activities.	269	1-4	2.5 (0.8)	39.4%
The children follow the teacher's instructions.	272	2-5	4.0 (0.5)	90.9%
The children are sleepy in the classroom.	268	1-5	2.1 (0.7)	5.2%
The children have difficulty concentrating.	271	1-5	2.5 (0.7)	10.3%
The children focus on a task until they complete it.	271	2-5	3.8 (0.6)	81.2%
The children work independently (take materials, work on your own, and ask for help if necessary).	272	1-5	3.8 (0.7)	74.6%
The children listen attentively.	269	2-5	4.0 (0.5)	90.3%
The children are fighting or restless in the classroom.	273	1-5	2.4 (0.8)	13.5%
The boys participate well in the classroom.	272	1-5	4.0 (0.5)	91.5%
The girls participate well in the classroom.	272	2-5	3.9 (0.5)	82.3%
The teachers give the same opportunities for participation to boys and girls (with questions, allowing them to speak (DANDOLES LA PALABRA), calling them by their name, etc.).	271	2-5	4.1 (0.5)	94.1%
There are notebooks or solved exercises that demonstrate that children work to strengthen their understanding of written texts.	266	1-5	3.9 (0.8)	80.1%
OVERALL ATTENTIVENESS	250			M=70.3% SD=9.8 RANGE: 38%-96%
MUNICIPALITY **				
<i>Momostenango</i>	209			M=71.0%, SD=10.0%
<i>Santa Lucia La Reforma</i>	40			M=66.0%, SD= 6.0%
<i>San Bartolo Aguas Calientes</i>	26			M=71.0%, SD= 6.0%
<i>San Andres Xecul</i>	26			M=74.0%, SD= 5.0%

** $p < .01$

was 3.9 out of 5 (SD=0.6), with 82.2% of respondents indicating “Agree” or “Strongly Agree” with this statement (of note, only 8.6% stated “Strongly Agree”). The Baseline used a 4-point Likert scale and found that 27.3% of observations noted “A lot” of child attendance. While direct comparisons between the baseline and MTE items are difficult, it seems that data collectors noted higher levels of attentiveness in the MTE compared with baseline. Principals also noted that children are better able to focus in the classroom (89.7%) in the 2014-2015 school year.

Other indicators corroborate this finding. Most (90.3%) reported that children listen attentively and follow the teacher’s instructions (90.9%). Boys seem to participate more in classrooms (91.5%) compared with girls (82.3%), but 94.1% of observers stated that boys and girls are provided the same opportunities in the classroom. Indicators of negative behavior were low (sleepy=5.2%, difficulty concentrating=10.3%, fighting/restless=13.5%). Of note, compared to the other positive behaviors, relatively fewer observers stated that children work independently (74.6%).

An overall score of attentiveness was created by reverse-scoring negative behaviors, summing all behaviors, and standardizing on a scale from 1-100. The attentiveness scale had good internal consistency ($\alpha=.77$). On average, classrooms scored 70.3% attentiveness overall (SD=9.9%), with a range of 38.0% to 96.0%. Average attentiveness scores were obtained for each municipality and compared for differences ($p<.01$). Results showed highest attentiveness scores for San Andres Xecul (M=74.0%, SD=5.0%), followed by Momostenango (M=71.0%, SD=10.0%), San Bartolo Aguas Calientes (M=71.0%, SD=6.0%), and Santa Lucia La Reforma (M=66.0%, SD=6.0%).

Student Hunger and Food Intake (Result 1.2.1). Children answered a number of questions related to their food intake on the day of ELGI assessment, as well as their opinions on the helpfulness of food provided through the FFE program at their schools (see Table 7). When asked whether they had eaten any food at home on the morning of assessment, nearly all of 3rd graders (97.4%) and 6th graders (96.2%) indicated yes¹⁰. Fewer children indicated their teachers had given them any food (74.7% for 3rd grade; 82.5% for 6th grade), but this response may reflect an early time of the day in which the child answered the questions, prior to being served food. Nearly 2/3rd of 3rd graders reported getting food at school for breakfast (62.4%) versus lunch (37.6%) and this pattern was similar for 6th graders (58.5% vs. 41.9%). Most 3rd graders said they were less hungry (86.9%) with the project’s food, while fewer (73.2%) of 6th graders stated they were less hungry. Most children also noted that they can study and perform better at school with the project’s food, and 3rd graders in particular said they liked the food (94.3%) with 6th graders also agreeing (91.8%). A few students noted they did not like certain aspects of the food, particularly beans and rice; these numbers, however, were small.

Table 7. Child Responses to Food Program

	3 rd Grade (% responding yes)	6 th Grade (% responding yes)
Did you eat something at home this morning?	97.4%	96.2%
At school, did the teachers give you any food?	74.7%	82.5%
If the teachers gave you food, was it for breakfast or lunch?	BREAKFAST: 62.4%	BREAKFAST: 58.5%
	LUNCH: 37.6%	LUNCH: 41.9%
With the project’s food, do you feel less hungry at school?	86.9%	73.2%
With the project’s food, can you study or perform better at school?	92.4%	91.8%
Do you like the food you get at school?	94.3%	91.8%
If you do not like food, which food?	BEANS (N=31) BEANS/RICE (N=2) OTHER (N=3)	BEANS (N=58) RICE (N=11) BEANS/RICE (N=8) OTHER (N=7)

¹⁰ Most children report eating food, but as shown in Table 9, the food items can be coffee or a tortilla. Average food intake is fewer than 5 items.

Principals had a different perception of children’s food intake. When asked to estimate the percentage of children in each grade, principals on average reported that between 26.0%-30.0% of children did not eat breakfast at home, with the rate increasing for younger children. At school, however, 86.3% of principals reported that children received food every day, and 8.5% reported that children received food three times a week at school. Principals also noted that children were less hungry (86.3%).

Parents were asked a number of questions gauging their opinions of the FFE program and how it has impacted their children (see Table 8). Parents were overwhelmingly positive about the program, with nearly all indicating that schools meals help improve attention and learning. Parents almost always indicated that food preparation is well organized and consistently done by community members. Individual indicators were summed, and the resulting variable was standardized on a scale from 1-100. Overall, parents ranged in their opinions of the food program from 38%-100%, with an average of 87.9% (SD=12.9%).

Table 8. Parent Responses to Food Program

	N	Range	Mean (SD)	% Agree or Strongly Agree
Having a complementary meal at school helps my child pay more attention in the classroom.	319	2-5	4.5 (0.6)	96.0%
My child has learned more at school since receiving complementary meals.	319	2-5	4.5 (0.6)	94.6%
Food preparation is well organized at school.	319	2-5	4.5 (0.6)	97.5%
Food preparation is consistently done by community members.	319	2-5	4.6 (0.6)	96.9%
OVERALL PARENT RESPONSES	319	38%-100%	87.9% (12.9%)	--

In regards to food intake, children were asked to indicate the type(s) of food they had eaten the morning of the ELGI assessment. Nearly all children ate at least one item (97.7% for 6th grade; 97.1% for 3rd grade. Table 9 lists the 10 most commonly indicated foods, for 6th graders and 3rd graders. Coffee was the most frequent among 6th graders (66.9%), followed by tortillas (66.5%), bread (39.4%), eggs (36.0%), and beans (34.9%). Sixth graders ate on average 4.6 food items on the day of assessment (SD=3.0), with a median of 4.0 and a mode of 3.0. For 3rd graders, tortillas and coffee were the most commonly selected (66.7% and 66.5%, respectively), followed by beans (40.7%), tamalitos (a corn-based bread-like food) (32.6%), and eggs (31.9%). Third graders ate on average 4.7 food items on the day of assessment (SD=3.8), with a median of 3.0 and a mode of 3.0.

In addition, a Household Dietary Diversity Index (HDDS) score was calculated for all 3rd and 6th grade children. The HDDS was developed by the UN Food & Agriculture Organization (Kennedy et al., 2011) to serve as a rapid assessment of a household or individual’s access to different types of food. The index clusters types of food into 12 different food groups. While normative data are not available for comparison, 3rd graders scored an average of 3.3 (SD=2.0) and 6th graders scored an average of 3.4 (SD=1.6).

Table 9. Child Food Intake on Day of Assessment

	N	%
6th Grade – ANY FOOD	1,752	97.7%
Specific Foods (Top 10)		
Café	1,200	66.9%
Tortillas	1,193	66.5%
Pan	707	39.4%
Huevoz	646	36.0%
Frijoles	626	34.9%
Tamalitos	573	32.0%
Fruta	424	23.6%
Arroz	354	19.7%
Leche o Queso	255	14.2%
Verduras de hoya verde	237	13.2%
INDEX OF FOODS EATEN:	MEAN=4.6, SD=3.0	
HOUSEHOLD DIETARY DIVERSITY INDEX (HDDS):	MEAN=3.4, SD=1.6	
3rd Grade – ANY FOOD	1,980	97.1%
Specific Foods (Top 10)		
Tortillas	1,360	66.7%
Café	1,357	66.5%
Frijoles	831	40.7%
Tamalitos	665	32.6%
Huevoz	651	31.9%
Pan	638	31.3%
Arroz	467	22.9%
Verduras de hoja verde	423	20.7%
Papas	378	18.5%
Fruta	363	17.8%
INDEX OF FOODS EATEN:	MEAN=4.7, SD=3.8	
HOUSEHOLD DIETARY DIVERSITY INDEX (HDDS)	MEAN=3.3, SD=2.0	

When asked whether children liked the food given to them through FFE, 91.1% of responding teachers said Yes. However, 24.2% of teachers (60 out of 248) indicated there were some problems with the quality of the food, and 59 provided a specific instance. Out of these teachers (N=59), 45% of teachers noted that the pinto beans delivered to the schools are hard and take a long time to cook and therefore uses a large amount of firewood; 18.6% (11 teachers total) mentioned the food arriving rotten or expired¹¹; and 15.3% (9 teachers total) mentioned the food coming with “gorgojos” or weevils¹².

¹¹ It is important to note that CRS has become aware of considerable confusion among teachers about the dates listed on USDA products, with the packaging date being misinterpreted as the expiration date. It is possible that these responses reflect this ongoing confusion.

