

The **LEGO** Foundation



**Save the Children**



# Assessing Learning and Development Gains: The case of ASR Baseline and Endline Study

## LEGO Foundation Childhood Development Activity (CDA)



# Contextual Background

## N.Ethiopia experienced

Complex and multi-layered emergency including conflict, climatic shocks, & related displacement

## S. Ethiopia Experienced

Experienced a prolonged drought

These affected over 20mil, forcing 7.8 million children out of school of which 8% pre-school aged.



In response, CDA created opportunities for preschool aged young children to participate in quality play-based programming that:

**Increases overall  
wellbeing**

**Improves learning  
outcomes and holistic  
development skills**

**Ensures transition  
readiness to primary**

**3-step healing and  
learning process**

**Calm**

**Process**

**Connect**

# ACTIVITY BACKGROUND

**Goal:** Improved early learning and holistic development outcomes for pre-primary school children in emergency contexts.

**Main Objective:** Increase opportunities for preschool-aged children (ages 3 - 6+), prioritizing children affected by crisis and conflict including refugees and IDPs to participate in quality play-based, pre-primary programming that increases their overall well-being and improves early learning outcomes and holistic development skills.

**Direct reach:** 200,000 to 339,800 learners; **Indirect reach:** 1.8 million children and adults in Ethiopia's emergency-affected areas

## Thematic area

Education in Emergency

## Activity Timeframe

5 years:

December 2022 - November 2027

## Geography

\* Conflict-affected regions of Northern Ethiopia: Amhara, Afar & Tigray (28 districts)

\* Drought-affected regions of Southern Ethiopia: Oromia and Somali (21 districts)

## Partners

1. Amhara Development Association (ADA)
2. Wag Development Association (WDA)
3. Afar Pastoralist Development Association (APDA)
4. Action for Integrated Sustainable Development Association (AISDA)
5. Ethiopian Orthodox Tewahido Church Development Inter Church Aid Commission (EOTC-DICAC)
6. Oromia Development Association (ODA)
7. Organization for Welfare and Development in Action (OWDA)





# Inception Phase ASR 2023

- Established 239 ASR LCs across 26 districts, mainly IDP and host communities.
- Trained 318 facilitators using 18 TOTs.
- Implemented Learning through Play (LtP) pedagogy that promotes a holistic, play-based learning experience for children.
- Distributed 128 sets of Montessori materials to promote play-based learning



# Inception Phase Contd...

- Enrolled 13,052 children across 3 conflict and 2 drought-affected regions. Out of these, 12,500 preschoolers (aged 6+ years) completed the ASR program with 10,700 (85.6%) transitioning to primary.
- 2,618 age 3&4 children reached at home with ELM at home program
- Extensive capacity building, community engagement, and adaptation strategies to address the unique challenges presented by the crisis context.
- 5700 cartons of High Energy Biscuits distributed to learning centers to feed 7,635 children.





# Year 2- 2024 ASR Program

- Established 215 Learning centres
- Prepared 21 TOTs, and trained 429 facilitators, reaching 11,141 children
- Delivered play-based activities over eight weeks
- Strategically retaining and upskilling experienced co-facilitators who had already undergone comprehensive play-based methodology training greatly contributed to the success.



# Purpose of the Study

- In alignment with the Childhood Development Activity Theory of Change, the purpose of this study was to understand the extent to which children participating in the ASR improved their early learning skills.
- Specifically, in the first stage, the study aims to measure the participating children's early learning and development before and after participating in the ASR program.
- In a second stage, the study planned to track these children into Grade 1 to see if their achievement is higher compared to those children with no exposure to ASR.



# Research Questions

Accelerated School Readiness Study Research Questions	ASR Study Stage
Research question 1: What is the completion and transition rate into primary school of children participating in ASR?	Stage 1
Research question 2: To what extent do children participating in ASR significantly improve their early learning skills and development?	
Research question 3: Is the learning achievement for children who participated in the ASR program higher in Grade 1 compared to those that had not have any access to pre-primary education?	Stage 2
Research question 4: Are drop-out rates during Grade 1 lower for children who participated in the ASR program compared to those that had not have any access to pre-primary education?	



# Study Hypothesis

The study formulated two hypotheses:

**Study Hypothesis 1:** Children participating in the eight-week ASR program will complete the program and transition into primary-school Grade 1 at a rate of at least 90%.

