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Education Data Activity

USAID EDUCATION DATA ACTIVITY
EARLY CHILDHOOD EDUCATION

Research Study Design

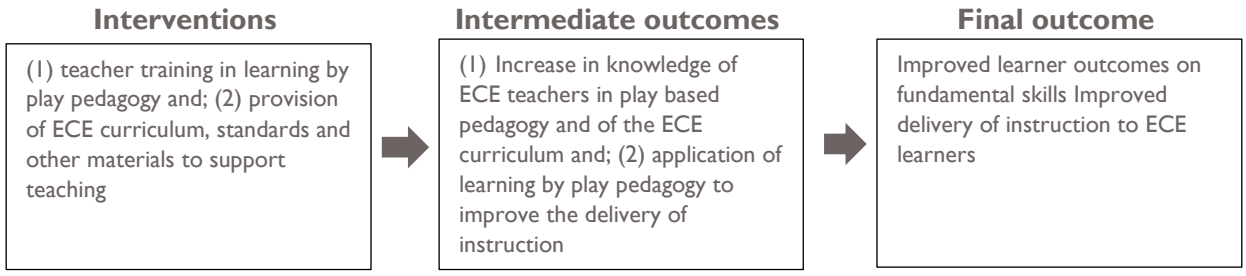
EDUCATION DATA ACTIVITY, PHOTO TAKEN WITH CONSENT

OVERVIEW

USAID Education Data activity proposes conducting an ECE research study – a baseline in January 2020 and an end line in January 2021. Based on the Education Symposium, the recommendations from the MoGE Research Coordinating Committee Workshop in addition to other discussions with the ECE Directorate, ECE has been identified as an area of keen interest for research. The initial baseline study will: (1) answer key fidelity of implementation questions of interest to the MOGE and; (2) establish a baseline level of ECE teachers' pedagogy and ECE learner outcomes in the absence of an intervention and (3) examine differences in skills among learners who attended ECE and those that did not. The end line study will assess changes over the course of a year in teachers' pedagogy and learner outcomes in several domains of early childhood development. Due to limitations in time to carry out more than two points of data collection and a lack of a valid control group[1], this study is neither an impact evaluation nor a longitudinal study. Nonetheless, Education Data activity believes this study will provide pertinent information to both Let's Read and the MoGE to inform decision making.

The ECE Research Study was designed based on Education Data activity's understanding of Let's Reads ECE interventions, which are summarized in Figure 1.

Figure 1. Let's Read ECE Intervention



RESEARCH QUESTIONS

BASELINE RESEARCH QUESTIONS

- What are the baseline levels of cognitive, pre-mathematics and pre-literacy, social and emotional and language measures of learners who have just entered ECE?
- What differences in cognitive, pre-mathematics, pre-literacy, social and emotions skills, if any, can be observed between Grade 1 learners who attended ECE the year before and those that did not?
- How are ECE teachers teaching the ECE curriculum to ECE learners? What pedagogies do they employ?
- How is the ECE classroom and school environment set up for ECE learners?
- What materials are available and used by ECE teachers to teach the ECE curriculum?

[1] There is no valid control group given that Let's Read will train all ECE teachers in all five target provinces at the same time.

ENDLINE RESEARCH QUESTIONS

- What differences[2] in ECE learners' cognitive, pre-mathematics and pre-literacy, social and emotional and language skills are observed after a year of the Let's Read ECE interventions in comparison to the absence of the ECE interventions?
- In comparison to the baseline observations, what new pedagogies and teacher behaviors can be observed in ECE classrooms?
- In comparison to the baseline observations, how is the ECE classroom and school environment set up for ECE learners?
- In comparison to the baseline observations, what materials are available and used by ECE teachers to teach the ECE curriculum?

