LASER PULSE

Long-term Assistance and Services for Research (LASER) Partners for University-Led Solutions Engine (PULSE)

Bar ama Baro - "Teach or Learn"
Somalia's Accelerated Quality Learning Program
Final Evaluation

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About LASER PULSE

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LASER PULSE collaborates with USAID missions, bureaus, independent offices and other local stakeholders to identify research needs for critical development challenges, and funds and strengthens capacity of researcher-practitioner teams to co-design solutions that translate into policy and practice.

TABLE OF CONTENTS

ACKNOWLEDGEMENTS 2
Table of Figures 6
Table of Tables 7
Abbreviations and Acronyms 8
Somalia BAB External Evaluation: Executive Summary 11
1. Effectiveness of Bara Ama Baro (BAB) Accelerated Basic Education (ABE) Program 11
2. Learning Outcomes of Diverse Students 12
3. Lessons Learned and Recommendations 13
1 How We Got Here 15
1.1 Background 15
1.1.1 Evaluation questions 15
1.1.2 Theory 16
1.2 Methodology 17
1.2.1 Evaluation design 17
1.2.2 Longitudinal sample 17
1.2.3 Data collection instruments and instrument development 18
1.2.4 Data collection 21
1.2.5 Quality assurance 22
1.2.6 Data analysis 23
1.3 Cost Analysis 23
1.3.1 Study objectives 24
1.3.2 Cost analysis methodology 24
1.4 Challenges and Limitations 25
1.4.1 Comparison group 25
1.4.2 Sample size, fluidity, and attrition 25
1.4.3 Fidelity of implementation 26
2 Effectiveness of BAB in improving access to quality education for Somali OOSCY 27
2.1 BAB increased access for underserved learners. 28
2.2 BAB retained students at about the same rate as formal primary schools 29
2.3 BAB promoted nearly all level 1 students to level 2 31

2.4 BAB promoted some students without adequate preparation 32
2.5 Empirically derived reading proficiency benchmarks 33
2.6 Insufficient pathways and infrastructure hamper BAB student transitions – especially in rural areas. 34
Transitions Pathways Case Study 35
2.7 BAB students and teachers generally perceive school as a safe space 38
2.8 BAB and formal primary students gained proficiency in both literacy and numeracy 40
2.9 BAB student literacy and numeracy gains exceeded gains made by formal primary students over two years 43
2.9.1 EGRA and EGMA subsection scores 45
2.10 Costs associated with increasing learner proficiencies and program scaling 47
2.10.1 The cost per student to increase learners' proficiency levels in reading and math skills (e.g., non-learners, basic learners, emergent learners, etc.) 48
2.10.2 The cost per student of expanding the BAB reading, math, and SEL intervention package in intervention areas (USAID perspective) 50
2.10.3 The cost per student of expanding the BaB reading, math, and SEL intervention package in intervention areas (The Government of Somalia's perspective) 51
2.11 Student perceptions of hope increased significantly in one academic year for both BAB and formal primary school students 52
3 How do learning outcomes of diverse learners differ across school type, demographics, and geographic variables? 53
3.1 Access to education is uneven and inadequate 56
3.2 The most vulnerable members of Somali society are also most at risk for school attrition 59
3.2.1 Students from lower SES families are more likely to leave school. 61
3.2.2 Clan affiliation and student primary dialect influenced retention. 62
3.2.3 Student retention varied by state ranging from a low of 24% in South-West to 65% in Hirshabeelle. 62
3.3 Community involvement is key to student retention. 63
3.3.1 The cost of community engagement per student 63
Community ownership case study 65
3.4 Location and demographics influence academic and SEL outcomes 68
3.4.1 Cohort students attending school in IDP locations showed lower academic performance in year 1, but strong EGRA, EGMA, and hope scores in year 2. 68
3.4.2 Student primary dialect influenced learning outcomes. 70
Linguistic Diversity Case Study 71

3.4.3. Learning outcomes varied considerably by State. 74
3.4.4 Older students significantly outperformed younger students in math and literacy. 74
3.4.5 Learning outcomes varied by gender. 75
3.5 Differences at community and school level significantly impact student outcomes 82
3.6 Student perceptions of self, school, and community strongly predict hope 88
3.7 Teacher perceptions of self, school, and community predict their perceptions of both their own and their students' hope 91
Teacher Retention Case Study 95
3.8 The implementation cost for teacher training, per teacher 99
3.8.1 The estimated unit cost of teacher training when scaled up in intervention areas (USAID Perspective) 101
3.8.2 The estimated unit cost of teacher training when scaled up in intervention areas (The Government of Somalia's perspective) 102
3.8.3 The estimated unit cost of teacher training when replicated in new areas. 103
4 Lessons learned and Recommendations 104
4.1 Foster effective community engagement 104
4.2 Explore innovative educational models to increase access and retention 105
4.3 Use empirically determined benchmarks for student promotion 105
4.4 Ensure equitable distribution of resources 106
4.5 Foster an open, reciprocal partnership management style that builds trust 106
4.6 Ensure realistic alignment between budget, activities, and outcomes. 107
4.7 Employ a holistic approach to capacity strengthening 107
Appendix 1: Evaluation Questions 109
Appendix 2: BAB theory of change 112
Appendix 3: EGRA and EGMA level 2 development 113
Appendix 4: Cost analysis 166
Appendix 5: References 185

TABLE OF FIGURES

Figure 1: System of relationships influencing student outcomes 16
Figure 2: Analytical sample of longitudinal cohort students at the beginning of academic year one (2021-2022) by program, location type, and school type 18
Figure 3: Analytical sample of longitudinal cohort students at the end of academic year two (2022-2023) by program, location type, and school type 18
Figure 4: Analytical Approach 23
Figure 5: BAB and Formal Primary Student Retention in their Program over Two Academic Years 30
Figure 6: Longitudinal Cohort Oral Fluency vs Comprehension at the end of grade 2 (level 1) 34
Figure 7: Combined BAB and Formal Primary EGRA and EGMA proficiency by percent at the beginning and end of each academic year 43
Figure 8: Changes in EGRA scores for academic years one and two by program 44
Figure 9: Changes in EGMA scores for academic years one and two by program 44
Figure 10: EGRA Year 1 and Year 2 Baseline to Endline Subsection Score Gains for all Longitudinal Study Students 45
Figure 11: EGMA Year 1 and Year 2 Baseline to Endline Subsection Score Gains for all Longitudinal Study Students 47
Figure 12: Cost Categories that directly contributed to learning outcomes 49
Figure 13: Literacy proficiency for longitudinal cohort at the beginning and end of each academic year by age group 74
Figure 14: Numeracy proficiency for longitudinal cohort at the beginning and end of each academic year by age group 75
Figure 15: Total school EGRA gain for academic year 1 for all longitudinal study BAB schools by district and state 84
Figure 16: Total school EGRA gain for academic year 2 for all longitudinal study BAB schools by district and state 85
Figure 17: Total school EGMA gain for academic year 1 for all longitudinal study BAB schools by district and state 86
Figure 18: Total school EGMA gain for academic year 2 for all longitudinal study BAB schools by district and state 87
Figure 19: Conceptual Student Resilience Model 89
Figure 20: Teacher Training Intervention Implementation Costs 99

TABLE OF TABLES

Table 1: Learner Survey Constructs 19
Table 2: Summary of BAB Accomplishments, Challenges, and Recommendations for Improvements 27
Table 3: Student demographics by school type 29
Table 4: BAB and Formal Primary Retention over Two Academic Years 31
Table 5: Year two performance of student meeting and not meeting year 1 end of year literacy benchmarks 33
Table 6: Combined BAB and Formal Primary EGRA and EGMA proficiency by number and percent of students at the beginning and end of each academic year 41
Table 7: BAB and Formal Primary disaggregated EGRA proficiency by number and percent of students in each category at the beginning and end of each academic year 41
Table 8: BAB and Formal Primary disaggregated EGMA proficiency by number and percent of students in each category at the beginning and end of each academic year 42
Table 9: Change in percent students categorized as established or proficient learner from beginning to end of each academic year by program 43
Table 10: EGRA and EGMA gains by program over two academic years 45
Table 11: Cost categories that contribute to increasing learners' proficiency levels in reading and math skills 48
Table 12: Cost per student of increasing one proficiency level in reading and math skills 50
Table 13: Cost per student of expanding the BAB intervention package in intervention areas (USAID perspective) 50
Table 14: BAB Implementation Costs Before and After Expansion 51
Table 15: Cost per student after expansion of BAB's ABE program (Government of Somalia's perspective) 51
Table 16: BAB and Formal Primary students increase in hope over one academic year 52
Table 17: Summary Demographic and Contextual Impacts on Learner Outcomes, Challenges, and Recommendations 53
Table 18: BAB successes and challenges in reducing barriers to access to education 57
Table 19: Combined BAB and Formal Primary Retention over Two Academic Years 59
Table 20: Cost of community engagement 64
Table 21: Students Perceptions of School Benefit, Equity, Community Engagement and Community Belonging by location type 68
Table 22: Variance by location type for Students Perceptions of School Benefit, Equity, Community Engagement and Community Belonging 69
Table 23: Relationship between location and demographic variables and student literacy normalized median scores (EGRA) over two academic years 76
Table 24: Dunn test results for EGRA percent gain for demographic categories with more than 2 subgroups 77
Table 25: Relationship between location and demographic variables and student numeracy normalized medium scores (EGMA) over two academic years 78
Table 26: Dunn test results for EGMA percent gain for demographic categories with more than 2 subgroups 80

Table 27: Relationship between location and demographic variables and student hope scores at the beginning and end of academic year 2 81
Table 28: Group Assignment of Student Predictors 88
Table 29: Student perceptions of self, school, and community as predictors of learning outcomes model results 90
Table 30: Group Assignment of Teacher Predictors 92
Table 31: Teacher perceptions of self, school, and community as predictors of their own and their students' hope 93
Table 32: Cost for teacher training, per teacher before scaling (up to June 2022) 100
Table 33: Cost for teacher training, per teacher up to June 2023 100
Table 34: BAB's ABE Training Model 101
Table 35: Estimated cost to train a teacher for a day after expansion (USAID perspective) 102
Table 36: Increase in number of schools and classes in the 11 districts 102
Table 37: Estimated cost to train a teacher for a day after expansion (Somalia Government perspective) 103

ABBREVIATIONS AND ACRONYMS

ABE		Accelerated Basic Education
AGES		Adolescent Girls Education in Somalia
ANOVA		Analysis of Variance
BAB		Bar ama Baro
CDCS		Country Development Cooperation Strategy
CEC		Community Education Committee
CFI		Comparative Fit Index
CWPM		Correct Words Per Minute
DDI		Bureau for Development, Democracy, and Innovation
EGMA		Early Grade Math Assessment
EGRA		Early Grade Reading Assessment
ELRC		Evaluation and Learning Research Center

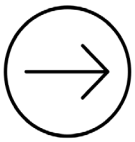
EMIS		Educational Management Information System
ESSP		Education Sector Strategic Plan
EST		Ecological Systems Theory
FOI		Fidelity of Implementation
IDP		Internally Displaced Persons
IDs		Identifications
ISELA		International Social and Emotional Learning Assessment
KII		Key Informant Interviews
L		Level
LASER		Long-term Assistance and Services for Research
MEL		Monitoring, Evaluation, and Learning
MOE		Ministry of Education
MoECHE		Ministry of Education, Culture, and Higher Education
OOSCY		Out-of-School Children and Youth
PULSE		Partners for University-Led Solutions Engine
RAN		Resilient Africa Network
RMSEA		Root Mean Square Error of Approximation
RTI		Research Triangle Institute
SEL		Socio-Emotional Learning
SEM		Structural Equation Modeling
SES		Socio-Economic Status
SLEC		Student Learning in Emergency Checklist
SORDI		Somali Research and Development Institute

TLI		Tucker-Lewis Index
TVET		Technical and Vocational Education Training
USAID		United States Agency for International Development

SOMALIA BAB EXTERNAL EVALUATION: EXECUTIVE SUMMARY

The Bar ama Baro - "Teach or Learn" program (BAB), supported by USAID/Somalia, is a 5-year program, led by Creative Associates, International, that aimed to increase access to quality Accelerated Basic Education (ABE) for out-of-school children and youth (OOSCY) ages 9-16 in targeted areas of Somalia.

This report synthesizes and analyzes findings from a two-year longitudinal evaluation study of the Bar ama Baro project in Somalia that examined (1) BAB effectiveness, (2) learning outcomes of diverse students in BAB Levels 1 and 2 and formal primary education in grades 1 -3, and (3) lessons learned for sustainability and scalability. The data derives from focus group discussions (74), key Informant interviews (127), student surveys and learning assessments (939), teacher surveys (49), and exit surveys with parents and caregivers of non-retained students (665) and non-retained teachers (15). Learning from this work will inform evidence-based decision making in Somalia and elsewhere. This executive summary outlines key findings for each evaluation question.



1. EFFECTIVENESS OF BARA AMA BARO (BAB) ACCELERATED BASIC EDUCATION (ABE) PROGRAM

Key Outcomes of the BAB ABE Program



BAB increased ACCESS to education for Somali children and youth. BAB increased educational capacity in communities and made education more accessible to resource-limited and older students. **See Section 2.1** to learn more about the role of BAB in increasing student access and remaining barriers.



BAB RETAINED students at about the same rate over two years as formal primary schools in the same communities. Retention was a challenge for both formal and BAB students, with attrition levels exceeding 50% over the two-year study period for both groups. Key barriers to retention for all students included sickness, contributions to family subsistence, and migration or relocation. **See Sections 2.2 and 3.2** to learn about the impacts of student, family, school, and community characteristics on student retention.



BAB achieved positive LEARNING OUTCOMES in literacy and numeracy that exceeded formal primary gains. BAB student literacy gains and numeracy gains were significantly higher after one year and higher after two years than the formal primary reference sample gains. **See Section 2.9** for more information about student academic outcomes.

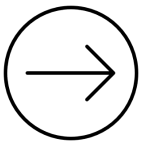


BAB fostered student desire to CONTINUE EDUCATION. Students in the longitudinal cohort overwhelmingly indicated a desire to continue their education in either ABE or aformal education program, with numbers ranging from a low of 87% in Benaadir andHirshabeelle to a high of 96-98% in Jubbaland and South-West. Incentive structures, under- utilization of the education tracking system, and scarcity of education pathways,

particularly in rural and IDP areas, limited student options. **See Section 2.6** for a case study on transition pathways in Somalia.



BAB contributed to student HOPE. Both BAB and formal primary school students identified as hopeful, with significant increases in their perceptions of hope over one academic year. This is notable, as hope is consistently identified as one of the most important predictors of academic success across cultures and is also protective against violent extremist ideologies. **See Section 2.11** for more information about SEL predictors of hope.

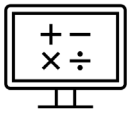


2. Learning Outcomes of Diverse Students

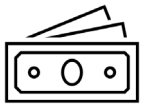
Impacts of Student, Family, Community, and Environment on Learning



LOCATION strongly influenced student learning outcomes. BAB and formal primary students attending schools located in IDP camps experienced large class sizes, poor infrastructure, lack of or insufficient resources, and other challenges that affected learning outcomes. **See Part 3.4.1** to learn more about the relationship between location and student outcomes.



Student retention and learning outcomes varied by Somali STATE. Students in Benaadir and Jubbaland had consistently lower retention and significantly lower math and literacy scores, while students in Hirshabeelle scored significantly higher than students in other states on these measures. **See Section 3.4.3** to learn about the state-level conditions that foster or inhibit student outcomes.



Indicators of SOCIO-ECONOMIC STATUS (SES) predicted student learning outcomes. Students from more resource limited families, including IDP families, were more at risk for dropout and lower achievement. **See Section 3.4 of this report** to understand the relationships between SES indicators and student outcomes.



Student's primary DIALECT influenced retention and learning outcomes. Students speaking a dialect other than Maay or Maxaa tiri left their study school more often and had lower math, literacy, and hope scores. The dialect spoken within the Somali context is a strong social predictor of marginalization; hence, students speaking other dialects have additional social determinants that impede their access to employment or social services, contributing to a lack of hope for the future. **See Section 3.4.2** for more findings, discussion and case study of linguistic diversity in Somali education.



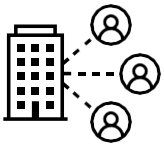
Student AGE predicted learning outcomes. Older students (ages 12-20) scored significantly higher on math and literacy assessments than their younger classmates (6-11), perhaps due to maturity and cognitive development. Older students were also more likely to leave school to help with family support. **See Section 3.4.4** for more information.

3. Lessons Learned and Recommendations

Considerations for Scale-Up and Sustainability



Foster effective COMMUNITY ENGAGEMENT to enhance program effectiveness and sustainability. Although BAB made community engagement a cornerstone of its implementation strategy, limited budget, activities, opportunities for community feedback, and variability in Community Education Committees (CECs) effectiveness impeded success. **Making community engagement, including development and support of robust CECs, an integral part of program design – and budget – will help align program activities to community needs, build community ownership and empowerment, and support long-term sustainability.** See **Section 4.1** for more information on effective community engagement and section 3.3 for a case study on community ownership.



Employ innovative EDUCATIONAL MODELS to increase student access and retention. While the reasons for student dropout vary, educational opportunities that allow students to balance work and family obligations with study and that don't rely solely on place- and time-based instruction could mitigate attrition. **Future educational programs should explore education models that accommodate the needs of students with disabilities, as well as students who move frequently, don't live close to a school, have competing work or life schedules, or otherwise find it difficult to fully participate in a traditional school arrangement.** See **Section 4.2.**



Select STUDENT PROMOTION strategies that support positive student outcomes. While over 92% of BAB Level 1 students taking the end-of-year exam in spring 2022 qualified for promotion to Level 2, low promotion barriers may allow promotion of academically underprepared students who are more at risk for school dropout, low self-esteem, and other negative outcomes**. Pursuing realistic metrics for success that include multiple measures of student growth and using data-driven approaches to determine and monitor promotion strategies and remediation needs will improve long-term student outcomes.** See **Section 4.3.**



Build strong PARTNERSHIPS across all project stakeholders to foster trust and community buy-in. Despite the BAB project's many successes, key informants described several administrative, programmatic, and contextual factors that impeded project progress. Each of these factors derives from one or more elements of effective partnerships. **Ensuring a holistic partnership approach to educational programming that ensures that all stakeholders feel heard and valued will increase motivation to provide quality educational experiences.** See **Section 4.5**.



Align BUDGET, ACTIVITIES, and OUTCOMES. BAB activities and budgetary allocations across their primary objectives were unbalanced and heavily skewed toward administrative costs. Budget constraints limited options for effective programming and negatively impacted relationships with teachers, schools, and communities. **Engaging**

partners in realistic project planning that aligns activities and budgets with desired outcomes will increase financial and in-kind buy-in, foster holistic and balanced momentum across all goals, and facilitate successful transfer beyond project duration. See **Section 4.6.**



Build holistic CAPACITY STRENGTHENING strategy across entire project. BAB focused its capacity strengthening efforts primarily on the federal government, hiring BAB-designated staff members, collaborating on a national ABE policy framework, and developing a federal Education Management Information System (EMIS). While all valuable contributions, focus on strengthening capacity at the federal government level ignored crucial state and local actors that could increase the likelihood of sustained educational success in the intervention locations. **Employing a holistic and intentional partnership approach to designing and implementing educational programming in Somalia that weaves capacity strengthening into all project stages and involves government and community stakeholders as full partners with donors and stakeholders can enhance program outcomes, better meet community needs, and develop capacity that will yield results long after funding ends.** See **Section 4.7.**

1 How We Got Here

Background – Theory – Methodology

1.1 Background

Somalia, a country with one of the lowest school enrollment rates in the world (Somalia Education Cluster, 2017; USAID, 2016), is working to rebuild an educational infrastructure disrupted by prolonged conflict coupled with political instability, widespread poverty, and natural disasters. While the federal government recently developed a unified educational curriculum, state-federal government tensions and the historical role of private umbrella associations in Somali education make widespread and consistent implementation challenging. Despite these challenges, the Somali national government is developing strategies to improve educational attainment. Accelerated basic education (ABE) is one strategy for supporting educational access and completion for out-of-school children and youth (OOSCY) using a compressed curriculum that reduces the time spent in the classroom.

The United States Agency for International Development (USAID) funded Creative Associates, International to lead the implementation of a 5-year ABE program, Bar ama Baro - "Teach or Learn" (BAB), in targeted Somali states with the goal of increasing access to quality education for OOSCY targeting ages 9-16. To better understand the outcomes of this endeavor, USAID contracted a multidisciplinary evaluation team, through LASER PULSE, led by Purdue University's Evaluation and Learning Research Center (ELRC), in collaboration with the ResilientAfrica Network (RAN) and the Somali Research and Development Institute (SORDI) to conduct an external evaluation of the BAB program. The evaluation aimed to provide rigorous and comprehensive evidence for improving program operations and informing evidence-based decision making. It examined the relationships between the BAB program and outcomes of interest pertaining to access, retention, safety, learning outcomes, and contextual elements relative to formal primary students in the same communities. The evaluation also examined program costs and other lessons learned.

1.1.1 Evaluation questions

The external evaluation sought information relative to: (1) effectiveness of the Bar ama Baro (BAB) ABE program across different implementation contexts; (2) effects of demographic, contextual, and program differences on learning outcomes of diverse learners; and (3) lessons learned to inform educational best practice in Somalia.

Appendix 1 articulates and details each evaluation question summarized here:

1. To what extent is BAB effective in improving access to quality education for Somali out-of-school children and youth ages 9-16?

   In line with the BAB project log frame, the evaluation examined outcome indicators across three main categories: (1) enrollment (including access, retention, promotion, and transition), (2) safety, and (3) learning outcomes.

2. How do learning outcomes of diverse learners differ across the private, community, and public formal primary school options and interventions in the Country Development Cooperation Strategy (CDCS) focal zones? What is the impact of contextual and demographic indicators on learning outcomes?

   Using reference data collected from formal primary school students in public, community, and private schools co-located or in the same communities as the BAB sample, the evaluation examined differences in enrollment, safety, and learning outcomes of diverse learners across formal and non-formal education options and the impacts of contextual and demographic indicators on those outcomes.

3. What can we learn from the BAB implementation to inform USAID and the Ministry of Education, Culture, and Higher Education (MoECHE) decision-making for scale-up and sustainability?

   The evaluation examined interactions among BAB and formal primary school outcomes and learner, family, community, contextual, environmental, and other factors to inform future educational programming in Somalia or other crisis and conflict-affected settings.

1.1.2 Theory

A variety of internal and external factors, many reflected in the BAB logic model (Appendix 2), influence learning outcomes. To reveal drivers of inequality, and identify factors that help or inhibit student outcomes, this evaluation drew on Ecological Systems Theory (EST) (Harkonen, 2007) to examine the interplay among learner, family, teacher and school, community, and environmental factors and learner outcomes.

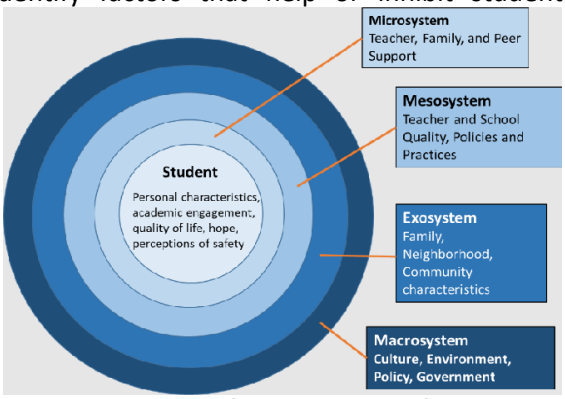


Figure 1: System of relationships influencing student outcomes.

As seen in Figure 1, learner experiences result from influences within a nested and interrelated social system. Moving outward from the innermost dimension, the student, dimensions become increasingly complex and distant from immediate learner characteristics and experiences. However, even distal dimensions such as the greater cultural, environmental, policy, and government contexts within which learners operate (i.e., the macrosystem) have important influences over the learner experiences both directly and indirectly through transmitted effects on intermediate dimensions (e.g., influence over aspects of the mesosystem and exosystem).

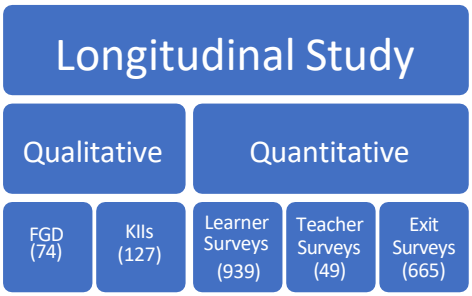
Key learner outcomes investigated for this evaluation derived from the BAB project logic model, including student access, retention, and transition; literacy, numeracy, and socio-emotional learning; and perceptions of safety. Figure 1 illustrates how we applied the EST theoretical framework in this evaluation to identify influential elements across dimensions, thoughtfully organize data, and interpret results. We used learner surveys and exit surveys with parents or caregivers of students that were not retained to examine microsystem level variables, including age, gender, socioeconomic status, engagement, perceptions of safety, perceptions of learner experiences, and perceptions of support. Teacher and head

teacher surveys and interviews and focus group discussions with key informants, including teachers, head teachers, parents, community leaders, implementing partners, and district officials contributed to our understanding of mesosystem constructs, including measures of teacher and teacher quality, preparation, attitudes and beliefs, and school policies and practices. Finally, we used key informant interviews, focus group discussions, exit surveys, enumerator field notes, stakeholder feedback, and BAB program data to examine macrosystem constructs and to better understand the historical and current educational system in Somalia.

1.2 Methodology

1.2.1 Evaluation design

The BAB external evaluation used a mixed-method pre-post longitudinal cohort research design to document, understand, and predict change in learning experiences and outcomes for individual students through two years of programming. Following two cohorts of learners over two academic years (one enrolled in BAB and a reference cohort enrolled in co-located or nearby formal primary school programs), the external evaluation explored differential effects of the educational interventions across indicators of learner resilience, well-being, and support, as well as changes in knowledge based on student and contextual factors. The formal primary reference cohort provides both a mechanism for examining similarities and differences between students enrolled in standard instruction and those enrolled in ABE, as well as an opportunity to examine differences in the rate of learning growth for students in each group. Detailed descriptions of the evaluation methodology, theoretical grounding, and preliminary findings are included in the Baseline and Midline reports.



1.2.2 Longitudinal sample

The evaluation sampling scheme used a site-based sampling approach that purposefully oversampled rural and IDP students due to higher expected attrition rates. Details of the sampling scheme are documented in Appendix 2 of the Baseline Report. Key features of the sampling protocol included data collection from all children in selected classrooms and formal primary classes randomly selected from each site hosting a BAB longitudinal sample classroom or from a nearby school in the same community. After removing outliers, our initial sample consisted of 2,553 learners from 65 classes across 3 states (South-West, Jubbaland, and Hirshabeelle) and the Benaadir region, totaling 11 districts. The final longitudinal analytical sample consisted of **939 total learners having valid data from all data collection points** (four data points for BAB students starting in level 1 and formal primary cohort starting in grade 2 – beginning and end of each academic year – and three data points for formal primary cohort starting in grade 1 – beginning and end of academic year 1 and end of academic year 2). Figures 2 and 3 break down the analytical sample at the beginning of academic year 1 and the end of academic year 2.

Figure 2: Analytical sample of longitudinal cohort students at the beginning of academic year one (2021-2022) by program (BAB level 1 and formal primary grades 1 and 2), location type, and school type

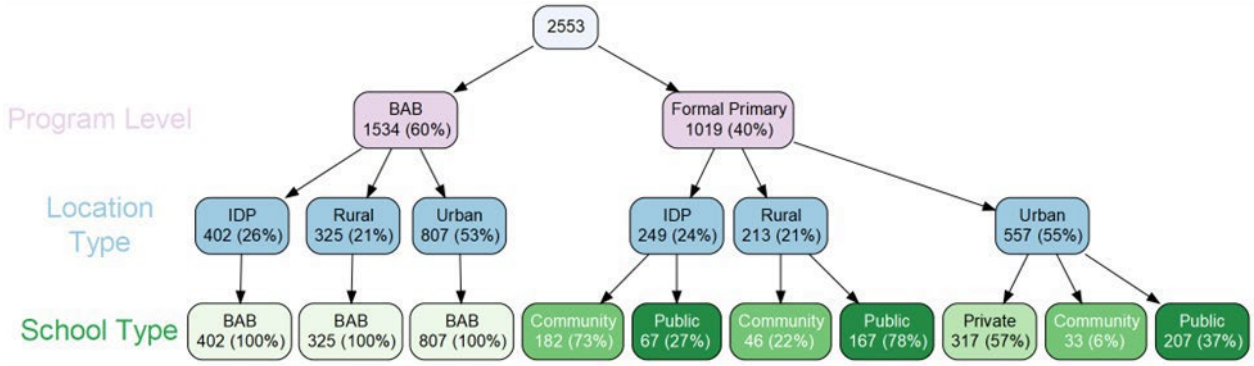
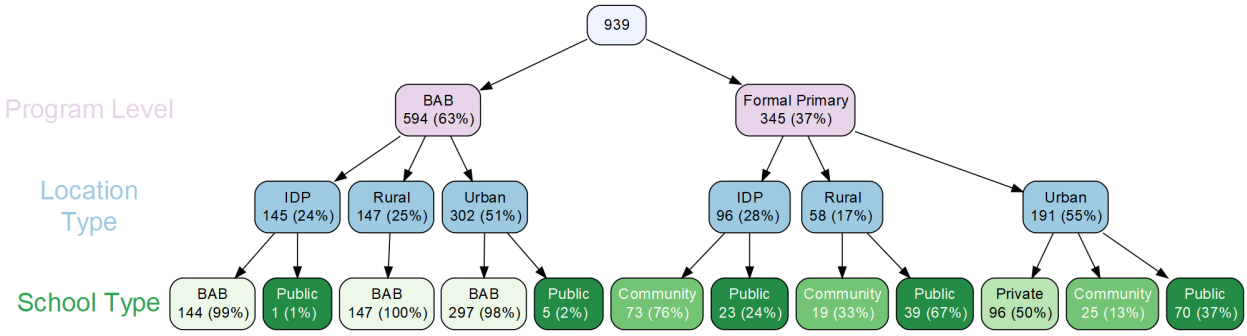


Figure 3: Analytical sample of longitudinal cohort students at the end of academic year two (2022-2023) by program (BAB level 2 and formal primary grades 2 and 3), location type, and school type



Although the analytical sample showed a 63% decrease over two academic years, sample distribution remained relatively stable across subgroups. See section 1.3. Sample Size, Fluidity, and Attrition for a discussion of challenges and limitations related to sample size and attrition.