**Study Hypothesis 2:** Children participating in the eight-week ASR program will gain at least 0.50 standard deviations in IDELA scores; in other words, their score will increase by at least 10 percentage points.

# Methodology

## The First Stage

The first stage of the Study employed:

- **A panel design involving baseline and endline quantitative data collection** to measure the learning of children participating in ASR over time.



# Methodology Contd...

To answer Research Question 1, the Study calculated completion and transition rates. Completion rate was defined as the rate of children who completed at least 80% of the ASR program among those who enrolled in the ASR program.

To answer Research Question 2, the Study used existing evidence about the expected natural increase to early learning skills in a *status quo* population in the absence of a random comparison group from the target population.

# Expected increases to IDELA scores due to two months of natural development

To estimate the gains to early learning and development skills resulting from the ASR program, the Study compared two populations:

(1) the population of children who attended 8 weeks of ASR (intervention group), against,

(2) children in a *status quo* population who did not participate in ASR (comparison group).

The Study measured the variable of interest – early learning and development skills - with the International Development and Early Learning Assessment (IDELA) tool.

	Effect size for a year of age (standard deviations)	Effect size for two months of age (standard deviations)	Expected increase to IDELA scores for two months of natural development
Motor	0.4519	0.0753	1.9 percentage points
Literacy	0.4012	0.0669	1.7 percentage points
Numeracy	0.4278	0.0713	1.8 percentage points
Social-emotional	0.3097	0.0516	1.3 percentage points
IDELA overall score	0.4815	0.0802	2.0 percentage points

# Sampling Approach

The sampling methodology and parameters are summarized below.

- **Target population:** LEGO Foundation implemented the ASR program for approximately 11,100 children in 215 learning centers operated by seven local implementing partners across the five target regions.
- **Sample frame:** updated listing of ASR learning centers and enrolled children
- **Primary sampling units:** Woredas
- **Secondary sampling unit:** ASR learning center
- **Tertiary sampling unit:** children
- **Strata:** implementing partners
- **Response rate:** expected at a minimum of 85%
- **Sampling procedure:** random, stratified, cluster sampling in 3 stages, with oversampling of woredas in Afar region
- **Sample weights:** calculated for the final sample to adjust for probability selections and oversampling.
- **Tool translation**
- **Inter-rater reliability testing**
- **Data collection methods:** IDELA child assessment, direct child assessment and observation, using KOBO toolbox



# Samples

Region	Implementing partner	ASR program population		ASR Study sample	
		Number of centers	Number learners	Number of centers	Number of learners
Oromia	ODA	51	2,659	24	150
Somali	OWDA	42	2,100	34	122
Total drought-affected regions		93	4,759	58	272
Tigray	EOTC DICAC	38	1,911	9	110
Amhara	WDA	30	1,652	6	85
Amhara	ADA	50	2,572	10	109
Afar	APDA	2	176	1	27
Afar	AISDA	2	71	3	27
Total conflict-affected areas		122	6,382	29	358
Total ASR program		215	11,141	87	630

Power calculations indicated that this sample would allow detecting an increase of **5 percent points** to IDELA scores before and after the ASR program;

This is, at least, a change of .25 standard deviations, with a power of 80% and a significance level of  $p=0.05$ .

# Sampling Parameters

To determine the sample size, we carried out a power calculation for a clustered sample allowing to detect changes to IDELA scores before and after the ASR program, using the following parameters.

- Alpha ( $\alpha$ ): 0.05
- Power: 0.80
- Mean IDELA score at baseline ( $m_1$ ): 60.0
- Mean IDELA score at endline ( $m_2$ ): 65.0
- IDELA score standard Deviation (SD): 20.0
- Intraclass Correlation Coefficient ( $\rho$ ): 0.15

# Data Collection Tool

- Rigorous research has established IDELA as one of the few validated tools to reliably measure early learning and development in varied contexts at the global level, and its psychometric properties have been established for Ethiopia.
- Importantly, IDELA is the only early learning assessment that is predictive of future learning outcomes in primary school in a sub-Saharan African country.. The current Study used the version of IDELA that has been extensively used in Ethiopia.
- Analysis of the data collected for the ASR assessment confirmed the tool's excellent reliability at baseline (92%) and endline (85%). Domain-level reliability
- To calculate completion and transition rates, the Study used ASR enrollment, daily attendance records, and Grade 1 enrollment information provided by the local implementing partners.