Principals agreed that children mostly liked the food provided through FFE (88.0%). All but 4 of the 117 participating directors knew that CRS implemented the FFE project. However, 37.6% (N=44) of principals noted some problems with the quality of the food and 43 provided specific examples. Most commonly, of these 43 directors, 36% of principals surveyed also noted that the pinto beans delivered are hard and take long to cook; 18.6% (N=8) of principals noted a general poor quality of the products delivered; 18.6% reported coming with weevils (N=6) or “animals” (N=2); and 4.7% (N=2) reported the oil being expired.¹³

While 66% of PTA focus groups reported no problems with food quality, 33% specified concerns similar to the teachers and directors. 22% of groups reported concerns about the beans, ranging from poor variety to poor cooking utility:

- “sometimes the children got bored of so many beans”;
- “we’d like it if you sent us another variety of bean, so we can give other types to the children”;
- “we request pressure cookers” to cook the hard bean more easily

4 focus groups in Momostenango mentioned corn coming with dust or weevils, and one focus group in San Andres Xecul said that rice came with weevils.

CRS Food Storage, Management, and Delivery. During data collection, the lead author and evaluation field manager were provided a tour of the food distribution warehouse located in Quetzaltenango. CRS and implementing partner staff explained the process by which food items were stored, with precise record-keeping and protocols for measuring the amount of food required at each school for each month. As staff explained - and as observed by the evaluators at the warehouse - great care is taken to ensure the integrity of food items from contamination at every point in the supply chain, with several sets of redundancies in place to avoid errors. The warehouse appeared very clean and organized, with highly competent professionals who demonstrated a significant depth of knowledge.

STUDENT ATTENDANCE (RESULT 1.3)

Student Attendance (Result 1.3). Teachers were asked to assess the percent of time over the year students attended school, in 3rd and 6th grades (see Table 10). Teachers reported that 3rd graders attended more often than 6th graders, and that boys attended more than girls. None of these groups reached 80% school attendance during the school year, although 3rd grade boys came the closest. Of the 301 teachers in the sample, 58 (19.3%) reported they did not have an attendance notebook.

¹² CRS experienced 3 schools in year 1 of FFE that reported weevils in the corn, and appropriate measures were taken to address and prevent future occurrences of this issue. No other issues have been reported by schools to CRS.

¹³ See above footnote.

Table 10. Student Attendance (Teacher Reports)

	3 rd Grade M(SD)	6 th Grade M(SD)
Boys	79.8% (31.8%)	75.2% (38.9%)
Girls	77.2% (33.8%)	73.8% (38.9%)

Teachers and directors were asked to identify the specific factors that helped increase school attendance in 2015 (see Table 11). Most teachers and directors identified school food as the primary driver of increased attendance (89.1% and 93.9%, respectively). One PTA group described the relationship between school food and attendance: “children leave home without breakfast, and they arrive to school to have breakfast.” About ¼ of teachers stated that the Kemom Ch’ab’al workbooks and textbooks helped increase attendance, while directors were slightly more likely to report workbooks as being helpful. Relatively few teachers (12.1%) believed the new tools and techniques from Kemom Ch’ab’al helped attendance, but by contrast, directors were almost 3 times as likely to report these techniques as being helpful. Other perceived factors behind attendance included school supplies (average of 15.5%), support of children and motivation of parents and teachers (average of 15.8%), and institutional support of the school (average of 12.9%). Finally, numerous PTA focus groups described their role in supporting improved boys’ and girls’ attendance through family support. One group stated, “(We provide) motivation to parents that they bring children to school.” PTA focus groups also described their role in ensuring compliance, stating: “(we do home visits) to know why the children don’t attend class.” One PTA focus group additionally described its role ensuring the attendance of teachers through home visits.

Table 11. Perceived Factors that Lead to Increased School Attendance¹⁴

	TEACHERS	DIRECTORS
School food	89.1%	93.9%
Kemon Ch’ab’al workbooks	24.3%	29.8%
Kemon Ch’ab’al textbooks	23.8%	23.7%
New tools and techniques with Kemon Ch’ab’al	12.1%	35.1%
Other: Supplies (backpacks, sweaters, uniforms)	14.2%	16.7%
Support of Children/Motivation of parents and teachers	16.7%	14.9%
Institutional Support	10.9%	14.9%

¹⁴ Multiple responses could be selected so the total count is greater than 100.0%.

Student Participation in Extra Curricular Activities (1.3.1). According to CRS monitoring reports to USDA, **2,400** children were enrolled in Spaces to Grow in school years 2013-2014 and 2014-2015 combined. This number represents an increase from the 1,820 children enrolled in after-school activities at baseline, although it is difficult to assess the source of the baseline data. From the MTE survey, 24.1% of parents reported after-school activities at their school. When asked whether parents would be interested in having their child participate in after-school activities, 88.1% said yes. Parents further elaborated that they would like to see increased academic support after school as educational reinforcement (38.3%), cultural or recreational activities (18.7%), or specialized courses such as computer skills (5.1%). Notably, a small percentage of parents (2.3%) opposed after school activities because children did not have enough time given schedules and chores; one parent also observed that “there is much danger sending (the child to school in the) afternoon” but did not elaborate. Several PTA Focus Groups described their role in enhancing student participation in extracurricular events, via PTA support, planning and attendance of events. Events included Mother’s and Father’s Day, Day of the Child, sports events and student festivals.

Number of School Governments Established (1.3.1a). 162 schools have established school governments since baseline, for a total of **375 schools** with school governments at midterm¹⁵. 96.6% of directors and 94.0% of teachers stated there was a school government at their schools. Averaged together, the resulting indicator is 95.3%. Directors and teachers scored similarly on most answers related to school governments (see Table 12). Most observed that school governments work as a committee, and nearly every director and most teachers stated that the school government is composed of children. Girls hold a number of offices within school governments, primarily Vocal (over 50.0%), Secretary (nearly 60.0%), Treasurer (over 40%), Vice President (nearly 40%) and President (about 1/3rd). Nearly all agreed that teachers support children being involved in school governments. When asked whether school governments were stronger now, compared with the last academic year, **67.5%** of directors said yes.

At the time of the MTE, no school improvement plans had been completed since baseline. The total number of school improvement plans remains at **142** with 79 remaining to reach the final target.

Table 12. School Governments

	Directors % Yes	Teachers % Yes
Is there a school government at this school?	96.6%	94.0%
Does the school government work as a committee?	86.3%	82.4%
Is the school government composed of children?	95.7%	93.1%
What position/offices do girls hold?		
- President	36.0%	32.3%
- Vice President	39.6%	36.9%
- Secretary	58.6%	59.0%
- Treasurer	41.4%	42.1%
- Vocal	53.2%	56.0%
Do you think teachers are interested in forming a school government or council with children’s participation?	99.1%	98.7%
Is the school government stronger now in 2014-2015 than it was in 2013-2014?	67.5%	--

¹⁵ This information was provided by CRS based on records kept by APCC.

School Days Missed by Students Due to Illness (1.3.2). When asked to report the number of days students miss school because of illness¹⁶, teachers reported that students miss an average of 4.1 days, with wide variation in these patterns (SD=7.4 days) (see Table 13). The average highest missed days was seen in 1st grade (M=5.6, SD=11.2) and declined each year, with the lowest missed days in 6th grade at 2.9 days (SD=3.6). The result indicator of % missing between 1-5 days is **66.3%** an improvement from baseline.

Table 13. School Days Missed Because of Illness

	Mean (SD)	% missing 1-5 days
1 st Grade	5.6 (11.2)	63.8%
2 nd Grade	5.3 (11.3)	66.7%
3 rd Grade	4.8 (11.3)	67.0%
4 th Grade	3.4 (3.6)	68.0%
5 th Grade	3.1 (3.6)	66.7%
6 th Grade	2.9 (3.6)	65.3%
OVERALL	4.1 (7.4)	66.3%

Numerous PTA focus groups across departments noted that the trainings they received helped to decrease student illness, owing to safer food preparation practices. Groups noted, “Regarding the theme of hygiene, the children now don’t get sick, and they remain healthier”, and “(the trainings helped) to correctly prepare the food and avoid illnesses”. PTAs described that, after training, they “wash everything so the children don’t get sick”. They describe this as an improvement upon past years stating, “It’s helped because in past years, we’ve seen many illnesses in the educational community”; “(training has helped) to see the children healthier... to avoid that the children get sick.” PTA focus groups finally link parental satisfaction with the FFE program to illness- and hunger-reduction amongst children. Two groups from Santa Lucia la Reforma noted, “The mothers are happy because it’s a help that’s being given, in their view. Because children’s weight has improved.” Improved health outcomes were frequently cited.

Food Preparation. In terms of food preparation, directors noted that food was prepared mostly by mothers (77.8%) or mothers plus contracted cooks, PTAs, and fathers (10.3%). PTA focus groups also described mothers as primarily responsible for food preparation (90%); in 10% of cases, school staff, teachers, and parent committee members were named as food preparers.

Most commonly noted problems by directors, related to food preparation, included organization (45.9%), the type of food (35.7%), and food storage (16.3%). By contrast, most PTA groups (76%) reported no problems with food preparation/organization in the school, or reported initial problems that were successfully managed. Describing the interrelationship between successful food preparation and organization/collective work, one group noted, “The mothers come to prepare snacks because there’s a schedule,” and “No problems have existed for the moment, because the snack preparation

¹⁶ Data collection supervisors reported great variation in how attendance data were handled across schools. Some had attendance books while others did not.

happens through turn-taking.” In these cases, success related to sufficient PTA organization. When problems did exist with food preparation/organization, they were effectively resolved: “(problems) have existed, but they were small and we solved them.”

Still, one quarter of PTAs (24%) reported problems with food preparation and organization. These problems owed to a perception of some parents’ inadequate and inconsistent participation with cooking: “Some mothers don’t want to participate; they’re irresponsible”; “there are mothers who are not collaborative.” In other cases, PTAs cited problems with mothers’ hygiene and skill, stating: “(we have problems with) the responsibility and hygiene of the mothers. They don’t manage the food well.” Infrastructure was finally also cited as a problem: “The stove is small and the tubing where smoke should exit gets stuck”; “The kitchen is small”; “(there’s a) lack of potable water”; “there’s no stove, no utensils, and no space for a kitchen.” 17% of the problems cited were from PTA groups in Momostenango (the largest percentage of problems), while 36% of successes also hailed from this municipality (the largest percentage of successes). There were no problems cited in San Bartolo Aguas Calientes. Food storage issues are further discussed in the infrastructure section.

