



Ethiopia

ELM Endline

September 2015

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With Special thanks to Sponsorship Education Team: Hagazi G/her, Messele Worku, Tirhas Beyene and Haftamu Beyene for facilitating and supervising the data collections and Data Collectors: Abera Adehana, Adem A/kader, Adisu Asefa, Alem Ybeyn, Asefa Baraki, Dawit Weldie, Deres Teka, G/hiwot Berhe, H/kiros Belay, Mebrahtu Asefa, Medhane Halefom, Murtsu G/her, Teka Desta, Tigist Mokenen, Tsigabu Tsegay, W/berhan Kebede, Zegeye Areaya.

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Executive summary

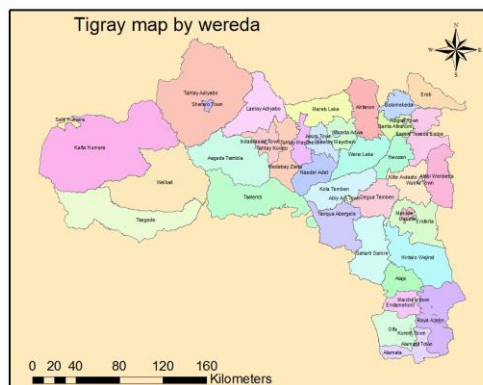
Ethiopia is progressing well in education over the last two decades and the country is also at the vanguard of Africa's move toward improving access to education. Enrollment in primary education has increased from less than 30% twenty years ago to 95.3% (gross enrollment) and 85.9% (net enrollment) in 2012/13. During these decades of progress, however, Ethiopia paid little or no attention to ECD, viewing it as the responsibility of families and communities. In recent years, the Government of Ethiopia has paid more attention to ECD through policy development and by encouraging enrollment.¹

Research evidence shows that early childhood is a critical phase for human development, and that access to early childhood care and education (ECCE) services can improve children's nutritional, health and education outcomes.² Cognizant of this rationale, the Federal Democratic Republic of Ethiopia is giving due attention to pre-school education and has prioritized it in the Education Sector Development Program of the country. Accordingly, the government is implementing the program as "Early Childhood Care and Education (ECCE)" in all the schools. As a result, the gross enrolment rate of pre-school children has increased from 5.3% in 2010/11 to 26.1% in 2012/13 academic year.³ Though the government is very ambitious with the program, the pre-school education is marred by many challenges such as lack of trained and independent facilitators/teachers, unavailability of curriculum and guidelines, lack of adequate center facilities, developmentally appropriate learning materials, play grounds and lack of incentives/salary for teachers assigned for this program among others.

Save the Children supports the Ethiopian government to strengthen Early Childhood Care and Development (ECCD) in Tigray, Oromia, Gondar (Amhara), Afar, and the Southern Nations Nationalities and Peoples Region (SNNPR) through both grants and sponsorship funding. In 2013, the partners reached over 10,000 pre-school aged children of which 45% were addressed through sponsorship funds. The sponsorship-funded ECDD program started in 2009 in Tigray and in 2009 in West Showa. In Tigray is being implemented in 4 woredas: Raya Azebo , Hintalo Wojerat, Enderta and Degua. In these woredas, 40 centers have been supported with ECD packages.

Save the Children invests in ECD programming because it is fundamental to the optimal development of children, school success as well as overall lifetime achievement. Participation in quality ECD programs results in improvements in quality of education, reduction of drop out and repetition rates at later stages of schooling and leads to higher enrolments in primary school, particularly of girls. Moreover, the early years are the optimal time to support children's school readiness for school.⁴

This study collected baseline and endline information for students and one of their caretakers (typically a parent) at baseline (October 2014) and endline (June 2015). The data collection sampled from three different groups of students: those in the standard Government O-Level class (Comparison Group), those in the standard Government O-Level class that also received the ECD ELM package (Government ELM Group), and those receiving ELM at Save the Children ECD centers (NGO ELM Group). Controlling for variables such as child age, baseline scores, and household characteristics, we find significant gains in the NGO ELM Group versus the Comparison Group



¹ Ethiopian Federal Ministry of Education, Education Statistics Annual Abstract, Nov. 2012/13

² Young Lives, 2010. Early Childhood Care and Education as a Strategy for Poverty Reduction: Evidence from Young Lives. Young Lives Policy Brief 9.

³ Ethiopian Federal Ministry of Education, Education Statistics Annual Abstract, Nov. 2012/13

⁴ The common Approach to Sponsorship-funded Programming(CASP)-ECD Module, Nov.2010

on total IDELA score, motor development, emergent literacy and socio-emotional development. Preliminary gains of the Government ELM Group over the Comparison Group are found on total IDELA score and socio-emotional development, but these gains disappear when controlling for differing background characteristics between the groups.

Introduction

A key aspect of a quality ECD program for 4-6 year old children is the focus on supporting children's foundational literacy and math skills. The foundations of learning to read and write are set long before a child enters first grade. *Emergent literacy skills* and the experiences children have with language, print and books during the early childhood years are hugely important for later reading success. Emergent literacy includes such aspects as speaking and listening, alphabet knowledge, early phonological awareness (such as rhyming), and knowing that print can carry meaning, among many others.

Much in the same way, even before children learn to add, subtract, multiply or divide, children learn many concepts about numbers and mathematics that are a part of *emergent math* and that pave the way to more complex math competencies and proficiency in early primary grades and beyond. Emergent (or early) math skills include such aspects of math as patterns and sorting, basic number knowledge and counting, simple geometry (i.e shapes) and problem solving, among others.

Unfortunately, support for these foundational emergent literacy and math skills is lacking in the early years, yet sorely needed. Save the Children developed an innovative approach aimed at supporting these critical **Emergent Literacy and Math (ELM)** skills in preschool programs globally (ELM toolkit) and began piloting it in Ethiopia in 2012/13 (Ethiopian academic year). The main goal in integrating this intervention into the existing ECD center based program was to improve the quality of the ECD program and ensure a substantive focus on early **literacy and math skills** as a part of the curriculum in order to strengthen children's readiness for school. The ELM toolkit was first tested in 36 ECD centers (18 treated and 18 controlled) in West Showa impact area, Ethiopia. The impact evaluation report of the pilot program showed that there was significant difference in terms of ELM domains among children in intervention centers and control centers. Based on the promising result attained, Save the Children implemented the intervention in Tigray, in a total of 15 Save the Children ECD centers and 25 Government O – Classes.

This report examines the results of an assessment of children's learning in Tigray from November 2014 – April 2015. The same children and caregivers who were assessed during the October 2014 baseline assessment were targeted in this assessment. At baseline the child assessment and caregiver's survey covered 249 children and the same number of parents throughout 25 schools in the Tigray Impact area of Ethiopia.