The Study used the **International Development and Education Learning Assessment (IDELA)** to measure children's early learning skills.



# Data Analysis Approach

The purpose of study was to measure the change score from baseline to endline. Thus, the data analysis involved three steps:

- (1) calculation of overall and domain-level IDELA scores, following standard procedures;
- (2) calculation of baseline to endline change scores, for each IDELA score;
- (2) adjustment of the gains at endline to account for the expected change due to two months of natural development, by subtracting 2 percentage points from the endline change score for the overall IDELA and domain-level scores.

For example, if the ASR IDELA baseline to endline change score was 10, and the expected natural change in the hypothetical *status quo* group is 2, then the change correlating with the ASR program is  $10 - 2$ , a change of 8. This is repeated at the level of each IDELA domain and item.

# IDELA Assessment Results

# IDELA Key Findings

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## Completion and Transition Rates

Of the 11,141 children enrolled, 10,462 completed 80% of the program, corresponding to a 94% completion rate.

10,327 (93%) transitioned into primary.

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## Gains to Early Learning Skills

Children participating in ASR improved their early learning skills by 28 percentage points. Learning gains were observed for all measured school readiness domains.

After attending ASR, children also demonstrated more attention to instructions, heightened confidence and motivation to complete tasks, and an increase in curiosity and pleasure in participating in the assessment learning tasks.

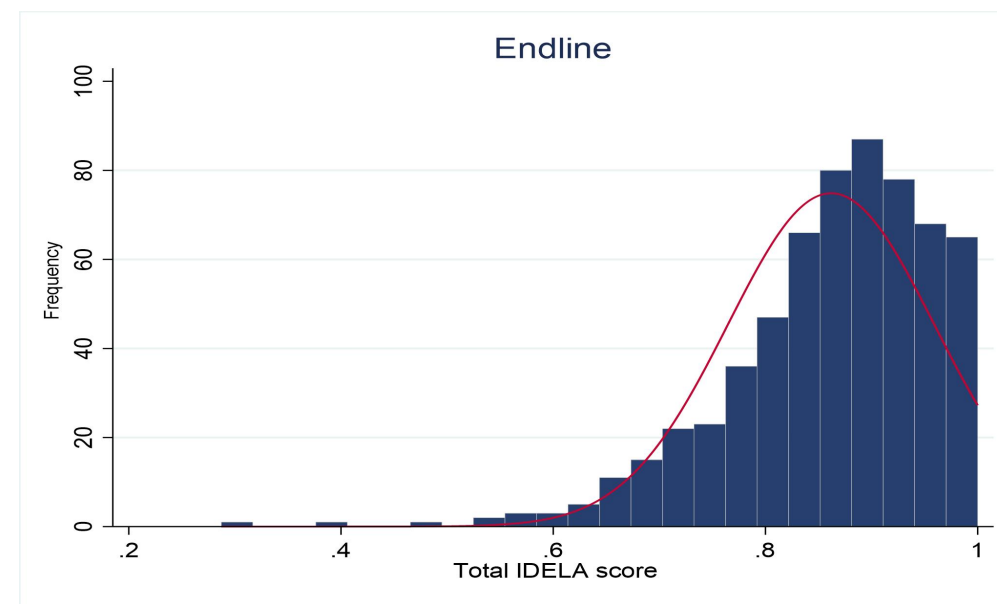
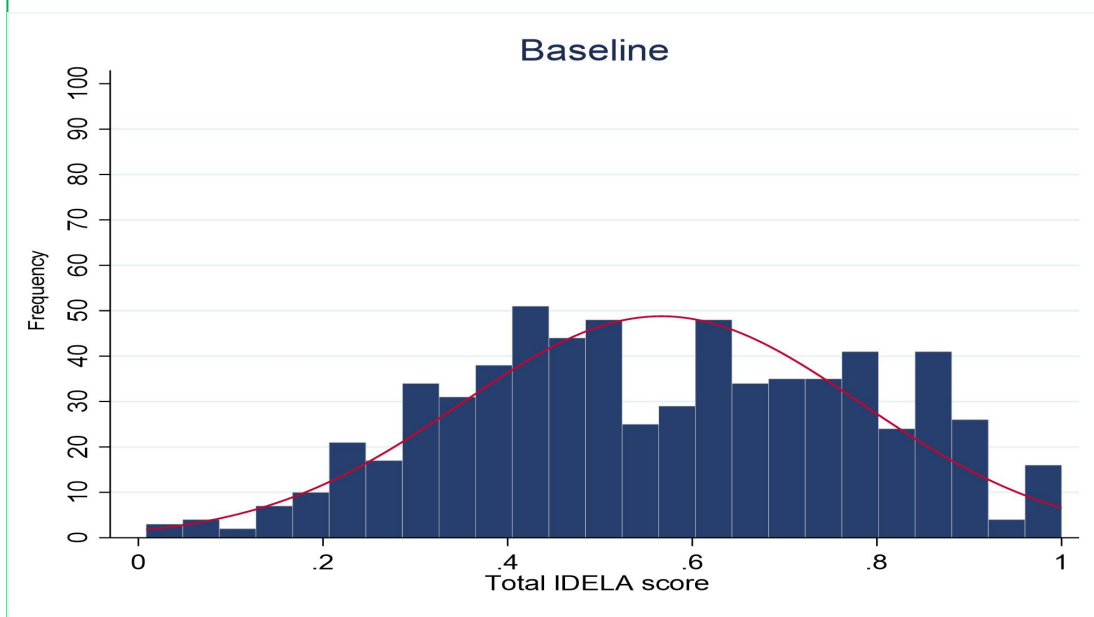
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- **The variability of IDELA scores among children attending ASR was markedly reduced at endline indicating that the program effectively pared down disparities in early learning skills among children in the target population.**