Frequency of food preparation and provision. In terms of food distribution frequency, 93% of PTA groups across municipalities reported serving food in the school daily, while 7% of groups reported serving food 2-3 times/week. When PTAs serve food daily, the primary reasons included (in order of frequency):

1. *Child health/nutrition* [46% of respondents who served daily reported: “we were trained that the children must have their food daily”; “it’s necessary for the children”]
2. *Adequate food availability* [22% of respondents who served food daily reported: “because we have enough food now”; “The food for each child is for 21 days”¹⁷],
3. *Institutional requirements* [22% said: “because there’s food and because it’s a requirement of the institutions”; “Because the program requires that the children eat all throughout the week”]
4. *Community collaboration* [13% of groups reported: “Because the community is in agreement with the nutritional/feeding (goals)”; “because we can count on the mothers’ help”; “the parents are motivated to prepare the food”]
5. *Covering shortfalls* [2% noted: “because there’s food and because sometimes the (food) from MINEDUC is late”]
6. *Attention/learning goals* [2% reported: “Eating food in school improves (student) attention”].

For the small number of PTAs (7.0%) who serve food 2-3 times/week, their reasons included:

1. Scheduling limitations [50% of these groups noted: “because mothers can’t come in that frequently to cook”; “we need time to prepare”]
2. Inadequate food supply [33% of groups stated: “because if we give every day, there won’t be enough (food) for the students”]
3. Inadequate food variety [17% of groups described student boredom with the food types: “(we provide) rice and beans (on Monday and Thursday only) because kids sometimes get bored”]

¹⁷ Food provision is calculated based on a 21-day per month school calendar.

School infrastructure projects undertaken or completed in 2014-2015, as reported by PTA focus groups, included the following:

- In Momostenango, 57% of focus group respondents undertook new infrastructural projects. The most frequently cited were kitchen and bathroom/handwashing sink construction or improvement, with some emphasis on general school construction and repair
- In Santa Lucia la Reforma, 77% of schools reportedly had infrastructural improvements. Here, the majority of improvements were for the wider school environment (classroom construction, which is not a component of the FFE program), with some improvements made to kitchens and, in less frequency, bathrooms.
- In San Bartolo Aguas Calientes, 60% of schools sampled had undertaken projects, emphasizing kitchen and stove improvements.
- In San Andres Xecul, only 50% of schools had undertaken projects, also emphasizing kitchen and stove improvements.

Hygiene practices of food preparation. At each school visited during MTE data collection, data collection supervisors were asked to assess the cleanliness of school kitchens (see Table 14) and the hygienic practices of food preparation (see Table 15), using a structured questionnaire. In regards to school kitchens, supervisors observed some problems, particularly with the cleanliness of the floor (54.1% clean or very clean) and walls (63.0%) (see Table 14). Stoves and equipment were rated more highly (67.5% and 70.3%, respectively) but still well below 80.0%. The scores for each indicator were summed and standardized to a score ranging between 0%-100%. Standardized cleanliness scores ranged from 19%-100%, with an average of **64.3%** (SD=19.3%).

Table 14. *Cleanliness of School Kitchens*

	N	Range	Mean (SD)	% Clean or Very Clean
Stove	120	1-5	3.7 (0.9)	67.5%
Floor	120	1-5	3.4 (0.9)	54.1%
Equipment	118	2-5	3.7 (0.8)	70.3%
Walls	119	1-5	3.6 (1.0)	63.0%
OVERALL CLEANLINESS	117	19% - 100%	64.3% (19.3%)	--

Data collection supervisors also conducted structured observations on food preparation and hygiene (see Table 15). These indicators were rated more highly than the cleanliness of school kitchens, but all indicators still fell below 80.0%. $\frac{3}{4}$ of food preparers were observed to be wearing aprons, and nearly $\frac{3}{4}$ were observed to show good hygiene and to wash their hands. Just over half of food preparers (56.2%) were observed to use hair nets while preparing food. These indicators were summed and standardized to produce an overall score of food preparation and hygiene. Schools ranged from 0%-100%, with an average food preparation and hygiene score of **65.5%** (SD=22.6%).

Table 15. Food Preparation and Hygiene

	N	Range	Mean (SD)	% Agree or Strongly Agree
Food preparers show good hygiene.	104	1-5	3.7 (1.0)	70.2%
Preparers wash their hands.	77	1-5	3.7 (1.0)	70.1%
Preparers use hair nets to keep their hair up	105	1-5	3.3 (1.3)	56.2%
Preparers use aprons.	107	1-5	3.8 (1.2)	75.7%
OVERALL FOOD PREPARATION & HYGIENE	76	0%-100%	65.5% (22.6%)	--

As part of their school infrastructure observations, data collection supervisors also noted a number of other hygiene- and infrastructure-related issues (see Table 16). A small number of kitchens (12.5%) were observed to have animals, although 80.0% of these were flies. Half of kitchens were observed to have children under 7 in them. On average, kitchens had nearly 2 young children in the kitchen at the time of observation, with a range of between 1 and 6 children in the kitchen. Most kitchens had water available (88.3%), and water was predominantly used for handwashing (95.3%), washing dishes (93.4%) and drinking (71.7%). Water was less frequently used for washing mops and washing the floor. A small number of schools (7.7%) were observed in which children were drinking water directly from the source, most commonly from a water jet (63.6%). About 1/5th of schools were observed to have wasted water¹⁸, with 43.5% of bathrooms having leaks or being flooded with water, and 56.5% of schools having problems with rusted or leaking pipes and overflowing water stacks.

Table 16. Hygiene and Infrastructure Issues at Schools

	Yes (%)	Details
Animals in the Kitchen	12.5%	<ul style="list-style-type: none"> Flies (80.0%), Dogs (26.7%)
Children Under 7 in the Kitchen	50.8%	<ul style="list-style-type: none"> Range: 1-6 Mean=1.8, SD=1.2
Water Available	88.3%	<ul style="list-style-type: none"> Handwashing (95.3%) Washing dishes (93.4%) Drinking (71.7%) Washing mops (35.9%) Washing the floor (29.2%)
Children Drinking Water Directly	7.7%	<ul style="list-style-type: none"> From water jet (63.6%) From pipes (36.4%) From water fountain (45.5%)
Waste in the Water	20.8%	<ul style="list-style-type: none"> Water leaking in bathroom (43.5%) Problems with pipes, stacks (56.5%)
Toilets Used Separately	89.2%	<ul style="list-style-type: none"> Boys and girls separately (100.0%) Children and teachers separately (40.2%)

¹⁸ The question was written, "Do you observe waste in the water"? Based on the responses, it seems the question was interpreted, "Do you observe water being wasted?"

Condition of Bathrooms	-- % of Bathrooms which contain the following:
	<ul style="list-style-type: none"> • Towel (0.0%) • Soap (2.6%) • Water (48.7%) • Trash can (47.0%) • Ventilation (79.1%) • Lighting (64.3%)

Most schools had separate bathrooms (89.2%) for boys and girls (100.0%), with a lower number of separate bathrooms for children and teachers (40.2%). Bathrooms generally were observed to be in poor condition. No bathrooms were observed to have a towel, and only 2.6% had soap. Fewer than half were observed to have water (48.7%) or a trash can (47.0%). Most bathrooms were well ventilated (79.1%), however, and about 2/3rd of bathrooms had adequate lighting.

Data collection supervisors were also instructed to observe and record how the kitchen was currently being used during the visit. 83% of schools were being used to cook foods or snacks, 9% were not being used, and 7% of kitchens were being cleaned. Supervisors were also asked to observe and record any other uses of the kitchen. 33% indicated the kitchen was used as a bodega, either for kitchen supplies or food storage.

Despite some of the issues described in the data above, 100% of PTA focus groups described knowing steps in food preparation, emphasizing hygiene and food service. In some cases, the full cycle of food preparation and hygiene was mentioned, and not in others. For example, one group stated, “wash hands; wash utensils; clean; cook; clean again; ensure all children receive snack.” Others emphasized just one or two steps: “cook the food well” and “cook the food well; oversee the preparation thoroughly.” Others instead described the opening of the process, but did not itemize steps towards completion, as in: “wash hands well; wash utensils well; put on aprons and hairnets.” Others emphasized the importance of collective work in food preparation: “by groups; taking turns,” or “the mothers work in groups.”

Training PTAs. 98% of PTA groups described themes in which they had been trained. Fourteen PTA groups described receiving training primarily in the following:

- (1) *Food preparation and safe handling* (38%¹⁹) - “instructions & demonstrations surrounding food prep”; “cookie recipes”; “hygiene of cooking”; “Management of food inventory”
- (2) *Health and Hygiene* (27%) - “hygiene (of) kids, personal, food, etc.”; “cleanliness & efficiency of kitchen”; “treatment of children in the home”
- (3) *Child feeding/nutrition* (22%) Food/nutrition, malnutrition, sweets, vitamins, diverse menu “Diminishing malnutrition”; “Balanced, diversified diet”; “Reduce fast food and sweets”; “good nutritional practices”
- (4) *Environment/local plant cultivation & use* (4%) - “Planting a garden/school garden”; “Preparation of natural medicines/plants”
- (5) *Importance of child education/wellbeing* (4%) - “Educating children”; “Self-esteem”; “Children’s rights”

¹⁹ Unless otherwise stated, % represents total of PTA groups across all municipalities.

Satisfaction with Trainings. Most PTAs noted that these trainings have enhanced their ability to do their jobs, and have improved outcomes. Regarding food preparation, a PTA group in Momostenango reported:

“The workshops have helped the PTA members better carry out their responsibilities, (to) know how to store and protect the food they receive. Also, to help the parents orient themselves in food preparation, using their own community resources combined with those from the project.”

Others report improvements in the food preparation process: “for the organization of food preparation, it’s helped a lot.” One group in San Andres Xecul described that the training supports their management of aid projects overall: “(workshops have helped) to be able to be able to manage the help that (fundors) give us.” Regarding child feeding/nutrition, focus groups reported: “(the trainings have) helped a lot regarding food preparation, since they prepare it with great variety”, and “(we) prepare nutrition in a better way (now).” Focus groups reported improved hygiene amongst the mothers who prepare food stating, “the hygiene related to food preparation has changed considerably”, highlighting that “it’s reflected in the cleanliness of the mothers and the care they take to prepare the food”.

Changes were also noted amongst children: “The students have learned tools for better hygiene” and “one notes (the) good personal hygiene (changes).” Emphasizing health, groups noted, “With the theme of hygiene, the children now don’t get sick, and they remain healthier”; “it’s helped a lot to have a healthy school.” Highlighting the broad reach and applicability of the program to support children in the home, groups described the trainings as “helping the mothers with the guidance and direction of their children”. They stated, “(Those in the school) try to apply the (lessons) in their lives”, and “they’ve helped because one applies what’s been imparted to us in the trainings.”