The key research questions to be explored in this report include:

- I. What is the effectiveness of Save the Children's Emergent Literacy and Math (ELM) intervention on student outcomes at the intervention schools as opposed to government schools?
- II. What is the comparative effectiveness of each of the treatment arms in improving students' school readiness? What is the comparative effectiveness of the ELM intervention between the Save the Children constructed ECD centers and the standard Government "O" classes?

What is the comparative difference in school readiness between these groups and the comparison group – the standard Government “O” class, with no ELM intervention?

- III. Is there a detectable relationship between caregivers’ support for learning at home and school readiness? If so, what is the implication for programing?

Context

Enrollment for preschool has historically been very low in all of Ethiopia, including Tigray. The annual statistical abstract of Tigray Region Education Bureau (2008/9) indicates that there were only 132 kindergartens with an enrollment of only 8810 children in the academic year. The enrollment was below 2% of the pre-school age children.

At the moment enrollment has dramatically increased because the government has committed to expand the program through the above mentioned approaches to reach more children. According to the Ministry of Education’s (MoE) Educational Statistics Annual Abstract (2013/14), 34% of age 4-6 children in the country were provided with Early Childhood Care and Education (ECCE) services. In addition to the government efforts some government partners such as Save the Children have contributed their share in providing ECCD program to rural community.

The Save the Children sponsorship program started its ECCD program in Tigray in 2009. In the past seven years, Save the Children has constructed 18 ECCD centers, furnished them with child-friendly furniture, and indoor and outdoor games. In addition, Save the Children provided capacity-building trainings to facilitators, supervisors, local community representatives and parents in the area of child development, ECCD policy sensitization, teaching methods, and positive parenting. Save the Children is working in close collaboration with government and local higher education institutions.

One of the components of the theory of change of Save the Children is a focus on innovation. Save the Children is keen in replicating innovations to bring about breakthrough solutions to problems facing children. Accordingly, Save the Children has piloted an innovative approach called ELM to solve the problems in literacy and numeracy of young children age 4-6 in the impact districts in Tigray. ELM was introduced into 15 Save the Children constructed ECCD centers and 25 government “O” classes in the 2104/2015 academic calendar. In implementing the program facilitators, school principals and deputy principals were trained in ELM. The centers were equipped with indoor and outdoor facilities, different corners were set at the classroom level, and parents groups established and trained to strengthen their support to the program. Program staffs provide technical support/supportive supervision continuously.

Implementation Plan

The ELM interventions were implemented at the Save the Children ECD centers (NGO ELM Group) and the Government “O” level centers (Government ELM Group). There was no ELM implementation at the Comparison schools (Comparison Group).

Program element	Implementation Strategy
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<p>Teacher Training</p>	<ul style="list-style-type: none"> • Basic training for ECCE teachers/facilitators on ELM skill areas is provided. This is an intensive training given to the teachers on key aspects of both emergent literacy and math. Each component has five sub domains in it. The training lasts for 4-5 block days. This training is implemented in such a way that TOT is given to key facilitators from respective Education Offices and schools. • Refresher training. Following the basic training on the key aspects of ELM, a refresher training is organized for ECCE teachers to fill the emerging skill gaps during the actual program intervention.
<p>Group Training for parents on ELM at Home sessions</p>	<ul style="list-style-type: none"> • Group training for parents on ELM at home component is given. The training proceeds in such a way that TOT for master parents’ facilitators is given and cascaded. • Refresher training. Following the basic training on the key aspects of the ELM-at-home component, a refresher training is organized with parents to fill any emerging gaps.
<p>ELM-focused teaching resources</p>	<ul style="list-style-type: none"> • Literacy/language skill supporting materials (including: culturally appropriate story books, colored picture books, comics, letter cards • Math skill supporting materials (including puzzles, number cards, math books, • Indoor games materials
<p>Parents/ community involvement/ education</p>	<ul style="list-style-type: none"> • Awareness-raising sessions on ELMI for parents’ group/ECCE management committee, PTAs, community representative, cluster supervisors, school directors) is organized. This paves the way for sustainability, ownership and quality program intervention.
<p>Monitoring and Super-vision Support</p>	<ul style="list-style-type: none"> • Provision of children’s and parents’ daily attendance registration books • Center cleanliness & orderliness • Print-rich environment • Children discipline • Facilitators rapport with children • Daily Activity schedule • Daily lesson plan • Availability of child friendly center, learning materials (indoor games, outdoor games, puzzles, culturally appropriate story books...) and furniture • Safe playing ground and conducive learning center • Availability of drinking water suitable for young children • Availability of sanitation facilities segregated by sex • Parents and children’s participation in ELM-at home training • Parents’ and Community involvement

Methods

Sampling

The sampling for this baseline assessment encompasses 249 children, divided between 25 schools: 10 Save the Children ECD Centers (NGO ELM Group), 10 Government O-Level centers that received ELM (Government ELM Group), and 5 Government O-Level centers that did not receive ELM interventions (the Comparison Group). All comparison schools are formal schools with government O classes, none of which have received or benefited from Save the Children ELM programs.

At each school, 10 children & their caregivers were randomly selected for the assessment. The sample targeted 5 and 6 year olds, and sampled equally from male and female students, where possible. The following table summarizes the groups and the sampling:

	Government "O" Level School	Save the Children ECCD Center	ELM Intervention	# of Schools Sampled
Comparison Group	√			5
Government ELM Group	√		√	10
NGO ELM Group		√	√	10

Measurement

In this study two main tools were used: the IDELA Caregiver Questionnaire and the IDELA Child Assessment. The IDELA Caregiver questionnaire was used to gather information about homes in the study sample, and measure changes in parent behaviors and attitudes. Topics covered in the Caregiver Questionnaire appear in Table 1. The IDELA Child Assessment was used to measure early learning and development for children in the study. Items included in IDELA are listed in Table 2. The same versions of both tools will be used at baseline and endline.