1.2.3 Data collection instruments and instrument development

The external evaluation collected a range of both qualitative (e.g., interviews, focus group discussions) and quantitative (e.g., surveys, standardized assessments) data to draw conclusions about project outcomes, impacts, participants, and their learning experiences. Data collection included survey and learning outcomes from students, survey and interview data from teachers and head teachers, exit surveys with parents or caregivers of non-retained learner and teachers, key informant interviews with parents, community members, implementing partners, and government officials, enumerator field notes and observations, and stakeholder feedback.

The learner survey included questions related to students' demographic backgrounds, psychosocial constructs – including student perceptions of themselves, their schools, and their communities – and outcome measures, including hope and literacy and numeracy skills – assessed using EGRA and EGMA

standardized examinations. Table 1 describes constructs included in the learner survey with a definition, rationale for inclusion, and source.

Table 1: Learner Survey Constructs

Variables	Definition	Rationale for Inclusion	Question Source
Student Characteristics	Gender, age, living situation, prior education, primary dialect, absences, barriers to school attendance	Student and family characteristics can influence outcomes.	BAB Learner Survey
Socio- economic Status (SES)	Social or class standing of an individual or group. Measures often include a combination of education, income, and occupation.	Children from lower SES backgrounds typically underperform compared to more affluent peers (Sirin 2005). Indicators of SES in the context of this study include maternal education level, dialect spoken at home (as an indicator of learner's clan affiliation), and home resources.	Maternal literacy question (BAB Learner Survey) SES Items from ISELA and BAB Learner Survey
Safety	Physical and emotional perceptions of safety deriving from any combination of environmental, internal, and external threats to well-being.	Learner perceptions of safety may have a greater impact on learner success than actual measures of safety (Goldstein, S.E., Young, A., and Boyd, C., 2008).	Perceptions of safety and impacts of safety on ability to learn -- Questions from various sources
Perceptions of Self (Self-Esteem and Empathy)	Perception of well-being and functioning, including physical and emotional well-being, self-esteem, relationships, and school. Ability to	Low self-esteem can decrease desire to learn, ability to focus, and willingness to take risks – thus negatively impacting learning outcomes. Increasing self-esteem is one of the best ways to increase academic achievement (Rubie et. al., 2004).	KINDL Quality of Life Survey (Ravens-Sieberer & Bullinger (1998) Empathy Questionnaire for Children and Adolescents (Overgaauw et. al.,

	understand the feelings of others.	Empathy is associated with increased classroom engagement, academic achievement, communication skills, and positive relationships and decreased bullying, aggression, and emotional disorders.	2017) – 3 questions on affective empathy
Perceptions of School (Student Benefit/ Satisfaction and Equity)	Student perceptions of their educational experience as effective in enhancing their skills, abilities, and future prospects. Perception of being treated fairly in the classroom	Enhanced student satisfaction can be liked to persistence and increased learning outcomes.	Student Outcomes Survey (Feiger, P., 2012) 7 questions, including skill and learning experiences and overall satisfaction.
Perceptions of Community (Civic Engagement and belonging)	Attitudes towards community service and empathy.	Civic engagement has been linked to increases in self- esteem and sense of self and pride, acceptance of diversity for people and ideas, and enhanced sense of caring for the local environment and community (Driskell, 2002).	Civic Engagement Scale (Doolittle and Paul, 2013) – 3 questions
Future Aspirations	Student desire and intention towards future education and careers.	Assess learner educational and career goals and future intentions.	LASER developed
Hope	Perception that an individual can achieve their goals. Research links hope with overall physical, psychological, and social well-being.	Hope is consistently identified as one of the most important predictors of academic success across ages and cultures (Marques & Lopez, 2014)	Children's Hope Scale (Snyder, C. R., 2002). 6 items that measure pathways and agency.

Learning	Numeracy and Literacy	Provide a simple, orally administered, low-cost measure of literacy and numeracy skills.	EGRA and EGMA adapted by Creative Associates – Level 1 and grades 1-2, EGRA and EGMA Level 2 – adapted by SORDI and Somali MoECHE for Level 2 and grade 3.

The teacher and head teacher surveys captured demographics, training, professional attitudes and beliefs, self-efficacy, well-being, confidence, feelings of support, and satisfaction.

We built surveys using previously validated scales modified for the Somali context and tested for reliability and validity with the longitudinal sample by conducting and examining factor analyses, correlations, and predictive associations among factors. Scale performance findings were generally favorable but did require some adjustments before conducting further analyses. Across each data collection, these findings continually informed new scale development and existing scale refinement for subsequent data collections (See Appendix 3 in the Midline Report for a complete discussion of survey scale reliability and validity in the Somali context and Appendix 5 in the Baseline Report for a description of the survey development approach and the rationale for using a longitudinal study design).

1.2.4 Data collection

Teams of SORDI enumerators and researchers collected all qualitative and quantitative evaluation data for this longitudinal study. Enumerators, drawn from the sample communities, worked in mixed-gender teams whenever possible. Enumerators collected data from schools and conducted KIIs in three states (Jubbaland, Hirshabeelle and South-West) and the Benaadir region, totaling 11 districts. LASER used proportional sampling to assign KII typologies with a proper representation across the population. The Midline report includes detailed descriptions of sampling protocols and data collection strategies.

Data examining BAB's success in providing access to learners that represent children and youth from diverse backgrounds derives from enrolled learner demographic data (student surveys), KIIs, and Head Teacher surveys. Access data for the reference sample of formal primary students is limited to student demographics and head teacher surveys.

Retention examines the effectiveness of BAB in retaining and promoting diverse students, as well as the student and contextual characteristics that impact retention. Since reliable student registration and attendance were not available, we considered students in this longitudinal study *retained* over one academic year if they were present during data collection at both the beginning and end of the academic year. Evaluators made several visits to each school during data collection and conferred with teachers and head teachers to minimize the risk of missing students who were only absent on testing day. We collected the same data from a reference cohort of formal primary school students from the beginning of either grade 1 or grade 2 through two academic years.

Data on BAB student promotion from Level 1 to Level 2 derives from BAB end-of-year exam program data (provided by Creative Associates) for BAB Cohort 1, Level 1 learners taking the exam in Spring 2022.

BAB impact on student transition from the BAB program to other educational programs was derived from focus groups and interviews with 74 teachers, 22 BAB implementers, and 15 government officials, as well as survey responses from 939 learners and 49 teachers.

This external evaluation examined perceptions of safety from the view of learners (student survey), teachers and head teachers (survey), parents and caregivers of dropout students (exit surveys) and educators, district officials, community leaders, and parents (key informant interviews).

The evaluation examined academic outcomes in numeracy, literacy, and socio-emotional learning (SEL) in line with the Somali National Education curriculum. Within this endline report, we used both qualitative indicators of learning, derived from KIIs, as well as quantitative measures of change in literacy and numeracy and student perceptions of hope for BAB and formal primary school students beginning in grade 1 or grade 2. We used the EGRA and EGMA level 1 assessments developed by the implementing partner in cooperation with the MoECHE to assess literacy and numeracy for BAB level 1 learners and formal primary grade 1 and 2 learners. LASER, in collaboration with the MoECHE, developed and tested level 2 EGRA and EGMA assessments that reflected the more advanced literacy and numeracy skills encompassed in the ABE level 2 and grade 3 curricula (see Appendix 3). The evaluation used these level 2 assessments to examine academic growth for BAB level 2 and formal primary grade 3. Evidence of socio-emotional learning in this evaluation was operationalized using indicators of student perceptions of self (e.g., empathy and self-esteem), school (e.g., school benefit and equity), and community (e.g., civic engagement and community belonging) as well as the outcome indicator, hope, which has been described as one of the most potent predictors of youth success (Marques & Lopez, 2014).

Data collection for both BAB and formal primary cohorts used the same tools and methodologies for all student, teacher, and head teacher surveys. The research team gave exit surveys to the parent/caregiver of BAB and formal school students who failed to complete the academic year and teachers who left the BAB program, to the extent that the research team could find them. The evaluation team conducted key informant interviews with parents/caregivers, teachers, head teachers, community members, district officials and implementing partners that were specifically tied to a BAB sample school. Although the key informant interviews focused on the BAB program, since the formal primary sample schools are co-located with or in the same community as the BAB sample schools, some KII comments are relevant to both settings.

1.2.5 Quality assurance

The evaluation used a multistep process for ensuring data quality, including (1) rigorous enumerator selection, training, and oversight, (2) development and use of standard data collection templates and protocols, (3) continuous multi-stage monitoring of all data for inconsistencies during and after data collection; (4) analysis to identify potential enumerator bias, and (5) a robust multi-step data cleaning process to identify and remedy inconsistencies, duplicates, missing data and other data related challenges.

1.2.6 Data analysis

This evaluation used quantitative analysis to describe the sample/population, to calculate growth in learning outcomes, and to identify the associations between learner, school, and community factors and student outcomes.

We used frequencies, means, standard deviations, graphs, tables, and figures from descriptive analysis to describe, illustrate, or summarize variables. We used confirmatory factor analysis to develop subscales for each survey and determine the reliability and construct validity of each scale in the Somali context. Correlation analysis, cross tabulation/chi-square, t-tests, ANOVA, Kruskal-Wallis analysis of variance, regression analysis, and structural equation modeling (SEM) were conducted to examine correlations and associations between student characteristics and perceptions and outcomes. We used student and family characteristics and psychosocial predictors of academic and SEL outcomes to examine the connections among student demographics (including family characteristics and location variables), student perceptions of themselves, their school, and their community, and learning outcomes. We used correlations, ANOVAs, and structural equation modeling to examine the relationships among learning outcomes and potential predictors. We examined the correlations between student demographic characteristics, including location, literacy and numeracy gains, and hope. Then, we looked at relationships between demographic and location variables and student perceptions. Next, we used structural equation modeling (SEM) to test relationships among student perceptions of themselves, their school, and their community on academic outcomes (EGRA, EGMA, and Hope). Finally, we looked at the relationships between teacher perceptions and student outcomes. Figure 4 illustrates our analytical approach, listing both variables and analysis methods.

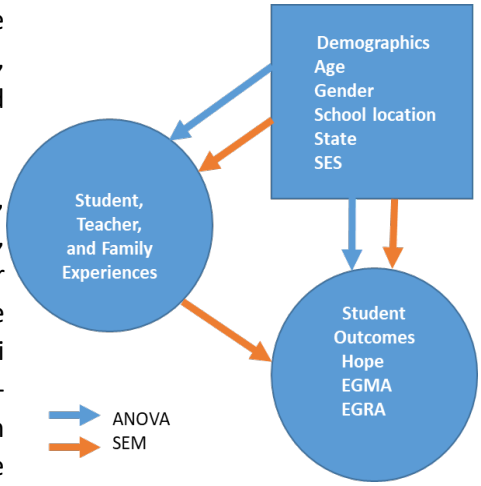


Figure 4: Analytical Approach

We coded qualitative data from all interviews and focus groups in NVivo 20 to examine key evaluation questions through the lens of different stakeholders and to provide validation and contextualization for quantitative findings. We used thematic analysis guided by the evaluation questions and disaggregated by program, location, state, and district to 1) identify patterns and differences in perceptions about the BAB program, learning, and the contextual environment, and 2) identify immediate and long-term programmatic interventions. We corroborated our findings with enumerator field observations and stakeholder dissemination feedback loops.

1.3 Cost Analysis

The LASER external evaluation examined the effectiveness and cost effectiveness of the BAB ABE program in increasing access to quality education for Somali out- of-school children and youth aged 9-16 years. LASER's cost analysis evaluation component examined the costs associated with observed gains in educational outcomes of interest (e.g., math and literacy) and the variation of these costs across implementation sites, learning levels, participant characteristics and other constructs of interest. The cost analysis calculated the cost per output (e.g., cost to train a learning facilitator) and the effectiveness of the intervention (e.g., improvement in math and literacy outcomes

per student). In addition, the analysis extrapolated costs associated with expanding the BAB model and/or replicating it in other areas. Appendix 4 summarizes the Cost Analysis questions and the complete report.

1.3.1 Cost analysis objectives

This cost analysis study aims to facilitate future planning and budget management by providing insights into what works and how to best deploy resources based on data and evidence. The USAID Somalia mission, the Somali MoECHE, and other development partners can use results from the study to inform the structure and budget of future ABE programs. This analysis provides an understanding of value, sustainability, and scalability. Therefore, costs incurred by the donor (USAID) and resources donated by the government and non-government entities, are included in the total cost.

Specifically, the analysis provided in this report answers the following questions,

- What is the cost per student of increasing proficiency in reading and math skills (e.g.: non-learners, basic learners, emergent learners, etc.)?
- What is the cost per student of expanding the BAB reading, math, and SEL intervention package in intervention areas? This is estimated from USAID and the Government of Somalia's perspective.
- What is the cost per student of replicating the BAB reading, math, and SEL intervention package in new areas? This is estimated from USAID and the Government of Somalia's perspective.
- What is the total cost per student of ABE instruction, disaggregated by levels (L), L1, L1-L2)
- What are the start-up costs for the BAB program?
- What is the development cost per student of teaching and learning material?
- What is the procurement cost per student for teaching and learning material? How does this cost differ by location?
- What is the implementation (production and distribution) cost for teacher training, per teacher?
- What is the estimated unit cost of teacher training when scaled up in intervention areas? This is estimated from USAID and the Government of Somalia's perspective.
- What is the estimated unit cost of teacher training when replicated in new areas? This is estimated from USAID and the Government of Somalia's perspective.
- What is the cost of classroom/teaching infrastructure, per student?
- What is the cost of community engagement for each student?

1.3.2 Cost analysis methodology

To answer the cost analysis questions, we employed three standard cost analysis methods, i.e., retrospective, concurrent and prospective cost economy, cost efficiency and cost-effectiveness analyses.

We sourced data from quarterly financial reports, quarterly contributions and intervention details reports, quarterly and annual implementation reports, and other program reports provided by the implementing partner for 2020 to 2023. We compiled expenditure data and adjusted for inflation to real 2022 prices using the US GDP deflator. Note that, due to the absence of GDP data for 2023, we did not adjust expenditures incurred in this year for inflation. Contributions, which include staff time, office space, venues, materials, equipment, and supplies provided or donated by the government, non-government organizations and the private sector, were monetized and adjusted for inflation before being added

to their corresponding cost categories to compute the total, social, and full costs. The different costs and perspectives computed and presented in this report are defined below.

- *Total Costs/technical costs for USAID perspective* refer to expenditures incurred by USAID alone for a specific activity component. These costs don't include the cost of doing business with USAID (overheads or General Operations, Management, and Reporting cost category).
- *Full Costs for USAID* involve taking total costs of USAID and redistributing the General Operations, Management and Reporting category across all other cost categories. This is done because the General Operations, Management and Reporting supports all other categories. Therefore, excluding it in our calculations would lead to an underestimation of the true cost of the activity.
- *Total Social Costs* include expenditures (technical costs) incurred by USAID plus monetized contributions from other stakeholders to a specific activity component. These don't include the cost of doing business with USAID (overheads or General Operations, Management and Reporting cost category).
- *Full Social Costs/ Full costs social perspective* – include total social costs plus the General Operations, Management and Reporting category redistributed across all other cost categories.
- *USAID perspective* – we only consider costs incurred by USAID. We do not add monetized contributions to the calculations.
- *Social perspective* – all costs incurred by USAID plus monetized contributions from the government and other stakeholders and beneficiaries' time are considered.

1.4 Challenges and Limitations

Longitudinal studies are inherently challenging, given the need to follow subjects over time. These challenges are magnified in the Somali context where the population is mobile, record keeping is spotty, and access is often difficult. We document some evaluation challenges and limitations in the following sections.

1.4.1 Comparison group

For practical and ethical reasons, this external evaluation did not employ an experimental or true quasi-experimental design. Instead, we recruited a reference sample of formal primary students, representing the grade span most aligned with the BAB cohort curriculum, in schools either co-located with or located in the same communities as the BAB cohort schools to minimize variations in contextual factors that could impact outcomes. Although we did not employ propensity score matching or other methods to match BAB and formal primary characteristics, demographic analysis of the two groups showed generally good alignment for most indicators, with BAB students most like formal primary students attending community schools. Nonetheless, considering the general paucity of education outcome data in Somalia, we intended our formal primary school cohort to serve as a reference to help interpret BAB outcomes, rather than a counterfactual. Without an explicit comparison group, we must use care in attributing changes in outcomes over time to a particular intervention as maturation and external factors may also influence observed changes.

1.4.2 Sample size, fluidity, and attrition

The external evaluation sampling scheme used a site-based sampling approach that purposefully oversampled rural and IDP classrooms, recognizing that rural and IDP areas in Somalia have fewer

educational resources and so more OOSCY (as a percent) than urban areas (Federal Government of Somalia Ministry of Education, Culture and Higher Education 2018). As discussed in the Baseline evaluation report, the sample design considered explicit power analysis and met the target sample sizes at baseline. We estimated attrition due to students leaving school to be 20% per year or 40% over the course of the longitudinal study. Actual attrition averaged about 50% over two years for both the formal primary and BAB cohorts. However, attrition rates were uneven across the sample, with, for example, only 24% of the original South-West cohort retained over two years compared to 65% retention of the Hirshabeelle cohort.

Several other factors influenced the analytical sample size in this longitudinal study. As the study follows cohort students over two academic years, **results for the analytical sample presented in this report include only those students present at all four data collection points (pre-post for academic years 1 and 2) – or three data points for students starting in formal primary grade 1 (pre-post grade 1 and post grade 2).** Note that the actual number of students sampled is larger (3,365) because we did not include those present only at 1, 2, or 3 sampling points in the longitudinal sample analysis. Sample cohort attrition resulted from:

- Student movement between classes (between formal and ABE) within a school,
- Student transition to a different school or educational program,
- Temporary or permanent absences resulting from migration, illness, family activities, work, or other activities,
- Unresolvable data collection errors, including incomplete data, subject misidentification, and data inconsistencies that resulted in exclusion from the dataset,
- Student attrition due to school relocation or closure,
- Student enrollment in the school sometime after the beginning of the school year.

Despite these challenges the cohort sample remains sufficient for nearly all the desired analyses; however, disaggregation into relevant subgroups often results in such small samples that we cannot draw reliable inferences. Moreover, unequal attrition may skew results for some populations.

1.4.3 Fidelity of implementation

Creative Associates, International served as overall lead for the BAB program. However, Creative subcontracted with local partners to implement the program in the three Somali states and the Benaadir region. Although all sites shared the common BAB ABE curriculum and teacher training, discussions with KIIs revealed variations in implementation. We expected some variations since the BAB program sought to customize programming to meet community needs. Other variations resulted from a variety of factors, including differences in implementer experience or approach, communication challenges between BAB and implementing partners, infrastructure and resource availability, and community support. Together, these variations make it challenging to view the BAB program as a single program, but rather as a series of related programs. When possible, the evaluation tries to pull apart outcome variations resulting from implementation variations and other factors – such as location. See Section 4.3 for more details.

2 EFFECTIVENESS OF BAB IN IMPROVING ACCESS TO QUALITY EDUCATION FOR SOMALI OOSCY

This external evaluation examined indicators of BAB effectiveness in improving access to quality education for Somali OOSCY, including access, retention, transition, safety, and learning outcomes. Table 2 and the following sections summarize BAB's accomplishments and opportunities in the context of the reference sample.

Table 2: Summary of BAB Impact, Challenges, and Recommendations for Improvements

BAB sought to improve:	Accomplishment	Challenge	Recommendation
Access and Retention	Increased the number of students receiving education and enhanced access for underserved groups. BAB achieved student retention comparable to formal primary over 2 academic years (44% vs 48%).	The number and distribution of BAB classes was insufficient to meet demand. Older and most vulnerable students left school more often.	Explore flexible, hybrid, remote, and non-traditional education to supplement place-based education. Increase number and distribution of classrooms.
Promotion and Transition	92.5% of BAB Level 1 students qualified for promotion to Level 2 (2022). Strong student desire to continue education (90% plan to attend school next year). 3 in 4 teachers believe their children will continue their education.	Promoted students scoring below literacy proficiency benchmark underperformed in L2 curriculum. Limited education and transfer opportunities in rural and IDP communities.	Re-examine promotion criteria and FOI of promotion guidelines. Provide remediation for underperformers. Increase education and training opportunities in rural and IDP areas. Communicate education and training pathways and engage students and families in early planning.

Safety	BAB students and teachers perceive school as a safe space.	Safety concerns on the way to school impacted attendance – especially for urban students. Poor, unsafe, or Inadequate Infrastructure inhibited full participation.	Strengthen and unify student tracking systems. Engage parents, community, CEC in establishing safety measures. Work with local, regional, and federal governments to address safety concerns (e.g. robber, gangs, violent extremism).
Learning	Significant increases in literacy and numeracy meet or exceed formal reference. Significant increases in hope – especially for older students and their families.	Overcrowded classrooms inhibited access and learning. Inadequate furniture and supplies to meet student needs. Under-prepared and supported teachers lack knowledge and skills to teach all students and supplies.	Increase number of classes and teachers. Enhance school infrastructure. Rectify distribution and material access challenges. Provide ongoing teacher training and support.

2.1 BAB INCREASED ACCESS FOR UNDERSERVED LEARNERS.

Overall, the BAB program increased the number of available classes in participating communities and enhanced access to education -- particularly for older youth and children who lack resources to attend fee-based schools. Key informants commonly cited **removing school fees and adopting flexible or alternative school schedules that accommodate competing student and family needs (e.g., attending religious school or work schedules) as important in reducing barriers to educational access**. Older

learners, particularly girls, appreciated that BAB schools didn't require a uniform, as they expressed embarrassment or even fear of being targeted if seen in a uniform typically worn by younger people. Conversely, younger students felt disappointed by BAB's lack of uniform – lamenting that the lack of this visual symbol of educational belonging made them feel less legitimate or valued than students in formal school classes.

Demographic indicators of BAB cohort students and reference formal primary cohort students in the same communities at baseline (Table 3) suggest that BAB enrolled a slightly more gender-balanced set of students than formal primary schools. BAB students also tended to have among the lowest family resources, lower maternal literacy (a marker of SES), and more variability in primary dialect (an indicator of minority and marginalized populations). Although the median age and age distributions for both BAB and formal primary school students were similar, **KIIs perceived BAB as effectively serving older students. They credited BAB with increasing hope for both the older students and their communities by offering opportunities for them to learn and pursue a better future**[1].

> *Prior to the program there were a lot of children without hope of ever being educated and so would just be "out-and-about" whereas now they get to go to school. The parents feel like their children have a chance at a better life. – Benaadir parent*

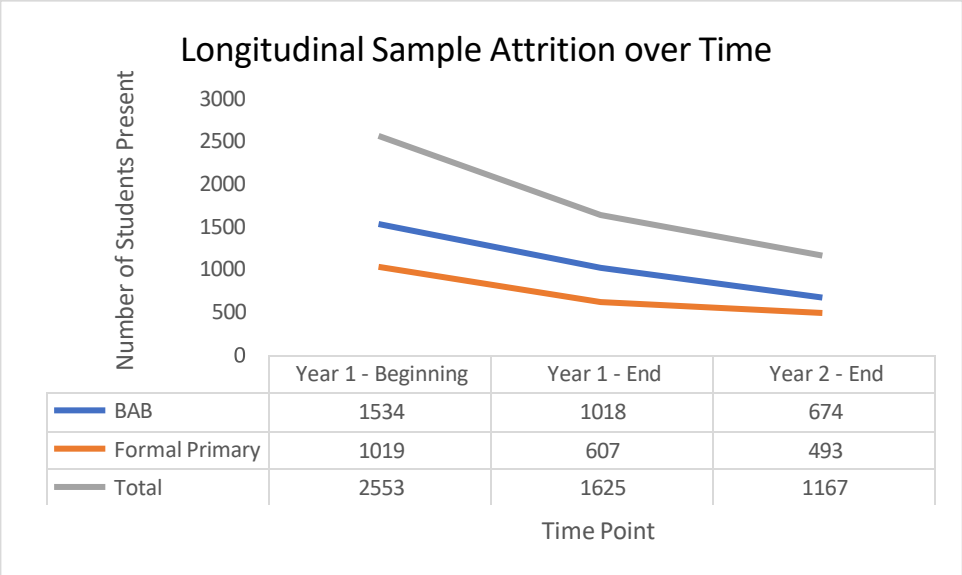
Table 3: Student demographics by school type

Student Characteristic	**School Type**			
	BAB	**Formal Primary**		
		Private	**Community**	**Public**
Predominant Gender	Male (51.0%)	Female (52.1%)	Male (60.7%)	Female (55.1%)
Median Age	11	10	10	10
Prior Ed	86.2%	94.8%	90.6%	90.6%
Maternal Ed	38.8%	60.4%	36.8%	45.7%
Primary Dialect	Maxaa tiri (60.2%)	Maxaa tiri (84.4%)	Maxaa tiri (59.8%)	Maxaa tiri (58.0%)

[1] Note: Demographic indicators are self-reported. Student reports of age varied considerably over the two-year longitudinal study, with some students reporting ages more than a year more (or less) than the age reported previously.

2.2 BAB RETAINED STUDENTS AT ABOUT THE SAME RATE AS FORMAL PRIMARY SCHOOLS IN THE SAME COMMUNITIES

As illustrated in Figure 5, **both BAB and formal primary cohorts experienced more than 30% attrition ove one academic year and a total attrition rate greater than 50% over two years**.



44% BAB longitudinal sample retained over 2 years (66% from baseline to end of year 1).

48% Formal Primary longitudinal sample retained over 2 years (60% from baseline to end of year 1).

Figure 5: BAB and Formal Primary Student Retention in their Program over Two Academic Years

BAB retained students at a slightly higher rate than the formal primary cohort, including both grade 1 and 2 students at the end of one year and grade 2 at the end of two years, but at a lower rate at the end of two academic years than grade 1 students (Table 4). The overall increase in attrition over time is not surprising, given that the cumulative effects of ongoing environmental disruptions (drought, floods, and the resulting famine) and eruptions of violence were felt more acutely in year 2, as families depleted their meager resource stores. Variations in retention between the grade 1 and grade 2 formal primary cohorts is likely influenced by student age, as **older students were more likely to leave school to help with family subsistence activities** (see section 3.4.4).

Table 4: BAB and Formal Primary Retention over Two Academic Years

Group	Subgroup	Baseline Students	Students Retained for One Year	Difference retained and non-retained one year (p-value)	Students Retained for two years[2]	Difference retained and non-retained two year (p-value)
Totals		2553	1625 (64%)	0.001**	1167 (45%)	0.027**
Program	BAB	1534	1018 (66%)		674 (44%)	
	Formal Primary Grade 1	527	304 (58%)		302 (57%)	
	Formal Primary Grade 2	492	303 (62%)		191 (39%)	

** We saw statistically significant differences in these groups between retained and non-retained students using Pearson's Chi-squared test ($p<0.05$).

2.3 BAB PROMOTED NEARLY ALL LEVEL 1 STUDENTS TO LEVEL 2

The BAB program used school-administered end-of-year exams that were developed by Creative Associates in collaboration with federal officials to assess student readiness for promotion from Level 1 to Level 2. The exams included three sections – literacy, numeracy, and Arabic and Islamic studies – each worth 100 points (300 points total). Exams were administered and scored by the local schools and teachers. Although BAB guidelines required passing scores in both math and literacy, teachers often interpreted the promotion guidelines to allow promotion of students with a cumulative score of at least 150 points across the three sections. The resulting approach emphasizes cumulative performance over individual subject mastery, allowing for promotion based on overall achievement rather than consistent proficiency across all subjects. Most of Level 1 BAB students (92.5%) taking the end-of-year exam in spring 2022 met the 150 total point benchmark for promotion[3].