Figure: Distribution of early learning scores at baseline and endline as measured using IDELA



# Change in total IDELA scores in ASR intervention population compared to *status quo* population

- ✓ Children's early learning skills, as measured by IDELA, increased from an average of 56% at baseline to 86% at endline.
- ✓ After discounting for the increase in IDELA scores expected for two months of natural development (2%), children gained on average 28 percentage points in early learning skills.

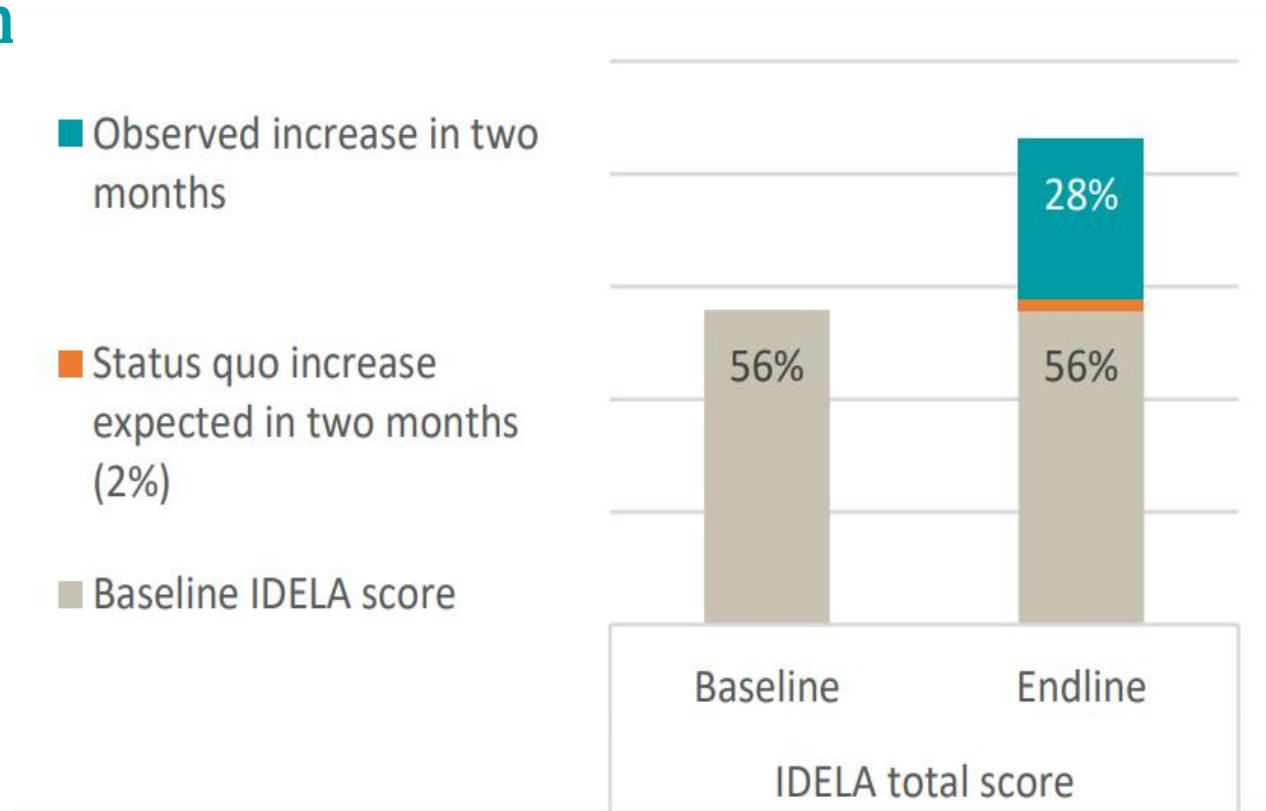


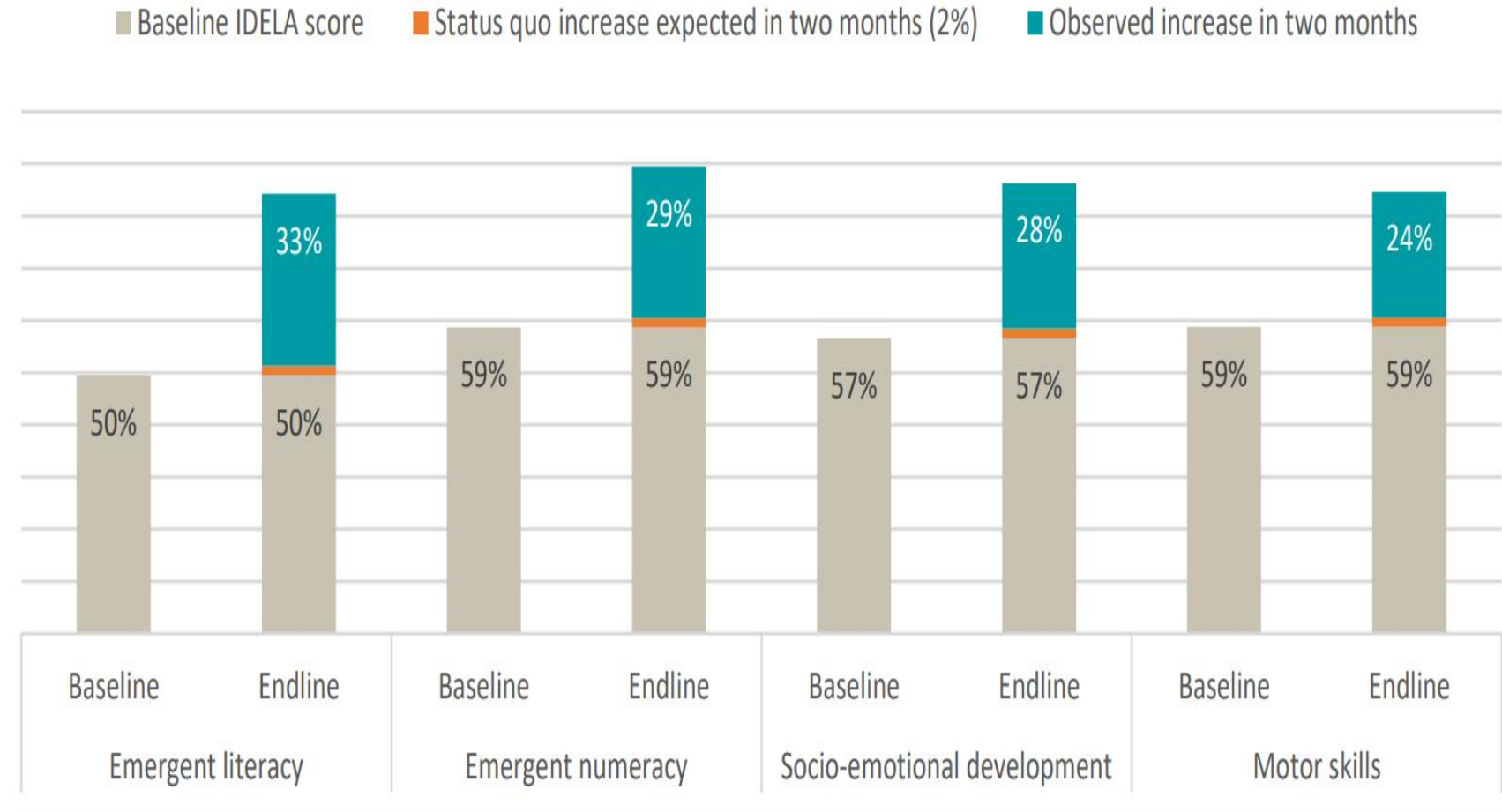
Figure 1: Average early learning score at baseline and endline as measured using IDELA, Ethiopia 2024