Table 1. IDELA Caregiver Questionnaire overview

Section	Description
General family information	Sex of child, child age, ethnicity, parental literacy, parental education, languages spoken at home
ECD experience and educational expectations	Child participation in ECD program, details of participation, parental expectation of child's educational attainment
Home learning environment and parenting practices	Types of reading materials at home, types of toys at home, child-parent interactions
Parent self-efficacy	Parental attitudes about their role in child's development
Socio-economic status	Roof and wall of home materials, objects/appliances owned, land/animals owned, child work status

Table 2. IDELA Child Assessment

Gross and Fine Motor Skills	Emergent Literacy	Emergent Numeracy	Socio-emotional Development	Other items
Hopping	Print awareness	Size/length identification	Friends	Approaches to learning
Copying a shape	Expressive vocabulary	Sorting	Recognizing emotions in self	Inhibitory control
Drawing a human figure	Letter identification	Number identification	Recognizing emotions in others	Short term memory
Folding paper	Emergent writing	Shape identification	Conflict resolution	
	Phonemic awareness	One-to-one correspondence	Personal information	
	Oral comprehension	Simple operations		
		Puzzle completion		

Data collection

For the purpose of data collection 17 data collectors have been involved to conduct IDELA Child Assessment and Caregivers Survey, over the course of the baseline and endline. The data collectors have been trained on IDELA and ELM parenting tool for two days (one full day for each tool). The Training was facilitated by the technical team at the Field Office. The data collectors were trained on the tool, practiced among each other and finally a pilot was completed in selected schools that were not part of the sample. Data collection was completed on paper forms that were entered into an Excel template, and spot checked for data quality. The baseline data collection took 1 week in October 2014, and the endline data collection 1 week in June 2015.

Analysis

The primary purpose of this analysis is to investigate the children’s learning and development gains after 5 months of various early learning interventions. Summary statistics will be used to analyze students’ performance in each of the IDELA sub-tests, as well as learning materials and activities occurring in children’s homes. To test the comparability of learners in different intervention groups, this report will use comparison of means through t-tests between any two samples and clustering by school. Finally, this report will use to multivariate regression models to explore relationships between children’s early learning gains and background characteristics, home environment, and parent attitudes.

Attrition

Although the same children were targeted during the baseline and endline assessments, there was some attrition of the sample over time. Overall, 4 percent of children assessed at baseline were not located during the endline assessment. Looking at observable background characteristics and baseline assessment information, there were no significant differences between the children who were found at the follow-up assessment and those who were not. There were no significant differences in attrition between intervention groups. Given the small and relatively even attrition no additional variables will be used to control for attrition in the analysis of learning gains.

Total attrition of caregivers was almost very similar, also at 4 percent overall. As with the child attrition, no significant differences were found between caregivers found at endline and those who were missing so no additional controls will be added to future analyses. However, multivariate regression analyses will only focus on cases where both child and caregiver data were collected at baseline and endline.

Table 3. Sample attrition

Treatment Group	Sample at baseline	# Children missing at endline	% Children missing at endline	# Caregivers missing at endline	% Caregivers missing at endline
Comparison	50	2	4%	2	4%
Government ELM	100	3	3%	3	3%
NGO ELM	99	6	6%	6	6%
Total	249	11	4%	11	4%

Children’s learning and development

This section will detail children’s learning on the direct child assessment, IDELA. Direct child assessment items are organized into 5 categories: motor development, emergent literacy, emergent numeracy, socio-emotional development, and executive functioning. These items are all weighted evenly and added together to create the total IDELA score. Any assessor observation items are not included in the total IDELA score because they are not a direct assessment of children’s skills, but rather help provide a more holistic picture of children’s early learning and development.

Motor development

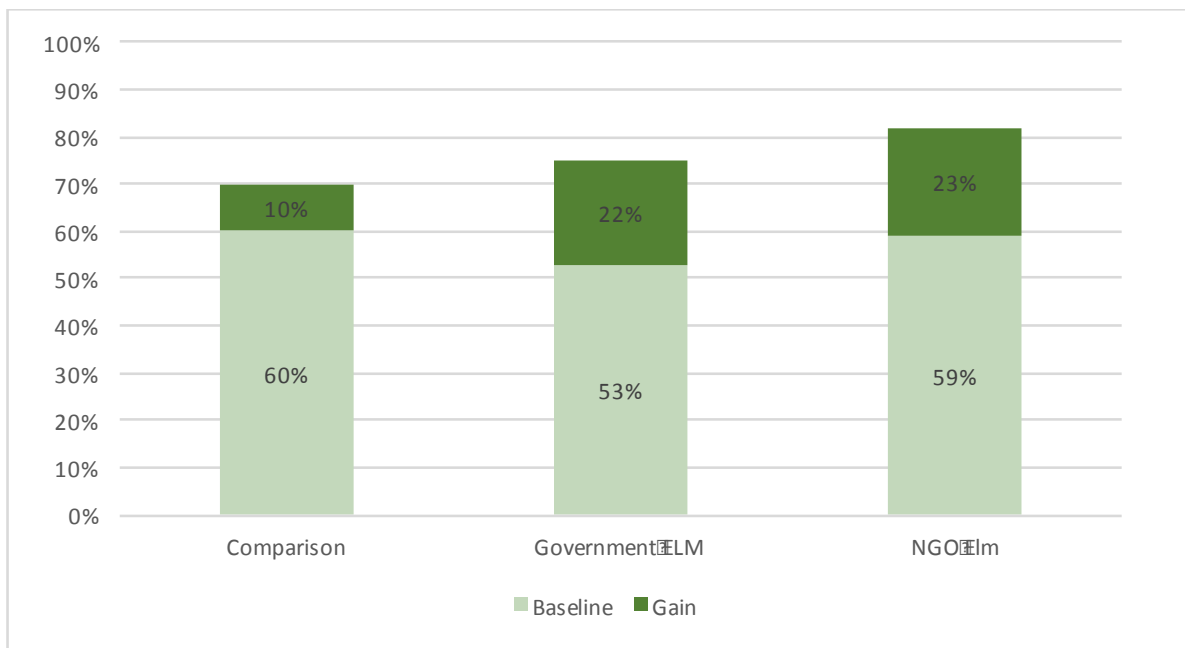
Table 4 displays average baseline and endline motor development skills for children in each intervention group. **On the total scale of motor development, children in the NGO ELM group gained significantly more (13 percentage points more) than children in the Comparison group. There were no significant gains for total motor development in the NGO ELM group compared to the Government ELM group.** Looking at individual items, both the Government ELM and the NGO ELM groups had significant gains over the Comparison group in hopping and in drawing a person. There were no differences on these items between the two ELM groups. The NGO ELM students showed significantly higher gains in folding

a paper than the Comparison Group. There were no differences across groups for copying a shape. There were no differences between male and female students on overall motor development.