The BAB cumulative model promoted some students to Level 2 without demonstrated proficiency in Level 1 literacy and numeracy skills. Despite meeting the overall pass criteria, 4.2% of BAB students taking the June 2022 end of year exam scored below 50% in Somali literacy, while 5.3% scored below the threshold of 50 points on the numeracy component. These underperforming students may lack the critical knowledge and skills foundational to engaging with and comprehending more complex Level 2 material. Low thresholds may also allow very young students to progress to academic levels that are inappropriate

[2] These numbers include 228 students present at both time 1 and time 4, but missing at one or both or the intermediate time points (and so not included in our analytical sample calculations).

[3] This cumulative promotion strategy can result in scenarios where students qualify for advancement despite underperforming in one or more subjects. For instance, a student might excel in Arabic and Islamic studies , scoring well above 50 points, but struggle with literacy and numeracy, scoring below the threshold in one or both areas. Despite potential academic deficits in some areas, students meeting the 150-point cumulative threshold were eligible for promotion.

for their developmental or cognitive levels. Section 2.4 examines links between student preparation and achievement in more detail.

On the other hand, students' poor performance on end of year exams may be due to mismatches between the exams and the curriculum – especially the ABE curriculum, which leaves out chapters to eliminate redundancy and accelerate the curriculum.

> *"We skip the repetitive chapters. Because we cannot skip other chapters since we don't prepare the exam, they might be examined in the chapters we left out and they might fail because of us. And we cannot cover everything at the same. We take the essentials from each chapter."* —Benaadir teacher

Key informants noted that a single end of year exam may be an inadequate measure of student readiness for promotion, as mismatches between curriculum and exam, as well as environmental, family, and other factors – including absenteeism – may impact student performance. A more holistic strategy may be more effective.

> *"…we take four exams in the scholastic year. Two monthly exams, one mid-term, and the final examination. We extend the 100 marks over those four exams while BAB brings only one final exam marked with the 100. **[...]** The students are more likely to fail in this method as they will be examined through the entire curriculum and what they have learnt throughout the year."*
>
> —Benaadir teacher

2.4 BAB PROMOTED SOME STUDENTS WITHOUT ADEQUATE PREPARATION

The BAB external evaluation couldn't track student retention and performance in Level 2 relative to BAB end of year exam scores, as students lacked unique identifiers that would allow us to match scores to individual longitudinal cohort students. However, we analyzed the normalized EGRA and EGMA gain scores of longitudinal cohort students at the end of academic year 2 for students who transitioned from BAB Level 1 or formal primary grade 2 into Level 2 or grade 3 in year 2 to assess the impact of promoting students with EGRA scores that fell below our empirically derived benchmark (see section 2.5) at the end of academic year 1. Table 5 shows academic year 2 EGRA and EGMA normalized gain medians for promoted students meeting and not meeting the literacy benchmark at the end of their first academic year. **Students meeting the benchmark at the end of year 1 had significantly higher gains (Kruskal-Wallis test) in year 2 on both the EGRA and the EGMA.** The effect was greater for EGMA than EGRA. Despite challenges associated with standardized tests, **these results support the supposition that students promoted to higher levels without adequate preparation will continue to struggle and may be at higher risk for leaving school.**[4]

[4] These results represent single test results using a standardized test which may not adequately capture the knowledge level of all students. To verify these results, it would be useful to compare standardized test results to student grades throughout the year. Unfortunately, we were not able to obtain this information.

Table 5: Year two performance of students meeting and not meeting year 1 end of year literacy benchmarks.

Literacy Benchmark	Year 2 EGRA Normalized Gain Median	Year 2 EGMA Normalized Gain Median
Not Met	23.08	15.94
Met	36.75	43.02
p value	0.00*	0.00*
statistic	13.53	44.50

*Statistically significant

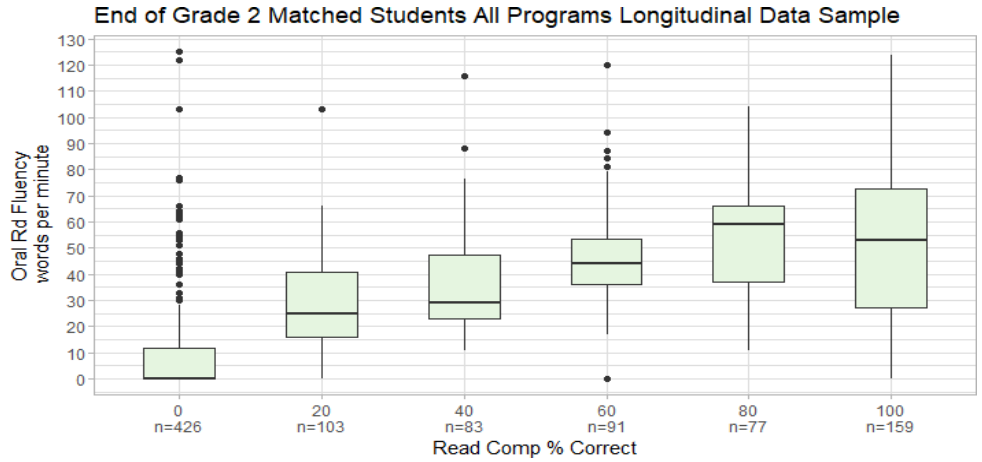
2.5 Empirically Derived Reading Proficiency Benchmarks

A benchmark is an *empirically derived standard* or reference point against which individuals, groups, and programs can compare themselves. Establishing a benchmark in education research and evaluation helps educators and policymakers use *evidence-based practices* to identify strengths and weaknesses, allocate resources effectively, and continually monitor progress. Establishing and comparing against a benchmark ultimately contributes to continuous monitoring to enhance education quality, yielding improved student and teacher outcomes.

Minimum reading proficiency benchmarks are often set as the level of reading fluency, measured by correct words per minute (CWPM), where comprehension is at an acceptable level – typically 80% is used as a standard for demonstrating acceptable comprehension (RTI International 2017). Benchmarks are generally calculated for students ending 2nd grade or beginning 3rd grade. While no benchmark existed for Somalia at the time of this study, Ethiopia set a benchmark for the Af Somali language for grades 2 or 3, corresponding to 80% comprehension at 50 CWPM on the EGRA (RTI International 2017).

Program data can be compared to benchmarks to determine the current (or baseline) percent of students in an intervention meeting the benchmark. As formal benchmarks for literacy in Somalia did not exist at the time of this study, LASER used empirical data from longitudinal sample of BAB and formal primary cohort students at the end of BAB Level 1 (equating to grade 2) or formal primary grade 2 to calculate an empirical benchmark based on our sample. To find the measured oral reading fluency corresponding to 80% reading comprehension in our cohort, we plotted the oral reading fluency scores of 939 longitudinal cohort students completing BAB Level 1 or formal primary grade 2 after one year of academic instruction against reading comprehension scores (Figure 6).

Figure 6: Longitudinal Cohort Oral Fluency vs Comprehension at the end of grade 2 (level 1)



The oral reading fluency items per minute at the first quartile where reading comprehension scores reached 80% correct **averaged 37 correct words per minute for our sample**.[5] We calculated the number and percent of longitudinal cohort learners in BAB and formal primary grades 1 and 2 (representing urban, rural, and IDP schools across 3 states and the Benaadir region) achieving 37 CWPM on the end of year EGRA exam -- 345 (37%) of the students from the combined longitudinal sample met the benchmark. These findings, combined with an examination of next year's performance of promoted students above and below this benchmark (see section 2.3) provide empirical data to inform educational policies around student achievement and promotion.

2.6 Insufficient pathways and infrastructure hamper BAB student transitions – especially in rural areas.

The BAB ABE program aimed to compress the standard curriculum to rapidly prepare OOSCY for transition into formal education programs after completing BAB Levels 1-4 – including vocational technical training – or meaningful employment. Given the focus on level 1 and level 2 BAB learners, the external evaluation was not designed to examine student transition or transition pathways – as the BAB program intended to continue through level 4 (equivalent to grade 8). However, since fewer than half of cohort members starting as level 1 learners completed two full years of education, the external evaluation examined evidence for BAB impact on student transition from the BAB program to other education or training programs. Specifically, the external evaluation added targeted questions related to student preparation and aspirations/intentions for further education and training to survey instruments and interview and focus group protocols.

The following case study, **Transition Pathways for Educational Interventions in Somalia,** summarizes evidence of BAB's impact on student transition from the BAB program to other educational programs after level 2 instruction including: (1) transition success and limitations; (2) students benefiting most/least from transition pathways; (3) and existing pathways and supports that foster transition at both the program and government levels.

[5] Published value of 50 CWPM on the EGRA

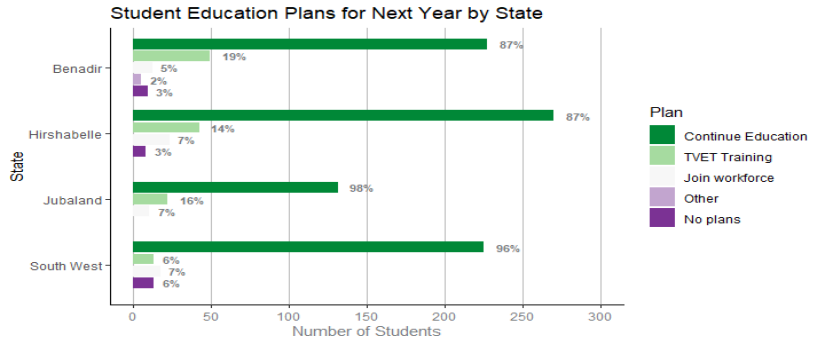
Case Study: Transition Pathways for Educational Interventions in Somalia

This case study examines the BAB program's impact on student transition from the BAB program to other education opportunities. Data for this analysis derived from focus groups and interviews with 74 teachers, 22 BAB implementers, and 15 government officials, as well as survey responses from 939 learners and 49 teachers.

Key Findings:

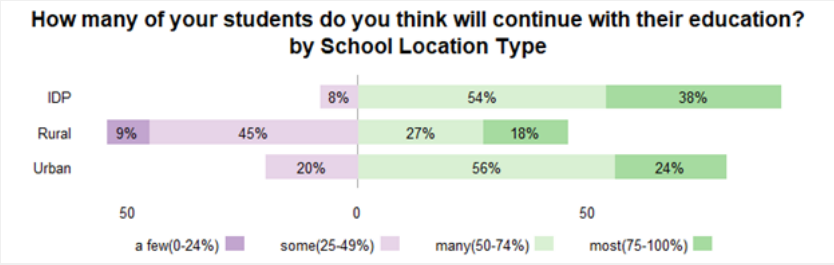
1. **Students are keen to continue their education.**
   Retained students in the longitudinal cohort overwhelmingly indicated a desire to continue their education in either ABE or a formal education program (Figure CS1-1), with numbers ranging from a low of 87% in Benaadir to a high of 98% in Jubbaland.

Figure CS1-1: Educational plans for next school year as indicated by students and by state



Teachers likewise expressed the strong belief that many or most of their students will continue their education (76%) – ranging from a high of 92% for teachers in schools located in IDP locations to just 45% of teachers in rural areas (Figure CS1-2). These findings are consistent with the general scarcity of educational opportunities in rural zones and highlight the need to focus educational efforts in these areas.

Figure CS1-2: Teacher perceptions of how many students will continue their education



Parents/caregivers documented successful transitions, especially in Jubbaland, where 35% of exit survey respondents identified transition to another educational program or school as the primary reason for their student's absence from the longitudinal sample at the end of academic year 2.

2. **BAB program features and student age facilitate successful transitions.**
KIIs identified the **BAB curriculum, sharing teachers and locations with formal schools, and student age as keys to successful transitions**. Specifically, KIIs noted that the BAB ABE curriculum, which emulates Somalia's national formal primary curriculum, prepares students for successful transitions. In the words of one Benaadir teacher, student transition from BAB to formal school is facilitated, *"because there is no difference between the BAB curriculum and the formal school curriculum."*

   Implementers further noted that co-locating BAB classes with formal primary classes and sharing teachers facilitated the flow of students between BAB and formal classes. In the words of one implementer, *"[BAB] is not a standalone project. The project is implemented in schools that already have formal classes. Head teachers were trained on the policy, […] which indicates that learners can even be transitioned to formal classes without having those gone through the four classes, the four levels."*

   Both teachers and implementers identified student age as key to smooth transition from BAB to formal classrooms. Specifically, they noted that older students' greater maturity, abilities, and life skills facilitated adaptation to the formal classroom more successfully than their younger classmates.

3. **Incentive structures and inadequate infrastructure hinder transitions.**
KIIs also identified several BAB characteristics and education structural challenges that hinder student transitions, including incentive structures, under-utilization of the Education Management Information System (EMIS), and access or availability of formal school and TVET programs to transfer students.

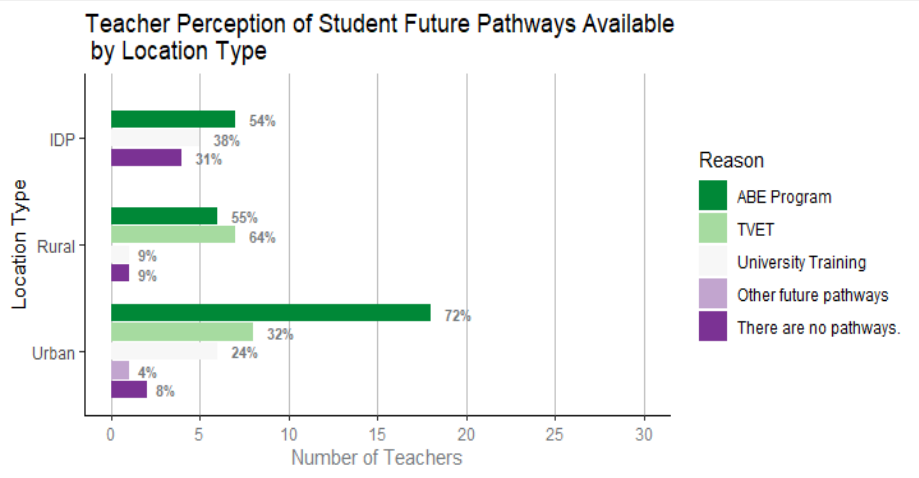
   Both implementers and teachers noted that the BAB incentive structure – which ties teacher stipends to students in the classroom – often served to delay or disincentivize movement of students into formal schools or TVET programs until **after** their eligibility for BAB was complete. Teachers noted the importance of retaining as many students as possible in their BAB class to head off program cancellation due to small class sizes and to maximize incentive pay.

   Student transition was further stymied by under-utilization of the federal EMIS system and the disconnect between the federal system and those used by many formal primary schools. Students not enrolled in the EMIS lack the educational track record needed to join a formal school. KIIs reported challenges entering BAB students into the federal EMIS system including lack of clarity regarding entry responsibilities, inadequate monitoring, system failures during registration periods, and a disconnect between BAB's rolling admission system that admits students throughout the academic year and the federal EMIS system that requires student registration within the first 3 months of the beginning of the academic year.

Finally, many respondents expressed concern about the dearth of free educational pathways for BAB students citing the scarcity of TVET and other transfer options – especially in IDP locations.

One in four surveyed teachers representing schools in IDP locations noted **no transfer options** at all, while half the surveyed teachers in rural areas and one-fifth of those in urban areas noted TVET as a transfer option for their students (Figure CS1-3). A government official summarized the challenges in this way, *"There is no plan for TVET. Even though we were planning to give TVET opportunities to those students who are above 14 or 15 years old but it hasn't yet come into action. The other we haven't yet realized is the plan in which we will send the students who graduated from level 4 or grade 8 to free secondary school."*

Figure CS1-3: Teacher perceptions of student educational pathways



Recommendations:

This case study reveals mismatches between a student population with the desire and potential to pursue further education and a Somali education system that lacks consistent, clear, and sufficient pathways and resources to support these desires. The following recommendations will help address these challenges by supporting student transition from ABE to formal classroom spaces:

- Disconnect teacher incentives from number of students in the classroom and find alternatives (e.g., students recruited and with extra bonus for successful transition)
- Consider continued school fee payments for enrolled program students beyond program duration (e.g., tuition scholarship, transportation cost coverage)
- Collaborate actively with governments across all levels to expand comprehensive educational infrastructure across the country (PreK-16; EMIS)
- Streamline and ensure entries of all students into EMIS to establish educational track records for student future
- Connect early with other educational interventions in the area (e.g., TVET) to build education pipeline and communicate educational pathways and options to parents and students.

2.7 BAB STUDENTS AND TEACHERS GENERALLY PERCEIVE SCHOOL AS A SAFE SPACE

USAID's Safer Learning Environments Working Group (USAID 2016) defined a safe learning environment as "a place where structured learning is free from environmental, internal, and external threats to the learners' and educators' well-being … where the infrastructure of a learning environment (and also the people within a learning environment) is deemed safe." Threats to safety can be internal (e.g., bullying, corporal punishment, or gang violence) or external (e.g., attacks on the school or natural disasters). All safety threats can significantly decrease the academic performance of learners. Learners who feel physically or emotionally unsafe at school or on the way to school are prone to poor attendance and increased dropout rates.

Both students and teachers expressed generally positive feelings of safety – both at school and on the way to school, although some students reported being bullied or picked on at school (see Midline report). We were also interested in understanding student and teacher perceptions of the impacts of safety on their ability to learn or teach effectively.

We asked students a new series of questions at the end of academic year 2 about how their perceptions of a lack of safety at school, at home, and in their community interfere with their ability to engage in high--quality learning behaviors. As responses on this scale increase, student perceptions of the influence of unsafe school, home, and community environments on their ability to learn decrease. Students' mean responses across the three safety scales indicate that **perceptions of unsafe school, home and community environments interfere little with their ability to learn** (Scale *Range* = 0-5, m_{school} = 3.06; m_{home} = 3.10; $m_{community}$ = 2.95). Each average response is above the mid-point of the scale demonstrating that, even if students feel unsafe, most still feel able to pay attention at school, follow directions at school, like school and attend school. **Student perceptions of safety were negatively and moderately correlated with their perceptions of hope, empathy, and self-esteem**. These significant correlations suggest that students exhibiting more sensitivity to safety concerns (students that have greater perceptions that unsafe environments interfere with their ability to learn) are also more likely to have higher perceptions of goal-oriented thinking, ability to understand the emotions of others, and positive feelings about themselves as a person.

We asked teachers similar questions about how their perceptions of safety at school, at home, and in their community interfere with their ability to engage in high-quality teaching behaviors. As responses on this scale increase, teachers' perceptions of the influence of an unsafe school, home, and community environments on their ability to teach decrease. Teachers' mean responses across the three safety scales indicate that their perceptions of unsafe school, home and community environments interfere little with their ability to teach (Scale *Range* = 0-5, m_{school} = 4.46; m_{home} = 4.27; $m_{community}$ = 4.46). Each average response is well above the mid-point of the 6-point scale demonstrating that, even if teachers feel unsafe, they still feel able to focus on their teaching, complete their teaching tasks, enjoy teaching, and attend school. Teacher perceptions of safety were moderately and positively correlated with their perceptions of hope and their perceptions of students' hope. These significant correlations suggest that teachers exhibiting less sensitivity to safety concerns (teachers that have greater perceptions that unsafe environments have little influence on their ability to teach) also have higher perceptions of their own ability and their students' ability to set and pursue goals.

The survey data suggest that **the impacts of perceptions of lack of safety on learning and teaching are relatively low for students and teachers.** However, those more likely to have higher perceptions of various indicators of resilience are more sensitive to the impacts of safety on their ability to learn and teach. Future research could explore why resilience and safety go hand in hand and how to help mitigate the impacts of unsafe learning environments.

Although BAB and formal primary teacher and learner surveys indicated that their perceptions of safety at school have little influence on their ability to learn and teach, BAB key informants expressed some reservations. BAB schools, like all schools, are in communities that are subject to a variety of local and regional challenges, including violence, conflict, instability, traffic issues, thieves, drug dealers, and abductors. KIIs named these challenges as potential causes for short-term disruptions to school or reasons parents might keep their children home from school in some communities. Specifically, several KIIs referenced safety issues on the way to or returning home from school for both students and teachers. Generally, the challenges result from the need for children and teachers to travel long distances to school on foot or through urban areas, leaving them vulnerable to rape, kidnappings, threats, harassment, robbery, and torture. **Safety concerns on the way to and from school were more often noted in urban areas and were specifically cited by parents in Benaadir as a reason their students left school**. Focus group teachers also noted that some parents withdrew their daughters because they "fear for their girls' safety."

Despite these concerns, KIIs generally viewed BAB schools as safe spaces for teachers and learners, or at least as safe as the communities they serve. When KIIs articulated **school safety concerns, they primarily focused on poor, unsafe, or inappropriate infrastructure, such as shoddy and hazardous construction, open wells and toilets, lack of walls or roofs, and lack of water and/or hygiene facilities**. Implementing partners noted that, although BAB assessed the safety of older school buildings, assessment results appeared to have little impact on upgrading or changing the learning environments.

> *"BAB has made assessment of safety checking due to old buildings and water and hygiene. They haven't built schools though there are weak and already some school buildings collapsed."*
> — *I*mplementing partner

Implementing partners also reported that security challenges at times prevented accessing some schools for monitoring purposes. Dilapidated school infrastructure compounded with environmental disasters or outbreaks of violence sometimes led to disastrous consequences, as this Benaadir teacher recalled:

> *"We closed the school only when the Benaadir municipality was attacked with explosions. We lost 4 students for the old building that collapsed after the heavy rain. We closed the school, and we all went to the family to pass our condolences." -*
> — Benaadir teacher

Other safety concerns included remote locations that made schools difficult/dangerous to access and secure and late dismissal times that made children walk home in the dark. Parents in South-West also remarked that they would not send their children to school during times of violence and flooding.

Implementers also noted temporary school closures in some areas due to clan clashes. A few schools reported challenges with robbers (some teachers and head teachers remarked having fallen prey to multiple robberies after leaving school grounds), communal wrangles, armed families, parent-teacher fights, insects, dogs, and cholera.

Several BAB schools implemented safety measures to ensure the safety of school infrastructure, resources, students, and teachers at or on the way to school. **Community involvement was the most frequently noted strategy for ensuring safety.** This involvement could be direct (e.g., community members walking children to/from school, lining roads to ensure safety, working directly at the school) or indirect (e.g., alerting school/teachers to security issues and coaching their children in methods to increase safety, such as walking in groups). Other commonly mentioned strategies for increasing school safety included on-site security at school, either by employing security guards, watchmen, or gatekeepers or by using volunteers – often parents and/or members of the CECs; and developing and maintaining a good relationship with local police or village authorities.

2.8 BAB AND FORMAL PRIMARY STUDENTS GAINED PROFICIENCY IN BOTH LITERACY AND NUMERACY

Numeracy and literacy were measured using the EGRA (RTI International, Early Grade Reading Assessment Toolkit, 2015) and EGMA (RTI International 2014) models. These assessments are oral exams that focus on the basic skills underpinning reading and numeracy skill development. The reading exam includes letter recognition, phonemic awareness, reading simple words, and listening comprehension. The math test includes number recognition, comparisons, and ordering sets of objects. The BAB program, in collaboration with the MoECHE, adapted EGRA and EGMA versions appropriate for Level 1 learners in Somalia during a workshop held in summer, 2021. SORDI, in collaboration with MoECHE, adapted EGRA and EGMA versions appropriate for Level 2 learners during a workshop in summer 2022.

We analyzed paired EGRA and EGMA data from BAB and formal primary school learners across two academic years to examine evidence of student knowledge and skill acquisition in literacy and numeracy.

We calculated proficiency levels for BAB students starting as Level 1 learners and completing Level 2 and formal primary students completing grade 3 after two academic years.[6] Student proficiency levels were defined as “non-learner” with a score of 0, “emergent learner” with a score greater than 0 but less than or equal to 40, “established learner” with a score greater than 40 but less than or equal to 80, and

[6] Most students in the formal primary cohort began as grade 2 learners in year 1 and progressed to grade 3 in year 2. However, a few students started as grade 1 learners and skipped to grade 3 in year 2 – generally after completing a summer intensive program. All formal primary students completing grade 3 after two years are included in this analysis.

"proficient learner", with a score greater than 80 and less than or equal to 100 total score for EGRA or EGMA.[7]

Table 6 shows the number of students in each proficiency category at each time point. **The combined cohort showed considerable gains in both literacy and numeracy over the two years.** In literacy, the percentage of students characterized as established or proficient doubled in year 1 (from 36 to 72%) and increased by 24% in year 2 (from 59% to 78%). In numeracy, the percentage of students characterized as established or proficient increased from 46% to 77% in year 1 and from 26% to 89% in year 2. Note that students were assessed at the beginning and end of year 1 using the Level 1 EGRA and EGMA assessments and at the beginning and end of year 2 using the Level 2 EGRA and EGMA assessments. The greater difficulty of the Level 2 assessments is largely responsible for the apparent decrease in student proficiency from the end of year 1 to the beginning of year 2 and the lower overall proficiency rate after year 2.

Table 6: Combined BAB and Formal Primary EGRA and EGMA proficiency by number and percent of students at the beginning and end of each academic year.

EGRA – Number and Percent of Students per Category				
Time	Non-Learner	Emergent Learner	Established Learner	Proficient Learner
Year 1 Baseline	2 (0.3%)	501 (64%)	254 (32%)	31 (4%)
Year 1 Endline	2 (0.3%)	212 (27%)	365 (46%)	209 (26%)
Year 2 Baseline	4 (0.5%)	321 (41%)	362 (46%)	101 (13%)
Year 2 Endline	4 (0.5%)	168 (21%)	358 (45%)	258 (33%)
EGMA – Number and Percent of Students per Category				
Time	Non-Learner	Emergent Learner	Established Learner	Proficient Learner
Year 1 Baseline	18 (2%)	406 (52%)	337 (43%)	27 (3%)
Year 1 Endline	8 (1%)	171 (22%)	464 (59%)	145 (18%)
Year 2 Baseline	84 (11%)	500 (63%)	195 (25%)	9 (1%)
Year 2 Endline	24 (3%)	301 (38%)	426 (54%)	37 (5%

Tables 7 and 8 show the number and percentage of students meeting EGRA and EGMA proficiency levels at each timepoint disaggregated by program cohort – BAB and formal primary grade 1-3. **Growth in literacy proficiency for the two cohorts is similar, while growth in numeracy proficiency favors BAB in year 2, which is consistent with the accelerated nature of the BAB curriculum, which would put BAB students at grade level 4.**

Table 7: BAB and Formal Primary disaggregated EGRA proficiency by number and percent of students in each category at the beginning and end of each academic year.

Time	Program	Non-Learner	Emergent Learner	Established Learner	Proficient Learner
Year 1 Baseline	BAB (n=594)	2 (0.3%)	390 (66%)	174 (30%)	22 (4%)

[7] As Somalia did not have defined national literacy and numeracy performance levels at the beginning of this research we use the performance levels described in the Leave No Girl Behind, AGES project (page 97) (Machova, Miettunen and Peterson 2020).

Time	Program	Non-Learner	Emergent Learner	Established Learner	Proficient Learner
Year 1 Baseline	Formal Primary Grade 1 or 2 (n=194)	0 (0%)	111 (56%)	80 (40%)	9 (4%)
Year 1 Endline	BAB (n=588)	1 (0.2%)	155 (26%)	272 (46%)	160 (27%)
	Formal Primary Grade 1 or 2 (n=200)	1 (0.5%)	57 (29%)	93 (47%)	49 (25%)
Year 2 Baseline	BAB (n-594)	3 (0.5%)	238 (40%)	281 (47%)	72 (12%)
	Formal Primary Grade 3 (n=194)	1 (0.5%)	83 (43%)	81 (42%)	29 (15%)
Year 2 Endline	BAB (n=594)	4 (0.7%)	116 (20%)	281 (47%)	193 (32%)
	Formal Primary Grade 3 (n=194)	0 (0%)	52 (27%)	77 (40%)	65 (34%)

Table 8: BAB and Formal Primary disaggregated EGMA proficiency by number and percent of students in each category at the beginning and end of each academic year.