ALIGNMENT TO MOGE RESEARCH QUESTIONS

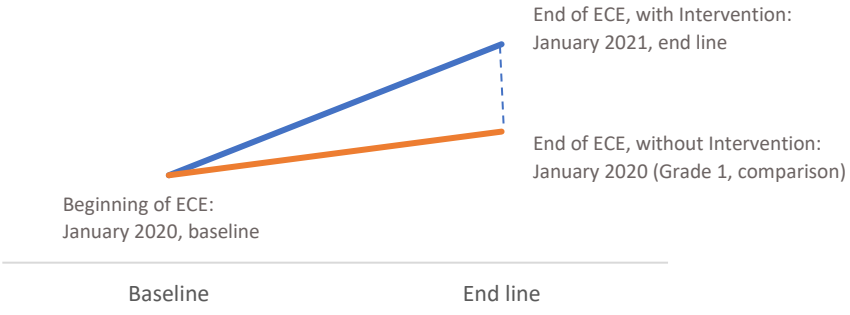
- What is the current availability of infrastructure, specialized teachers, teaching and learning materials for ECE?
- Does the ECE policy align to the implementation in public primary schools in Zambia?
- How is the new ECE curriculum and other materials being implemented in ECE classroom?

RESEARCH METHODOLOGY

The Early Childhood Education Study will utilize a mixed methods approach to collect data using the following tools at both the baseline and end line: (1) Measurement of Early Learning Environment Module (MELE) to conduct classroom observations of ECE teachers and assess the classroom environment and; (2) Save the Children's International Development and Early Learning Assessment (IDELA) tool adapted by Right to Care Zambia to assess ECE learners' motor development, emergent literacy, emergent math and their social and emotional skills.

Through this research design, the ECE Research Study methodology will be able to examine the changes in learner outcomes with and without the Let's Read interventions. Figure 2 below explains how the methodology will make comparisons and draw conclusions.

Figure 2. ECE Learner Outcomes with and without the Let's Read intervention.



[2] In order to be able report, the treatment effect sizes or magnitude of the effect of Let's Reads interventions, at least 80 schools per language and 7 schools per district would need to be included. Due to the budget allocated for research studies, this sample size is not feasible.

Caution: This is not an impact evaluation nor is a study to explore the magnitude of effects (how much) of Let's Read's ECE interventions, given the large sample size that would be required to do so. Instead, this study will examine changes in learner outcomes over time in relation to the ECE interventions by LRZ in addition to changes in teachers' pedagogies and use of materials to deliver the ECE curriculum.

Let's Read will begin rolling out its ECE intervention in April and May 2020. Given that Education Data activity will conduct its baseline classroom observations and checklists in January 2020 alongside learner assessments several months prior to the start of the intervention, it is possible unobserved changes within the first term of the school year (January – March 2020) may influence the differences in results observed in January 2021. Given that the data collection will take place less than two months prior, we think priming effects will be minimal. Evidence suggests that teachers adopt new methods gradually. Nonetheless, the Education Data activity team believes that by including classroom observations and checklists, the research will be able to examine ECE teachers' uptake of new pedagogies and methods introduced in the Let's Read ECE teacher training after seven months implementation to better understand the learner assessment results. Additional information on the study design and its alignment to the research questions is given in the table below.

Table 1. Research Study Matrix: Study Questions, Data Sources, Data Collection Methods and Timeline

Phase	Study Questions	Data Collection Methods	Timeline	Data Collection Tools
Baseline	1. What are the baseline levels of cognitive, pre-mathematics and pre-literacy, social and emotional and language measures of learners who have; just begun ECE 2. What differences in cognitive, pre-mathematics, pre-literacy, social and emotions skills, if any, can be observed between Grade 1 learners who attended ECE the year before and those that did not? 3. How are ECE teachers teaching the ECE curriculum to ECE learners? What pedagogies and materials do they use to teach the ECE curriculum? 4. How is the ECE classroom and school environment set up for ECE learners?	a. Learner assessment b. Classroom observations and assessment of ECE learning environment	a. Data collection: January – February 2020	a. IDELA Tool b. MELE module – adapted to Zambia
End line	1. What differences in ECE' learners' cognitive, social and language skills are observed with the Let's Read ECE interventions in comparison to the absence of the ECE interventions? 2. In comparison to the baseline observations, what new pedagogies and behaviors can be observed in ECE classrooms?	a. ECE Learner assessment b. ECE classroom observation and environment assessment	a. Data collection: January 2021	a. Save the Children's IDELA Tool – adapted by Right to Care Zambia for ECE learners b. MELE module

SAMPLING METHODOLOGY

The sample from the Baseline EGRA conducted in November 2018 will be utilized as the sampling frame for this research study. From the five target provinces, 816 schools were proportionally sampled by seven language of instruction, rural/urban, and type of school from a total of 4,623 that operate in the five target provinces. Among the 816 schools, 270 GRZ schools have an active ECE classroom.