Table 4. Motor development, by group

	COMPARISON		GOVERNMENT ELM		NGO ELM	
	Baseline	Endline	Baseline	Endline	Baseline	Endline
DRAWING A PERSON	57%	55%	43%	67%	52%	71%
HOPPING	97%	94%	83%	92%	92%	100%
FOLDING	24%	56%	22%	63%	16%	71%
COPYING A SHAPE	63%	77%	64%	75%	76%	88%
TOTAL MOTOR DEVELOPMENT	60%	70%	53%	75%	59%	82%

Figure 1. Motor development



Emergent Literacy

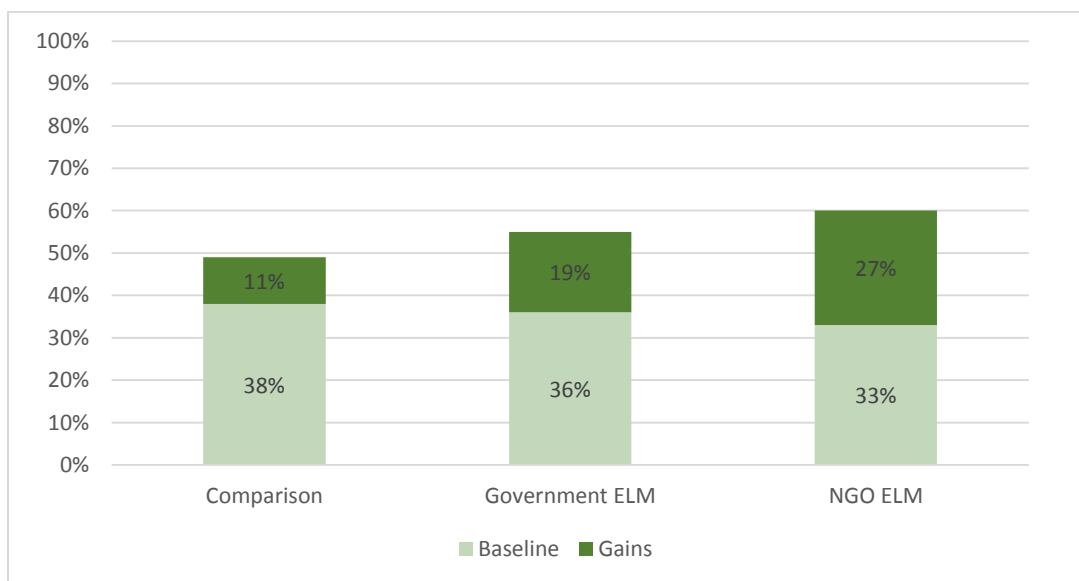
Table 5 displays children’s emergent literacy skills over time. **On the total scale of emergent literacy, children in NGO ELM Group gained significantly more than children in both the Comparison Group and children in the Government ELM Group. Students in the Government ELM group did not gain significantly more than the Comparison group .** Looking at individual items, the gains in print awareness were substantial for children in the NGO ELM group. The NGO ELM group gained significantly more in print awareness than both the Comparison group and the Government ELM group. Children in the NGO ELM group gained significantly more in oral comprehension than the Comparison group. There were no

significant differences between the groups in letter identification, expressive vocabulary, writing or phonetic awareness. There were no significant differences between gains made by boys and girls.

Table 5. Emergent Literacy, by group

	COMPARISON		GOVERNMENT ELM		NGO ELM	
	Baseline	Endline	Baseline	Endline	Baseline	Endline
PRINT AWARENESS	74%	74%	67%	81%	56%	91%
LETTER ID	1%	16%	2%	22%	1%	19%
EXPRESSIVE VOCABULARY	53%	53%	51%	52%	48%	56%
ORAL COMPREHENSION	55%	63%	49%	66%	49%	71%
PHONETIC AWARENESS	26%	32%	31%	39%	26%	43%
WRITING	22%	61%	18%	69%	19%	78%
TOTAL EMERGENT LITERACY	38%	50%	36%	55%	33%	60%

Figure 2. Emergent Literacy



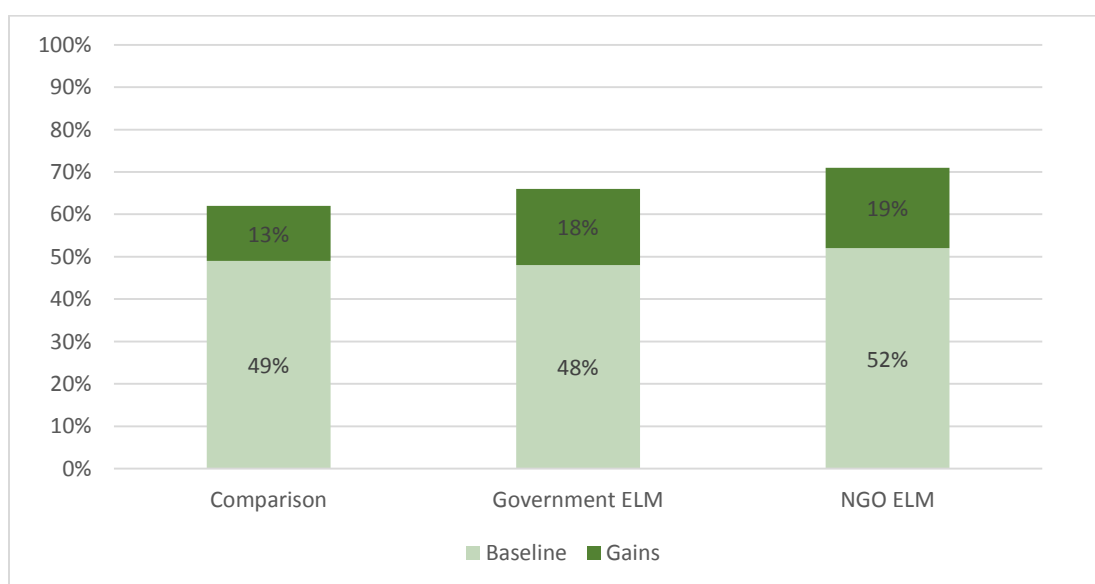
Emergent Numeracy

Table 6 displays children’s learning over time in the area of emergent numeracy. **There were no significant differences in total emergent numeracy scores between the groups.** The NGO ELM group scored higher than the Comparison group on number identification. There were no significant differences between the groups in the items of size/length identification, sorting, shape identification, counting, puzzle completion or simple operations. Boys and girls showed no differences on total emergent numeracy.