Time	Program	Non-Learner	Emergent Learner	Established Learner	Proficient Learner
Year 1 Baseline	BAB (n=588)	18 (3%)	314 (53%)	237 (40%)	19 (3%)
	Formal Primary Grade 1 or 2 (n=200)	0 (0%)	92 (46%)	100 (50%)	8 (4%)
Year 1 Endline	BAB (n= 588)	7 (1%)	119 (20%)	350 (60%)	112 (19%)
	Formal Primary Grade 1 or 2 (n=200)	1 (0.5%)	52 (26%)	114 (57%)	33 (17%)
Year 2 Baseline	BAB (n=594)	62 (10%)	376 (63%)	149 (25%)	7 (1%)
	Formal Primary Grade 3 (n=194)	22 (11%)	124 (64%)	46 (24%)	2 (1%)
Year 2 Endline	BAB (n=594)	17 (3%)	214 (36%)	336 (57%)	27 (5%)
	Formal Primary Grade 3 (n=194)	7 (4%)	87 (45%)	90 (46%)	10 (5%)

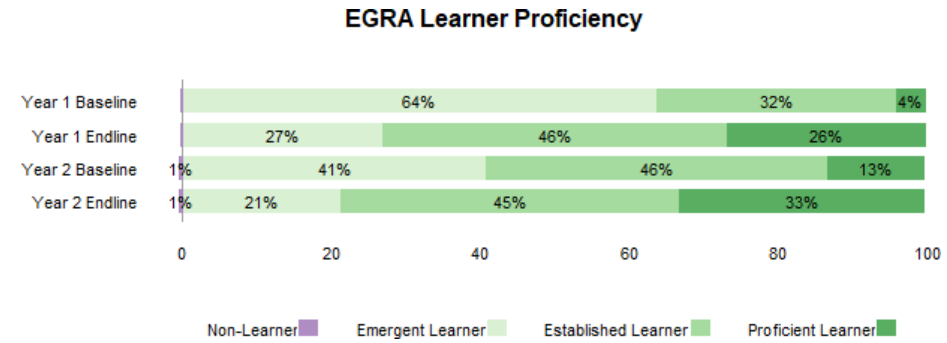
The percent of longitudinal cohort students in each program categorized as an established or proficient learner at the beginning and end of each year for EGRA and EGMA is summarized in Table 9, where the first number represents the percentage of students in these categories at the beginning of the academic year and the second number represents the percentage of students in these categories at the end of the academic year.

Table 9: Change in percent students categorized as established or proficient learner from beginning to end of each academic year by program.

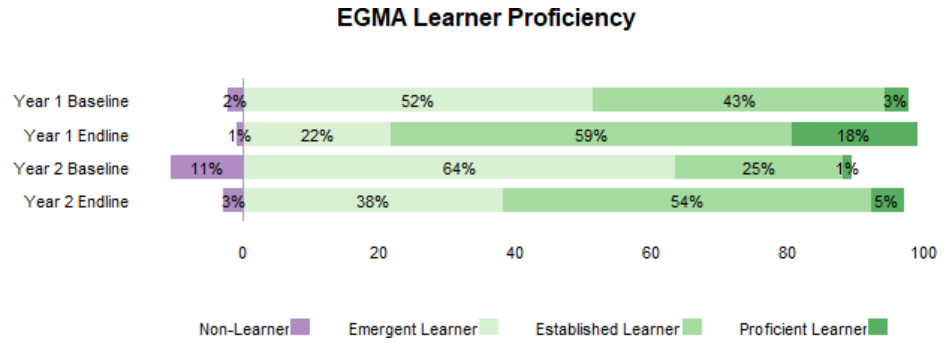
Program	EGRA		EGMA	
	Year 1	Year 2	Year 1	Year 2
BAB	34%-73%	59%-79%	43%-79%	26%-62%
Formal Primary	44%-72%	57%-74%	59%-74%	25%-51%

Figure 7 shows the increases in combined BAB and Formal Primary EGRA and EGMA proficiency from the beginning and end of each academic year. EGRA proficiency scores (the number of students scoring as established or proficient learner) increased by 72% in year 1 and 78% in year 2. EGMA proficiency scores increased 77% in year1 and 59% in year 2.

Figure 7: Combined BAB and Formal Primary EGRA and EGMA proficiency by percent at the beginning and end of each academic year.



72% Combined literacy proficiency[8] after one academic year. **78%** over 2 years.



77% Combined numeracy proficiency after one academic year. **59%** over 2 years.

2.9 BAB STUDENT LITERACY AND NUMERACY GAINS EXCEEDED GAINS MADE BY FORMAL PRIMARY STUDENTS OVER TWO YEARS

Figures 8 and 9 illustrate changes in EGRA and EGMA scores from the beginning to the end of two academic years for paired BAB students starting in Level 1 and completing Level 2 and formal primary learners starting in grade 2 and completing grade 3. **Both groups showed significant learning gains in both literacy and numeracy for each academic year.**

[8] Sum of established and proficient learners on end-of-year assessment.

Figure 8: Changes in EGRA scores for academic years one and two by program

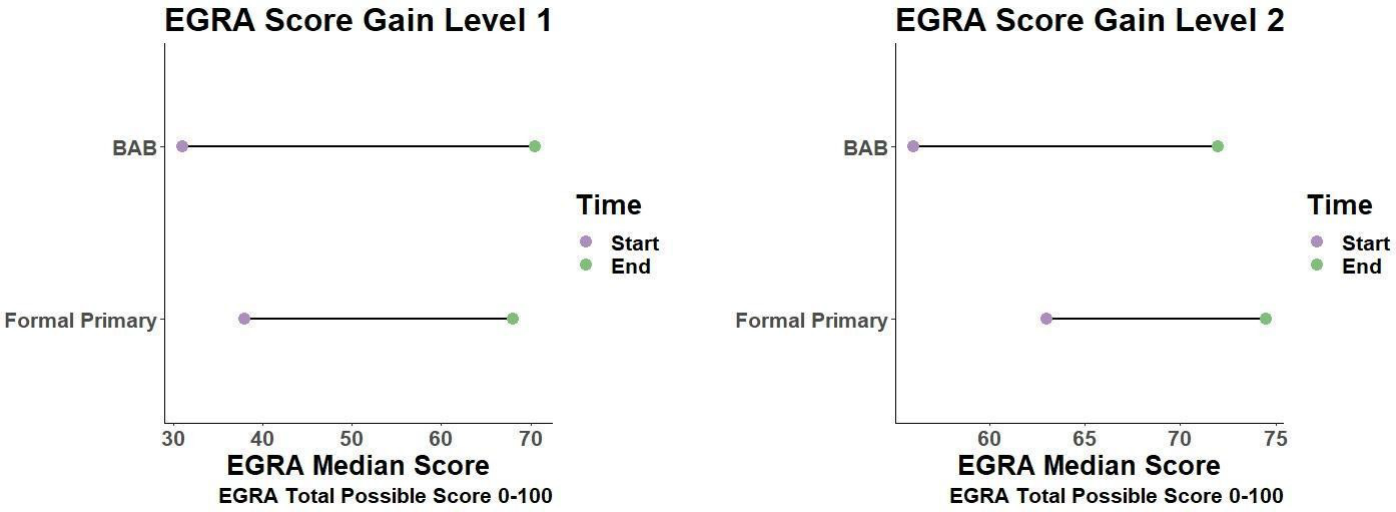
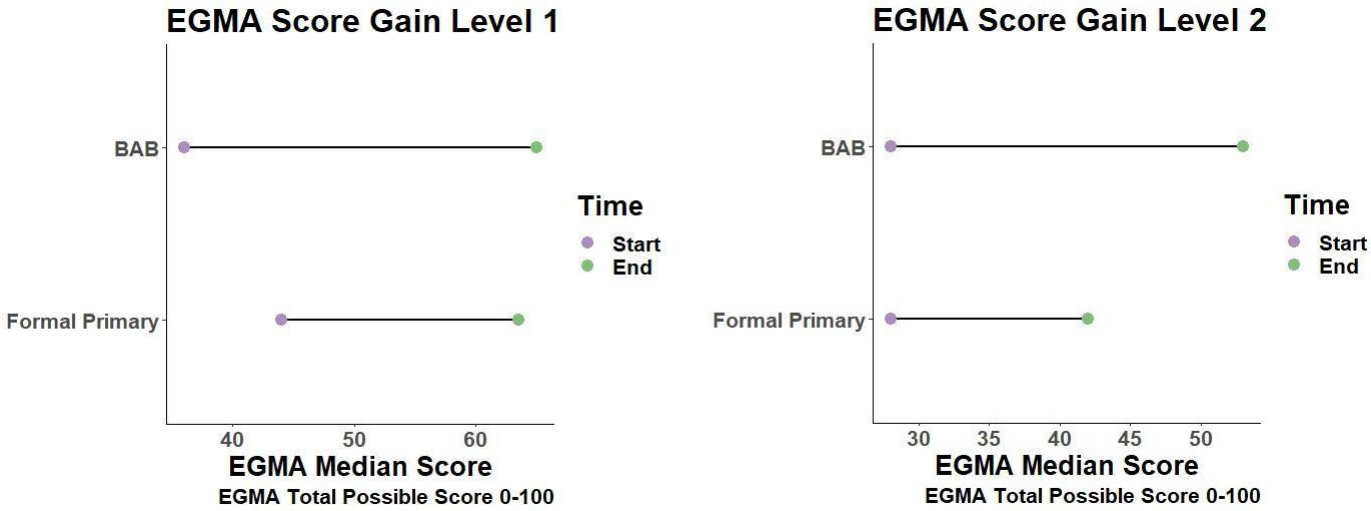


Figure 9: Changes in EGMA scores for academic years one and two by program



We found a significant difference in the first year EGRA and EGMA median normalized gain scores, with **BAB students finishing the Level 1 curriculum exhibiting higher growth than formal primary students finishing grade 2. In academic year 2, the BAB cohort -- now finishing the Level 2 curriculum -- also exhibited higher EGRA and EGMA median normalized gain scores than formal primary students finishing grade 3 --** although the differences were not significant. Nonetheless, these findings show impressive gains for a fledgling program serving low income and marginalized students and are consistent with some acceleration of the curriculum. Table 10 shows EGRA and EGMA median normalized gain scores for each program over two academic years.

Table 10: EGRA and EGMA gains by program over two academic years

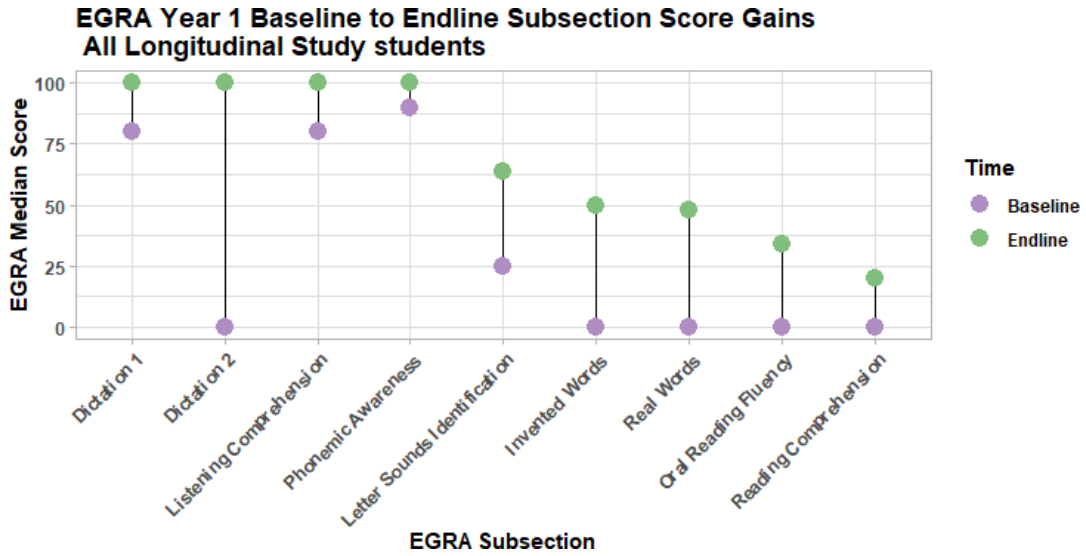
Group	Subgroup	Year 1 Begin Med	Year 1 End Med	Year 1 Norm Gain Med	Year 1 p value	Year 2 Begin Med	Year 2 End Med	Year 2 Norm Gain Med	Year 2 p value
EGRA Baseline to Endline Gains		33.00	67.00	33.33		53.00	72.00	27.08	
Program	BAB (n=594)	31.00	69.50	38.12	**0.001***	54.50	73.00	28.17	0.068
	Formal Primary Grade 3 (n=194)	38.00	62.00	23.46		52.00	69.00	21.66	
EGMA Baseline to Endline Gains		38.00	64.00	31.41		26.00	51.00	25.64	
Program	BAB (n=594)	36.00	65.00	35.19	**0.002***	26.50	54.00	26.76	0.090
	Formal Primary Grade 3 (n=194)	42.50	60.00	23.53		24.00	42.00	20.42	

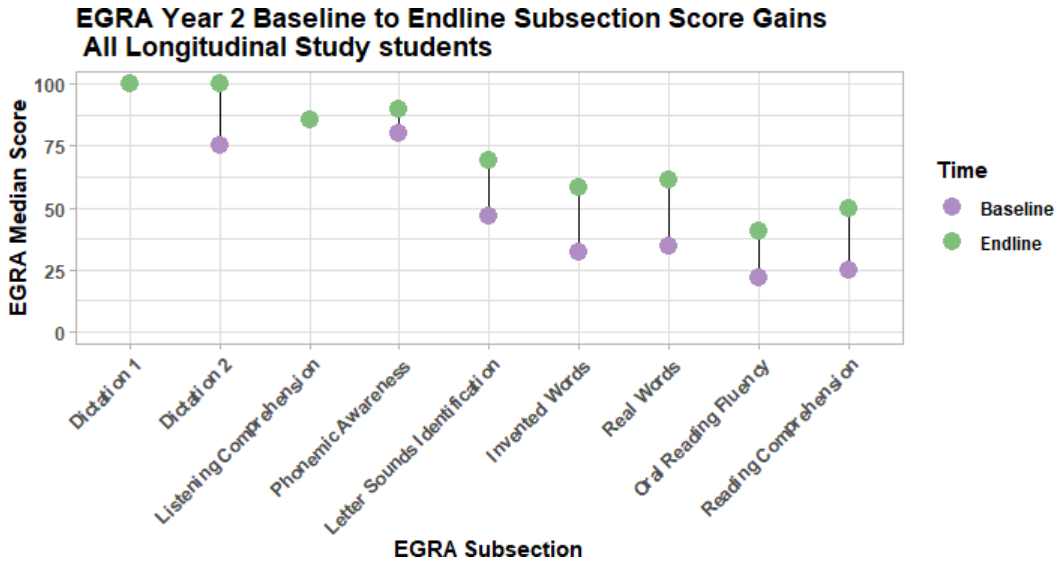
*We saw median normalized gain scores are significantly different between the programs using Kruskal-Wallis test ($p<0.05$)

2.9.1 EGRA and EGMA subsection scores

We examined EGRA and EGMA subsections scores for patterns of literacy and numeracy growth over time. The dumbbell plots in Figures 10 and 11 show EGRA and EGMA subsection score gains over each academic year for all longitudinal study students.

Figure 10: EGRA Year 1 and Year 2 Baseline to Endline Subsection Score Gains for all Longitudinal Study Students





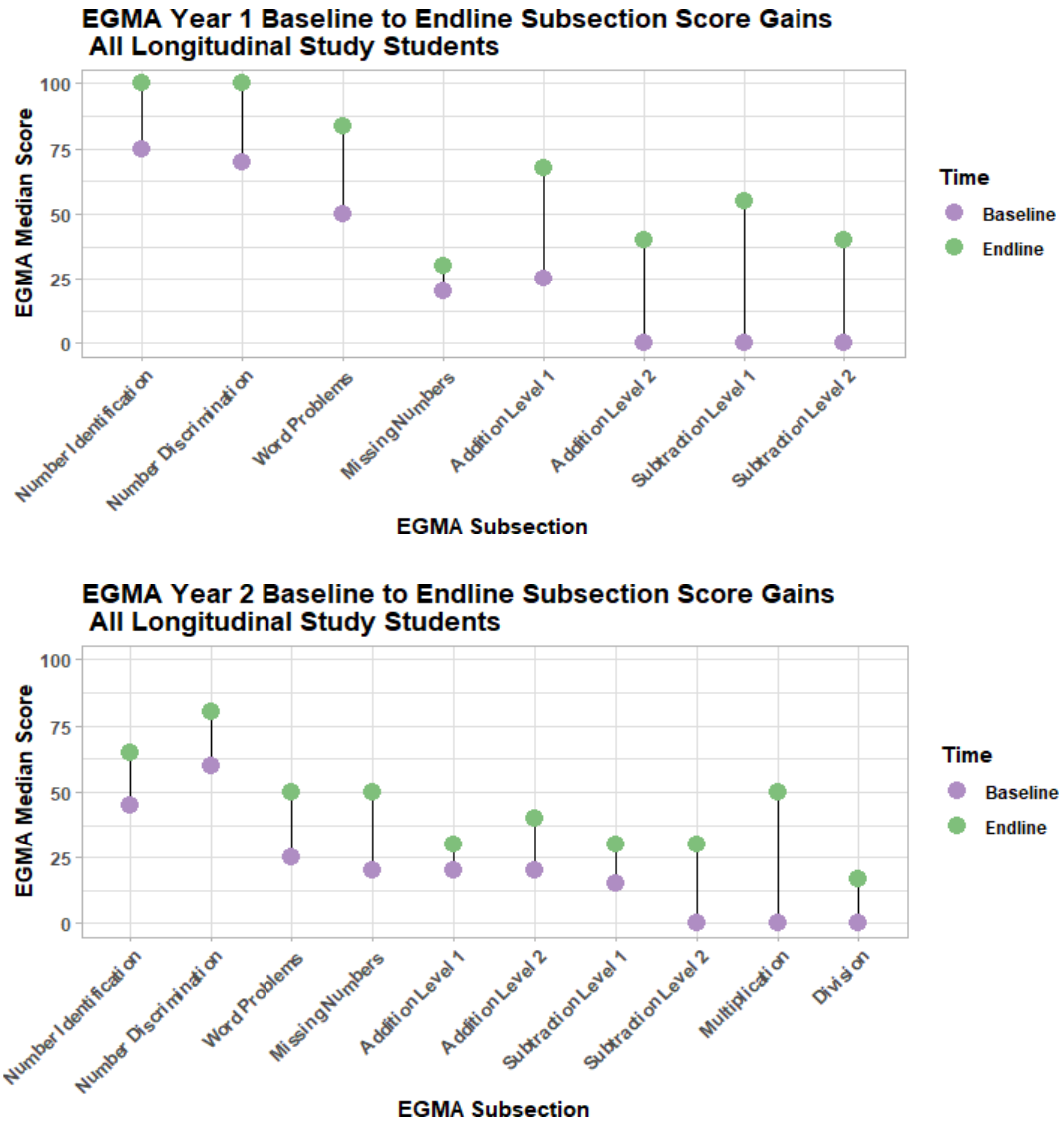
The zero scores on many subsections of the year 1 EGRA Baseline to Endline graph confirm that many of the longitudinal cohort students were truly beginning readers, as would be expected for students previously excluded from schools. The higher baseline scores for phonemic awareness, dictation 1,[9] and listening comprehension aren't surprising, as these sections don't require decoding written text. Beginning scores for letter-sound identification (Phonics) indicate that some students knew the alphabet and some letter sounds – not surprising for older students.

The lower endline scores for oral reading fluency and reading comprehension are also expected, especially given that most students were only at the 50 median score for reading real (and invented) words and given the lower oral reading fluency scores. If students struggle to decode individual words, or slowly read each word with pauses in between as if each word in the sentence is isolated from the rest of the words (i.e., reading without automatically, good prosody, and fluency across whole phrases and sentences), it's unlikely they are reading for meaning; thus, they may not comprehend much of what they are reading.

The EGRA year 2 subtest results show good one-year growth on all measures except listening comprehension, which was high at baseline and showed little change. Improvement in letter-sounds identification and individual word reading likely contributed to the small gains in reading comprehension. While it's somewhat unexpected to see lower oral reading fluency than reading comprehension, this could be an artifact of students feeling more comfortable reading quietly on their own for comprehension than reading aloud in front of the test giver (and whoever else could hear).

[9] In EGRA level 1 Dictation 1 subsection, students were given 5 items of 1 letter each. In the EGRA level 2 Dictation 1 subsection, students were given 5 words.

Figure 11: EGMA Year 1 and Year 2 Baseline to Endline Subsection Score Gains for all Longitudinal Study Students



The EGMA year 1 results suggest that students entered school with some number knowledge. To reflect the level 2 BAB curriculum, EGMA 2 is a harder test with division and multiplication added. The addition level 1 subsection in EGMA 2 contained all 2 digit number problems where as in EGMA 1 addition level 1 only contained single digit addition. It may seem contradictory to see lower scores on the addition subtests compared to the multiplication subtests -- which require a solid understanding of addition. One possible explanation is that the multiplication test scores reflect successful memorization of multiplication facts (e.g., 8x8=64) without fully understanding the underlying addition (e.g., 8 + 8 +8 + 8 +8 + 8 + 8 + 8 = 64).

2.10 Costs associated with increasing learner proficiencies and program scaling

The external evaluation examined costs associated with student learning and program scale-up from both the donor and the government perspectives. See Appendix 4 for the complete cost analysis report.

2.10.1 The cost per student to increase learners' proficiency levels in reading and math skills (e.g., non-learners, basic learners, emergent learners, etc.)

To calculate the cost per student of increasing proficiency in reading and math skills, we considered cost categories that contribute directly to the outcome. The cost categories considered include General Operations, Management and Reporting, Assessments and Evaluations, In-Service Teacher Training, Teaching and Learning Materials (TLM), Parents/Community Engagement and Safe Schools and Infrastructure. Table 11 below presents the rationale for selecting these cost categories.

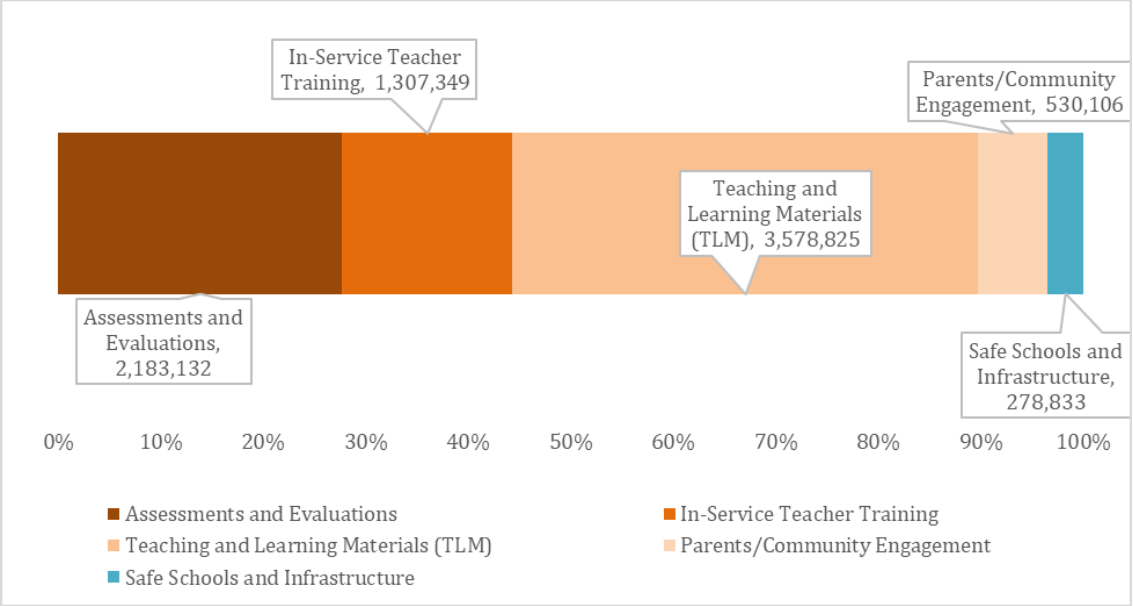
Table 11: Cost categories that contribute to increasing learners' proficiency levels in reading and math skills

Cost Category included	**Reason**
General Operations, Management and Reporting	Included in full costs calculations
Assessments and Evaluations	Based on the theory of change Assessments and Evaluations contribute to learning outcomes. The monitoring, evaluation and assessment feed back into intervention to improve effectiveness
In-Service Teacher Training	Based on the theory of change In-Service Teacher Training contributes to learning outcomes
Teaching and Learning Materials (TLM)	Based on the theory of change Teaching and Learning Materials contribute to learning outcomes
Parents/Community Engagement	Based on the theory of change Parents/Community Engagements contribute to learning outcomes
Safe Schools and Infrastructure	Based on the theory of change Safe Schools and Infrastructure contribute to learning outcomes

Figure 12 shows the ranking of total costs that contributed directly to learning outcomes. Development, procurement and distribution of teaching and learning materials accounted for the largest amount (45%) followed by assessments and evaluation (28%) point, and in-service teacher training (17%). The lowest

costs were on parents/community engagement at 7% and Safe Schools and Infrastructure at 4%. The low expenditure on safe schools and infrastructure is because the government, communities and other non-government entities contributed classroom spaces to the project.

Figure 12: Cost Categories that directly contributed to learning outcomes



These costs are the total before monetized contributions are added in.

The BAB external evaluation found EGRA normalized gains of 33.33 and 27.08 points for year 1 and year 2, respectively, and EGMA normalized gains of 31.41 and 25.64 points for year 1 and year 2, respectively. If we consider total costs (technical costs only) incurred by USAID alone (without monetized contributions), the cost per student to achieve these proficiency levels is US$ 73. If we add the proportion of General Operations, Management and Reporting spent (without monetized contributions) to the technical cost categories contributing to learning outcomes, the full cost per student spent by USAID is US$ 123. If we consider total social costs (by adding monetized contributions from government and non-government entities to technical costs incurred by USAID), the cost per student to increase proficiency level in reading and math skills based on the EGRA and EGMA results, is to US$ 87. If we add overhead costs to the total social costs, the full social cost per student incurred to increase learning outcomes becomes US$ 142 (Table 12).

In other words, to achieve the learning outcomes noted above, USAID alone spent US$ 73 per student on the technical components of the intervention or US$ 123 per student overall if we include overhead costs. On the other hand, if we add monetized contributions to the overall cost incurred by USAID, the government, the communities, and other stakeholders (full social cost) to achieve the learning outcomes is US$ 142.

Table 12: Cost per student of increasing one proficiency level in reading and math skills

Cost-Effectiveness without Monetized Contributions (i.e., USAID Perspective ONLY)		
Cost Type	**Cost (US$)**	**Cost per Student (US$)**
Total Costs USAID Perspective	7,878,245	73
Full Costs USAID Perspective	13,342,717	123
Cost-Effectiveness with Monetized Contributions (i.e., Social Perspective)		
Cost Type	**Cost (US$)**	**Cost per Student (US$)**
Total Costs Social Perspective	9,411,420	87
Full Costs Social Perspective	15,422,148	142

Source: Computed from Quarterly BAB Financial Reports (2020 -2023)

2.10.2 The cost per student of expanding the BAB reading, math, and SEL intervention package in intervention areas (USAID perspective)

To calculate the cost per student of expanding the BAB interventions, we considered the cost categories that directly impacted learners' access to education and outcomes. These include Assessments and Evaluations, In-Service Teacher Training, Teaching and Learning Materials, Parents/Community Engagement, and Safe Schools and Infrastructure. Since the program expanded from 11 to 31 districts, increasing the number of schools from 197 to 447 and learners from 39,930 to 108,458, we considered the cost per student since the expansion period (July 2022 to June 2023).

Analysis results show that the cost per student (technical costs only) incurred by USAID (without monetized contributions) after the expansion of BAB's ABE program is US$ 35. If we add the proportion of General Operations, Management and Reporting (overhead costs) spent by USAID (without monetized contributions) to the technical costs (full costs incurred by USAID alone), the cost per student increases to US$ 48 (Table 13).

Table 13: Cost per student of expanding the BAB intervention package in intervention areas (USAID perspective)

USAID Perspective	**Cost (US$)**	**Cost per Student (US$)**
Total Costs	3,793,408	35

Full Costs	5,257,434	48

If we take the period up to June 2022 (before expansion) and compare it with the period after June 2022 (after expansion) the total cost per student incurred by USAID alone reduces from US$ 102 to US$ 35 (Table 14). This shows an improvement in implementation efficiency, making the scale-up more cost-efficient than the original program implementation.

Table 14: BAB Implementation Costs Before and After Expansion

USAID Perspective	**Cost (US$)**	**Cost per Student (US$)**
Total Costs (Before Expansion)	4,084,837	102
Total Costs (After Expansion)	3,793,408	35

2.10.3 The cost per student of expanding the BAB reading, math, and SEL intervention package in intervention areas (The Government of Somalia's perspective)

For the government of Somalia's perspective, we considered two cost categories, i.e., In-Service Teacher Training and Teaching and Learning Materials when calculating the cost per student after expansion of BAB's ABE program. The reasons for excluding other cost categories were: 1) the government can do assessment and evaluation through the established federal and state structures of the formal education system; 2) parent and community engagement can be done through the established government structures like Parents Teacher Associations; and 3) safe schools and Infrastructure cost category is excluded since the government can use existing infrastructure. Even when a new school/classroom is to be constructed, the government can follow the existing budgeting and policy framework outside the ABE program implementation; and 4) we considered only technical costs (we didn't add General Operations, Management and Reporting costs to the technical costs), since the government's overhead costs most likely differ from those of USAID.

Since the intervention was already developed and the Somalia Government wouldn't need to spend any money on development, we considered only implementation costs. This gives us a cost per student of US$ 12. (Table 15).