# Domain-level Early Learning Gains

After attending ASR, children significantly improved their performance for all tasks assessed by IDELA.

Notable improvements were observed for letter and number identification, print awareness.

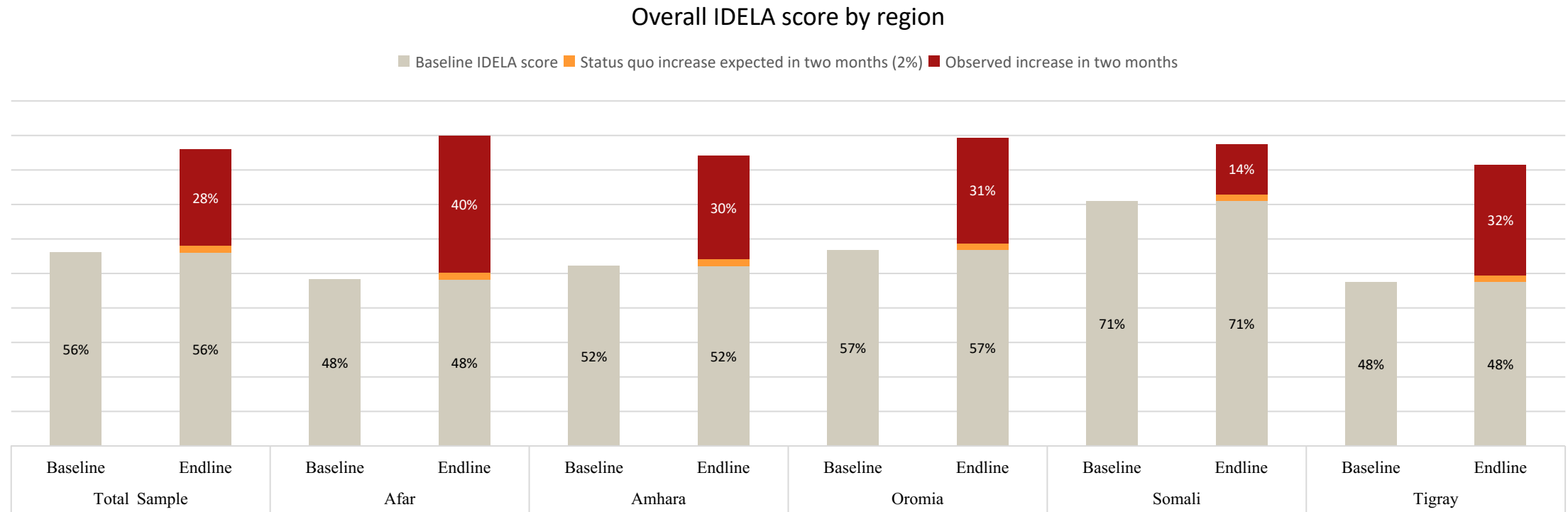
At endline, nearly all children have mastered concepts about personal identity (like their names, age and sex), size and length, print and were able to understand the content of simple stories.



# Gains by child's sex and by region

The analysis did not find any differential gains by child's sex - both boys and girls increased their IDELA score at similar rates.

Table 5: Accelerated School Readiness program IDELA scores at baseline and endline, by sex







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