Table 6. Emergent Numeracy, by group

	COMPARISON		GOVERNMENT ELM		NGO ELM	
	Baseline	Endline	Baseline	Endline	Baseline	Endline
SIZE/LENGTH	99%	97%	98%	94%	99%	96%
SORTING	69%	85%	74%	81%	84%	85%
SHAPE ID	55%	50%	50%	57%	55%	61%
NUMBER ID	6%	35%	5%	43%	3%	52%
ONE-TO-ONE CORRESPONDENCE	59%	71%	57%	85%	67%	85%
SIMPLE OPERATIONS	53%	73%	55%	75%	55%	78%
PUZZLE	0%	23%	0%	33%	0%	37%
TOTAL EMERGENT NUMERACY	49%	62%	48%	67%	52%	71%

Figure 3. Emergent Numeracy



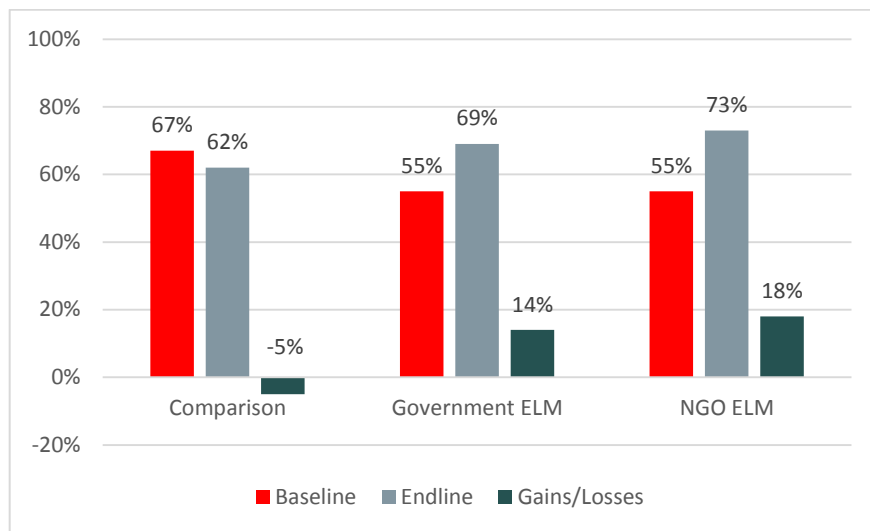
Socio-emotional Development

Table 7 summarizes children’s socio-emotional development from baseline to endline. **Overall, both the NGO ELM and the Government ELM groups gained significantly more than the Comparison group.** In terms of individual items, the Government ELM group gained significantly more than the Comparison group in personal information. The NGO ELM group gained significantly more than the Comparison group in conflict resolution. For this item, the Comparison group experienced negative gains (lower scores at endline than baseline). There were a few other items on the socio-emotional subtest with small negative gains, but this one was the most substantial and it was the main driver of the negative gains for this group in overall socioemotional score. The NGO ELM group gained significantly more than the other two groups in emotional recognition. The Government ELM group gained significantly more than the Comparison group in this item as well. There were no significant differences between the groups on social connections and empathy. There were no statistically significant differences between boys and girls on total socio-emotional development.

Table 7. Socio-emotional development, by group

	COMPARISON		GOVERNMENT ELM		NGO ELM	
	Baseline	Endline	Baseline	Endline	Baseline	Endline
PERSONAL INFORMATION	74%	67%	62%	73%	69%	73%
SOCIAL CONNECTIONS	41%	41%	41%	42%	36%	52%
EMPATHY	76%	78%	61%	84%	63%	85%
CONFLICT RESOLUTION	69%	51%	51%	63%	56%	65%
EMOTIONAL RECOGNITION	77%	74%	61%	86%	49%	89%
TOTAL SOCIOEMOTIONAL DEVELOPMENT	67%	62%	55%	70%	55%	73%

Figure 4. Socio-emotional Development, by group



Executive function

In this study two measures of executive function are used to examine children’s ability to follow mixed instructions (inhibitory control⁴) and remember strings of numbers (short-term memory). There were no

⁴ Cameron Ponitz, C., McClelland, M. M., Matthews, J. S., & Morrison, F. J. (2009). A structured observation of behavioral self-regulation and its contribution to kindergarten outcomes. *Developmental Psychology*, 45, 605–619.

statistically significant differences in gains between any combinations of groups in these items. There were no significant differences between gains made by boys and girls.

Table 8. Executive function, by group

	COMPARISON		GOVERNMENT ELM		NGO ELM	
	Baseline	Endline	Baseline	Endline	Baseline	Endline
SHORT-TERM MEMORY	62%	53%	67%	53%	73%	58%
INHIBITORY CONTROL	75%	74%	71%	72%	77%	76%

Approaches to learning

Finally, several assessor-rated items are included in the IDELA to measure the way in which children approach learning and problem solving. At baseline and endline four questions were asked during the assessment regarding the student’s persistence in completing a given item. The results are shown in Table 9. Persistence increased consistently across the three groups. There were no statistically significant differences between the groups.

Table 9. Approaches to learning (Persistence in tasks)

	COMPARISON		GOVERNMENT ELM		NGO ELM	
	Baseline	Endline	Baseline	Endline	Baseline	Endline
PERSISTENCE	72%	86%	63%	84%	69%	86%

Across all subscales, analyses find that children in NGO ELM group show significant gains over the Comparison group for all indices except numeracy. The Government ELM group shows significant gains over the Comparison group on socio-emotional development only. There are significant gains between the NGO ELM group over the Government ELM group in Emergent Literacy, but no other subscale. The total IDELA Score gains for the NGO ELM group and the Government ELM group are both significantly higher than the gains made in the Comparison group. There is no significant difference between the Government ELM group and the NGO ELM group in total IDELA score gains. There were no differences in sub-indices or in total IDELA scores between boys and girls.

It is important to note that these results do not control for baseline differences between the three groups. They are preliminary. The following section analyzes the results from the Caretaker portion of the questionnaire, exploring whether there are any inherent differences between the groups that should be considered in our final regression analysis.

Finally, we do find significant differences in baseline scores between the different groups: the Government ELM group has significantly lower scores than the Comparison group on total IDELA score and the motor and socio-emotional sub-indices; the NGO ELM center has significantly lower scores than the Comparison group on total IDELA score and the socio-emotional sub-index. Controlling for these differences in baseline scores with the final regressions will further improve our analysis.