Table 15: Cost per student after expansion of BAB's ABE program (Government of Somalia's perspective)

Costs	**In-service Teacher Training Costs (US$)**	**TLM Cost (US$)**	**Total Costs (US$)**	**Cost per student (US$)**
Implementation	794,039	496,145	1,290,184	12

This analysis implies that if the ABE program transfers administration to the government of Somalia, implementation cost per student would be US$ 12. Therefore, we note that, based on the available data, transferring the BAB program implementation to the government would be more cost-effective.

The evaluation was unable to calculate the cost per student of replicating the BAB reading, math, and SEL intervention package in new areas (USAID and the Government of Somalia's perspective). Replication requires moving a program to an entirely new context, this isn't the case for Somalia.

The evaluation was also unable to calculate the total cost per student of ABE instruction, disaggregated by levels (L), L1, L1-L2), as expenditure data was not disaggregated by levels. If this information is desired, future implementations should require more detailed and disaggregated financial record keeping.

2.11 Student perceptions of hope increased significantly in one academic year for both BAB and formal primary school students

Hope is often associated with positive academic, behavioral, and psychosocial outcomes and is protective against negative or destructive behaviors, including violence and aggression ((Marques & Lopez) (NESCO, 2016) It involves optimistic thinking that focuses on good things to come. Hope is action-oriented and includes agency – or the motivation and confidence that you can act on your own to move towards a goal and the belief that you can find different pathways to achieve your goals.

To identify changes in hope over one academic year, we examined Hope mean scores for subjects in the BAB, formal grade 1, and formal grade 2 cohorts using ANOVA and Kruskal-Wallis significance testing.

All cohorts showed significantly higher hope scores after one academic year, suggesting a positive impact of education on this important psychosocial indicator[10]. As we saw no significant differences in starting and ending hope scores or hope gains between BAB and formal primary students (Table 16), the increase in hope is likely related to education in general, rather than to a particular program.

Table 16: BAB and Formal Primary students increase in hope over one academic year.

Group	Subgroup	Midline Mean	Midline SD	Endline Mean	Endline SD	p-value
Retained Hope Perceptions at Midline and Endline		**2.93**	**0.82**	**3.26**	**0.97**	
Program Inclusion	BAB (n=594)	2.94	0.79	3.28	0.95	0.5529
	Formal Primary (n=345)	2.92	0.86	3.23	1.02	

[10] We used a T-test to compare hope score averages for the combined cohort from the end of year 1 to the end of year 2. The resulting p-value was well below 0.00, indicating the increase in hope is significant.

3 How do learning outcomes of diverse learners differ across school type, demographics, and geographic variables?

The evaluation also sought to understand the impact of contextual and demographic indicators on learner outcomes. We examined interconnections among a variety of factors – both internal and external to the student using an Ecological Systems Framework as an organizer. We examined predictors of student outcomes at the student, school, and community levels. Table 17 summarizes student and location characteristics associated with less favorable outcomes.

Table 17: Summary Demographic and Contextual Impacts on Learner Outcomes, Challenges, and Recommendations

Indicator	Impact	Challenge	Recommendation
Vulnerability (low SES, IDP family, non-majority dialect, disability)	All vulnerable groups experience decreased access, retention, and math and literacy gains. Students speaking dialect other than Maay or Maaxa tiri also had lower hope scores.	Vulnerable groups lacked access to food and other necessities. Families needed to prioritize children's contribution to family budget over school attendance. Schools are not accessible to students with mobility disabilities, schools and teachers lack materials and training to accommodate children with disabilities. Teacher-student dialect mismatches negatively impact learning. Schools lack educational resources matching student dialect.	Connect and leverage food and other relief programs with education programs. Provide teacher training, educational supports, and infrastructure to support students with disabilities and linguistic differences. Recruit teachers with the ability to speak dialects represented by their students.

Indicator	Impact	Challenge	Recommendation
Age and Gender	Boys retention decreased with age. Boys scored lower on measures of hope than girls. Girls scored lower on math assessments than boys. Younger students scored lower on math and literacy assessments than older students.	Older students (particularly boys) leave school to go to work. Boys are less optimistic about their ability to achieve their goals. Younger children were less cognitively prepared for ABE.	Explore hybrid, remote, and alternative school options that allow students to balance school and work commitments. Offer student/families financial supports and incentives for finishing school. Provide early and clear career pathway counseling. Provide teacher training aimed at mitigating gender bias. Differentiate instruction by age. Limit ABE to older students.

Indicator	Impact	Challenge	Recommendation
Location Type	IDP and rural students had less access to education. IDP and rural students were more at risk for drop out.	The number of classes and teachers were insufficient to meet demand. Students moving during the school year were unable to re-enroll. Students lacked transportation or safe passage to remote schools. IDP and rural students were more likely to work. Illness precluded school attendance.	Increase the number of classes and teachers and ensure equitable distribution. Standardize student tracking systems to streamline transfer between schools. Implement alternative education options that allow students to attend remotely and balance work and school. Ensure adequate hygiene and sanitary facilities.
State	Students in Jubbaland and South-West were most at risk of dropping out. Students in Benaadir and Jubbaland scored lower on academic assessments.	Students lacked transportation to remote schools. Violent encounters negatively impacted academic performance. Religious clerics undermined school attendance, primarily in Hirshabeelle.	Provide transportation to schools or alternative means of attending and learning. Collaborate with clerics in the communities to encourage pursuit of religious and academic education pathways.

3.1 Access to education is uneven and inadequate

While the BAB program increased the number of students able to access and receive education in many communities, it did not serve all potential learners equally well. Specific challenges or attributes identified as curtailing or preventing access to the BAB program for various vulnerable population groups included programmatic characteristics (awareness and capacity); personal, family, community, or cultural characteristics (attitudes and beliefs; hunger or poverty; migration or displacement; work or family responsibilities); and environmental or external characteristics (location, drought, flood, violent extremism).

The most referenced barrier to access was the limited number of schools and classrooms available relative to the number of OOSCY – highlighting the strong need for increased educational opportunities in many Somali communities.

> *"BAB schools cannot satisfy the needs of the vast number of children and youth who want to learn."* — South-West Community Member

Physical or material scarcities impacted services to students, including the limited availability of appropriate space, infrastructure, resources, teachers, and funding. The need and desire for education strongly outweigh Somalia's current education capacity. Moreover, access to education, while limited in many communities, is not evenly distributed. KIIs observed that **inequitable distribution of both BAB centers and formal primary schools negatively impacted access for students in underserved areas – particularly IDP and rural locations.**

Further, even in communities with schools, access to the BAB program is limited for some children and youth. For example, KIIs reported that **many existing schools lack the physical infrastructure to accommodate students with mobility disabilities, making them inaccessible to these children**. Further, informants described large class sizes in many schools, making it difficult or **impossible for teachers to differentiate instruction for students with different abilities or needs**. In addition, many schools lack curricula and materials to support students with visual or auditory impairments. Indeed, some schools report **insufficient materials and supplies to meet the needs of students** in general. Moreover, **teachers expressed a need for more training** to provide the knowledge and skills needed to differentiate instruction and meet the needs of all students in their diverse classrooms. Cultural and family traditions and responsibilities (including early marriage, housework, family duties, and work) limited educational access for some boys and girls, while lack of proper hygiene kits and insufficient sanitary facilities disproportionately limited access for girls.

Table 18 summarizes BAB's effectiveness and challenges in reducing barriers to educational access for diverse learners.

Table 18: BAB successes and challenges in reducing barriers to access education.

Learner Characteristic	Access Success	Access Barrier	Representative Quote(s)
Children with Disabilities	Some BAB schools and /teachers successfully serve children with disabilities	Inaccessible infrastructure, insufficient teacher training and resources, and large class sizes all created barriers to access for learners with disabilities. In some areas, students with disabilities also faced bullying, name calling, and discrimination by other students.	*I think disabled people are missing. Now if we look at the students in our school there is no blind students, even though there is special school for disabled people. We have not supportive materials for these students like wheelchairs; I can say that those people are not included to the school.* (Benaadir Teacher) *Yes, our schools can adequately accommodate for all kinds of disabilities.(Kismaayo Head teacher)*
Gender	Schedules and lack of uniform requirements increased access for overaged girls who are not well-served in formal schools.	Cultural and family traditions (e.g., early marriage, housework, family responsibilities) and lack of proper hygiene kits and sanitary facilities, and safety concerns limited access to education for some girls. Work responsibilities also limited educational access for both boys and girls.	*There is also the older female learner who were shy of the stigma that comes with wearing a schoolgirl uniform and now comfortably learn in BAB.* (Benaadir Parent) *Girls are more influential and hardworking than boys, but because of housework, they frequently arrive late or fail to come up at all.* (South-West Teacher) *Often, when a girl reaches adulthood, she may be excluded from school by her parents because they fear that she may face abuse or rape.* (Benaadir Teacher)
IDP Children and Migrants	KIIs in some communities report large enrollment of IDP children in school.	Need is greater than capacity in many communities. Relocation due to drought, floods, famine, insecurity, etc. often places students in a location where it is not	*Another problem that the IDP students face is the constant eviction. I recall students who were brilliant in their level 1. They were evicted and settled in a far-away camp. The first days they were still motivated*

		possible to continue their education due to distance or lack of availability of affordable schools. Existing BAB schools are unable to absorb newly arrived students.	*and were maintaining to come from long distance and attend classes until they finally started to play along the long way and not come or come to class very late.* (Benaadir Teacher)
Minorities	Some KIIs reported outreach to minority or marginalized communities that encouraged enrollment and a general attitude of inclusivity.	Minorities and marginalized children were identified as more likely to experience discrimination or bullying that limited educational access.	*Most low-income and marginalized communities in this area have benefited from this program, even those who grew older than school age*. (Benaadir Parent)
Overage Youth	BAB schools supplied much needed opportunities for older students and mitigated some of the stigma of attending entry level classes for these youth.	Delays in academic education (often resulting from the need to complete Qur'anic instruction before beginning academic training) result in children/ youth that feel too old to pursue education.	*This program partly revived the hope of older youth who had no opportunity to learn because of lack of financial capacity*. (South-West Parent)
Poor Children	BAB made education accessible to many children and families lacking resources to afford fees, uniforms, etc. Poor families were able to send all children to school, rather than prioritizing one	Complications of poverty (e.g., need to work to help support family, lack of necessities including proper clothes and shoes, and hunger) made BAB inaccessible to many poor children.	*We have seen observable changes that were made by BAB program, this centre provided education support to children from poor families (children from minority tribes).* (Hirshabeelle Teacher) *Now the whole community benefits from the opportunity of this program, regardless of rich and poor, so it is better to consider the poor ones first when it comes to enrolling children for the sake of their economy. Yes - There are*

	or more.		*people who are desperately in need of this education and cannot afford to pay a fee.* (South-West Community Member)

3.2 The most vulnerable members of Somali society are also most at risk for school attrition

We examined differences between retained and non-retained students based on prior academic preparation and perceptions of safety at baseline for program type (BAB and formal primary), location (urban, rural, or IDP), IDP family status, gender, age, SES composite score, parental literacy, students living with someone other than their parent, dialect, and Somali state in both academic years. The results, shown for the combined sample including both BAB and formal primary students in Table 19, indicate **significant differences between retained and non-retained students in both academic years based on program, who the student lives with, and state.** In the first academic year, **we also saw significant differences in location type, with rural students retained at significantly lower rates than urban and IDP students. In year 2, we saw differences based on students' identification as belonging to an IDP family, age, SES composite score, and dialect.** In general, risk factors for attrition were similar for both BAB and formal primary school students.

Table 19: Combined BAB and Formal Primary Retention over Two Academic Years

Group	Subgroup	Baseline Students	Students Retained for One Year	Difference retained and non-retained one year (p-value)	Students Retained for two years[11]	Difference retained and non-retained two year (p-value)
Totals		**2553**	**1625 (64%)**		**1167 (46%)**	
Location Type	IDP	651	441(68%)	**0.004***	307(47%)	0.134
	Rural	538	314(58%)		261(49%)	
	Urban	1384	870(64%)		599(44%)	
Student IDP Family	Not IDP Family	1478	939(64%)	0.884	706(48%)	**0.014***
	IDP Family	1075	686(64%)		461(43%)	
Gender	Male	1294	810(63%)	0.262	600(46%)	0.499
	Female	1259	815(65%)		567(45%)	

[11] These numbers include 228 students present at both time 1 and time 4, but missing at one or both or the intermediate time points (and so not included in our analytical sample calculations).

Group	Subgroup	Baseline Students	Students Retained for One Year	Difference retained and non-retained one year (p-value)	Students Retained for two years[11]	Difference retained and non-retained two year (p-value)
Age Group	4- to 11-year-olds	1542	989(64%)	0.528	748(49%)	**0.000***
	12- to 20-year-olds	1011	636(63%)		419(41%)	
SES Composite**	none	153	70(46%)	0.053	15(10%)	**0.003***
	low	744	448(60%)		267(36%)	
	medium	1001	761(66%)		518(52%)	
	high	649	445(69%)		367(80%)	
Mother Literacy	No	1501	942(63%)	0.263	684(46%)	0.864
	Yes	1052	683(65%)		483(46%)	
Father Literacy	No	1106	682(62%)	0.068	499(45%)	0.599
	Yes	1447	943(65%)		668(46%)	
Lives with other	No	2423	1554(64%)	**0.028***	1122(46%)	**0.009***
	Yes	130	71(55%)		45(35%)	
Student Dialects	Maay	976	619(63%)	**0.011***	425(44%)	**0.004***
	Maxaa tiri	1505	972(65%)		720(48%)	
	Other	72	34(47%)		22(31%)	
State	Benaadir	633	420(66%)	**0.000***	318(50%)	**0.000***
	Hirshabeelle	527	384(73%)		345(65%)	
	Jubbaland	605	331(55%)		190(31%)	
	South-West	788	490(62%)		314(24%)	

**Statistically significant difference in these groups between retained and non-retained students using Pearson's Chi-square test (p<0.05) to check for statistically significant differences.*

***Note: there are missing values for some SES Composite items; therefore student counts don't always equal the overall student total for this category. Numbers in parentheses indicate the retention rate relative to baseline values.*

To help identify the causes for student attrition, SORDI researchers conducted 665 exit surveys with the parents or caregivers of students from the BAB and formal primary cohorts. This included 539 surveys of the 961 students (56.1%) identified as missing during midline data collection (316 BAB students and 223 formal primary students), as well as 281 of the 1406 students (20%) identified as missing during endline data collection (152 BAB students and 129 formal primary students). We surveyed 4% of the BAB and 11% of formal primary school parents/caregivers at both time points. SORDI researchers could not reach parents/caregivers not included in the exit surveys.

Interestingly, 203 cohort students (136 BAB and 67 formal primary) missing at midline data collection returned to their original school for the start of the next academic year (21%), as identified by level 2 baseline data collection in fall 2023. These findings illustrate the **fluidity of the longitudinal sample, with students joining, leaving, and returning to both BAB and formal primary classrooms frequently. We saw student movement between BAB and formal primary classrooms.**

3.2.1 Students from lower SES families are more likely to leave school.

Environmental stresses, including droughts and floods, can directly impact retention of all students by damaging school infrastructure, disrupting transportation, reducing family income, raising the cost of food and other necessities, and forcing family relocation. It's not surprising that **markers of lower SES (SES composite, parents' literacy, student resides with other) are noted more frequently for non-retained students**, as students with fewer family resources have less buffer against adversity. Therefore, students from lower SES families are likely more sensitive to perturbations leading to relocation or requiring them to prioritize work or other activities that contribute to family subsistence over their education. This assumption is supported by exit surveys with parents or caregivers of students missing at the end of year 1 and year 2 data collection who reported **family support as the most frequent reason (20.9%) for student attrition.** For some students, acquiring basic literacy and numeracy knowledge and skills may have contributed to increased attrition, as parents or caregivers commented that newly acquired reading and math skills equipped students with tools to help their family more effectively through employment – thus decreasing family interest in continued education.

Finally, we note that retention, as captured here, indicates retention in a particular program (BAB or formal primary school), not retention in education overall. Some parents and caregivers responding to exit surveys – particularly after the second academic year – indicated enrollment in a different educational option as the reason for their student's departure from the cohort. See the Transitions Case Study for more information.

KIIs also made frequent mention of **hunger and access to food as barriers both to attending school and to learning in school**. Some community members noted that the need for food is more pressing than the need for education and, thus, must be prioritized. Key informants indicated that some BAB students left the program or failed to enroll because another school offered them a feeding program in addition to education.

> *"There are some groups in the community that do not have access to this program. The reason is that they do not need only free education, but they also need food, because they are poor, and they cannot send their children to the school and stay home… You know hunger is the enemy, and cannot work while hungry, even you cannot look at the screen of your phone. There are 27 households which I lead and most of them send their children to the school. The residents of the surrounding IDPs retain school and have achieved a lot of success at this site. The biggest roadblock of retaining students to the school is hunger."* — Benaadir Community Member

KIIs also reflected on the impact of resources, including access to clean water, sanitary facilities, curricular materials, supplies, uniforms, and adequate numbers and quality of teachers, on retention – mentioning that when they are present, students feel valued and motivated to continue their education. On the contrary, **lack of these necessities had a harmful impact on retention. Schools located in IDP camps –**

often serving the least affluent students -- consistently reported lack of basic educational resources (books, desks, writing materials, etc.).

> *"Yes, we have most of the materials, but it is not enough for our needs. We only have blackboards, and you can see the school's infrastructure; it's not an appropriate learning environment; it is sand, no chairs, no practical samples, and students use the ground to learn. It is disappointing for our students because they have no uniforms and can't afford them. The students will be encouraged if they get chairs, appropriate leaning infrastructure, and uniforms. Yeah, most of the students ask every day, but we give moral support to continue the learning, and the most affected students are the older children who have difficulty writing on the ground*." — Benaadir head teacher

3.2.2 Clan affiliation and student primary dialect influenced retention.

Student clan affiliation may also impact retention. Although Somalia is often considered ethnically and culturally homogeneous relative to other countries in the region, there are linguistic and cultural differences that can affect education and other aspects of life. For example, areas in South-West state served by BAB include traditionally marginalized clan families, including the Digil-Mirifle and the Bantu. These minoritized groups often face systematic discrimination and poor representation at the local, state, and federal levels – negatively impacting their access to government services.

A student's primary dialect is often related to clan affiliation. Two primary dialects of the Somali language are spoken in Somalia: Maxaa tiri -- the language generally associated with pastoralist clans, while Maay is more often associated with place-based agricultural groups. Maxaa tiri is the national version of Somali and the official language of instructional materials and textbooks. Students speaking Maay or another dialect may be disadvantaged compared to Maxaa tiri speakers both because of mismatches between their primary dialect and the dialect of instruction as well as the potential for discrimination or other bias. Dialect within the Somali context is a strong social predictor of marginalization, hence students speaking other dialects have other social determinants that impede access to employment, social services, and education.

BAB learners identifying a primary language other than Maxaa tiri or Maay had attrition rates after one academic year nearly 1.5 times (53%) that of learners speaking one of the two primary dialects (36%). Exit surveys shed little light on relationships between non-primary dialects and retention – perhaps due to the small number of these underrepresented groups in our sample. However, exit surveys did reveal higher attrition rates among Maay speaking students because of illness, marriage, and migration that may be due to a confluence of factors. Maay speakers in our sample were disproportionately concentrated in IDP school centers where poor school infrastructure, including inadequate hygiene facilities, contribute to illness, limited family resources increase family reliance on coping strategies including early marriage and child labor, and school/camp evictions and other challenges force relocation.

3.2.3 Student retention varied by state ranging from a low of 24% in South-West to 65% in Hirshabeelle.

Both the retention rate and the reasons for student attrition varied significantly by state, with South-West reporting high attrition among IDPs and Maay speakers, seeing the lowest retention (only 22% of all students) over two academic years. **Hirshabeelle, on the other hand, with high levels of community and government engagement, retained 65% of combined cohort students for two academic years.** Several

factors likely influence these variations, including community and cultural differences, disruptions due to environmental shocks, and safety concerns. Sickness (21%), supporting family or work conflicts (21%), and migration or relocation (18%) were the top reasons for student dropout given by parents and caregivers in the exit survey across all states, although the frequency of these reasons varied by state. Sickness accounted for 29% of dropouts in South-West, but only 9% in Benaadir. Relocation was noted as a major reason for student attrition (32%) by Benaadir parents, but only 9% of Jubbaland parents.

Attitudes towards education also varied across locations and educational programs – perhaps reflecting historical traditions. We see glimpses of the impact of these differential attitudes in our exit survey data. For example, BAB parents reported challenges from the Qur'anic teacher as the reason for their child leaving school twice as often as formal primary school parents. This cause of school attrition was especially notable in Hirshabeelle, where conflicts with a particular cleric resulted in several students leaving school. Although some communities reported poor relations with Qur'anic instructors leading to tension and student dropout, other schools reported success by scheduling BAB classes in the afternoon or evening to allow students to attend Qur'anic school or work in the mornings and attend BAB in the afternoon or evening.

> "*Sometimes the Qur'anic school teachers say 'your child cannot continue to attend both the Qur'anic school and the academic school. The community here are Muslim and [you must] respect their religion*." — *Hirshabelle Teacher*

3.10 COMMUNITY INVOLVEMENT IS KEY TO STUDENT RETENTION.

Finally, informants discussed the **critical role that CECs, family, and community members played in facilitating student retention**. KIIs described a variety of school activities that are often accomplished through the efforts of family and community members, including checking attendance records, following up with missing students, providing volunteers for security and other school duties, escorting children to and from school, and offering enrichment activities. Refer to the Community Ownership Case Study for a more detailed and nuanced discussion of the role of communities and CECs in student retention.

> *"The school tries its best to retain learners. The committee and the school management have constant and direct contact with every parent urging them to encourage the children to attend classes."* —South West Community Member

3.3.1 The cost of community engagement per student

To calculate the cost of community engagement per student, we included expenditures on all labor, materials, travel, sub-contractors and other resources that have the end goal of involving parents and communities in support of the program objectives. The expenditures were categorized into development (non-recurrent) and implementation (recurrent) costs. The large share (65 %) of total costs were allocated to implementation. The total cost per student directly paid by USAID for community engagement was US$ 5, with US$ 3 and US$ 2 per student spent on development and implementation, respectively. If we consider the full costs borne by USAID (if we add the proportion of General Operations, Management and

Reporting allocated to community engagement), the cost per student increases by US$ 8, with US$ 5 and US$ 3 per student spent on development and implementation, respectively (Table 20). We did not add contributions from community members, such as time spent attending meetings and venues donated by the communities, to the calculations due to the absence of data. See Appendix 4 for the complete cost analysis report.

Table 20: Cost of community engagement

Total Costs - USAID Perspective	**Cost (US$)**	**No. of Students**	**Cost per Student (US$)**
a. PEC Intervention Development (non-recurrent costs)	184,894	108,458	2
b. Intervention Implementation (recurrent costs)	345,212	108,458	3
Development + Implementation	530,106	108,458	5

Case Study: Community Ownership of Educational Interventions in Somalia

This case study examines BAB's community engagement to better understand the role of community members in education and to inform the design of educational programming and more effective participatory school governance in Somalia. It explores community-based school governance structures (CEC) in improving school management, governance, social cohesion, and sustainability.

Data for these findings and recommendations derived from focus group and interview data with 93 learning facilitators, 33 parents, 30 community members, 22 implementers, and 23 government officials.

Key Findings:

1. **Community engagement plays an essential role in ensuring educational success.**
   BAB implementers used a variety of passive and active strategies to engage community members in educational activities. Strategies ranged from meeting with parents to share program information, to creating boys' and girls' clubs and women's groups, to distributing clothing with school program logos to increase visibility and community buy-in. Realizing the power of local communities as the best prospect for developing sustainable educational pathways, implementing partners across all states noted the importance of fostering and strengthening community partnerships.

> *The project has placed great emphasis on involving the local communities in every activity. This level of community participation and ownership is crucial for the project's sustainability. By actively involving the communities from the planning stage, they feel a sense of ownership and are more likely to support and sustain the project in the long run. – Implementing Partner*

2. **Community engagement activities foster student engagement and retention.**
   Teachers noted the critical importance of the community in engaging students and reducing attrition. Further, KIIs described the positive relationship between community involvement in the school (including through school-logo clothing, boys and girls clubs, sports competitions) and community feelings of ownership and responsibility for education. In communities with high engagement, community members were more likely to take an active role in supporting school activities – including keeping students in school.

   Despite general belief in the importance of community engagement, **KIIs felt that BAB did not uniformly and comprehensively engage all communities.** Only a third of community members and parents attested to knowledge of some form of BAB-driven civic engagement, generally described as CEC activities and awareness raising about the importance of education to students and parents. In contrast, almost half of both community members and parents (46%) expressed no knowledge of BAB

community outreach in their location. Community engagement, when noted, was often credited to efforts by the schools and CECs to organize volunteer activities, sports competitions, and ceremonies, as exemplified by this South-West parent's comment, *"Actually, the close cooperation between management, school committee, and the teacher made success of the program possible."*

3. **Community Education Committees (CECs) play a crucial role in education and need consistent training and support.**
   CECs serve a variety of critical school functions. Typical CEC roles include identifying and solving disputes, assisting with student enrollment, tracking absent students and encouraging them to return to school, raising community awareness, chaperoning students on their way to and from school, assisting with school security and school repair, and identifying alternative school sites if needed due to eviction, environmental disaster, or other circumstances. In addition, CEC members identify and inform the teacher about odd or worrying behaviors among the students – such as a normally outgoing child taking breaks alone. Feedback from these extra sets of eyes helps schools identify and mitigate student challenges. For example, one school was able to award scholarships to help struggling students pay for transportation to and from school – successfully mitigating this barrier to student retention.

   BAB schools co-located with formal primary schools often benefitted from existing CEC structures and membership, while BAB programs in other locations formed new CECs. CEC members, generally ranging from 4-10, included parents, teachers and head teachers, IDP camp leaders, religious leaders, and businessmen. KIIs indicated a desire for more balanced gender representation on the committees, which currently skew mostly male. Despite CEC's important roles in the BAB schools, **many KIIs found training and guidance for these organizations inadequate** – leading to a lack of clarity around roles and responsibilities and impacting member motivation.

4. **Community financial investment in schools is unclear.**
   While KIIs had much to share about the role of community volunteer efforts and encouragement in supporting positive student and school outcomes, information about community contributions to school financial support was sparse. Generally, as summarized by this South-West teacher, *"When it comes to managing and funding school issues, the community is absent."* None the less, KIIs reported instances of communities donating land for building school structures in Jubbaland and South-West. In contrast, schools in IDP locations in Benaadir and South-West experienced eviction when the landowner reclaimed the land on which these schools – and often communities – were built. The ensuing relocations resulted in short- or long-term school closures and displacements. Thus, **there is great opportunity for engaging both local communities and the diaspora to raise awareness of educational needs and build ownership and financial support** to sustain these efforts.

Recommendations:

Community engagement, buy in, and ownership are critical to effective and sustainable education in Somalia, as elsewhere. All educational interventions need intentional, ongoing community engagement strategies that target different community constituencies to foster awareness, encourage participation, provide training, and share successes. The following recommendations will foster community ownership and project sustainability of projects like BAB:



Engage the local community in all phases of program design and implementation.



Engage diasporic communities in providing programmatic and financial support for equitable and sustainable education.



Increase opportunities for local communities to learn and actively participate in project activities (e.g., local clubs, program wear, town hall-like progress meetings). Provide frequent communication of program needs and successes.



Recruit, train, and support strong, diverse, and program-focused community-based education committees.

3.4 Location and demographics influence academic and SEL outcomes

Both BAB and formal primary cohort students in the longitudinal study showed considerable gains in literacy, numeracy, and SEL (as described in Table 1) over the two years of the study[12]. To identify potentially underserved populations, we examined the impact of location and demographic variables on student perceptions of self, school, and community and learning outcomes (EGRA, EGMA, and hope). We analyzed paired EGRA, EGMA, and student SEL perception data from BAB and formal primary school learners across two academic years and hope scores across one academic year to examine variations in normalized median percent gain scores based on program and learner subgroup characteristics (including location, demographic, and family variables) using ANOVA and Kruskal-Wallis significance testing[13].

Outcome indicators – EGRA, EGMA, and hope – all showed significant variation relative to where students live – both Somali state and location type (urban, rural, or IDP settlement) and what primary dialect they speak. Other student characteristics, specifically membership in an IDP family, age, gender, and SES composite scores, predicted one or more outcomes.

3.4.1 Cohort students attending school in IDP locations showed lower academic performance in year 1, but strong EGRA, EGMA, and hope scores in year 2.

Students **attending a school in an IDP location** are among the most under-resourced students in our longitudinal cohort. KIIs described inadequate or unsafe infrastructure and furniture, overcrowded classrooms, missing or insufficient learning materials and supplies, overburdened teachers, and other challenges more often in association with schools located in IDP areas. Likewise, **students attending IDP schools often have few family resources, are more likely to speak Maay or another dialect – as opposed to Maxaa tiri, and have significantly lower perceptions of school benefit, equality in the classroom, civic engagement, and community belonging** (Tables 21 and 22).