PTA ability to prepare food in the school. 95% of all PTAs reported that mothers²⁰ are well prepared to prepare food in the school, due to the trainings. One group noted: “At first, (the PTA) didn’t prepare it very well, but now thanks to the trainings, they’ve improved significantly.” The respondents emphasized the improvement in the variability of the menu: “With the trainings, focused on preparing food, now they prepare food in varied ways that they didn’t know before”. Others emphasized that food preparation occurs with fidelity to the training: “they’re following the instructions given by the trainings, and applying the variety of forms to prepare food.” Some groups emphasized fidelity’s positive impact on hygiene and student satisfaction: “The mothers (prepare food) very well, because they have good hygiene and as they cook, they follow the steps that they should”; “they are preparing very well... Now the children feel satisfied with what they’re eating.” Many groups noted the positive impact of “turn-taking” amongst PTA mothers. Finally, groups note the positive impact of FFE on motivation: “(PTAs) have more interest and now they feel motivated and trained when they prepare food.” In the 5% of responses (from Momostenango) that did not endorse improvement in food preparation abilities, PTAs cited (a) schedule strain [“they prepare (food) from their homes because in the morning, one can’t because of the early morning workday. Food preparation is always difficult”]; and (b) poor attendance in trainings [“When the training happened, not everyone (was) there and for that reason, they’re not very well trained.”] One PTA group in San Bartolo Aguas Calientes requested more training.

²⁰ 90% of focus groups described mothers as primarily responsible for food preparation. In 10% of cases, school staff, teachers, and parent committee members were cited as food preparers.

Number of educational facilities rehabilitated / constructed as a result of USDA assistance (Result 1.3.3). CRS provided information from APCC related to infrastructure improvements. APCC maintains documentation of all infrastructure materials delivered to schools. This documentation shows, to date, that **244 facilities** have been constructed or rehabilitated. According to the most recent CRS monitoring report to USDA for 2015, projects included 18 kitchens built, 18 water systems installed, 24 fuel-efficient stoves built, and 8 hand-washing stations installed.

Food Storage Hygiene and Infrastructure. During their structured observations of school infrastructure, data collection supervisors collected information on infrastructure improvements that had been made at the school related to the project in 2014-2015. *50.0% reported no new improvements*, with 7.0% of these schools having made solicitations for improvements. *40% reported construction in the kitchen*, which could have involved a new kitchen or stove (30%), a kitchen in the process of construction (6%), or other improvements (3% - windows, bodegas, or cabinets). *10% reported improvements to the school building, specifically bathrooms, sinks and classrooms.*

According to PTA members, only 50% of PTA focus groups reported complete satisfaction with the level of cleanliness, order, and space of the food storage warehouses. The pattern of their responses is as follows:

- Positive appraisal of warehouse: These groups reported positive appraisals of food storage facilities stating, “yes, we have a bodega (warehouse) and every time that we do an inventory, it is cleaned and organized”; “it’s in a good location and doesn’t get wet”; “it’s clean and of a good size”.
- Delimited positive appraisal: 16% of PTAs reported satisfaction, but with some reservation due to inadequate size [“The bodega is very good, clean, orderly, but the size is inadequate. It’s very small”], or inappropriate location [“yes, it’s a good place, but the storehouse is in the kitchen”; “it’s clean and orderly, but the space is inadequate because it’s in a classroom.”]
- Negative appraisal: 11% of groups described dissatisfaction with the food warehouses, due to inadequate facilities [“it’s a kitchen storehouse made up of tables”], and poor hygiene conditions [“We need a bodega to store the food, because the current one doesn’t have what’s necessary to store the food”].
- Lack of storehouse: 23% of PTAs report the lack of any storehouse for food; alternate storage locations include classrooms, director offices, and private homes where hygiene is less easily regulated.

97% of PTA focus groups report understanding appropriate conditions for storing food, including protecting food from humidity, animals, and dirt. Some groups report planning to build a food storehouse soon: “there should be a storehouse. Sometimes everything turns upside down and food can contaminate that way.”

School enrollment (Result 1.3.4). According to DIDEDUC student enrollment data for 2014-2015, enrollment dropped for both girls and boys compared to the baseline report. For boys, 2014-2015 saw a **1.0%** drop in enrollment (N=18,245) compared with baseline (N=18,437). Girls saw a greater drop in enrollment at **2.6%** (N=17,307) compared with baseline (N=17,765).

CTAs were also asked to estimate the percentage of school children who matriculated in the school years 2013-2014 and 2014-2015 (see Table 17). CTAs estimated that enrollment rates were close between girls and boys, in both 2014 and 2015, at approximately 50.0% for all groups. These rates were consistent across municipalities, although CTAs noted an increase in boys' enrollment in San Andrés Xecul from 2014 to 2015 and a decrease in boys' enrollment in Santa Lucía La Reforma during the same period.

Table 17. *Estimates of School Enrollment*

	2014		2015	
	Girls	Boys	Girls	Boys
San Andrés Xecul	49.0%	47.0%	47.0%	58.0%
Momostenango	49.0%	51.0%	51.0%	48.0%
Santa Lucía La Reforma	52.0%	51.0%	51.0%	49.0%
San Bartolo Aguas Calientes	48.0%	49.0%	49.0%	51.0%
Average enrollment	49.1%	51.4%	50.3%	49.8%

Benefits of Primary Education According to Parents (Result 1.3.5). During interviews, parents were asked to name the benefits of primary education. Of the 223 parents surveyed, 80 named at least 3 benefits, for a total of **35.9%**. This rate is a notable decrease from the 96.4% of parents who could identify 3 benefits. This difference should be interpreted cautiously, however, as these data were qualitative in nature and the coding schemes used in baseline and midterm evaluations may have differed²¹. Another limitation is that not all enumerators were fluent in K'iche', such that language barriers may have prevented parents from understanding questions and answering appropriately.

Table 18 displays the most common responses by parents by municipality and across municipalities. Most parents across municipalities mentioned some aspect of learning as a benefit of primary education (86.5%), especially learning to read (31.5% across all municipalities) and learning to write (27.0% across municipalities). 8.8% of parents noted the importance of developing life skills, 5.1% mentioned having a good life, and 5.0% wanted a better future for their children. Fewer than 5.0% mentioned having their children experience less suffering, enjoy greater creative expression, and have improved nutrition.

Some differences emerged across municipalities. All parents in Momostenango and San Bartolo Aguas Calientes mentioned the importance of learning, in some facet, yet only 65% of parents mentioned learning in Santa Lucia la Reforma. 21% of parents in San Bartolo noted the importance of developing life skills, compared with only 5% in San Andres Xecul and 0% in Santa Lucia, and in general, parents in Santa Lucia were less likely to report any benefits compared to those in other municipalities.

²¹ These qualitative data were also collected electronically via iPad, and enumerators may not have entered data in sufficient detail. This and other limitations will be addressed in the Recommendations section of the report.

Table 18: Parents Who Named 3 Benefits of Primary Education: By Region (N=223)

	Momestenango	Santa Lucia la Reforma	San Bartolo Aguas Calientes	San Andres Xecul	ALL REGIONS
	Column % Within Regions				Average %
	N= 131	N= 43	N= 28	N= 21	N=223
LEARNING	100%	65%	100%	81%	86.5
General learning	23%	12%	4%	14%	13.3%
Learning to read	37%	21%	39%	29%	31.5%
Learning to write	27%	14%	29%	38%	27.0%
Other (Spanish, add, subtract, homework, communicate, etc.)	21%	18%	28%	10%	19.3%
DEVELOPING LIFE SKILLS	9%	0%	21%	5%	8.8%
GOOD LIFE	4.5%	0%	11%	5%	5.1%
BETTER FUTURE	6%	2%	7%	5%	5.0%
GOOD PERSON	4%	0%	9%	0%	3.3%
LESS SUFFERING IN LIFE THAN PARENTS/BETTER LIFE	5%	2%	0%	5%	3.0%
CREATIVE EXPRESSION	5%	0%	0%	0%	1.3%
NUTRITION	2%	0%	0%	0%	0.5%

PTA groups described contributing towards raising parents' awareness about the importance of education. One group described, "(we) carry out general meetings with parents to raise their consciousness and make them see the necessity and importance of the education of their children". Groups described their roles with parents as varied, including "encourage", "lead", "train", "organize", "motivate", "collaborate with", and "reach agreement" with parents. PTAs also described linking parents to the school, which may result in better understanding school's benefit. One group noted, "(we) raise the consciousness of parents, so that they visit their children in school, (to see) how their studies are going."

INCREASED CAPACITY OF PTAS AND GOVERNMENT OFFICIALS (RESULT 1.4)

Number of Government Staff Who Have Increased Their Capacities (Result 1.4.1). In total, **14 staff** have been trained. 12 staff were trained by PRODESSA in workshops related to the Kemom Ch'ab'al methodology, and 14 staff were trained by APCC on school garden implementation and food management²². All 9 CTAs reported being trained as part of DIDEDUC related to this project. CTAs were also asked to list the trainings in which they have taken part (see Table 19). 8 of 9 CTAs have been trained on the application of the Kemom Ch'ab'al methodology, and 7 have been trained on use of reading materials. 6 have been trained on supervising the application of Kemom Ch'ab'al, followed by use of tools to test reading (N=4), data logging and data analysis (N=3 for each), roles and responsibilities (N=2), and school supervision (N=1).

²² This information was provided by CRS based on PRODESSA and APCC workshop plans and lists of participants.

Table 19.

Trainings of CTAs

TOPIC	N	%
Application of the Kemom Ch'ab'al methodology	8	88.9
Use of the reading materials	7	77.8
Supervising the application of the Kemom Ch'ab'al methodology	6	66.7
The use of tools to test reading	4	44.4
Data logging	3	33.3
Data analysis	3	33.3
Your roles and responsibilities	2	22.2
School supervision	1	11.1

CTAs were also asked if they had been trained as part of DIGEFOCE staff. Only 1 CTA reported being trained in this capacity.

CTAs were asked to rate the level of *sustainability of the overall FFE project*, and to explain their answer. Of the 9 CTAs interviewed, 6 (66.7%) indicated the program was sustainable, or very sustainable. One CTA explained, "Its methodology is sustainable. The teachers have taken from it (and use it). The food component is sustainable due to parents' participation (in the program)." CTA respondents similarly described sustainability in terms of a blend of teacher-learned techniques, PTA leadership, and community involvement. Another CTA noted, "One can continue the system, and the enforcement of the methodology on Kemom Ch'ab'al. In relation to the food/nutrition (components), sustainability can be achieved via local management by the PTA groups who are involved with helping, and (via) the contribution of parents, like in the case of how they prepare food." Parental involvement is emphasized as an essential component to sustainability throughout these comments: "The moment that the institutions that (financially) support this project withdraw, the parents of the families (will) have applied the knowledge that has been shared with them in relation to the preparation of simple yet nutritious foods."