Figure 5. IDELA baseline and gain scores, by group

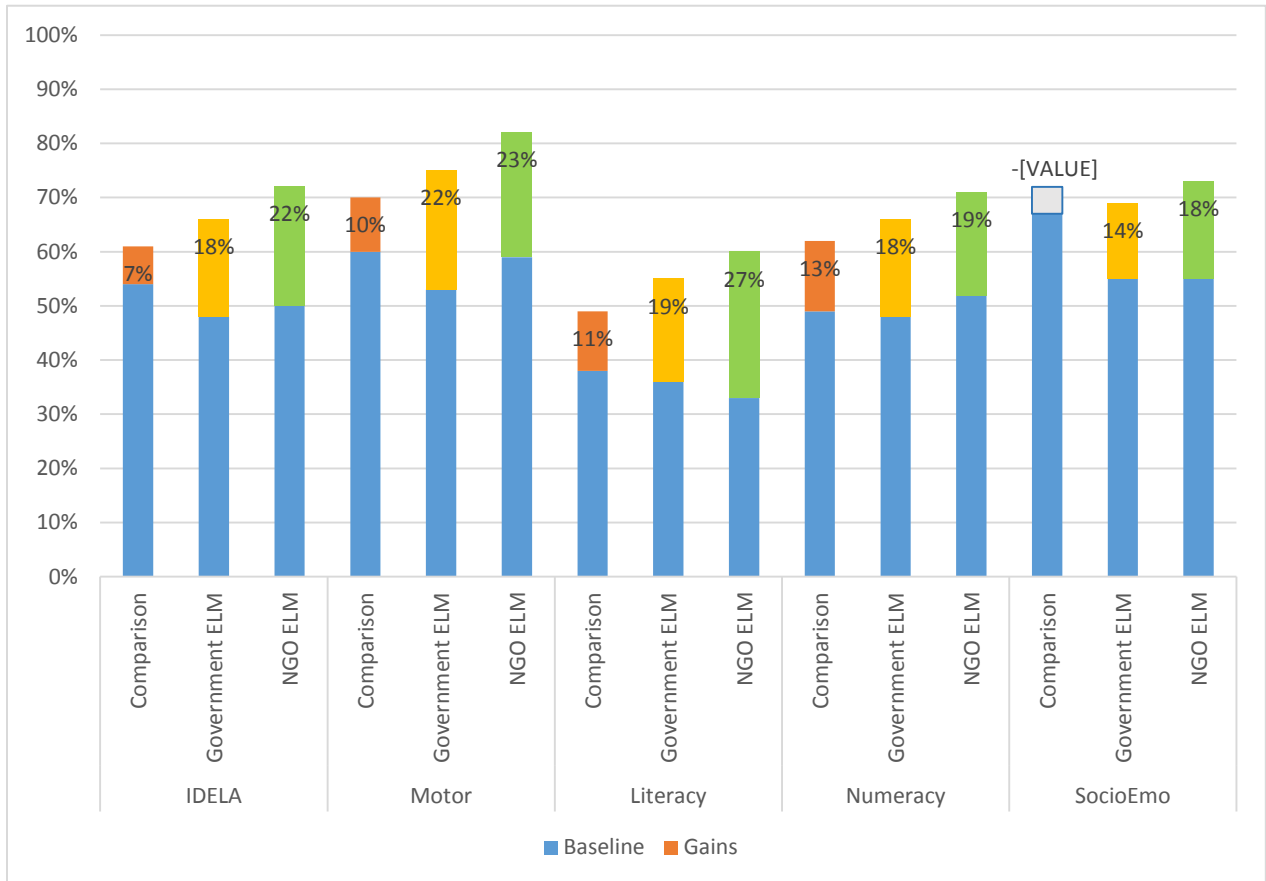
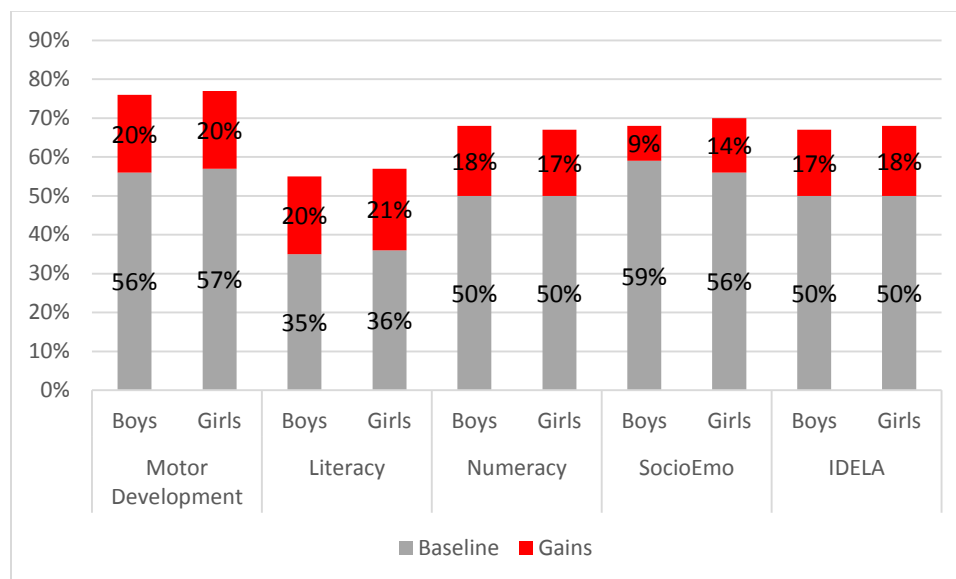


Figure 6. IDELA baseline and gain scores, by gender



Home environment

Family characteristics

Analysis of the family characteristics of the endline sample shows a few differences between the groups. The families in the NGO ELM group were significantly more likely to have a literate mother and/or a literate father, and both parents have a significantly higher level of education in this group than in the other two groups. The families in the NGO ELM group also had a significantly higher number of household possessions and number of children in the household than families in the Government ELM group. These differences will be considered in the regression analysis.

Table 9. Family characteristics, by group (Endline)

	COMPARISON	GOVERNMENT ELM	NGO ELM
CHILD IS FEMALE	49%	60%	59%
CHILD AGE	6	6	6
MOTHER AGE	32	32	31
MOTHER EDUCATION (0 = NONE; 4 = UNIVERSITY)	0.9	0.8	1.3
MOTHER IS LITERATE	43%	41%	61%
FATHER AGE	40	41	41
FATHER EDUCATION (0 = NONE; 4 = UNIVERSITY)	1.0	1.1	1.9
FATHER IS LITERATE	57%	54%	83%
NUMBER OF CHILDREN IN HH	4	4	4
SUM OF POSSESSIONS IN HH	1.2	1.0	1.3

Learning materials

This section describes learning materials found in children’s homes. At baseline, the NGO ELM group has significantly fewer reading materials in the home than the Government ELM group. At endline, both ELM groups have significantly more reading materials than the Comparison group. The NGO ELM group also has significantly more toys in the home than the Comparison group. There were no significant differences between the NGO ELM group and the Government ELM group.