Table 21: Students Perceptions of School Benefit, Equity, Community Engagement and Community Belonging by location type.

Group	Subgroup	Year 1 Mean	Year 1 SD	Year 1 p value	Year 2 Mean	Year 2 SD	Year 2 p value
School Benefit Perceptions (5-point scale)							
Location Type	IDP (n=186)	3.75	0.86	0.000*	4.03	0.68	0.004*
	Rural (n=171)	4.41	0.63		4.21	0.76	
	Urban (n=431)	4.17	0.73		4.16	0.64	
Student Perceptions of Teacher Equity (6-point scale)							
Location Type	IDP (n=186)	3.65	1.13	0.545	3.61	1.33	0.001*

[12] Hope outcomes were only measured at the end of academic years 1 & 2.

[13] Normalized percent gain scores were calculated by dividing each student's individual gain by the total possible score minus their baseline score. Subgroup normality distribution tested with Shapiro-Wilk and significance between subgroups tested using one-way ANOVA test (normal distribution) or Kruskal-Wallis (not normal distribution). Tukey HSD and Dunn Testing with Bonferroni adjustment was used for groups showing a significant correlation with learning gains having more than two subgroups.

Group	Subgroup	Year 1 Mean	Year 1 SD	Year 1 p value	Year 2 Mean	Year 2 SD	Year 2 p value
	Rural (n=171)	3.61	1.07		3.97	1.15	
	Urban (n=431)	3.57	1.07		3.60	1.24	
Civic Engagement Perceptions (6-point scale)							
Location Type	IDP (n=186)	2.94	1.03	0.000*	3.20	1.36	0.001*
	Rural (n=171)	3.50	0.84		3.66	1.01	
	Urban (n=431)	3.37	0.91		3.32	1.08	
Perceptions of Community Belonging (5-point scale) – measured only at the end of academic year 2							
Location Type	IDP (n=186)				3.79	0.98	0.000*
	Rural (n=171)				4.25	0.77	
	Urban (n=431)				3.99	0.87	

**Statistically significant difference between subgroups*

Table 22: Variance by location type for Students Perceptions of School Benefit, Equity, Community Engagement and Community Belonging

Group	Subgroup	Benefit Year 1 p value	Benefit Year 2 p value	Equity Year 1 p value	Equity Year 2 p value	Civic Engage Year 1 p value	Civic Engage Year 2 p value	Cmmnty Blngng Year 2 p value
Program Type	**BAB - Formal Primary**	0.989	0.138	0.138	0.328	**0.692**	**0.396**	**0.013***
Location Type	**IDP - Rural**	**0.000***	**0.006***	**1.000**	**0.032***	**0.000***	**0.006***	**0.000***
	IDP – Urban	**0.000***	**0.016***	**0.878**	**1.000**	**0.000***	**1.000**	**0.068**
	Rural – Urban	**0.000***	**1.000**	**1.000**	**0.001***	**0.119**	**0.002***	**0.001***

*Statistically significant difference between subgroups

It's not surprising then, that **these marginalized students had significantly lower normalized EGRA and EGMA gain scores in their first academic year compared to students in urban or rural areas. Despite both personal and situational challenges, students in IDP schools had the highest normalized EGRA scores after their second academic year, EGMA normalized gain scores on par with rural and urban students, and strong growth in hope.** We can only speculate on the reasons for this desirable growth but posit that at least part of the improvement may derive from changes in the makeup of the cohort population through attrition as more transient cohort members move on. The most resource-limited families must prioritize their child's contribution to family finances over their education, leaving behind their (relatively) more affluent and stable peers.

"Child labor is also a barrier. Most of the parents are single mothers who seek financial support in sending their children to the market. The students keep skipping classes because of work and others drop out altogether. Students are also dealing with an acute poverty and living in camps while they are aware of all the challenges and problems they are facing where the adults and parents discuss with or around them, openly." — Benaadir Teacher

3.4.2 Student primary dialect influenced learning outcomes.

Maay speakers, often more concentrated in IDP schools, significantly underperformed Maxaa tiri speakers on both EGRA and EGMA assessments in year 1. Maay speakers had significantly higher mean gain scores in the second academic year than Maxaa tiri speakers. Like the IDP data, these findings are somewhat surprising, but again are likely at least partially due to increased attrition of Maay speakers in year 2 caused by migration (27% Maay attrition in year 2 compared to 18% in year 1). Attrition due to migration in year 1 was the same for both Maay and Maxaa tiri speakers. KIIs also shared that **teachers in South-West, where most of our Maay-speaking IDP cohort reside, are comfortable and conversant in Maay, thus better able to convey lesson content to their students**. Teachers in Benaadir, on the other hand, expressed less ability to converse with their Maay students. Students listing a dialect other than Maay or Maxaa tiri, who were pooled in our analysis due to a very small sample size, underperformed as compared with students speaking either primary dialect.[14] See Impact of Dialect on Student Learning Case Study for more information.

[14] Small sample size makes it difficult to draw conclusions for these minoritized students.

Case Study: Linguistic diversity in educational interventions in Somalia

As Somalia is comprised of different clans and ethnic groups, many with their own dialect, this case study examines the impact of linguistic diversity on student performance and perceptions in the BAB classroom. It explores the relationships among student primary dialect and student academic outcomes and well-being, the influence of teacher dialect on outcomes of minoritized and marginalized students, and the impacts of language of teaching and learning materials on student outcomes.

Data for these findings and recommendations derived from focus groups and interviews with 74 learning facilitators, 22 implementers, and 15 government officials as well as learner (n = 939), teacher (n = 49), and student and teacher exit surveys (n = 665; n = 15)

Key Findings:

1. **Students were unequally served by BAB program materials.**
   Early educational instruction in a language where both the teacher and student are fluent enhances both the teaching and learning experience (Kioko et al. 2008). Although BAB serves a multi-lingual population, it provides all BAB educational print materials only in Maxaa tiri, the primary dialect in Somalia. Local teachers are responsible for ensuring students in their classes that are not fluent in Maxaa tiri are able to understand class materials.

> *"There are books written in Maaxa Tri Dialect, there are videos that we recorded in Barawe and Wanlawayn, both were sensitive, and they speak different dialects, so they made some modifications to be able to fully understand these learners."* — *Implementing Partner*

2. **Teachers differ in their ability to handle linguistic diversity.**
   Linguistic diversity in our longitudinal sample was primarily concentrated in IDP schools in the Benaadir region and South-West state, as these two regions absorb most of the migration streams resulting from environmental hardships and violent extremists. Teachers in these two areas reported different experiences teaching in their multi-lingual classrooms. While teachers in Benaadir reported struggling to understand children who spoke in a dialect other than Maxaa tiri, teachers in the Bay region (Baydhabo and Diinsoor), who are typically more linguistically diverse than Benaadir teachers, felt more equipped and comfortable with the linguistic diversity in their classrooms. These differences may be partially explained by teacher backgrounds, as teachers in South-West frequently come from the same communities as their students, they are more likely to share, or at least be familiar with their primary dialects. Linguistically challenged teachers described several strategies for communicating with their students, including relying on other students and fellow teachers to explain unfamiliar words and/or concepts. While Benaadir and South-West teachers experienced linguistically diverse classrooms, teachers in Hirshabeelle reported no diversity – noting that all their students spoke Maxaa tiri even

though 7 out of 117 exit surveys from parents or caregivers of non-retained students in Hirshabeelle reported Maay as their child's primary dialect, raising the possibility that non-majority language speakers are under-identified. Table CS3-1 summarizes teacher reflections on linguistic diversity in their schools and communities.

Table CS3-1: Learning facilitator reflections on linguistic diversity in their BAB classrooms

State	Primary Dialect	Other Dialects	Teacher Reflections
South-West	Maxaa Tiri Maay	Barawani (Chimiini) Tunni Dabarre Shabelle dialect	Teachers share cultural and linguistic background with students and instruct students in local dialects.
	"In terms of dialect, we speak and teach in school in their dialect and the teacher translates according to the curriculum books. But there are different dialects that the local people speak, and they are used in the understanding of the lessons when it is necessary to make the students understand and interpret to them." (South-West Head Teacher)		
Jubbaland	Maxaa Tiri	Mshunguli Maay	Other dialects primarily spoken by IDP communities and returnees. Teachers share cultural/linguistic background with local students.
	"I understand most of them and we are same dialect with most of my students, but a very small number don't understand Maxaa tiri dialects mostly with those returnees and IDPs who speak Mshunguli and I hope they will cope with the teachers as time goes by." (Jubbaland Head Teacher)		
Hirshabeelle	Maxaa Tiri	**	Teachers share cultural/linguistic background with local students.
	"Yes, we have common background and we all come from same area like this village and the other areas which are around it also speak same dialect so I can say that there are not any different dialects or speech between us." (Hirshabeelle Head Teacher)		
Benaadir	Maxaa Tiri Maay	Jiddo Garre Tunni	Linguistic diversity in BAB schools. Teachers admit they do not always understand the students, call upon other teachers or students to facilitate understanding.
	"Yes, the dialect difference brings some misunderstanding in certain times. The student might be telling that he's sick and you don't understand that word which is strange. But in general, we know their dialect and I ask other fellow students to explain to me the meaning of unfamiliar words." (Benaadir teacher)		

**Seven recorded student dropouts from Hirshabeelle reported Maay as a primary dialect.

3. Academic performance varied significantly for students with different primary dialects.

Maay speakers, often more concentrated in IDP schools, significantly underperformed Maxaa tiri speakers on both EGRA and EGMA assessments in the first academic year, but had significantly higher mean gain scores than Maxaa tiri speakers in the second academic year. These findings may be at least partially due to increased attrition of Maay speakers in year 2 caused by migration (27% Maay attrition in year 2 compared to 18% in year 1). Attrition due to migration in year 1 was the same for both Maay and Maxaa tiri speakers (18%). Students reporting a dialect other than Maay or Maxaa tiri, who are pooled in our analysis due to very small sample size (n=15), underperformed students speaking either of the primary dialects.

4. **Non-majority language speaking teachers and students left the BAB program more frequently**
   The BAB program attempted to recruit and match teachers to student backgrounds – linguistically and otherwise – with variable success. While our data doesn't clearly identify teacher-student linguistic matches, KII responses suggest these matches are more common in South-West where largely Maay speaking teachers instruct classrooms of majority Maay speaking students. Unfortunately, most of the non-retained teachers in our sample were from South-West – which also saw high attrition of Maay students. BAB learners identifying a primary language other than Maxaa Tiri or Maay had attrition rates after one academic year nearly 2 times (57%) that of learners speaking one of the two primary dialects (30%). Exit surveys shed little light on relationships between non- primary dialects and retention – perhaps due to the small number of these underrepresented groups in our sample. However, exit surveys did reveal higher attrition rates among Maay speaking students because of illness, marriage, and migration that may be due to a confluence of factors.

5. **Maay speakers are at higher risk for migration and illness while Barawaani speakers transition the most**
   Students not retained in our longitudinal sample reported multiple reasons for leaving school. Illness (21%), family support (21%) and migration (18%) were the most cited reasons for attrition regardless of student primary dialect, except for Barawaani speakers. Though small in numbers, Barawaani speakers leaving the BAB program reported transitioning to a different educational program. Table CS3-2 summarizes top reasons for attrition disaggregated by student primary dialect.

Table CS3-2: Top Reasons for Student Attrition by Learner Dialect

Reason	Maxaa tiri (n=415)	Maay (n=213)	Barawaani (n=14)	Other (n=10)
Illness	17.6%	27.2%	28.6%	20%
Migration	15.7%	20.2%	7.1%	20%
Supporting Family	20.0%	22.1%	--	30%
Temporary	19.8%	8.5%	21.4%	20%
Transition	8.2%	7.5%	28.6%	--

Recommendations

Student primary dialect in our study was significantly correlated with retention and academic outcomes, with minority dialect speakers generally disadvantaged. Because student primary dialect is also closely linked to other factors that can influence learning outcomes (e.g., clan affiliation, family SES, IDP status), it's not possible to isolate with certainty the relative influence of dialect in this study. None the less, our findings are consistent with literature describing educational best practice for enhancing educational outcomes for diverse learners, as described in the following recommendations:

	Enhance language alignment between teachers and students through appropriate recruitment efforts
	Invest in teacher training and resources for multilingual education programs
	Assist governmental efforts to expand educational infrastructure to more vulnerable regions (e.g., rural, IDP locations)
	Prioritize educational interventions in underserved communities (rural and IDP locations)

3.4.3 Learning outcomes varied considerably by state.

We also saw significant variability in all academic outcomes -- literacy, numeracy, and hope – by Somali state. State-level achievement differences are likely due to a combination of factors, including population characteristics, environmental factors, local and regional stability, and school governance. Students in Hirshabeelle had significantly higher EGRA and EGMA normalized gain scores in academic year 1 and EGMA scores in academic year 2 than students in all other states. KIIs in Hirshabeelle attribute much of this success to the institution of intense extracurricular help and study sessions by the experienced local implementation partner that assisted students in mastering their lessons. Discontinuing these supports in the second academic year, combined with clan clashes that caused the temporary closure of some Hirshabeelle schools, may have contributed to slightly weaker performance in the second year. While Hirshabeelle and South-West students had relatively high normalized EGRA and EGMA gain scores for both academic years, Benaadir and Jubbaland underperformed.

3.4.4 Older students significantly outperformed younger students in math and literacy.

Student age significantly predicted both EGRA and EGMA scores, with older students (12-20) outperforming younger students (6-11). Figures 13 and 14 show the growth in literacy and numeracy, respectively, for the analytical cohort for each academic year. Older students begin each year at a higher proficiency level than their younger peers and remain ahead at the end of the year.

Figure 13: Literacy proficiency for longitudinal cohort at the beginning and end of each academic year by age group

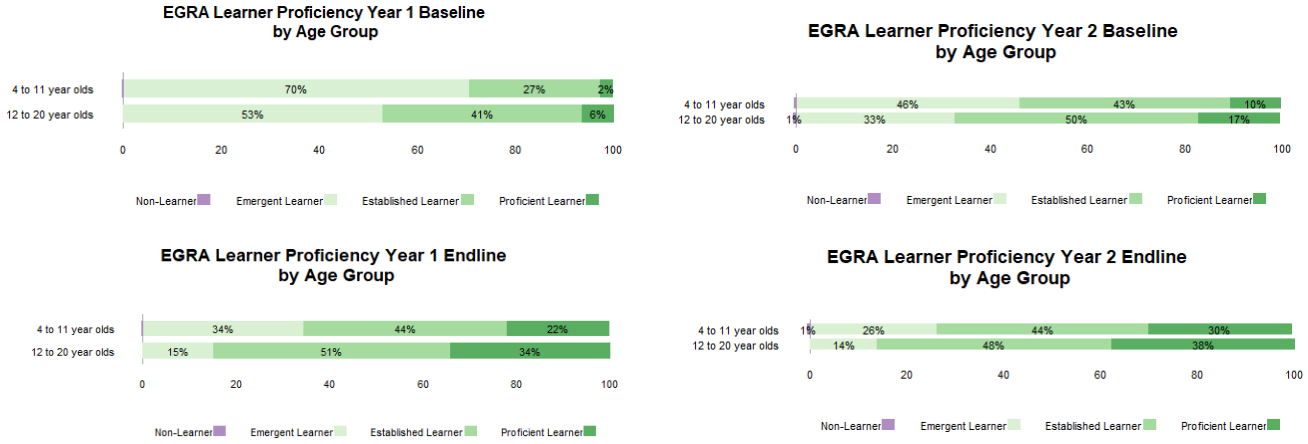
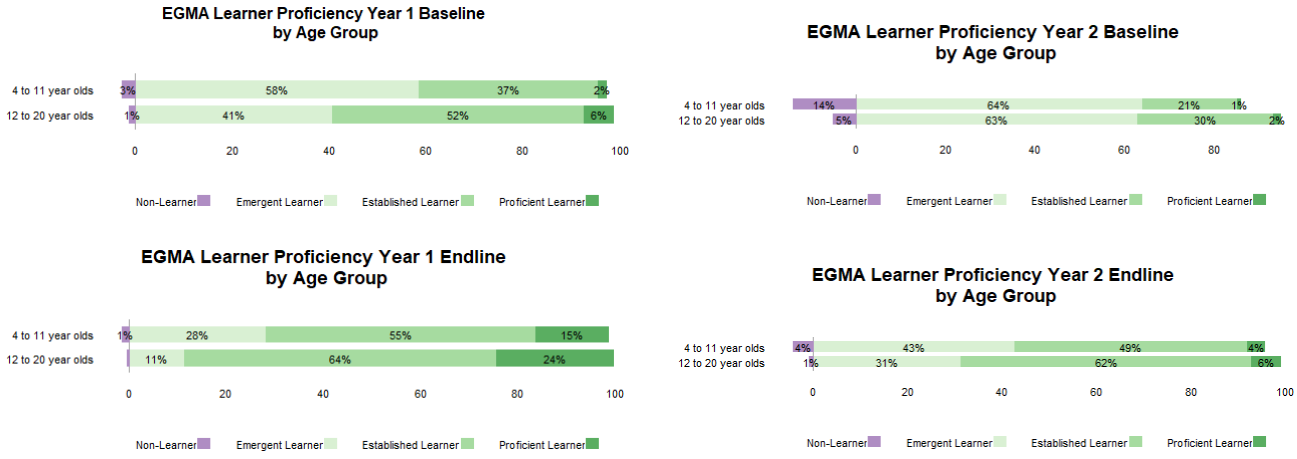


Figure 14: Numeracy proficiency for longitudinal cohort at the beginning and end of each academic year by age group



These findings are not surprising, given the more advanced cognitive level of older students that allow these students to learn complex material more quickly than their younger peers. As expressed by a teacher in South-West, "*One of my favorite aspects is that it become easier as the students get older.*" **Age differentiated classrooms would better support the cognitive, social, and academic needs of these younger and older students.**

3.4.4 Learning outcomes varied by gender.

Finally, while boys and girls performed about the same on EGRA assessments in both academic years, **boys significantly outperformed girls on EGMA assessments, while girls showed higher perceptions of hope**. KIIs suggested that boys' more developed math skills may result from cultural practices that allow boys to practice mathematical skills in daily life (e.g., at the market) while girls have less experience with these tasks. Girls' higher levels of hope, on the other hand, may result from gaining access to previously unavailable education. Now that they can learn, they can dream and imagine a better future.

> *"It exists, most of them are girls, because girls did not study at home in the past or are too young for education, now that BAB has arrived they have the opportunity to study." — South*-West Teacher

Tables 23, 24, and 25 show the beginning and ending literacy and numeracy scores, normalized gain median and p-values, and hope beginning and end scores disaggregated by location and demographic indicators for each academic year for the combined BAB and grade 3 cohort. Tables 26 and 27 show the significance of sub-group variable testing.

Table 23: Relationship between location and demographic variables and student literacy normalized median scores (EGRA) over two academic years.

Group	Subgroup	Year 1 Base Med	Year 1 End Med	Year 1 Norm Gain Med	Year 1 p value	Year 2 Base Med	Year 2 End Med	Year 2 Norm Gain Med	Year 2 p value
EGRA Baseline to Endline Gains		**33.00**	**67.00**	**33.33**		**53.00**	**72.00**	**27.08**	
Location Type	**IDP (n=186)**	**33.50**	**52.50**	**18.95**	**0.000***	**32.00**	**69.00**	**38.88**	**0.005***
	Rural (n=171)	28.00	72.00	55.29		67.00	75.00	23.08	
	Urban (n=431)	34.00	68.00	37.50		57.00	70.00	25.79	
IDP Family	Not IDP Family (n=482)	34.00	71.00	44.83	**0.000***	58.50	73.00	27.12	0.855
	IDP Family (n=306)	31.50	56.00	20.35		40.00	68.00	26.09	
Gender	Male (n=396)	34.00	69.00	35.10	0.476	56.00	74.00	29.89	0.090
	Female (n=392)	31.50	64.00	32.67		48.00	67.00	22.91	
Age Group	**4- to 11-year-olds (n=481)**	**30.00**	**60.00**	**27.78**	**0.000***	**46.00**	**68.00**	**24.14**	**0.038***
	12- to 20-year-olds (n=307)	38.00	75.00	48.15		61.00	75.00	31.06	
Socio-Economic Status	low (n=153)	28.00	64.00	25.93	0.050*	40.00	73.00	23.03	0.6251
	medium (n=375)	33.00	64.00	30.00		50.00	69.00	25.79	
	high (n=260)	36.00	72.00	41.72		60.50	74.00	28.95	
Mother's Literacy	No (n=457)	32.00	69.00	36.36	0.308	57.00	73.00	27.27	0.899
	Yes (n=331)	34.00	64.00	32.20		50.00	68.00	25.49	
Father's Literacy	No (n=323)	32.00	68.00	33.33	0.490	53.00	72.00	27.27	0.337
	Yes (n=465)	34.00	66.00	32.79		53.00	72.00	26.47	
Lives without Parents	No (n=753)	33.00	67.00	33.33	0.777	53.00	72.00	27.16	0.910
	Yes (n=35)	31.00	67.00	35.94		52.00	72.00	26.04	

Group	Subgroup	Year 1 Base Med	Year 1 End Med	Year 1 Norm Gain Med	Year 1 p value	Year 2 Base Med	Year 2 End Med	Year 2 Norm Gain Med	Year 2 p value
Dialect Spoken	**Maay (n=276)**	**29.00**	**61.50**	**26.20**	**0.011***	**35.00**	**71.00**	**38.01**	**0.000***
	Maxaa tiri (n=497)	34.00	69.00	38.27		60.00	72.00	23.24	
	Other (n=15)	32.00	44.00	17.65		56.00	62.00	4.21	
State	**Benaadir (n=223)**	**36.00**	**57.00**	**20.27**	**0.000***	**40.00**	**60.00**	**24.46**	**0.003***
	Hirshabeelle (n=245)	33.00	78.00	65.67		70.00	78.00	24.44	
	Jubbaland (n=114)	33.00	50.50	19.32		33.00	57.00	23.47	
	South-West (n=206)	30.00	57.50	28.83		34.00	68.00	41.35	

*Subgroups show a statistically significant difference

Table 24: Dunn test results for EGRA percent gain for demographic categories with more than 2 subgroups.

Students Dunn Test Results for EGRA Percent Gain for Demographic Categories with more than 2 Categories					
Group	**Comparison**	**Year 1 Z-statistic**	**Year 1 P.adj**	**Year 2 Z-statistic**	**Year 2 P.adj**
Location Type	**IDP - Rural**	**-5.037**	**0.000***	**2.981**	**0.009***
	IDP - Urban	**-3.958**	**0.000***	**2.828**	**0.014***
	Rural - Urban	2.063	0.117	-0.762	1.000
SES Composite	high - low	1.842	0.196	0.541	1.000
	high - medium	2.285	0.067	0.964	1.000
	low - medium	-0.034	1.000	0.236	1.000
Dialect	Maay - Maxaa tiri	-2.285	0.067	4.095	0.000*
	Maay - Other	1.515	0.389	2.637	0.025*
	Maxaa tiri - Other	2.188	0.086	1.482	0.415

Students Dunn Test Results for EGRA Percent Gain for Demographic Categories with more than 2 Categories					
Group	**Comparison**	**Year 1 Z-statistic**	**Year 1 P.adj**	**Year 2 Z-statistic**	**Year 2 P.adj**
State	Benaadir - Hirshabeelle	-10.136	0.000*	0.168	1.000
	Benaadir - Jubbaland	-0.948	1.000	-0.159	1.000
	Hirshabeelle - Jubbaland	7.311	0.000*	-0.296	1.000
	Benaadir - South-West	**-2.893**	**0.023***	**-3.064**	**0.013***
	Hirshabeelle - South-West	**6.965**	**0.000***	**-3.287**	**0.006***
	Jubbaland - South-West	-1.460	0.865	-2.343	0.115

*Subgroups show a statistically significant difference

Table 25: Relationship between location and demographic variables and student numeracy normalized medium scores (EGMA) over two academic years.

Group	Subgroup	Year 1 Base Med	Year 1 End Med	Year 1 Norm Gain Med	Year 1 p value	Year 2 Base Med	Year 2 End Med	Year 2 Norm Gain Med	Year 2 p value
EGMA Baseline to Endline Gains		**38.00**	**64.00**	**31.41**		**26.00**	**51.00**	**25.64**	
Location Type	IDP (n=186)	42.50	59.00	19.32	**0.000***	21.50	46.50	23.32	0.835
	Rural (n=171)	23.00	66.00	48.00		26.00	56.00	25.58	
	Urban (n=431)	41.00	65.00	31.80		28.00	51.00	26.25	
IDP Family	**Not IDP Family (n=482)**	**37.50**	**66.00**	**36.36**	**0.000***	**27.00**	**54.50**	**28.21**	**0.016***
	IDP Family (n=306)	38.00	59.00	22.92		22.50	45.00	18.76	
Gender	**Male (n=396)**	**41.50**	**68.00**	**33.33**	**0.043***	**28.00**	**58.00**	**32.00**	**0.008***
	Female (n=392)	34.00	60.00	28.00		24.00	42.00	19.12	
Age Group	**4- to 11-year-olds (n=481)**	**30.00**	**59.00**	**26.60**	**0.014***	**23.00**	**45.00**	**22.58**	**0.016***

Group	Subgroup	Year 1 Base Med	Year 1 End Med	Year 1 Norm Gain Med	Year 1 p value	Year 2 Base Med	Year 2 End Med	Year 2 Norm Gain Med	Year 2 p value
	12- to 20-year-olds (n=307)	46.00	69.00	37.78		29.00	57.00	30.94	
Socio-Economic Status	**low (n=153)**	**29.00**	**60.00**	**33.87**	**0.014***	**24.00**	**52.00**	**23.00**	**0.0017***
	medium (n=375)	36.00	62.00	26.09		24.00	44.00	19.77	
	high (n=260)	41.50	66.00	36.36		28.00	58.00	35.85	
Mother's Literacy	No (n=457)	38.00	66.00	34.78	0.107	27.00	53.00	25.58	0.827
	Yes (n=331)	38.00	61.00	28.36		25.00	49.00	26.25	
Father's Literacy	No (n=323)	35.00	65.00	34.38	0.122	25.00	50.00	26.09	0.255
	Yes (n=465)	39.00	62.00	29.73		27.00	51.00	25.00	
Lives without Parents	No (n=753)	38.00	64.00	30.77	0.545	26.00	51.00	25.64	0.710
	Yes (n=35)	31.00	63.00	36.23		24.00	50.00	31.11	
Dialect Spoken	**Maay (n=276)**	**45.00**	**63.00**	**28.68**	**0.008***	**25.00**	**56.50**	**32.14**	**0.000***
	Maxaa tiri (n=497)	35.00	64.00	33.80		27.00	49.00	23.61	
	Other (n=15)	26.00	39.00	7.81		20.00	17.00	-3.75	
State	**Benaadir (n=223)**	**47.00**	**61.00**	**19.32**	**0.000***	**22.00**	**38.00**	**14.63**	**0.000***
	Hirshabeelle (n=245)	30.00	72.00	55.95		33.00	66.00	44.44	
	Jubbaland (n=114)	32.00	44.00	17.87		14.00	27.50	10.56	
	South-West (n=206)	38.00	59.50	28.22		25.00	53.00	31.11	

*Subgroups show a statistically significant difference

Table 26: Dunn test results for EGMA percent gain for demographic categories with more than 2 subgroups.

Students Dunn Test Results for EGMA Percent Gain for Demographic Subgroups with more than 2 Categories					
Group	**Comparison**	**Year 1 Z-statistic**	**Year 1 P.adj**	**Year 2 Z-statistic**	**Year 2 P.adj**
Location Type	IDP - Rural	-5.141	0.000*	-0.548	1.000
	IDP - Urban	-3.071	0.006*	-0.517	1.000
	Rural - Urban	3.050	0.007*	0.141	1.000
SES Composite	high - low	0.221	1.000	2.098	0.108
	high - medium	**2.680**	**0.022***	**3.536**	**0.001***
	low - medium	2.018	0.131	0.748	1.000
Dialect	Maay - Maxaa tiri	-2.150	0.095	2.823	0.014*
	Maay - Other	1.833	0.200	4.017	0.000*
	Maxaa tiri - Other	**2.474**	**0.040***	**3.255**	**0.003***
State	**Benaadir - Hirshabeelle**	**-9.834**	**0.000***	**-5.327**	**0.000***
	Benaadir - Jubbaland	-0.662	1.000	1.107	1.000
	Hirshabeelle - Jubbaland	**7.356**	**0.000***	**5.473**	**0.000***
	Benaadir - South-West	-2.991	0.017*	-2.366	0.108
	Hirshabeelle - South-West	**6.520**	**0.000***	**2.791**	**0.032***
	Jubbaland - South-West	-1.830	0.404	-3.050	0.014*

*Subgroups show a statistically significant difference

Table 27: Relationship between location and demographic variables and student hope scores at the beginning and end of academic year 2.