Number of MINEDUC Disbursements That Arrive on Time (1.4.3). Directors were asked the percentage of disbursements from MINEDUC that arrived on time. **21.4%** of directors stated that disbursements arrived on time, an improvement from the baseline evaluation. Those directors for whom disbursements were late were asked to speculate as to the reason. 54 directors (46.2%) noted a lack of government interest in providing the funds or materials, or a lack of efficiency in the process, or political corruption. 10 directors (8.6%) noted a lack of funds on the part of MINEDUC to provide the disbursements.

Number of PTAs Contributing to Their Schools (1.4.4). According to CRS monitoring data maintained by APCC, **215 schools** have PTAs that have contributed to their school. 100.0% of directors stated that a PTA had been established in their schools. 93% of PTA focus groups reported participating in activities that support education.²³ Primary areas of educational support and involvement included: (1) Improvements to the school building environment via infrastructure, maintenance and safety

²³ 7% of PTA focus groups reported no participation in activities that support education: "up to this moment, (PTA) hasn't carried out any" and "we're new."

enhancements (35% across municipalities); (2) Food preparation, handling and management services (38% across municipalities); and (3) Educational support via teacher and parent collaboration (22% across municipalities).

There was some variance in the communities, where schools in Momostenango balanced these three arenas in similar proportion (37%, 24%, 30%), whereas San Bartolo Aguas Calientes favored food-handling priorities (26%, 58%, 16%). Perceptions of, and/or material access to influence in the educational environment varied by school, as illustrated by diverse word choices related to interactions with teachers, connoting diverse power relationships: (“overseeing” versus “collaborating with” and “supporting”). Likewise, perceptions of roles in food preparation varied from “leadership” to “support”, “advisory”, “direct service,” and “donation provision” [“economic contribution to buy other foodstuffs to complement the food”].

Number of PTAs That Have Developed a School Improvement Plan (Result 1.4.4a). According to directors, **62 schools** (53.0% of sampled schools) have PTAs that helped develop a school improvement plan, compared with 18 at baseline. Likewise, 44% of PTA focus groups reported having a school improvement plan. Santa Lucia la Reforma is the only municipality that primarily endorsed the existence of a plan; all other municipalities primarily endorsed the absence of a plan.

From focus groups, PTAs primarily understood their school improvement plans in terms of infrastructural projects; 86% cited infrastructural projects ranging from kitchen and stove improvements to bathroom, water systems, and food storehouse, as well as general repairs and improvements on the school’s internal and external environment [ex: “for the growth of the school, we have planned to buy another premises, to construct more school buildings”]. 8% of PTAs reported no school improvement plans. Finally, 6% described a plan centered on students/teachers, or on improving nutrition and management at the school. In terms of student/teacher focus, groups described aspirations for improved teacher/student attendance [“That teachers complete their workday hours, and that children come to school”], and improved student enrollment [“That the boys and girls keep studying. That the teachers be from the community”; “raise awareness in the community so that they sign their children up for school”]. Plans to improve nutrition and school management were added [“I continued requesting more food, at least meat for variety, two times per month”; “Construction of a school exclusively for an evening schedule, or at least a kitchen for the night shift”].

According to PTA focus group data, only 42% of groups reported participating in trainings related to a school improvement plan. The topics primarily revolved around infrastructural projects [“requesting (funds/materials for) past projects”; “buying a filter to have potable water”; “yes, (about how) to request a kitchen, handwashing sink and bathrooms”]. 58% of groups, however, reported not having attended trainings, or related training not being available [“we haven’t participated, nor have we gotten together for this”; “there haven’t been any trainings”]. In another case, there was confusion about the location of the plan [“We were trained. We made a plan that contemplated fencing the school, construction of the storehouse, and window balconies. But we believe that the teacher has it.”]

MULTIVARIATE STATISTICAL MODELS

Datasets for all respondents (children, parents, teachers, and directors) were merged, along with the infrastructure observation dataset, for 3rd graders and 6th graders, respectively. After accounting for missing data, the analysis dataset contained N=1,962 children within N=112 schools (3rd grade), and N=1,694 children within N=110 schools (6th graders). Children's ELGI scores are the dependent variable, with the following independent variables:

Child Level: child's gender; child's Household Diet Diversity Score (HDDS); children's opinions of being less hungry and being able to study better because of the program (5-Likert Scale items);

School Level: averaged teachers' observations of attendance for boys and girls (3rd grade and 6th grade, respectively); standardized scores of child attentiveness within schools created for this study (.00-1.00); standardized scores of classroom materials and conditions created for this study (.00-1.00); directors' estimates of average teacher attendance; standardized scores of school cleanliness created for this study (.00-1.00); the number of classrooms within each school; standardized measures of kitchen cleanliness and food preparation hygiene created for this study (.00-1.00 for each); kitchen issues (an index of 3 variables: no water, animals in kitchen, and children younger than 7 in kitchen; higher scores are worse); average parent satisfaction with FFE at each school; and standardized scores of parents' opinions of FFE created for this study (.00-1.00).

The analytical approach used a linear mixed model to account for children nested within schools within municipalities. For 3rd graders, a 2-level model was used (children within schools) because no significant differences among ELGI scores were found across municipalities. For 6th graders, a 3-level model was used (children within schools within municipalities) because ELGI scores were significantly different across municipalities ($p < .001$).

Our research questions are as follows:

- (1) What are the influences of food intake (i.e., HDDS score) and children's opinions about the helpfulness of FFE on ELGI scores, for 3rd and 6th graders?
- (2) To what extent does attendance (teacher and aggregated student) influence ELGI scores?
- (3) What is the influence of the school environment on ELGI scores?
- (4) How are parents' opinions related to ELGI scores?

Child Level Results. For 3rd graders, no child-level results were statistically significant at the level of $p < .05$. The p value of HDDS was .085, which suggests there may be a trend in the relationship between food intake on the day of ELGI assessment and ELGI scores. For 6th graders, the only statistically significant relationship was for the self-report of being able to study better ($p = .001$) (see Table 20).

School Level Results. For 3rd graders, no school-level results were statistically significant, except for average parent satisfaction. For this variable, higher parent satisfaction within schools significantly predicts higher ELGI results for individual 3rd graders ($p < .05$). A number of relationships were statistically significant for 6th graders. Higher number of classrooms within schools predicts lower ELGI performance ($p < .01$). Greater average teacher attendance at schools also predicts lower ELGI scores ($p < .01$). Average higher boys' attendance rates at schools predicts slightly higher ELGI scores ($p < .05$), while average

higher girls' attendance rates predicts slightly lower scores ($p=.05$). Counter intuitively, higher school scores on classroom conditions predict lower ELGI scores ($p<.05$) as do higher kitchen cleanliness scores ($p<.05$) (see Table 20).

Table 20. Predictors of Children's Literacy in Totonicapán Department

Variables	3 rd Grade N=1,962		6 th Grade N=1,694	
	b(SE)	p	b(SE)	p
Intercept**	19.0 (7.5)	.104	47.0 (15.7)	.004
CHILD				
Gender (1=female)	0.9 (0.7)	.222	-0.8 (0.7)	.260
Household Dietary Diversity Score (HDDS)	0.3 (0.2)	.085	-0.1 (0.3)	.757
Child reports being less hungry	-0.9 (1.2)	.474	0.0 (0.9)	.972
Child reports being able to study better**	-1.2 (1.7)	.504	4.4 (1.3)	.001
SCHOOL				
Number of classrooms**	-0.1 (0.1)	.509	0.5 (0.2)	.005
Average teacher attendance*	6.1 (5.2)	.248	-14.6 (6.3)	.024
Average boys' attendance*	0.0 (0.0)	.326	0.3 (0.1)	.042
Average girls' attendance*	-0.1 (0.0)	.178	-0.2 (0.1)	.050
Classroom Attentiveness Score	0.9 (11.1)	.934	-16.1 (14.4)	.273
Classroom Conditions Score*	-8.7 (7.0)	.224	18.8 (8.0)	.024
Kitchen Cleanliness Score*	-4.2 (3.6)	.245	-10.4 (4.1)	.014
Food Preparation/Hygiene Score	3.0 (3.6)	.415	3.8 (3.3)	.267
Index of Kitchen Issues	-1.6 (0.9)	.081	-0.2 (1.2)	.983
Average parent satisfaction [†]	12.4 (6.0)	.045	-4.5 (9.9)	.651
Parent FFE Opinions Score	-9.4 (6.6)	.160	-7.6 (6.7)	.264

[†] $p<.05$ for 3rd graders

* $p<.05$, ** $p<.01$ for 6th graders

To explore these findings further, post-hoc bivariate correlation analyses were conducted. No bivariate relationships were found between ELGI scores and attendance (either child or teacher) or with kitchen cleanliness. A positive but weak correlation was found between ELGI and classroom conditions (opposite of the relationship in the statistical model). Number of classrooms was positively but weakly correlated with ELGI.

Given these findings, the results from the statistical models warrant further scrutiny, and need more time than currently allowed to provide stable estimates. These results should therefore be interpreted very cautiously.

DISCUSSION

The discussion of results is organized by the results and indicators framework, as well as further statistical analyses. We will discuss implications for findings in the following areas: (1) Level of student reading performance; (2) Quality of literacy instruction; (3) Student attentiveness; (4) Student attendance; and (5) Capacity of government officials. Given the concerns over the statistical models, those results will not be covered here.

Level of Student Reading Performance. Reading assessment scores increased significantly from baseline for 6th grade boys and girls. The implication is that, at midterm, children have on average achieved 64.0% of the final target of +10 points (34.8%). While girls' scores were slightly higher at baseline, boys and girls have virtually equal scores at midterm. Scores for 3rd grade children also increased but were under 20% for both boys and girls. In regards to the +10 point final target, 3rd graders at midterm have on average achieved 90.2% of the final target of 19.0%.

However, no 3rd graders achieved the national literacy standard of 60.0%, and only 29 6th graders (1.6% of the 6th grade sample) achieved 60.0% or higher. Given the substantial gains in literacy between baseline and midterm towards the final target, and pending results of a final evaluation, future program planning might benefit from higher targets and additional focus on quality instruction to increase literacy even further. While the results of the MTE cannot *prove* that FFE caused changes in literacy (because of limitations with the research design), the evidence is clear that children made substantial gains in literacy rates from 2013-2014 to 2014-2015.

Quality of Literacy Instruction. The data on quality of literacy instruction show that several indicators have met or surpassed their final targets²⁴. 87.5% of teachers report using higher quality teaching techniques, surpassing the final target of 80.0%. Teachers and directors also surpassed their final targets in using the Kemom Ch'ab'al methodology. According to their reports, however, significant numbers report not following all of the steps of the methodology, a situation which may require further reinforcement by implementing partners.