Table 10. Home learning materials, by group

	Comparison	Government ELM	NGO ELM
	Endline	Endline	Endline
Storybooks	45%	74%	84%
Textbooks	40%	73%	81%
Magazine	2%	28%	40%
Religious book	53%	69%	82%
Coloring book	13%	47%	53%
Comic	4%	35%	41%
# types reading material (0-6)	2	3	4
Homemade toy	51%	57%	70%
Manufactured toy	0%	18%	40%
Household object	89%	94%	90%
Outdoor object	0%	87%	83%
Draw	0%	72%	76%
Puzzle	0%	27%	27%
Build	0%	24%	30%
Color	0%	55%	86%
Count	0%	69%	86%
Other	0%	1%	3%
# types of toys (0-10)	1	5	6

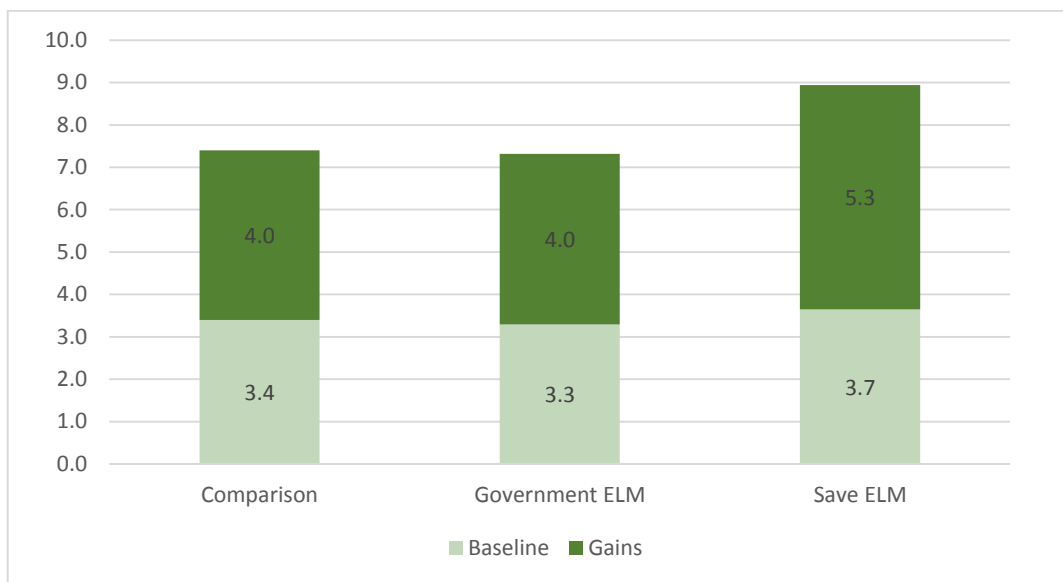
Learning behaviors

This section describes learning behaviors that parents’ report engaging in with their children at home. At baseline, there were no significant differences between the groups in the number of learning and play activities taking place in the home. At endline, parents in the NGO ELM group engaged in significantly more home learning activities with their children than parents in both the Comparison group and the Government ELM group. Negative discipline was reported significantly more in the Comparison group than the Government ELM group at baseline. At endline, significantly more negative discipline was reported in the Comparison group than both the Government ELM group and the NGO ELM group.

Table 11. Home learning activities, by group (Endline)

	COMPARISON	GOVERNMENT ELM	NGO ELM
	Endline	Endline	Endline
READ BOOKS	60%	64%	87%
TELL STORIES	83%	77%	89%
SING	64%	63%	85%
TAKE OUTSIDE	51%	55%	76%
PLAY	72%	82%	90%
NAME THINGS/DRAW	96%	84%	99%
TEACH NEW THINGS	66%	67%	90%
TEACH ALPHABET	87%	75%	91%
TEACH NUMBERS	77%	79%	91%
HUG	85%	85%	94%
# LEARNING/PLAY ACTIVITIES (0-10)	7	7	9

Figure 7. Learning and play activities, by group



Parenting attitudes

This section reviews parents' attitudes towards their role in their children's development. Table 12 shows that parents in all three groups improved their views over the course of the assessment. There were no statistically significant differences in gains between the groups.

Table 12. Parental attitudes, by group

	COMPARISON		GOVERNMENT ELM		NGO ELM	
	Base	End	Base	End	Base	End
I PLAY A CRUCIAL ROLE IN MY CHILD'S PHYSICAL AND COGNITIVE DEVELOPMENT.	3.0	3.0	3.0	3.0	3.1	3.3
IT IS IMPORTANT TO TAKE A GOOD CARE OF CHILDREN AT AN EARLY AGE.	3.0	3.1	3.0	2.8	3.0	3.3
ALTHOUGH I AM VERY BUSY WITH MY WORK, I CAN MAKE ENOUGH TIME FOR MY CHILD IN ORDER TO TAKE CARE OF HIM/HER.	3.0	3.0	3.0	3.0	3.0	3.2
KNOWING HOW TO READ AND WRITE IS IMPORTANT FOR MY CHILD TO HAVE A GOOD/PRODUCTIVE LIFE.	3.0	3.2	3.0	2.8	3.0	3.3
I WILL ENCOURAGE MY CHILD TO COMPLETE AT LEAST SECONDARY SCHOOL (I.E., SSC).	3.0	3.1	3.0	3.1	3.0	3.2
I THINK I CAN TEACH MY CHILD IMPORTANT SCHOOL READINESS SKILLS AT HOME	2.3	3.0	2.0	2.8	2.1	3.2
I THINK MY CHILD CAN LEARN A LOT OF SKILLS BY PLAYING	2.0	3.0	2.1	3.0	2.4	3.2
I TALK TO CHILD WHILE DOING HOUSEHOLD WORK.	2.3	2.3	2.4	2.1	2.3	3.0
I PRAISE MY CHILD WHENEVER HE/SHE DOES SOMETHING IMPRESSIVE.	3.0	3.1	3.0	3.3	3.0	3.3
TOTAL SCORE	24.6	26.8	24.4	25.8	24.9	29.0

Learning equity

Multivariate regressions clustering for children within the same school were used to investigate drivers of early learning and development. Also, given that some important differences were found between children and parents in the different intervention groups at baseline, including baseline IDELA scores, multivariate analyses were run to investigate children's learning gains controlling for relevant background characteristics and baseline skills.

These analyses find that, when controlling for background differences, children in the NGO ELM group gained significantly more on the motor, emergent literacy and socio-emotional sub-indices than the Comparison group. There were no significant differences between the three groups on numeracy. On the composite IDELA score, the NGO ELM group gained significantly more on total IDELA score than only the Comparison group. The Government ELM group's gains, when controlling for background characteristics, were between the Comparison group and the NGO ELM group. They were not significantly more than the Comparison group or significantly less than the NGO ELM group on any sub-index or on total IDELA score. A complete regression output for IDELA score and sub-index gains is found in Appendix A.