Group	Subgroup	Midline Mean	Midline SD	Endline Mean	Endline SD	p value
Retained Hope Perceptions at Midline and Endline		**2.93**	**0.82**	**3.26**	**0.97**	
Location Type	IDP (n=241)	2.62	0.87	3.10	1.10	0.0001*
	Rural (n=205)	3.01	0.81	3.53	0.89	
	Urban (n=493)	3.05	0.75	3.23	0.92	
IDP Family	Not IDP Family (n=571)	3.06	0.75	3.32	0.92	0.0617
	IDP Family (n=368)	2.73	0.88	3.17	1.04	
Gender	Male (n=479)	2.93	0.82	3.19	0.97	0.0116*
	Female (n=460)	2.93	0.82	3.34	0.97	
Age Group	4- to 11-year-olds (n=595)	2.92	0.81	3.24	1.00	0.5503
	12- to 20-year-olds (n=344)	2.95	0.82	3.30	0.93	
Socio-Economic Status	none (n=11)	3.09	0.71	2.92	1.42	0.0841
	low (n=206)	2.82	0.95	3.39	1.01	
	medium (n=416)	2.93	0.80	3.22	0.97	
	high (n=306)	3.00	0.74	3.26	0.92	
Mother's Literacy	No (n=547)	2.87	0.82	3.26	0.99	0.7187
	Yes (n=392)	3.01	0.81	3.27	0.95	
Father's Literacy	No (n=394)	2.84	0.82	3.27	0.97	0.9462
	Yes (n=545)	3.00	0.81	3.26	0.98	
Lives without Parents	No (n=901)	2.93	0.82	3.26	0.97	0.9408
	Yes (n=38)	3.03	0.79	3.26	0.97	
Dialect Spoken	Maay (n=337)	2.77	0.85	3.33	1.08	0.0172*
	Maxaa tiri (n=585)	3.02	0.78	3.24	0.90	
	Other (n=17)	3.17	0.73	2.86	0.93	
State	Benaadir (n=260)	2.77	0.84	2.74	0.84	0.0000*

Group	Subgroup	Midline Mean	Midline SD	Endline Mean	Endline SD	p value
	Hirshabeelle (n=310)	3.05	0.64	3.36	0.93	
	Jubbaland (n=134)	3.11	1.07	3.79	0.69	
	South-West (n=235)	2.86	0.80	3.42	1.05	

*Subgroups show a statistically significant difference

3.5 Differences at community and school level significantly impact student outcomes

While it can be useful to look at variations in student outcomes at a state level, education is local. **Differences in teachers, schools, community attributes, and local context can all impact student outcomes.** We saw considerable variation in learning gains for students examined on a school level across all states. Every state had under- and over-performing schools, with no clear patterns based on location type or school size. Dumbbell plots of EGRA and EGMA year 1 and year 2 gain scores in figures 15-18 illustrate variations by school. Note that some schools performing well in year 1 relative to other schools in their district show a marked decline in performance for year 2 – suggesting a school or local change.

One example of this variation in school performance is the Al Aflax BAB center in Barawe. Student EGRA and EGMA scores started far behind Zeynul Abidin, the other school in the district, but showed strong EGRA growth in year 1, almost catching up with Zeynul Abidin. However, despite their strong showing in the first academic year, students attending Al Aflax exhibited almost no growth in EGRA gain scores in year 2 and had lower EGMA gain scores. While we can only speculate on the causes for the diminished academic growth at Al Aflax from year 1 to year 2, we offer potential contributors. First, while almost two-thirds of students in the sampled classroom participated in year 1 data collection (64%), slightly less than half remained at the end of year 2 (48%). As this school is in a rural area where attrition is generally higher for older students who leave school to work, this attrition likely contributed to an overall young class. Indeed, 91% of learners in the Al Aflax classroom aged between 4 and 11 years. Our quantitative data shows significantly lower EGRA and EGMA performance for younger students compared to students in the 12-20 age range (see section 3.4.4). KII reports support these quantitative findings, indicating that younger students struggle with the BAB curriculum in the Al Aflax classroom. Learning facilitators provided additional clues to contributing factors, describing dilapidated school infrastructure, overcrowded classes, lack of latrines, water, transportation, insufficient and delayed material delivery, and teacher training. Parents/Caretakers reiterated teacher reports of unsafe school infrastructure and the need for enhanced teacher quality and training, while adding concerns about the distance from their homes to the school.

> *"Specifically, there are no latrines on the premises, which can be an inconvenience for students and staff. Additionally, there are not enough classrooms available to accommodate the number of students, which can lead to overcrowding and a lack of resources. Lastly, the school building itself is not sufficient to meet the needs of the school community. All these issues are likely contributing to diminished learning outcomes and a general sense of frustration among students and teachers." —* *South* West Learning Facilitator

In general, KII interviews revealed wide variation in the characteristics of students served by each school, as well as the services and extracurricular activities offered; school infrastructure; teacher number, quality, and training; resources; community engagement; localized violence and instability; population fluxes (e.g., large influxes of migrants causing classroom overcrowding); school closures or relocations due to evictions, fires or other circumstances; and other factors that may help explain some of the variability in student outcomes.

Figure 15: Total school EGRA gain for academic year 1 for all longitudinal study BAB schools by district and state.



Figure 16: Total school EGRA gain for academic year 2 for all longitudinal study BAB schools by district and state.



Figure 17: Total school EGMA gain for academic year 1 for all longitudinal study BAB schools by district and state.



Figure 18: Total school EGMA gain for academic year 2 for all longitudinal study BAB schools by district and state.



3.6 STUDENT PERCEPTIONS OF SELF, SCHOOL, AND COMMUNITY STRONGLY PREDICT HOPE

The evaluation reveals differences in learning outcomes associated with student demographic characteristics, location, and context that provide useful guides for targeting intervention towards the most vulnerable or least well-served populations. However, many of the underlying challenges (e.g., poverty, instability and violence, cultural norms and values) require long-term systemic reforms beyond the scope or control of a single educational intervention. Unlike demographic characteristics, which are inherent to an individual or family, or geographic characteristics, **socio-emotional perceptions can be positively influenced by educational practices and support systems to have a lasting and positive influence on how people view themselves and how they view and operate within the educational system and their communities.** Thus, the evaluation also examined the associations between student perceptions of self (self-esteem and empathy), school (school benefit, school safety, and teacher equity), and community (safety at home and in the community, civic engagement, and community belonging) as resilience indicators and predictors of student literacy (EGRA normalized gain scores), numeracy (EGMA normalized gain scores), and hope when controlling for demographic variables (see Table 28 and conceptual Figure 20 for descriptions of variables and tools and the organization of resilience predictor variables and the tested associations).

Table 28: Group Assignment of Student Predictors

Predictor Group	Psychosocial Predictors
Group 1: Student perceptions of their self-resilience	Self-esteem
	Empathy
Group 2: Student perceptions of school resilience	School benefit
	School safety
	Teacher equity
Group 3: Student perceptions of community resilience	Community safety
	Civic engagement
	Safety at home
	Community Belonging

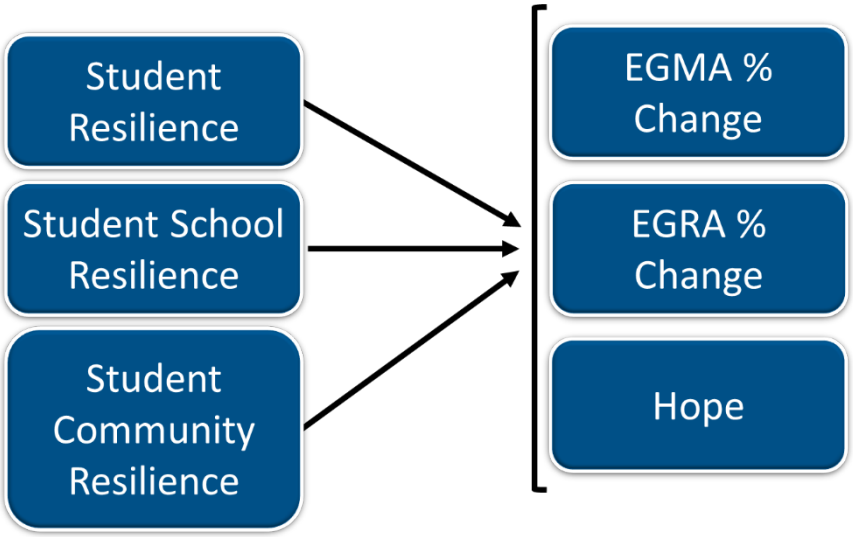


Figure 19: Conceptual Student Resilience Model

We used structural equation modeling (SEM) to evaluate the associations among student perceptions of self, their school, and their community resilience and outcomes (EGRA, EGMA, and hope). Data for model testing derives from learner endline surveys, and midline to endline EGRA and EGMA normalized gain scores for paired cohort members.

Student perceptions of self, school, and community resilience strongly predict hope. Together, **student perceptions of their worth as a person (self-esteem) and ability to understand others' emotions (empathy) predicted the most variance in hope (91%)**. The belief in needing a safe community for learning, the desire to help their community, and feeling connected and valued by their community also explained a large amount of the variance in hope (64%). Although predictors at the school level accounted for the least amount of variance in hope, these perceptions that school is a good use of time, their need for safe school environments to engage in desirable learning behaviors, and their belief that teachers treat students fairly in the classroom still explained 39% of the variance in hope. Students' perceptions of needing a safe home environment to learn did not predict hope.

Student perceptions of self, school and community resilience do not account for interpretable change in their learning scores. Although there are a few significant associations, these predictors account for less than 1% of the variance in students' academic performance and offer no meaningful targets to enhance their scores on the administered standardized exams. See Table 29 for a summary of findings from this structural equation model, including fit statistics and variance explained.

Table 29: Student perceptions of self, school, and community as predictors of learning outcomes model results

Predictors		Dependent Variable		
		Hope	EGMA	EGRA
Student Perceptions of Self-Resilience	Self-Esteem	.34*	.12	.04
	Empathy	.68*	-.14*	-.07
Fit Statistics	RMSEA	.08	.08	.08
	CFI	.94	.96	.96
	TLI	.93	.93	.94
Percent variance explained		91%	<1%	0%

Predictors		Dependent Variable		
		Hope	EGMA	EGRA
Student Perceptions of School Resilience	School Benefit	.45*	.03	.04
	School Safety	.17*	.01	.01
	Teacher Equity	.26*	.07	.07
Fit Statistics	RMSEA	.07	.07	.07
	CFI	.95	.96	.96
	TLI	.94	.95	.95
Percent variance explained		39%	<1%	<1%

Predictors		Dependent Variable		
		Hope	EGMA	EGRA
Student Perceptions of Community Resilience	Community Safety	.14*	-.04	-.08
	Civic Engagement	.65*	-.08	-.08
	Safety at Home	-.05	.07	.13*
	Community Belonging	.18*	.09*	.12*
Fit Statistics	RMSEA	.06	.06	.06
	CFI	.96	.97	.97
	TLI	.96	.96	.96
Percent variance explained		64%	<1%	2%

*Significant at p<0.5

These findings support the hypothesis that **how students think about themselves, their school, and their communities impacts their perceptions of hope and provides tangible targets for school programming aimed at fostering this important psychosocial construct**, including:

- Developing and implementing programs and practices aimed at fostering student self-esteem and providing opportunities for all students to experience success. KIIs echoed this recommendation

with calls for awards, athletic and art programs, and other activities supporting whole child development.

> *"I would just suggest that not only education but also other motivations and physical activities should be given to students for example football competitions and jumping rope and various exercises will open their minds. Regardless of them being boys or girls, if they can feel like they belong then they will want to stay for a long time. I also recommend that we should do matches between each BAB centers."* — Benaadir Community Member

- Meaningfully engaging students in their classrooms and schools to increase motivation and improve retention.

> *"Yes, students are constantly encouraged to enjoy learning, and in this plan, we both lower absenteeism and hold competitions to keep students engaged."* — South West Teacher

- Fostering student engagement in the community to promote civic engagement and feelings of empathy and belonging.

> *"I would say if activities were incorporated to the curriculum it would have been great. Also, it would be great if clubs are created in the schools. The clubs could be girls club, children clubs and so on. Those clubs would have given the students to develop their leadership skills and shine their advocacy talents. These qualities would have prepared them to serve for their communities."* — Implementing Partner

3.7 Teacher perceptions of self, school, and community predict their perceptions of both their own and their students' hope

Prior sections explored relationships among student characteristics, perceptions, program type, and location variables and student outcomes. In this section we examine the influence of indicators of teacher resilience on teachers' perceptions of hope relative to themselves and their students. These resilience measures reflect teachers' beliefs in their abilities to effectively handle their work, meet student needs, create a safe and welcoming environment for all students, and have the necessary pedagogical skills, content knowledge, materials, and interpersonal support for their teaching. We used regression analysis[15] to evaluate the associations among teacher perceptions of self (instructional self-efficacy, engagement, and internal resources), their school (efficacy to create a positive school climate and school safety), and their community (efficacy to enlist parental involvement, community acceptance and engagement, and community safety and safety at home) and teacher perceptions of both their own hope and their students' hope (Table 30). Data for model testing derives from teacher endline surveys.

[15] Regression models were chosen for the teacher survey data analysis as the sample size was not adequate to power a structural equation modeling approach.

Table 30: Group Assignment of Teacher Predictors

Predictor Group	Psychosocial Predictors
Group 1: Teacher perceptions of their self-resilience	Instructional self-efficacy
	Engagement
	Internal resources
Group 2: Teacher perceptions of school resilience	Efficacy to create a positive school climate
	School safety
Group 3: Teacher perceptions of community resilience	Efficacy to enlist parental involvement
	Community acceptance and engagement
	Community safety
	Safety at home

As in the student models, we predicted hope by indicators at the self, school, and community level. **Teacher resilience indicators positively predicted their perceptions of their own hope**. Teacher perceptions that they interact with students in a warm and caring demeanor and that they put forth quality effort in their teaching, and enjoy teaching (social, cognitive, and emotional engagement), **positively predict 35% of the variance in their perceptions of hope.** Teacher perceptions that they can create an enjoyable and motivating learning environment and need to feel safe to teach effectively (efficacy to create a positive school climate and safety) **predicted 26% of the variance in hope**. Teachers' perceptions of their ability to engage parents in their students' learning, opportunities to engage their students and school in the community, and that they need to feel safe in their community, but not in their home, to teach effectively (efficacy to enlist parent involvement, community acceptance and engagement, community safety) **predicted 37% of the variance in hope**.

Teacher resilience indicators also predict their perceptions of student hope. Teacher perceptions that they interact with students in a warm and caring demeanor, that they put forth quality effort in their teaching, and enjoy teaching (engagement), teacher perceptions that they are able to create an environment that enables students to learn (instructional self-efficacy), and that they have the content knowledge and skills needed as a teacher (internal resources) worked together to **predict 21% of the variance in perceptions of student hope**. Teacher perceptions that they can create an enjoyable and motivating learning environment (efficacy to create a positive school climate) and that they need to feel safe to teach effectively (school safety) **predicted 12% of the variance in student hope**. Finally, teachers' perceptions of their ability to engage parents in their students' learning (efficacy to enlist parent involvement), and opportunities to engage their students and school in the community (community acceptance and engagement) **predicted 41% of the variance in hope**. Neither a need to feel safe in their community or home to teach effectively, (community and home safety) have meaningful associations with

hope. See Table 31 for a summary of findings from these regression analyses, including the variance explained for each model.

Table 31: Teacher perceptions of self, school, and community as predictors of their own and their students' hope

Predictors		Dependent Variable	
		Teacher Hope	Teacher Perceptions of Student Hope
Teacher Perceptions of Resilience	Instructional Self-Efficacy	-.01	.19
	Engagement	.50*	.22
	Internal Resources	.18	.20
Percent Variance Explained	Adj R^2	35%	21%

Predictors		Dependent Variable	
		Teacher Hope	Teacher Perceptions of Student Hope
Teacher Perceptions of School Resilience	Teacher Efficacy to Create a Positive School Climate	.31*	.26
	School Safety	.36*	.24
Percent variance explained		26%	12%

Predictors		Dependent Variable	
		Teacher Hope	Teacher Perceptions of Student Hope
Teacher Perceptions of Community Resilience	Teacher Efficacy to Enlist Parent Involvement	.26*	.40*
	Teacher Perceptions of Community Acceptance and Engagement	.28*	.40*
	Community Safety	.41*	.03
	Safety at Home	-.04	.16
Percent variance explained		37%	41%

*Significant at p<0.5

These findings can provide **concrete targets for enhancing teacher training and support.** While KIIs, including teachers and head teachers, expressed both a need and a desire for additional subject area training (particularly in mathematics) and more tools and skills to help differentiate instruction to meet

the needs of their diverse students, the resilience models suggest additional fruitful targets for enhanced training and teacher support, including:

- Strategies for fostering social, cognitive, and emotional engagement in the classroom, such as: group activities, classroom discussions, and peer-to-peer learning (social engagement); active learning, inquiry-based learning, and differentiated instruction (cognitive engagement); and creating a safe and supportive classroom environment, relationship building, and connecting classroom learning to real-world scenarios (emotional engagement).
- Fostering parent involvement in and out of the classroom.
- Engaging community members in student and school success.
- Fostering perceptions of physical and emotional safety.

Recruiting and retaining high quality teachers is a cornerstone of effective education in Somalia, as elsewhere. The Teacher Retention case study that follows examines the factors that enhance or impede retention among teachers in the longitudinal cohort LASER followed over the course of two years.

Case Study: Teacher Retention

The Somali Government National Development Plan for 2022-2026 includes recruiting adequate numbers of high-quality teachers among the key challenges related to quality education in the country (ESPP 2022). Finding and retaining high quality teachers is especially challenging in post-conflict societies like Somalia where teachers often struggle with insecurity, as well as overcrowded classrooms, large numbers of over-aged students, limited classroom resources, lack of transportation, insufficient teacher training, and poor salaries (Richardson et al., 2018).

This case study examines teacher retention among teachers in the longitudinal cohorts LASER followed over the course of two years to identify factors that enhance, or impede, teacher retention in Somalia. Data collection included teachers that teach both BAB and formal primary classes as well as those teaching only BAB or formal primary classes. Data for this analysis derived from focus groups and interviews with 74 teachers, 22 BAB implementers, and 15 government officials, as well as survey responses from 49 teachers. We also conducted exit interviews with 15 teachers who left the program and school within the two-year study period.

Key Findings to Enhance Teacher Retention:

1. **Consider the special needs of non-Maxaa-tiri speaking teachers, and teachers serving under-resourced schools.**
   Of the 54 teachers in our baseline cohort, 33 (61%) were retained for the two years of the longitudinal study. Minority teachers and teachers in under-resources schools, had much higher attrition rates. Maay-speaking teachers in our longitudinal study left their positions at a much higher rate (47%) compared to Maxaa-tiri speaking teachers (11%). IDP schools and BAB centers recorded high attrition rates of 62% and 50%, respectively. We tracked 71 percent of the teachers who left their teaching positions within the study period. The majority (60%) of those teachers were from South-West, of whom all were either Maay or Dabarre speakers and all but one taught in an IDP location – teaching environments reporting widespread resource limitations, substandard infrastructure, and other hardships. **Failure to retain teachers from groups that are already minoritized or marginalized -- both in the teaching profession and in the broader community -- pose serious challenges to the educational system's ability to effectively teach the students they aim to serve.**

2. **Understand and support teacher and head teacher motivations.**
   The BAB model capitalized on existing educational infrastructure by co-locating BAB classes with established formal primary schools, where possible. This strategy minimized the need to find or build new classrooms and allowed BAB to tap into existing teacher resources by recruiting formal primary teachers to take on a second shift in the BAB program. Teachers and head teachers listed several motivations for joining the BAB program. Nearly one-third of head teachers (31%) identified increased access to funds, structures, and programs to enhance their school infrastructure and provide opportunities to serve more students as their motivation for participating in the BAB program. Teachers considered BAB an opportunity to utilize and further advance their teaching skills (33%) and give back to their communities (31%). One-fourth of all teachers also appreciated the opportunity to earn an income or additional income (25%). Table CS4-1 shows that the breakdown of teacher and

head teacher motivations to teach in the BAB program varied considerably by state. **Ensuring that educational programs align with local teacher and head teacher motivations will increase interest, satisfaction, and retention.**

"I was motivated to help my community in order to save Somali youth who are not in school and cannot afford to pay for their tuition." — *South-West Teacher*

Table CS4-1: Teacher and head teacher motivations to teach in the BAB program by state.

Driver	Benaadir (n=27)	Hirshabeelle (n=13)	Jubbaland (n=10)	South-West (n=24)
Employment Opportunity	30%	23%	10%	8%
Professional Enrichment	33%	15%	0%	25%
Programmatic School Support	26%	0%	10%	<1%
Education for Underprivileged Youth	30%	38%	10%	25%

3. Tailor teacher training to individual and local teacher needs.

Many BAB teachers identified professional enrichment – i.e., the opportunity to use their teaching skills while also improving them through training – as an important motivation for joining the BAB program. **These teachers had high expectations for the quality of BAB training opportunities – expectations that were not uniformly met.** While some teachers expressed satisfaction with BAB training, including pedagogical techniques and classroom management, teachers reported considerable variation in training opportunities, content, and quality across districts. For example, some teachers reported training focused solely on the BAB curriculum, while other teachers lamented the lack of any curriculum-focused training. Teachers also identified the need for additional training in time management and conflict resolution, special needs education, and socio-emotional learning strategies. A third of the non-retained teachers responding to our exit survey listed teacher training as a needed program improvement. Table CS4-2 summarizes teacher reflections on training received, training needed, and desired frequency of training.

Table CS4-2: BAB teacher reflections on teacher training by state/ region

Training	Benaadir	Hirshabeelle	Jubbaland	South-West
Content Received	Classroom management Lesson planning Curriculum Pedagogy SEL Program policies Teaching older students	Classroom management Curriculum Subject reviews	General training Curriculum	Classroom management Pedagogy Teaching skills SEL
Content Needed	Classroom Technologies Special Needs Conflict Resolution Curriculum	Curriculum Policy Risk Management Special Needs	Special Needs Curriculum	Special Needs Curriculum
Frequency	Twice a year Not enough (52%)	Several times Not enough (62%)	1-2 times a year Not enough (70%)	Once a year Not enough (33%)

o

4. **Encourage flexibility to capitalize on teacher strengths and effectively meet student.**
The evaluation revealed school-level program modifications that supported or inhibited teacher satisfaction and retention. KIIs understood the BAB design as self-contained classrooms with a single teacher responsible for teaching all class subjects. While many teachers felt that this model worked adequately for Level 1 students, it was often challenging for a single teacher to appropriately deliver the more difficult content in levels 2 and 3 across all subject areas. Many schools chose an alternative strategy – most often allocating teachers by subject or having teachers teach only two to three subjects to better capitalize on the knowledge and experience of the teachers, provide both teachers and students with variety throughout the school day, and alleviate the need to cancel a particular class when the responsible teacher fell ill or was absent.

> *"In level 1, one teacher one class is more appropriate as it is only 40 minutes. But, in level 3, it will be boring and even the teachers cannot touch all classes in an excellent way as the teachers' experience is in one subject. Even students will not respect a teacher who didn't teach them directly."* — *Benaadir Teacher*

Teachers also overwhelmingly reported modifying the curricular schedule and/or providing tutoring, supplemental instruction, or other supports that gave students the extra time needed to understand the material fully. Modifications ranged from adding 15-20 minutes before or after classes and during break times to adding 2 extra days of instruction per month (usually on weekends) to allowing adequate time covering all the material, preparing students for exams, and providing supplemental instruction to currently under-performing students for the opportunity to retake exams. Table CS4-3 summarizes teaching adjustments undertaken in schools that are part of our longitudinal sample. **Flexible teaching models that capitalize on teacher strengths and facilitate student learning foster teacher satisfaction, self- efficacy, and retention.**

Table CS4-3: Teaching arrangements as noted by teachers across states and regions

Teaching Arrangements	Benaadir (n=27)	Hirshabeelle (n=13)	Jubbaland (n=10)	South-West (n=24)
1 Teacher-1 Class	22%	31%	50%	29%
Teacher by Subject	33%	77%	30%	42%
Extra Time provided	100%*	46%	100%*	38%

* Some teachers indicated extra classes when school is out of session for failing students

5. **Effectively manage programmatic factors to build teacher trust and feelings of value and support.**
Teacher reported context-driven reasons for leaving their teaching post (e.g., migration, illness, marriage) twice as often as programmatic reasons (e.g., administrative issues or salary concerns) – mirroring the reasons parents and caregivers identified for their student's attrition. This finding is not surprising, as teachers are subject to the same stressors as their students within Somalia's post-conflict and fragile society that faces extreme hardships due to climate change. While several non-retained teachers pointed to contextual factors as their primary motivation for leaving the teaching position, programmatic factors

were also frequently noted. Indeed, **two-thirds of the non-retained teachers surveyed expressed dissatisfaction with teacher pay** as contributing to their decision to leave the BAB program.

The BAB program intentionally recruited teachers from co-located or nearby public schools to also serve as a BAB teacher. This model provided access to an educated and more experienced teacher workforce with community ties. On the other hand, BAB compensated these teachers with a fraction of the salary earned through their formal primary teaching – despite a similar or greater time commitment and often more challenging working conditions. **More than 4 out of 5 teachers (81%) interviewed identified issues of low pay compounded by break downs in the payment process that lead to some receiving no pay for many months as major challenges in retaining teachers in the BAB program** because, as one Jubbaland head teacher stated, *"I think, the teacher is one of the pillars in learning process, and we have to respects its role, the salaries for this program is very challenging, and we need from the implementers to fix that problem."* **In light of inadequate or uncertain compensation, teachers felt undervalued and disinclined to continue their BAB work.**

All focus group participants, 27% of former teachers participating in the exit survey, as well as teachers participating in dissemination workshops noted programmatic challenges beyond pay as contributing to teacher dissatisfaction. Common challenges noted included chronic shortages or late arrival of learning materials and school equipment, high student-teacher ratios, one-teacher-one-class policy, inadequate and at times unsafe school infrastructure, lack of transportation, and inadequate or ineffective training. These ongoing programmatic challenges negatively affected teacher motivation and led to feelings of disillusionment with the BAB program. In the words of this Benaadir teacher: *"I took two trainings from* BAB and other trainings from non-BAB. I have the capacity and knowledge, but I am a bit discouraged, and I was honestly thinking to quit BAB and look for other jobs. This job is equivalent to several jobs, and they don't trust the school and the teachers. They only implement their method." **Skilled management that honors and capitalizes on teacher strengths, values and supports teachers, and provides effective professional development are essential to counteract dwindling teacher morale and feelings of discontent.**

Recommendations

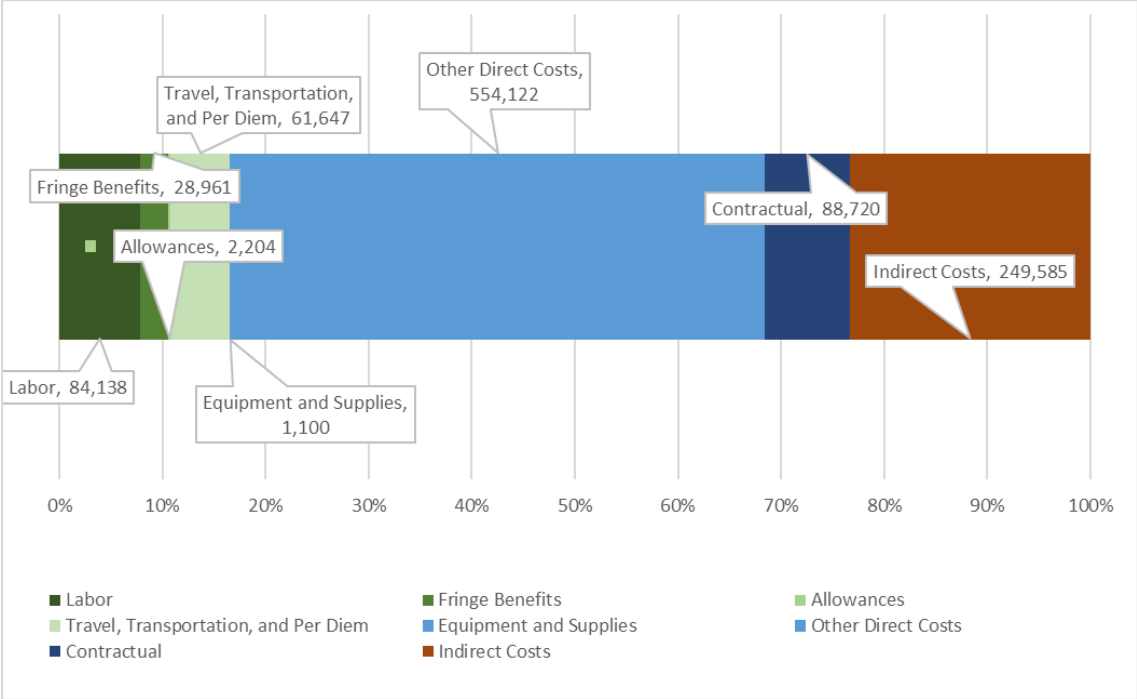
Future educational programming should consider the following recommendations, derived from the preceding data analysis to improve teacher retention:

	Supply rigorous, on-going, and targeted professional development to increase teacher skills and confidence in the curriculum, subject matter, pedagogy, class management, SEL, and other critical topics
	Provide teacher compensation that honors teacher knowledge, skills, time commitment, and prevailing wages
	Invite and engage teachers in regular program reflection and integrate teacher feedback into ongoing program implementation and continuous improvement
	Ensure timely delivery of materials and infrastructural upgrade needs
	On-board and off-board all teachers at regular intervals making sure that all teachers receive the knowledge, skills, and support needed to be effective

3.8 THE IMPLEMENTATION COST PER TEACHER TRAINED

As part of our Cost Analysis (Appendix 4) we calculated the implementation cost for teacher training including all costs related to the implementation and delivery of teacher training modules and supplementary coaching support, master trainers' training, training of district level trainers, and teachers' training. We also included salaries and wages, travel, transportation, and per diem of staff, STTAs, and consultants who implemented and delivered the teacher training and coaching support model. We categorized these costs by implementing partner into larger buckets (Figure 20).