Teacher attendance has emerged as an issue, however. The baseline rate was 88.8%, nearly at the final target of 90%. At midterm, this attendance rate dropped to 63.2% of teachers attending 90% of school days, even when the school year is calculated at 170 days instead of 180. Some caveats may apply: (1) These data are based on directors' reports, which are of unknown reliability; and (2) There may have been differences in how teacher attendance was measured between baseline and midterm, which affect the rates. In any case, teacher attendance - and measuring attendance - have both emerged as areas needing further attention.

The issue of improved instructional materials showed mixed results. 91.5% of directors reported having materials, but only 47.0% said these materials were sufficient. Structured observations of classrooms also resulted in a standardized score of 66.2%. *On average, these findings produced an indicator result*

²⁴ Direct observation of teaching techniques was initially considered in the research design, but the decision was made instead to ask teachers and directors about specific techniques. A short observation would be unlikely to capture multiple techniques, and our data collectors would have required additional training to recognize and document these techniques.

lower than the baseline. Yet, it is unclear to us how the indicator of 75.4% in the baseline was reached; according to baseline data, only 17.0% of directors stated they had sufficient materials, in which case the MTE findings are a substantial increase.

About 1/4th of directors reported having Spaces to Grow in their schools, a rate that surpasses the target of 17.8%. A minority of overall directors knew about Spaces to Grow, yet nearly 80.0% of directors expressed interest in having the program at their schools. This may be an important extracurricular activity that also promotes practical skill-building, but the program needs further reinforcement at schools.

Student Attentiveness. Data related to student attentiveness showed strong results. Based on teachers' observations of students' staying attentive for 15 minutes at a time, this indicator increased from 27.0% at baseline to 82.2% at midterm, surpassing the final target of 80.0%. The measure of classroom observations (which includes the teacher item plus a number of other questions) resulted in a score of 70.3%, which when averaged with the single-item teacher question, resulted in an indicator of 76.3%, still very close to the final target. Evidence clearly shows an increase in student attentiveness, based on teacher reports and on external observations by enumerators.

The number of students who reported not being hungry during the school day jumped tremendously from baseline to midterm (average 12.0% at baseline to average 80.1% at midterm), surpassing the final target by 33.3%. Students clearly report being less hungry at school by a significant margin.

About 1/4th of teachers and 1/3rd of directors noted issues related to the food provisions. Of those mentioning specific issues, nearly half of the teachers interviewed noted that the pinto beans provided are difficult and slow to cook, which then takes more fuel for the stoves. 18.6% of teachers mentioned the food arriving rotten or expired (a perception possibly related to confusion about packaging vs. expiration dates); and 15.3% mentioned the food coming with weevils. These observations were also reflected through directors' interviews, and to a smaller degree, among PTA focus groups. Focus groups also noted that a variety of different types of beans would also be helpful, as children get bored eating the same type of beans. Some also requested meat.

Student Attendance. By a wide margin, teachers and directors noted food provision as the greatest driver of school attendance. The rates of children attending school 80% increased for all groups. Overall, boys on average increased their attendance to 78.8% from 60.0% in the baseline, such that they are 75.2% of the way towards the target of 85.0% attendance. Girls' attendance is slightly lower, with an average attendance rate of 74.1%, a figure only 2.4% higher than the baseline. The differences in increased attendance rates between boys and girls may reflect an artificially low rate at baseline, or they may suggest that girls experience more difficulty in increasing their school attendance than boys. At baseline, girls 80% attendance rate was at 71.7%, 11.7% higher than boys. At midterm, girls were about 6.0% lower in attendance rates than boys, a situation that may warrant increased efforts to encourage girls to attend school. Enrollment dropped for all students at an average rate of 8.3% compared with the baseline, and girls dropped at a steeper rate than boys. This significant drop in enrollment should be explored further, ideally using official Ministry of Education data.

In regards to increasing incentives (and decreasing disincentives) for school attendance, 75.4% of parents reported that no extracurricular activities exist at their schools. This figure is difficult to compare with the baseline study which reported counts of children. Yet, the qualitative data suggest a number of potential activities parents would like to see offered: extra studying support; development of

specific skills, such as working with computers; and cultural opportunities (handicrafts, dance, music). A smaller number of parents stated that children were too busy for such activities, given their chores and difficulties working around school schedules.

Average health-related absences increased from 2.5 days at baseline to 4.1 days at midterm, a cause for potential concern. Yet, with the parameter of percent of children missing between 1-5 days, a smaller number at midterm fall within this window, possibly because of an increase in children missing 6 or more days. Nevertheless, from PTA focus groups, parents indicated they are better informed about health and hygiene issues, so the increase in health-related absences is surprising. This issue should be explored in greater detail, to examine whether there has been an overall increase in health problems among children.

In relation to food preparation, there seems to be a discrepancy between how directors and parents see organization. Most parents feel it is well organized, while fewer than half of directors agree. Nevertheless, 1/4th of parents did perceive a problem with organizing food preparation, and said that other parents lacked motivation and skill around food preparation and hygiene. These problems were noted especially in Momostenango.

According to CRS monitoring reports, 68 facilities have been constructed or rehabilitated. About 1/3rd of directors reported improvements to infrastructure, compared with 0% at baseline. Yet, PTA focus groups reported significantly higher rates of infrastructure improvements: 57% in Momostenango, 77% in Santa Lucia la Reforma, 60% in San Bartolo Aguas Calientes, and 50% in San Andres Xecul. The reason for the discrepancy between directors' and parents' observations is unclear, but one explanation is that parents might attribute some changes in infrastructure to a program other than FFE also operating in the school by another NGO.

Compared with baseline, the number of parents who could provide 3 benefits of primary education decreased drastically, from 96.4% in baseline to 35.9%. Differences in qualitative coding procedures between baseline and midterm evaluations may account for this difference. In addition, enumerators using iPads in the midterm may not have recorded answers in full enough detail to capture parents' answers. This change from baseline to midterm may reflect an actual decrease, but also may reflect measurement differences between baseline and midterm, and issues around data collection.

On average, 95.3% of directors and teachers stated that a school government had been established at their school. Only 61.5% of directors said that their schools had developed a school improvement plan; this number is comparable to the number at baseline related to overall schools (142/221=64.3%).

Increased Capacity of Government Officials. 21.4% of directors indicated that materials or disbursements arrived on time from MINEDUC. While this number is low, it is an increase compared to the baseline number of 13.1%, and represents a 93.0% achievement towards the target of +10.0% (or 23.1%). 100% of directors said that their schools had a PTA, and 53.0% said their PTAs contributed to a school improvement plan, a substantial increase from the baseline number of 8.1% (13/221). In addition, 100% of CTAs have been trained since baseline. Notably, 2/3rd of CTAs stated that the FFE program is sustainable but entirely dependent on parent involvement after the program ends.

RECOMMENDATIONS

Recommendations for FFE Program

- (1) Increase efforts to support girls to attend school, and explore barriers to girls' school attendance.

Girls and boys fared the same on literacy at midterm, but boys made a greater leap from baseline. Girls fared worse at midterm on attendance, despite having much higher attendance at baseline. These 2 indicators suggest that girls may be experiencing more difficulty in increasing their school attendance, as well as their literacy rates. Efforts should be made, in concert with implementing partners and with consensus from parents, to explore the issue of gender differences in education with CTAs and principals and identify root causes. Identifying these causes can then form the basis of a strategy moving forward during Year 3 of FFE.

- (2) Explore health-related school absences.

The average number of health related absences increased to 4.1 days at midterm, compared to 2.5 days at baseline. This is a particularly strange result given the increased infrastructure and trainings around hygiene and health. As a caveat, some of these data were provided as estimates in the absence of systematic data collection. Nevertheless, efforts should be made to communicate with CTAs and directors regarding their observations on illnesses in the community. If available, public health data could also be examined to look for trends, or public health officials could be contacted to get their assessments of community health. A related recommendation is to change or eliminate the indicator of 1-5 days absences – this recommendation will be discussed in the Recommendations for Research and Evaluation, below.

- (3) Examine reasons for the drop in teacher attendance, and consider incentivizing attendance.

The midterm evaluation observed a drop in teacher attendance from the baseline. These numbers were provided by directors' estimates, and it might be worth following up with directors (possibly through CTAs) to ask directly whether they have observed a drop in teacher attendance since last year. However, relying solely on directors' observations may have implicit and unknown biases, and it would be preferable to have a standardized way of collecting data from schools (see Recommendations for Research and Evaluation). Regardless, assuming that the data are accurate, it may be helpful to incentivize teacher attendance. One strategy would be to reward teachers each semester who have 90% or more attendance. Another strategy would be to offer in-school trainings to assist teachers in obtaining specialized certifications. Another strategy would be to offer teachers take-home rations, the amount of which is linked to their attendance.

- (4) Reinforce food preparation and hygiene protocols with parent volunteers, particularly in San Bartolo Aguas Calientes.

Perhaps related to Recommendation #2 is the need to reinforce food preparation and hygiene protocols with parent volunteers. This issue is especially pertinent in San Bartolo Aguas Calientes, which on average scored lower in issues related to kitchen cleanliness and hygiene to a statistically significant degree, compared with other municipalities. Further efforts should therefore be made to reinforce capacity building regarding healthy food practices with volunteers, and to support proper building

facilities and appropriate operations. Other issues that emerged at midterm are an apparent discrepancy between how principals and parents perceive organization of food preparation, with principals expressing greater concern; and a potential need to address problems among parent volunteers in terms of work sharing, particularly in Momostenango.

(5) Consider providing a wider variety of beans.

Most children said they enjoyed the food provided through the program. Yet, almost half of teachers said the pinto beans were difficult to cook and required a significant amount of fuel for ovens. Parents also indicated that children get bored eating the same type of beans, and would like to see some variety. Anecdotally, we also heard that pinto beans are not a cultural norm in Totonicapán. One recommendation is to provide a combination of both pinto and black beans to give children greater variety and more cooking options for parent volunteers.

(6) Conduct outreach with teachers and directors to educate them on USDA packaging dates, and to report immediately to CRS any issues with food spoilage.

Given the confusion around USDA packaging dates being misinterpreted by school staff as expiration dates, school staff need to be educated on how to interpret the different dates on USDA packages. Directors and parents reported that food spoilage could be as high as 25.0%, but it is difficult to assess whether this perception related to actual food spoilage or confusion about the dates stamped on packaged. Educating school staff could be done through implementing partners' meeting with directors and teachers to discuss the issue specifically, and also by creating and disseminating a 1-page document or poster that illustrates the different meanings of various dates (Sell By, Best If Used By, Used By, Lot Code). If food is actually spoiled and the dates not misinterpreted, school staff should be instructed to inform CRS and implementing partners immediately of the issue, and the problem should be investigated closely to determine the source of the problem.