It is interesting to note that the drivers of IDELA score gains in the Government ELM group were child age, mother's literacy, years in ECCD and total home learning activities. The magnitude was not large - the impact of these factors is statistically significant but small. However, it is worth considering that these factors were not influential determinants in the other groups. See Appendix B for a complete regression output by group. A focus on younger students, with less literate mothers and fewer home learning activities in the Government ELM group may be a starting place to improve implementation in that context and drive significant learning gains closer to those in the NGO ELM group.

Finally, it is important to note that gains of the Government ELM group over the Comparison group were present in initial t-test analyses that did not control for these background characteristics. This could have been the result of the baseline differences between the groups, or because the sample size is too small to detect an effect with the controls. It is also true that, given the lower baseline scores for the Government ELM and NGO ELM groups, gains were equitable across the range of students, with the lowest students gaining more. Controlling for the baseline differences does not exhibit this important effect.

Studying the determinants of baseline IDELA scores, child age appears as a significant determinate factor. This factor persists as a driver of gains in IDELA scores, only in the Government ELM group, with older children scoring higher.

Conclusion

This study examines three groups of students: students in the standard Government O-Level class (Comparison Group), students in the standard Government O-Level class that receive ELM interventions (Government ELM Group), and students at Save the Children ECD centers that receive ELM interventions (NGO ELM Group). Data was collected at baseline and endline, with nearly 8 months of implementation in between.

The results of the study show significantly higher gains in overall IDELA scores, along with the motor, emergent literacy and socioemotional sub-indices, for children in the NGO ELM group, compared to the Comparison group (with no ELM). There were no statistically significant differences in gains between the Government ELM group and the Comparison Group, or between the NGO ELM group and the Government ELM group when controlling for background characteristics. However, gains were present in preliminary analyzes, without the controls, between the Government ELM group over the Comparison group on the total IDELA score and socio-emotional sub-index. It is important to note that though the effect disappears with the regression controls, it could mean the sample was simply not large enough to detect an effect.

The design of the evaluation also creates the opportunity to examine the effectiveness of ELM implementation in two different contexts: Government O-Level classes, and Save the Children ECD Centers. Children in the Government O-Level class with ELM do not show the same learning gains as children receiving ELM at Save the Children ECD centers. The gains for this group are not significantly

lower the SC ECD group, but they are also not significantly higher than the group without ELM, the government comparison group. It is therefore useful to consider what may be driving these different results between the two implementation locations; an important question for the sustainability and scale-up of ELM interventions.

Next Steps

This study revealed that children in the Government O-Level ELM group who were older, had a literate mother, and/or had more home learning activities, were more likely to score higher in the IDELA assessment. Focused attention on children that do not fall into this group may help boost overall IDELA scores in the Government O-Level ELM group. Or, it may be that there are other factors very different between ELM implementation in the Government schools and ELM implementation in the SC ECD centers. This question is important to explore with the project staff, and to consider in further analyses.

Appendix A

Table A1. Multivariate equity analysis results clustered by school, all children

VARIABLES	(1) Motor Gains	(2) Emergent Literacy Gains	(3) Emergent Numeracy Gains	(4) Socio- Emotional Gains	(5) IDELA Gains
Sum HH Possessions	-0.0330* (0.0127)				
Father's Age	-0.00364** (0.00100)				-0.00129 (0.000674)
Child is Female	0.000681 (0.0207)	0.00144 (0.0218)	-0.0219 (0.0178)	0.00235 (0.0167)	-0.00365 (0.0141)
Child's Age	0.0428* (0.0193)	0.0654** (0.0191)	0.0534** (0.0187)	0.0348 (0.0195)	0.0460** (0.0145)
Gov O-Class ELM Group	0.0614 (0.0552)	0.0550 (0.0383)	0.0662 (0.0380)	0.0818 (0.0411)	0.0732 (0.0383)
SC ECD ELM Group	0.135** (0.0476)	0.0992* (0.0393)	0.0685 (0.0356)	0.109* (0.0424)	0.111** (0.0361)
Baseline Motor	-0.845*** (0.0656)				
Sum HH Toys		0.0483** (0.0138)	0.0564** (0.0169)		0.0349* (0.0146)
Sum Negative Activities		-0.0536* (0.0238)			
Baseline Literacy		-0.934*** (0.107)			
Sum Home Learning Activities			0.0136 (0.00733)		
Years in ECCD			-0.0466 (0.0259)		
Baseline Numeracy			-0.885*** (0.121)		
Baseline Socio-emotional				-0.962*** (0.0683)	
Baseline IDELA Score					-0.770*** (0.0793)
Constant	0.541*** (0.121)	0.0281 (0.105)	0.222 (0.125)	0.397** (0.120)	0.223* (0.0811)
Observations	237	237	237	237	237
R-squared	0.413	0.360	0.270	0.501	0.319
r2_a	0.395	0.340	0.245	0.490	0.298

Robust standard errors in parentheses

*** p<0.001, ** p<0.01, * p<0.05

Appendix B

Table B1: Drivers of IDELA Gains by Treatment Group

VARIABLES	(1)	(2)	(3)	(4)
	Full Sample	IDELA Gains by Group Comparison		SC ELM
Socio-Economic Status <i>(Bedroom + Radio + TV + Fridge + Mobile)</i>	0.00933 (0.00481)			
Time Spent with Mother	-0.0253* (0.0113)			-0.0288* (0.0123)
Child Sex	-0.00753 (0.00923)	-0.0272 (0.0220)	-0.00912 (0.0102)	0.0123 (0.0155)
Child Age	0.0193* (0.00761)	0.00366 (0.0288)	0.0255* (0.0112)	0.00716 (0.0118)
Care Efficacy Score <i>Sum of Caretaker's Attitudes towards Parenting</i>		-0.0561* (0.0131)		
Mother is Literate			0.0366* (0.0158)	
Years Spent in ECCD			0.0635* (0.0218)	
# Home Learning Activities			0.0116* (0.00450)	
Father's Education <i>(0=None; 4=University)</i>				0.0107 (0.00547)
Father is Literate				-0.0416* (0.0135)
# of Children in HH				-0.00575 (0.00334)
Constant	0.428*** (0.0424)	1.910** (0.329)	0.166 (0.0805)	0.541*** (0.0694)
Observations	237	47	97	93
R-squared	0.053	0.098	0.138	0.180
r2_a	0.0367	0.0355	0.0905	0.123

Robust standard errors in parentheses

*** p<0.001, ** p<0.01, * p<0.05