The following steps are proposed to select the **baseline sample**:

1. Randomly select two of the five target provinces
2. Apply selection parameter – include GRZ schools that have at least a 30 -70 distribution in ECE participation within the school to ensure there is a sufficient sample to answer baseline research study question 2.
3. At the school level, randomly select with equal representation of boys and girls up to; (1) up to 10 ECE learners; (2) up to 6 Grade 1 learners who attended ECE last year and; (3) up to 6 Grade 1 learners who did not attend ECE[3].

The same schools that are included in the baseline will be included in the end line, however the learners will not be tracked. This is because there is a high rate of attrition and learner absenteeism in ECE classrooms which could make it difficult to assess the same learners a year later. However, a sample of 10 learners within each ECE classroom will be assessed to ensure learners with various abilities are included within the sample to produce valid conclusions. Table 2 below provides additional information on the sampling frame for this study.

Table 2: Sampling Frame for the Research Study

		Sample Frame (population of schools)	Proposed Sample		
Province	LOI	GRZ+ECE	Schools	Baseline	End line
Southern	Chitonga	77	A total of 52 schools between the two provinces	10 ECE learners per school 12 Gr. 1 learners per school	10 Grade 1 learners who just completed ECE per school
Eastern	Cinyanja	74			
Muchinga	Icibemba	17			
North Western	Lunda	12			
North Western	Luvale	20			
North Western	Kiikaonde	20			
Western	Silozi	50			
Total		270	52	1146	528[4]

INSTITUTIONAL REVIEW BOARD APPROVAL

To prepare to conduct this ECE study, Education Data activity will need to seek Institutional Review Board (IRB) approval. With the proposed methodology, the Education Data activity would seek IRB

[3] Some schools may not have the number of learners we intend to assess and as such the total numbers presented are estimates. The final number will be determined upon arrival at each of the sampled schools when school enrollment is verified.
[4] Statistical analysis has determined that a minimum sample size of 264 learners per treatment and control for a total of 528 learners drawn from 52 schools are required to be able report that differences in mean scores of 5 percent are statistically significant.

approval through the University of Zambia, which typically takes between one month for a decision depending on when the IRB committee meets and if it is expedited.

DATA COLLECTION TOOLS

1. **Learner Assessment:** Save the Children's IDELA Tool, adapted to Zambia by the Zambia Right to Care. The IDELA tool was first utilized in 2013 by Save the Children with a sample of 262 ECE learners, and the pilot testing demonstrated its reliability and validity for the Zambian ECE context. All internal consistency measures, including inter-rater reliability and re-test reliability for each domain were found to be above 0.75. Given this, Education Data activity thinks it is an appropriate measurement tool to assess ECE learners within Zambia. In addition, since it assesses multiple domains of early childhood development, it is a valid assessment of Let's Read's ECE interventions.

   Table 2. Core domains of the IDELA Tool[5]

Gross and Fine Motor Development	Emergent Literacy and Language	Emergent Numeracy	Socio-emotional Development
Hopping on one foot	Print awareness	Measurement and comparison	Peer relations
Copying a shape	Expressive vocabulary	Classification/Sorting	Emotional awareness
Drawing a human figure	Letter identification	Number identification	Empathy
Folding Paper	Emergent writing	Shape identification	Conflict resolution
	Initial sound discrimination	One-to-one correspondence	Self-awareness
	Listening comprehension	Simple operations	
		Simple problem solving	
Approaches to Learning: Persistence, motivation and engagement			

2. **Classroom observation and school environment:** MELE modules (from MELOQ tool), which was already pilot tested by CAPOLSA in Zambia to examine its applicability and usefulness for assessing ECE classrooms in Zambia. The report, authored by CAPOLSA with support from VVOB, makes recommendations on further adaptations that should be made to increase its applicability. Education Data activity will review these recommendations to revise and finalize the tool with input from the MoGE ECE Directorate and other key stakeholders before data collection takes place. Given the MELE tool assesses bot teachers' pedagogy through its classroom observation as well as relevant factors from the ECE environment, Education Data activity believes it is the right tool for this study.

[5] Source: https://www.savethechildren.org/content/dam/global/reports/education-and-child-protection/IDELA-tech-wrkppr-15.pdf