(7) Reinforce the benefits of education with parents.

At midterm, only 35.9% of parents were able to identify at least 3 benefits of education, compared with 96.4% reported at baseline. While measurement differences between baseline and midterm might account for some of this different, this drop is still noteworthy as parents are critical resources in children's education. It is recommended that CRS and implementing partners conduct more specific outreach to parents, to educate them on the benefits of education for their children – not simply focused on literacy, but on the lifelong benefits education can provide for children over the life course.

(8) Reinforce steps of Kemom Ch'ab'al methodology with teachers and directors

Most teachers and directors report using the Kemom Ch'ab'al methodology, and believe it is helpful as well as culturally relevant. However, relatively few follow all of the steps of the methodology. Anecdotally, and also based on the Education Specialist's report (see Appendix A), communication and follow-up with schools regarding Kemom Ch'ab'al seems lacking, such that teachers and directors are unsure how best to implement the methodology. Implementing partners should provide a refresher training to directors and possibly to teachers on the steps of the methodology and why they are important, and maintain regular communication with schools to ensure sound execution of the methodology. Professional development and on-the-job coaching and mentoring activities would also help reinforce the methodology. It is also recommended for future production of Kemom Ch'ab'al

materials that there be a thorough revision by a specialist in the K'iche' language to ensure correct grammatical uses of the language.

- (9) Reinforce the Spaces to Grow program, by highlighting the potential benefits to directors and teachers

The number of schools implementing Spaces to Grow exceeded the midterm target, and a majority of directors expressed interest in starting the program. Efforts could be made to expand this program to more schools, and reinforce the program in existing schools, as a means of promoting community and building practical skills. Spaces to Grow might also be a centerpiece around which further extracurricular activities could be built (also see Recommendation #8).

- (10) For parents, reinforce the potential benefits of after-school activities for children.

Many parents supported the idea of extracurricular activities for their children, particularly if these activities supported further studying and academic work, practical skills, or cultural activities. Some parents expressed doubts about after-school programs because children were too busy with chores and other obligations. Outreach and capacity-building should be provided to parents to reinforce the potential life-long benefits of education for children, and balancing educational demands versus household or other demands. These efforts should also be helpful in addressing girls' attendance (Recommendation #1) as well as identifying and addressing root causes for school absences (Recommendation #2).

- (11) Articulate what sustainability looks like for the FFE program and communicate this with beneficiaries.

One of the cross-cutting evaluation questions for the midterm evaluation relates to the long-term sustainability of the program. 2/3rd of CTAs stated their belief that the program is sustainable in terms of educational methodology and health and food improved practices, but will be entirely dependent on the continuation of parent volunteers who have been trained and have experience with food preparation and hygiene. At this stage of the program, it would be helpful to articulate the meaning of the concept of sustainability, so that expectations and outputs could be anticipated post-support. For example, sustainability will likely involve ongoing parent participation, and peer leadership and training. However, the provision of food supplies in the quantities currently delivered will be difficult to sustain by communities, and in a post-support phase, one can imagine a steep decline in the amount of food available. Beneficiaries should be aware of expectations for their involvement if and when support ends, particularly as related to provision of food, but also to education materials and techniques.

- (12) Link improvements plans and education benefits for parents.

Only 60 per cent of schools have plans for school improvement. Efforts should be made to increase these improvement plans, possibly by linking improvement plans to the establishment of *active* PTAs which currently account for only half of all established PTAs. In terms of school improvement plans, parents should also be encouraged to focus not only on improving infrastructure and food preparation, but also on issues around improved curricula, teaching, student attendance, teacher attendance, and academic performance. In doing so, parents would be able to gain a better understanding of education benefits for their child and how the school environment could best support this education.

(13) Target school infrastructure improvements and food storage facilities

Improvements in school infrastructure are still below the expected level at midterm related to facilities constructed or rehabilitated; based on MTE data, fewer than 40% of schools have these improvements completed. Efforts should be made to move planned constructions forward with parent committees' involvement in these improvements. Additionally, it is recommended that the project should improve coordination between parent committees and directors related to allocation of facilities for food storage; about half of committees are dissatisfied on how food storage has been handled to date, especially related to assigning designated places for storage in terms of cleanliness, order and space.

Recommendations for Research and Evaluation

(1) Aim for more rigorous research design in evaluation.

One of the difficulties of the midterm evaluation is that the methodology relies on a point-in-time analysis (although aggregate results can be compared with baseline, a key dynamic). Another difficulty is the lack of a comparable group who did not receive the intervention. This evaluation attempted to correct for this problem through the use of multivariate statistical modeling, with mixed results. In the future, *it would be preferable to create a rigorous evaluation design alongside the implementation plan of the program*. While a randomized controlled trial is likely not possible in this context, it would be possible (in theory) to conduct a phased design. In this type of design, the program would be rolled out in phases, with multiple points of data collection over time in all sites. Sites would be randomly assigned to phases of implementation. In this way, it would be possible to examine sites at different points of development, over time, and attribute greater causality in changes in outcomes to the FFE program itself, rather than unknown variables. This type of approach also avoids the ethical problems of randomly assigning some groups to a condition of food provision, and others to a condition of receiving no food, because all groups will eventually receive food. As mentioned in this report, with the current design limitations, we can observe changes both positive and negative, but we cannot say that FFE caused those changes.

(2) Consider mandating the use of attendance and achievement databases at randomly selected schools.

The midterm saw some changes in both student and teacher attendance. Yet, as stated above, given that these data were provided by teachers' and principals' estimates, the results are of unknown reliability and validity. One way to ensure greater data validity is to mandate the use of databases in schools, such that directors could oversee collection of data for attendance (teacher and student) as well as student achievement and FFE program outputs. As an example, the lead author has a colleague who founded a school feeding program (Mil Milagros²⁵) in 4 schools in Sololá. Each Mil Milagros school has a database, and directors are required to provide quarterly reports using data collected. While it may not be feasible to require a database at every FFE school, given the costs of computers and training, some randomly selected schools could be using databases to track attendance and achievement as a pilot. Implementing databases at schools could be fairly straightforward by expanding the iFormBuilder

²⁵ <http://www.milmilagros.org/>

platform to allow teachers and directors access to forms customized for attendance data. Part of this project might entail providing iPads to directors and teachers for data collectors. Standardized means of data collection would ensure greater data validity, and it may even improve outcomes for students, as “what gets measured gets done.”

(3) Clarify and better operationalize selected indicators for measurement.

During the analysis and reporting phase we discovered that some indicators may introduce some confusion. For example, indicator 1.3.2 (Reduced health-related absences) requires the mean number of days children were absent because of illness, which we believe is appropriate. However, the baseline also included the indicator of percent of children missing between 1-5 days. The midterm average number of absences increased compared with baseline, but decreased in the 1-5 day window, which we believe paints an inaccurate picture of attendance (because more kids at midterm are likely to miss 6+ days of school, and they will not be accounted for – plus the indicator looks better when it is actually worse). We are aware that this issue may be related specifically to the baseline and not to a required indicator.

Another issue is related to indicator 1.1.3b (improved literacy materials), that requests 2 items in one question: (1) whether schools received materials; and (2) whether materials were sufficient for effective instruction. We advise splitting this indicator into 2 components, one asking about *receiving* materials, and the other asking about *sufficiency* of materials. Again, this issue may be specific to evaluation methodology and so not necessarily relevant to the larger program.

(4) Allow more time for evaluation planning and implementation.

For an evaluation project of this scale, the timeline for execution was extremely ambitious. Allowing more time for planning, earlier in the year, would ensure a more reflective and planful process. Given the Guatemala elections on September 6, it was important to conclude data collection by the end of August. Yet, the contract was not signed until July 27 and data collection was not able to start until August 17. This timeline made it difficult to recruit and properly train the staff prior to collecting data. In addition, universities often engage in lengthy contract negotiations, and also require review of all studies by Institutional Review Boards (IRBs) which sometimes can take a month or longer. Also, in using electronic data collection, we saved a tremendous amount of time in data entry. Yet, we also encountered unexpected issues with some iPads not registering data when entered. Had we had more time in the process, we could have addressed these issues more proactively, possibly through refresher trainings and field-based troubleshooting. We also discovered that qualitative data entered into iPads tended to be thin and of fairly low quality, another issue we could have addressed and corrected with data collectors, or even formulated an alternative plan. In an ideal world, it would be preferable to allow 6 months for planning and implementation of a project this size. If data needed to be collected no later than August, this would imply an April *start* date. Nevertheless, we are proud of the work we did under the current timeline and are appreciative of CRS’s logistical support.

References

- Alderman, H., & Bundy, D. (2012). School feeding programs and development: Are we framing the question correctly? *World Bank Research Observer*, 27(2), 204-221.
- Brown, J.L. & Pollitt, E. (1996, February). Malnutrition, poverty, and intellectual development. *Scientific American*. 38-43. Retrieved from http://www18.homepage.villanova.edu/diego.fernandezduque/Teaching/PhysiologicalPsychology/AllPhysio/LI11b_Eating/a12_Malnutrition/Malnutrition.pdf.
- Cheung, M. & Perrotta, M. (2010). The impact of food for education program on schooling in Cambodia. Working paper from Department of Economics, Stockholm University.
- Essuman, A., & Bosumtwi-Sam, C. (2013). School feeding and educational access in rural Ghana: Is poor targeting and delivery limiting impact? *International Journal of Educational Development*, 33(3), 253-262.
- Jyoti, D., Frongillo, E., & Jones, S. (2005). Food insecurity affects school children's academic performance, weight gain, and social skills. *Journal of Nutrition*, 135(12), 2831-2839.
- Kennedy, G., Ballard, T., & Dop, M. C. (2011). *Guidelines for measuring household and individual dietary diversity*. Nutrition and Consumer Protection Division, Food and Agriculture Organization of the United Nations.
- Ruel, M. T., & Alderman. (2013). Nutrition-sensitive interventions and programmes: How can they help to accelerate progress in improving maternal and child nutrition? *The Lancet*, 382(9891), 536-551.
- Swindale, A., & Bilinsky, P. (2006). *Household Dietary Diversity Score (HDDS) for measurement of household food access: Indicator guide (v.2)*. Washington, D.C.: FHI 360/FANTA.
- UNICEF. (n.d.). Guatemala overview: Malnutrition. Retrieved from http://www.unicef.org/guatemala/english/overview_18012.htm.
- World Food Programme (2015). Guatemala: Overview. Retrieved from <http://www.wfp.org/countries/guatemala/overview>.

APPENDIX A. Report on Kemom Ch'ab'al Methodology

Quetzaltenango, Guatemala, August 28, 2015.

Lic. Gómez Gaspar Tambriz

Education Specialist

The Education Specialist for the Mid-Term Evaluation of the “Learning for Life” project through CRS was contracted through Boston College, lead by Dr. Thomas Crea. Interviews were conducted with CTAs (Administrative Technical Coordinators) and other key stakeholders in the Ministry of Education, CRS and its’ partners APCC and PRODESSA. The Education Specialist also had the opportunity to participate in the interview conducted by the Context Specialist with the Departmental Coordinator of PRODESSA based in the provincial capital of Totonicapan, on the specific issue of the Kemom Ch'ab'al methodology. Through interviews with these stakeholders; the appreciation, experiences, observations and recommendations on the progress of the methodology of Kemom Ch'ab'al were collected.

A. Interviews with CTA's (Administrative Technical Coordinators)

- The CTAs noted that they have participated in different trainings since implementation of the “Learning for Life” project. CTAs noted that this was an important step in the process of applying the Kemom Ch'ab'al methodology through working together with the principals and teachers of schools in the coverage of this CRS project, in the application of the Kemom ch'ab'al methodology, the use of reading materials, and the monitoring of this methodology.
- In relation to the Kemom Ch'ab'al methodology itself, all CTA interviewees expressed that the methodology has been well accepted by principals, teachers, and parents of the schools where the project has CRS coverage. This can be seen through appropriate attendance from the “Learning for Life” program in all aspects associated with the development process of this methodology.
- It was noted through the CTA interviews that due to the Kemom Ch'ab'al methodology being accessible to all members of the educational community, there is an aspect of empowerment that exists among principals, teachers, and children due to the curriculum being practical and understandable.
- In terms of sustainability, some CTAs noted that they perceived the project to be sustainable, while others remained neutral on the topic due to the project support being temporary. These CTAs who remained neutral noted that if CRS is removed, the schools are only left with the Ministry of Education which would make sustainability difficult to envision due to lack of funds.
- When asked about materials, the CTAs noted that the materials are sustainable due to the support of PRODESSA, CONRADO de la CRUZ and CRS while the project exists. The Kemom Ch'ab'al methodology workbooks, however, will stay with the students until they are completed. The CTAs also noted that they felt that the teachers can continue to use the Kemom Ch'ab'al methodology even if the project does not continue.

Observations

- In regards to facilitating the workshops, it was observed that there were some failures on the part of those teaching these workshops on the Kemom Ch'ab'al Methodology. Teachers reported that workshop facilitators were sometimes unprepared or unable to

answer questions. This situation led to confusion for teachers on how best to implement the methodology.

Recommendations

- In relation to the Kemom Ch'ab'al methodology, monitoring and support in the classrooms and the presence of technicians in schools are recommended in order to ensure proper implementation of the methodology.

B. Interview with the Departmental Coordinator of PRODESSA based in Totonicapan:

- It was noted that the Kemom Ch'ab'al methodology has been well accepted in all schools during the two years of its work in the program in the four municipalities in which the CRS project has coverage, and no director has removed the methodology from their schools.
- It was noted that through the children demonstrated that through their reading skills in K'iché that there is implementation of the methodology at the classroom level which allows the children to read and write in K'iché, as well as tell stories in K'iché. It was noted that this implementation appears to be assisting the children to use and rescue the native K'iché language in their communities.
- It was noted that some of the teachers who are implementing the methodology are monolingual in Spanish. Although they are monolingual, they are seeking strategies to manage K'iché literacy in their classrooms. For example, there was a monolingual teacher who was looking for strategies in which to implement the methodology and she did so by asking her husband for support in helping her to practice reading K'iché with students in the classroom due to him being a native K'iche' speaker.

Challenges in the implementation of the Kemom Ch'ab'al methodology:

- It was noted that there was some resistance to the use of K'iché in certain classrooms at the beginning of the project. However, teachers were made aware of benefits of the program and now all the teachers attend all program trainings and workshops.
- It was noted that now that teachers have all accepted the methodology, their motivation is reflected in their students
- With the parent participation, it was difficult at first to gain their participation in assisting in receiving the educational materials. However, with the support from members of the educational community, other parents, CTAs, principals and teachers, they are now supporting this process. It was noted that PRODESSA was going to facilitate the use of a pick-up truck to transport the materials. However, the CTAs mentioned that they preferred to continue with their usual procedure in order to avoid confusion with transportation when the project ends.

C. Observations on the Kemom Ch'ab'al Texts for Children:

- The Education Specialist noted that at first, the content of all textbooks was all in K'iché, but later the content was changed to 50% in K'iché and 50% in Spanish, due to this version being better accepted by teachers. It was also observed that due to the

materials provided by the MINEDUC through the DIGEBI not having arrived for each grade, there was no training on how to complete the materials for all teachers.

- The former director of education in the department of Totonicapan requested that this program become widespread throughout the department, which would mean an increase of population to be served by 50%.

Positive observations of the Kemom Ch'ab'al methodology:

- The promotion of values: The value of reading to learn was promoted instead of solely reading to read.
- Although machismo is very marked in Totonicapan, through this material, boys and girls are encouraged to collaborate and work together due to the material disclosing the great importance of the K'iché culture, language and the Guatemalan context.
- When the program, "Let's Read Together", was first implemented from the Ministry of Education, it was noted that there was some confusion experienced by various teachers. These teachers understood that there were two different periods that they had to attend in order to teach the methodology and that this would create more time consuming work. However, it was noted that the Kemom Ch'ab'al methodology actually strengthened the program "Let's Read Together" because it is systematic in its layout. This can be reflected through reading workshops being implemented as is reflection by the teachers on the use of this program is encouraged.
- The Kemom Ch'ab'al methodology consists of six steps, five of which are the most applicable, although step 0 is more applicable when applied to grades 4 and 6. This modeling strategy outlines comparisons, analyses, discussion, and debate; the teacher exemplifies this and shows the students what they need to do. The aforementioned five steps can be found below:
 - 1) Exploration of reading: Consists of observing the graphic material, the titles, what experiences to recognize, and observing what the student can predict will happen or think will happen.
 - 2) Actual reading: which can be individually, in pairs, quietly, loudly, etc.
 - 3) Exercises in the Textbooks: the children can put into practice what they learned.
 - 4) The review of the exercises: This is done through self-assessment or peer assessment.
 - 5) Workshops: these can highlight the values and which situations apply such as logical thinking, human rights, culture of peace, and multiculturalism among others.
- Each teacher was provided with a guide to assist him or her in implementing the methodology. This includes their teaching sheet as well as trainings to use and manage this methodology well.
- Teachers have received five workshops; one for each of the aforementioned steps in the application of the methodology.
- It was noted that the results from this bilingual education appear to be long-term. Therefore it is recommended that CRS conduct project monitoring for the methodology implementation. Through project monitoring, a full cohort from first grade until sixth grade would be able to be observed and complete results would be established, making a more thorough evaluation possible due to the ability to measure the results of all elementary school students.

- It was noted that within DIGEBI there are people who are familiar with the program and the methodology and are capable of continue in middle management. It was also noted that some schools might be able to continue the program themselves, by promoting it, advocating for it and then requesting an allocation through the Ministry of Education.
- The overall perception on the project that was documented was that community and school authorities have accepted the project and see many benefits of it being present in the schools. Despite the program being influenced by the food delivery, it was observed that authorities see the benefits of the program and feel that the children will benefit from the program and leave school well prepared.
- It was also perceived that the teachers were receptive of the Kemom Ch'ab'al methodology due to positive responses. As a result of their training with the curriculum, the teachers have encompassed the Kemom Ch'ab'al methodology and they value it due to it being the only methodology that that provides materials and trainings.

Recommendations:

- It is recommended that there be an increase in the amount of technical and educational support in schools on behalf of the Ministry of Education. There are now only six technicians and twenty temporary staff, which demonstrates that the amount of support for the teachers implementing the methodology is weak.
- It is recommended that there be a way to support the teachers with a diploma in K'iché literacy or deploy a virtual system to strengthen the work in schools, so they can improve their skills.

D) Interview with Director and Deputy Director of the Department of Education in Totonicapán:

Result indicators from the "Learning for Life" program:

- It was noted that there were training of teachers, principals, and CTAs in the delivery of materials for both children and for teachers.
- It was noted that there was an empowerment of teachers and principals through the use of the the Kemom Ch'ab'al methodology. It was also seen that the children were empowered through the provision of materials such as the textbooks, workbooks, and backpacks.
- It was mentioned through this interview that a text/manual on nutrition has been developed. However, the printing and distribution of this is pending. Prior to printing, a commission was appointed to review it, but now the developers of the manual are waiting for a response from PRODESSA.

Lessons learned to date:

- It was noted that there existed strong two-way communication with PRODESSA, Conrado de la Cruz and the school and community authorities due to the development of an agreement on a work schedule to avoid overlapping of activities with different organizations.
- It has been observed that the program has complied with all activities in schools and has delivered corresponding reports where applicable.
- It was noted that a benefit of the project was that CRS trained teachers hired by PRODESSA, as well as CTAs and directors in the implementation of the Kemom Ch'ab'al Methodology.

Opportunities of sustainability as visualized by the Ministry of Education:

- An empowerment has been manifested from the use of the methodology by techs and teachers, due to them planning to stay with the methodology and continue to apply it in the future.
- The Kemom Ch'ab'al methodology is strengthening Bilingual Education in Totonicapan.
- The participation of the community, parents, and especially mothers who are participating in the preparation of food in schools for children is very notable.
- The collaboration of CRS and other institutions has assisted schools in coordinating and organizing different activities.

As a challenge to promote the methodology of bilingual literacy in schools in Totonicapan, it can be mentioned:

- This process has already begun through CRS's support in training the CTAs and teachers. It was noted that many were in favor of expanding the coverage of the methodology throughout the entire department of Totonicapan.
- Better preparation of the CTAs to be responsible for replicating what principals and teachers do.

Recommendations:

- In relation to nutrition, CTAs suggest that the menu be varied.
- It is recommended that the motivation of the teachers is maintained. For example, the director of the Department of Education of Totonicapan shared that on Teacher's Day, gifts were given to each teacher who was participating in the project, such as a button and a typical sweater or a shall. In that sense the Director felt that there was conviviality felt by the teachers for the project.
- It is recommended that the project coverage area expand within the eight municipalities.