Figure 20: Teacher Training Intervention Implementation Costs



These costs are the total costs before monetized contributions or the cost of "doing business" with USAID are added in.

Most of the money spent on implementing teacher training was spent on Other Direct Costs (52%) followed by Indirect costs at 23%, Contractual and Labor at 8%. Travel, Transportation, and Per Diem 6%, Fringe Benefits 3% and Allowances at 0.2%.

In addition to the above costs, we calculated educator training days by multiplying the number of trainees and the length (in days) of each training session. The sum of the result for each session gives us the total number of educator training days. We then divide the total costs by the number of educator training days to get the daily training cost per educator (Table 32).

Table 32: Cost for teacher training, per teacher before scaling (up to June 2022)

Type of Cost	Cost Category	Costs USD (up to June2022)	Educator Training Days	Cost per Educator per Day of Training
Total Costs- USAID Perspective	Implementation	276,438	4783	58
Full Costs- USAID Perspective	Implementation	547,165	4783	114
Total Costs- Social Perspective	Implementation	276,438	4783	58
Full Costs- Social Perspective	Implementation	647,401	4783	135

If we look at the period from the start of the project up to June 2022 (before expansion), the direct cost incurred by USAID (without monetized contributions) to train a teacher for a day is US$ 58. If we add General Operations, Management, and Reporting costs, the full cost to train a teacher for a day increases to US$ 114. When we add monetized contributions, the entire social cost of training a teacher for a day is US$ 135 (Table 32).

Table 33: Cost for teacher training, per teacher up to June 2023

Type of Cost	Cost Category	Costs USD (up to June2023)	Educator Training Days	Cost per Educator per Day of Training
Total Costs- USAID Perspective	Implementation	1,070,477	6186	173
Full Costs- USAID Perspective	Implementation	1,812,977	6186	293
Total Costs- Social Perspective	Implementation	1,070,477	6186	173
Full Costs- Social Perspective	Implementation	1,754,152	6186	284

Looking at the entire evaluation period, (since the start of the project, up to June 2023), the cost incurred by USAID (without monetized contributions) to train a teacher for a day is US$ 173 which is US$ 115 more than the cost incurred before expansion. If we add overhead costs, the full cost to train a

teacher for a day increases to US$ 293. When we add monetized contributions the full social cost of training a teacher for a day is US$ 284 (Table 33).

Note that the data available shows fewer teacher trainings took place after expansion despite an increase in expenditure. Numerous requests to the implementing partner to clarify this have borne no fruit. Therefore, we request the readers to treat the results in table 33 cautiously.

3.8.1 The estimated unit cost of teacher training when scaled up in intervention areas (USAID Perspective)

Considering the expansion period, we observe the addition of 250 schools, 250 head teachers and 1,504 teachers to the BAB program. BAB's education training intervention uses a cascade training model in which head teachers receive 6 days of group training, teachers receive 3 days of refresher training, and an hour of coaching (individual training) per semester delivered by their respective head teachers. If we assume that all new head teachers and teachers underwent training based on BAB's in-service teaching training mode presented, the number of Educator Training Days amounts to 9020 days (Table 34).

Table 34: BAB's ABE Training Model

	Number of Days	Number of Trainees	Number of Educator Training Days
Head teacher Group Training	6	250	1,500
Teacher Group Training/Refresher Training	3	1,504	4,512
Coaching	2	1,504	3,008
Total			**9,020**

Assuming that all expenditures on teacher training after June 2022 were directed towards training new head teachers and teachers, after expansion, the total cost incurred by USAID (without monetized contributions) to train a teacher for a day is US$ 88. If we add overhead costs, the full cost to train a teacher for a day paid by USAID was US$ 140 (Table 35).

Table 35: Estimated cost to train a teacher for a day after expansion (USAID perspective)

Type of Cost	Cost Category	Costs USD (After June2022)	Educator Training Days	Cost per Educator per Day of Training
Total Costs- USAID Perspective	Implementation	794,039	9020	88
Full Costs- USAID Perspective	Implementation	1,265,812	9020	140

3.8.2 The estimated unit cost of teacher training when scaled up in intervention areas (Government of Somalia's perspective)

We consider the increase in the number of schools, head teachers and teachers in the original 11 districts since expansion (Table 36).

Table 36: Increase in number of schools and classes in the 11 districts

District	Number of New School	Number of New Classes	Number of New Head Teachers	Number of New Teachers
Baydhabo	27	99	27	99
Diinsoor	0	0	0	0
Baraawe	2	25	2	25
Wanlawayn	4	61	4	61
Jowhar	18	42	18	42
Balcad	21	109	21	109
Shabis	0	4	0	4
Xamarwayne	0	0	0	0
Kaxda	1	25	1	25
Dayniile	2	20	2	20
Kismayo	24	239	24	239
TOTAL	**99**	**624**	**99**	**624**

Following BAB's education training model where head teachers receive 6 days of group training, teachers receive 3 days of refresher training and an hour of coaching (individual training) per semester, the number of educator training days required will be 3,684 to train the new teachers and head teachers.

Using past data on trainings carried out in the 11 districts for costs of the following items, meals and refreshments, stationery, venue, transportation allowance (out of town), transportation allowance (in town), event banner, facilitators allowance, vehicle rental, printing service, printing certificate, lodging, per diem total costs for training the new head teachers and teachers amounts to US$ 114,206. Dividing this by the total number of educator training days gives us US$ 31 per teacher per training. Therefore, to expand in-service teacher training, it would cost the government of Somalia US$ 31 per day to train a teacher (Table 37).Based on the available date, if we compare the USAID perspective to the government perspective, we note that in-service teacher training is less costly than that implemented by the government.

Table 37: Estimated cost to train a teacher for a day after expansion (Somalia Government perspective)

	Number of Days	Number of Trainees	Number of Educator Training Days	Cost (US$)	Cost per Teacher Training Day (US$)
Head teacher Group Training	6	99	594	24638	-
Group Training/Refresher Training	3	618	1,854	89568	-
Coaching	2	618	1,236	0	-
Total			**3,684**	**114206**	**31**

3.8.3 The estimated unit cost of teacher training when replicated in new areas.

This question could not be answered with the available information. Replication requires moving a program to an entirely new context, this isn't the case for Somalia.

4 LESSONS LEARNED AND RECOMMENDATIONS

The BAB project reduced illiteracy in Somalia by providing education to children and youth who previously lacked access. Despite the many successes articulated in this report, key informants described several administrative, programmatic, and contextual factors that impeded project progress. As one Somali government official remarked during endline data collection

> *"Every project has limitations and successes,"* noting that, "[BAB's] *achievements overweigh its challenges. The community whose education level was low and today are improving in literacy."*

The following lessons learned and recommendations can inform future education programming in Somalia and beyond. In the words of one of our government official KII,

> *"BAB is almost finished. But we have a lot of experiences that we can apply to other future projects."*

4.1 FOSTER EFFECTIVE COMMUNITY ENGAGEMENT

A Nigerian proverb reminds us that, "It takes a village to raise a child." Since raising an educated child also "takes a village," **effective educational programs engage and involve local communities to foster community ownership and build program visibility**. Community engagement should include community and religious leaders, parents and teachers, students, employers, as well as members of the international diaspora. **Community involvement can take various forms but should offer regular and substantive opportunities for two-way sharing, discourse, and feedback**.

BAB made community engagement a cornerstone of its implementation strategy. However, just 2% of BAB expenditures (section 3.1.1) were categorized as parent or community engagement. These activities were unevenly distributed across communities and provided few opportunities for two-way dialogue that could inform effective programming and sustainability planning (4.6). BAB sought to create and nurture Community Education Committees (CECs) in each school. When functioning well, these committees support critical school functions (e.g., monitoring attendance and registration), raise community awareness and develop buy-in, assist with school safety and maintenance, and serve as liaisons with local governments and community leaders (see Case Study 3.3.1). Although the CECs associated with some schools were very active, many KIIs felt their CECs were ineffective or underutilized. The CEC members expressed frustration with inadequate or unclear communication, training, and expectations. Key informants noted there were few community-oriented events or activities beyond one-way messaging aimed at awareness raising. Further, community members found few opportunities to provide feedback and felt that their feedback, when given, was disregarded. While the structure of the BAB contractual agreement may hamper flexibility and agility in responding to community and stakeholder needs, it is nonetheless essential for program implementers to listen and communicate openly and honestly with their host communities to build trust and foster the reciprocity and mutual respect necessary for effective educational partnerships. **Educational programming should engage communities, including CECs, in all stages of the educational program, from initiation through implementation and sustainability planning.**

Making community engagement, including development and support of robust CECs, an integral part of program design – and budget – will help align program activities to community needs, build community ownership and empowerment, and support long-term sustainability.

4.2 Explore innovative educational models to increase access and retention

The Transition Pathways Case Study (Section 2.4.1) documents a Somali student population hungry to continue their education. Despite these strong desires, fewer than half of the BAB and formal primary cohorts completed two years in their respective programs. Exit surveys with parents and caregivers of non-retained students reveal various reasons for attrition – many related to challenges exacerbated by environmental disasters (famine and flood) that stress family budgets and/or precipitate relocation. Students in these circumstances find it necessary to prioritize family obligations – such as work or family care – over their education. Other students relocate because of environmental challenges, instability, and violence, or as part of a pastoralist family. **While the reasons for student dropout vary, educational opportunities that allow students to balance work and family obligations with study and that don't rely solely on place- and time-based instruction could mitigate attrition. Future educational programs should explore education models that accommodate the needs of students with disabilities, as well as students who move frequently, don't live close to a school, have competing work or life schedules, or otherwise find it difficult to fully participate in a traditional school arrangement.** Suggestions include mobile schools that move with pastoralist communities, remotely accessible radio school, as well as fully or partially asynchronous models (e.g., hybrid, podcast, or recorded lessons and other educational models) that allow students to access education where they are and when they can, rather than at a fixed location and time.

4.3 Use empirically determined benchmarks for student promotion

As described in section 2.3, the vast majority (92.5%) of Level 1 BAB students taking the end-of-year exam in spring 2022 qualified for promotion to Level 2. To qualify for promotion, students needed to score at least 150 out of 300 on a classroom-based end-of-year exam that included literacy, numeracy, and Arabic and Islamic studies. On the one hand, these findings are impressive. However, the relatively low threshold for promotion could pass students who are unprepared for Level 2 work in one or more subject areas. Moreover, while end-of-year exams were developed in collaboration with the MoECHE, they were administered and scored locally. The evaluation examined the Level 2 EGRA and EGMA normalized gain medians for promoted students meeting and not meeting a literacy benchmark empirically derived from 939 longitudinal cohort students completing BAB Level 1 or formal primary grade 2. Students meeting the benchmark at the end of year 1 performed significantly better in year 2 on both the EGRA and the EGMA. While low promotion barriers give the appearance of success in the short run by supporting high conversion numbers, they may be counterproductive long-term, as academically underprepared students are more at risk for school dropout, low self-esteem, and other negative outcomes**. Insuring realistic contractually obligated metrics for success that include multiple measures of student growth and using data-driven approaches to determine and monitor promotion strategies will improve long-term student outcomes.**

4.4 Ensure equitable distribution of resources

The BAB program effectively increased the opportunity for Somali OOSCY to attend school. Key informant interviews revealed considerable appreciation for the enhanced access to free education the BAB program provided, especially for poor children, overage youth, and girls. Despite these gains, KIIs indicated that some populations remained unserved or underserved, including IDP children, minorities, differently abled students, and students located in IDP settlements or rural locations.

The BAB project sought to distribute educational services to the under-served and marginalized populations in urban, rural, and IDP locations in the target areas. Creative conducted extensive assessments across the region to determine community fitness and needs. However, despite these large-scale needs assessments, the final placement of BAB centers overwhelmingly prioritized co-location with already existing school infrastructure. While this fulfilled the contractual obligation to "use existing infrastructure to accelerate program expansion," it also focused BAB resources in communities with existing educational opportunities at the expense of more under-served communities. While co-locating BAB centers in existing formal primary schools had many economic, logistical, and programmatic affordances, it also led to unintended consequences, as this implementation partner noted:

> *"There were complaints about the school facilities. It didn't have enough classrooms and was equipped with necessary infrastructure especially with those of IDPs. It would be great if new classes could be built and chairs and furniture provided to them. Even the principals are concerned for their previous furniture. They said that BAB enrolled energetic and playful teenagers who broke down and damaged the student chairs and BAB isn't replacing nor buying new chairs for its students." — Implementation Partner*

Those BAB programs that were in IDP and rural areas were also more likely than urban schools to report challenges with poor or unsafe infrastructure, overcrowded classrooms, lacking or insufficient learning materials, and other challenges. BAB students in under-resourced IDP schools scored consistently lower on academic measures and were more likely to leave school than students in other locations. Some challenges to adequately serving IDP and rural students appeared logistical – such as delays in printing and shipping educational materials and supplies. Others resulted from difficulties recruiting qualified teachers to serve in remote or poorly resourced schools. While others resulted from policy considerations, such as use of existing infrastructure.**Future educational programming should balance efficiency – achieved by providing education to the most students for the lowest cost – with equity – by providing opportunities to all communities.**

4.5 Foster an open, reciprocal partnership management style that builds trust

Well-designed and intentional partnerships create an environment that fosters trust, shared responsibility and decision-making power, and open communication channels (feedback loops) (Sdunzik et al., 2022). The BAB hierarchical structure produced a disequilibrium across the partnership levels. This power imbalance prevented open, regular, and honest communication among partners and stakeholders. These communication challenges resulted in many duplicate efforts, community misgivings, school withdrawals from the program, and low morale. Implementing partners and learning facilitators perceived a lack of

trust as among the primary obstacles to effective program implementation, as exemplified by these quotes from a teacher and an implementing partner.

> *"This job is equivalent to several jobs, and they don't trust the school and the teachers."* — Benaadir Teacher
>
> *"We do our job very well but we don't know what caused this double staffing. Although our collaboration isn't bad now, sometimes we ask ourselves if we are trusted by our partner or not."* — Implementing Partner

Pursuing a holistic partnership approach to educational programming that ensures that all stakeholders feel heard and valued will increase motivation to provide quality educational experiences.

4.6 Ensure realistic alignment between budget, activities, and outcomes

The BAB project targeted four intermediate results (IRs), including (1) increasing attendance, retention, and promotion; (2) improving literacy, numeracy, and SEL skills of OOSCY, 3) strengthening communities and enhancing social cohesion, and (4) increasing government capacity for delivering, monitoring, and regulating education for OOSCY. However, both activities and budgetary allocations across these activities were unbalanced and heavily skewed toward administrative costs. There was little to no budget allocation for the communities the project intended to serve, e.g., through community-based capacity building, competitive teacher salaries, and funding to off-set costs to schools hosting co-located BAB classes. These budget constraints limited options for effective programming and negatively impacted relationships with teachers, schools, and communities. For more details on budgetary challenges, see the cost analysis section of this report. **Engaging partners in realistic project planning that aligns activities and budgets with desired outcomes will increase financial and in-kind buy-in, foster holistic and balanced momentum across all goals, and facilitate successful transfer beyond project duration.**

4.7 Employ a holistic approach to capacity strengthening

"Start with the end in mind," a principle for effective goal setting and strategic planning, is important to the success of educational programming. As most educational projects are time bound, **strengthening capacity among the stakeholders most likely to continue the work once funding for the education intervention is over is essential to project sustainability**. BAB KIIs referenced this reality by expressing concern about what programs or services would be available for their children when BAB ended. While parents, their students, and communities were generally pleased with the opportunities BAB afforded, they were nonetheless anxious about the future. **Intentional and multi-pronged strategies that strengthen local capacity to develop and nurture connections among local stakeholders, including local, regional, and national government agencies; the diaspora; and other education, development, and humanitarian programs in the region are essential for project sustainability.** Capacity strengthening must be intentionally woven throughout all phases and stages of the project, from ideation to implementation to expansion and continuation. Key stakeholders can vary, but should involve different levels of the federal, state, and local governments, as well as community leaders (e.g., teachers and local education-oriented organizations and committees).

BAB focused its capacity strengthening efforts primarily on the federal government, hiring BAB-designated staff members, collaborating on a national ABE policy framework, and developing a federal Education Management Information System (EMIS). While these were all valuable contributions, this exclusive **focus on strengthening capacity at the federal government level ignored crucial state and local actors that could increase the likelihood of sustained educational success in the intervention locations**. For example, state-level officials noted missed opportunities to strengthen state and local capacity, such as enhancing monitoring strategies and student registration abilities. Community members, including parents and teachers, indicated that school location decisions often allocated new education assets based on pragmatic considerations rather than community-identified needs – resulting in insufficient spatial capacity to accommodate some of the most marginalized learners. Finally, teachers underlined the need to build (and expand) capacity among the teaching workforce, including ensuring appropriate support and compensation. **Employing a holistic and intentional partnership approach to designing and implementing educational programming in Somalia** that weaves capacity strengthening into all project stages involves government and community stakeholders as full partners with donors and stakeholders can enhance program outcomes, better meet community needs, and develop capacity that will yield results long after funding ends.

> *"The sustainability of the project if Creative leaves is at risk because the ministry wasn't prepared and built its capacity to take over this job after Creative. Education cannot be like an emergency project which will just dry up for one minute."* — Government Official

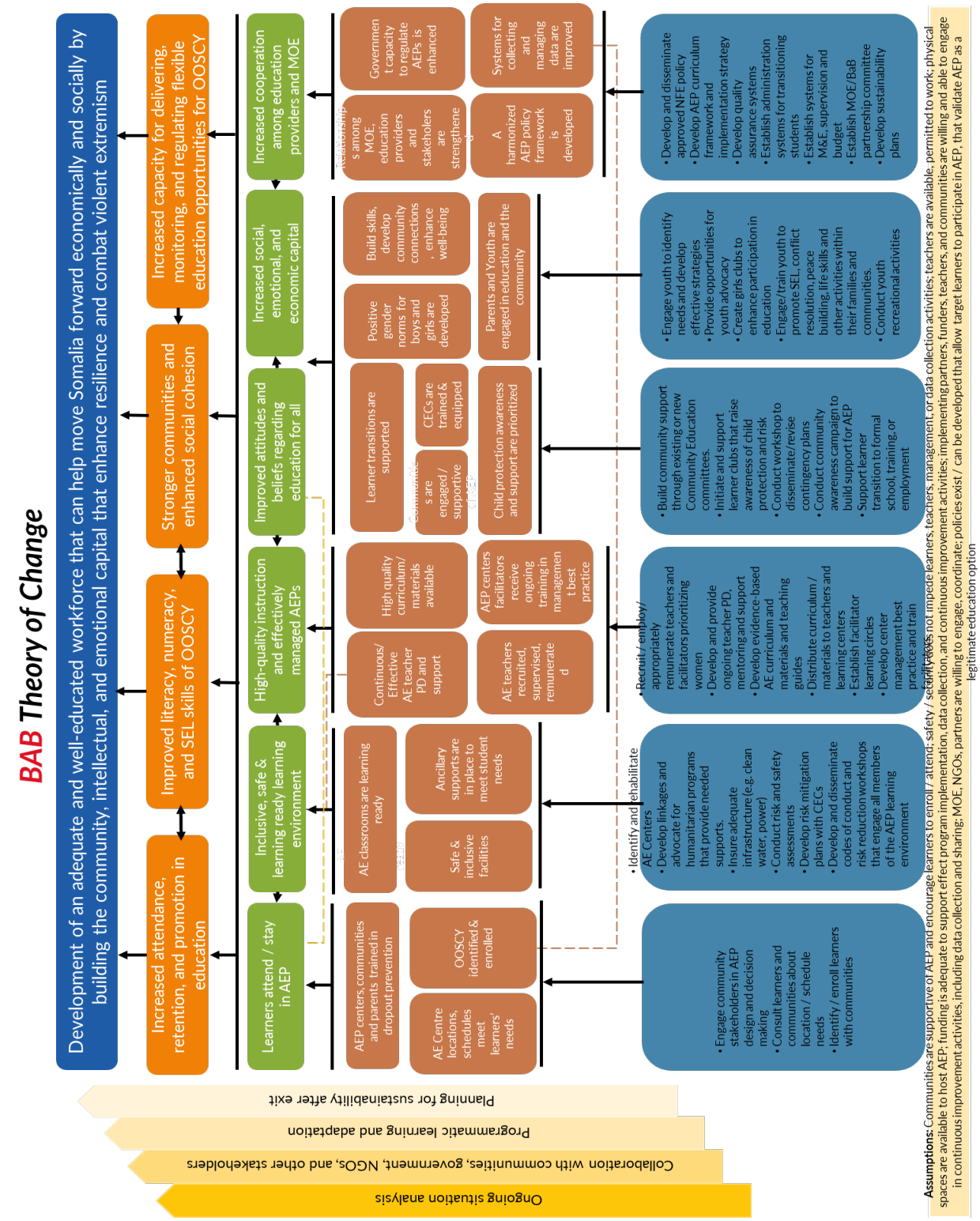
APPENDIX 1: EVALUATION QUESTIONS

Question	Indicator
Evaluation Question 1: To what extent is BAB effective in improving access to quality education for Somali out-of-school children and youth ages 9-16?	
1.1 Increased Enrollment	
Access	
1.1a What are the key barriers to learner access? Do barriers differ based on learner and/or community characteristics?	AE Center locations, programs (flexibility), and practices meet learner and community needs
1.1b To what extent did BAB succeed in reducing barriers for all learners and for vulnerable* learners, in particular? (where vulnerable includes socially marginalized such as Digil-Mirifle clan-family and Somali Bantu, etc.)	BAB enrolls a pool of learners that reflect community (AMEP Indicator 1)
Retention	
1.1c To what extent was BAB effective in retaining targeted learners during a school year and promoting learners between educational levels? Retaining and promoting the most vulnerable learners, particularly girls? Did retention/dropout vary based on implementation context and/or learner characteristics?	Learners are retained for at least one Academic Year (AY) Learners are promoted from L1 to L2 Learners complete 2 years of instruction
1.1d How did family and community engagement, attitudes and beliefs, and other factors influence learner retention/dropout?	Parent/CG support and prioritize attendance of all learners; CECs are actively engaged in ABE site
1.2 Increased Safety	
1.2a To what extent did BAB facilities and practices meet physical and emotional needs of all learners? Were some learners better served than others?	Learners perceive ABE site and program as safe
1.2b To what extent did parents/caregivers perceive their child's participation in BAB as safe and secure? Did perceptions vary based on learner characteristics (e.g., girls vs boys)?	Parent/Caregivers perceive the BAB site and program as safe for their children
1.2c To what extent is the community engaged in enhancing safety and security?	CECs (Community Education Committee) active in developing risk mitigation plans
1.2d Learning Facilitators/head teachers perceive BAB site as safe and secure	Learning Facilitators and Head Teachers feel supported and perceive ABE site as safe and secure for themselves and the learners
1.3 Increase Learning Outcomes	
1.3a To what extent was BAB effective in recruiting and retaining teachers from implementation areas? What challenges/barriers did BAB encounter?	Quality Learning Facilitators identified, recruited
1.3b To what extent was BAB effective in training and supervising LFs (Learning Facilitators)?	LFs have appropriate knowledge of content and effective and inclusive instructional practices, are confident in their ability to teach effectively, and feel supported. Center Head Facilitators create a positive environment and support effective teaching practices.

1.3c To what extent is BAB curriculum able to meet the needs of all learners?	Curriculum is sensitive to the needs of learners across the full array of age, gender, context, and other demographic variables. LFs and learners have access to support, materials, and supplies needed for effective teaching and learning
Learning	
1.3d What impact did BAB have on learning outcomes (math, reading, socio-emotional learning) for participating out of school children and youth (OOSCY)?	Learners demonstrate increased proficiencies in reading, math, and SEL assessments
1.3e Are there subgroups of learners that benefited to a lesser extent from the intervention? If so, who are they and why did they benefit less?	Learning outcomes differ based on learner or community characteristics
1.3f How successful was BAB in creating a safe, secure, and inclusive learning environment?	All learners feel safe, secure, and a sense of belonging
Evaluation Question 2: How do learning outcomes of diverse learners differ across formal (public, community, and private), and non-formal education options and interventions in the CDCS focal zones? What is the impact of contextual and demographic indicators on learning outcomes?	
Access	
2.1a To what extent do all learners have access to non-formal and formal schools (community, public, and private) in target communities	Demographics of learners enrolled in formal (community, private, and public) and non-formal schools (e.g., gender, age, disability, minority) reflect community demographics.
Retention	
2.1b To what extent are non-formal and formal school learners retained and promoted between education levels? How do educational options, learner characteristics, and context (e.g., urban, rural, or IDP) impact retention and dropout rates?	Learners are retained for at least one AY. Learners are promoted from one grade to the next.
2.2 Safety	
2.2a To what extent do formal and non-formal schools meet the physical and emotional needs of all learners? Were some learners better served than others?	Learners perceive school sites and programs as safe
2.2b Teachers perceive school as safe and secure.	Teachers feel the school is safe and secure for themselves and the learners
2.3 Learning Outcomes	
Learning	
2.3a What impact did instruction have on learning outcomes (math, reading, socio-emotional learning) for participating learners?	Learners demonstrate increased proficiencies in reading, math, and SEL assessments
2.3b Are there subgroups of learners that benefited to a lesser extent from the instruction? If so, who are they and why did they benefit less?	Learning outcomes differ based on learner or community characteristics
Evaluation Question 3: What can we learn from the BAB implementation to inform decision-making for scale-up and sustainability?	
3.1 Program Costs	

3.1a What is the cost per learner of increasing one proficiency level in reading and math skills (e.g.: non-learners, basic learners, emergent learners, etc.)? The proficiency levels will be defined using existing benchmarks from BAB and ES1-48 (2020 Compendium of Standard PIRS (Performance Indicator Reference Sheets) for Education Programming).	Cost per participant
3.1b.1 What is the cost per learner of expanding the BAB reading, math, and SEL intervention package in intervention areas? This will be estimated from USAID and the Government of Somalia's perspective. 3.1b.2 What is the cost per learner of replicating the BAB reading, math, and SEL intervention package in new areas? This will be estimated from USAID and the Government of Somalia's perspective.	Cost per learner
3.1. c What is the total cost per learner of ABE instruction, disaggregated by levels (L0,L1,L1-L2)?	
Benefits by Participant Group/Context	
3.2 What types of learners/and communities would be best served by scaling the BAB ABE model? What types of learners/community would be left out when scaling the BAB ABE model?	What groups/subgroups of participants benefited the most/least from the intervention? What characteristics of learners and their communities affected learner outcomes?
Impacts of Program Elements on learners	
3.3a What teacher, teacher training, and teacher support characteristics drive positive changes in access, retention, and learning outcomes? Does this vary by learner demographic and/or implementation context?	Correlations between teacher background, preparation, training and support and learner outcomes. Variations in observed outcomes by learner characteristics and context.
3.3b What elements of the BAB implementation (e.g. curriculum and instruction; infrastructure; materials and supplies; safety and security; etc.) appeared to drive positive changes in learner feelings of safety and well-being? Does this vary by demographic and/or implementation context?	Correlations between program elements and learner feelings of safety and well-being. Variations in observed outcomes by learner characteristics and context.
3.3c What is the relationship between learner feelings of safety and well-being and learning outcomes?	Correlations between indicators of well-being and learning outcomes. Variations in observed outcomes by learner characteristics and context.
Impact of Family and Community Factors on Outcomes	
3.4 What community or family level factors drive positive changes in access, retention, and learning outcomes? Does this vary by demographic and/or implementation context?	How do parent and community attitudes and beliefs, support, and engagement affect learner outcomes?
Civic Engagement	
3.5 To what extent does youth civic engagement contribute to increased access, retention, and learning outcomes? Does this vary by demographic and/or implementation context?	Correlations between measures of youth engagement and learning outcomes, including SEL and measures of well-being and self-efficacy. How do findings vary based on learner demographics and community context?
Unintended Consequences	

APPENDIX 2: BAB THEORY OF CHANGE



APPENDIX 3: EGRA AND EGMA LEVEL 2 DEVELOPMENT

LASER PULSE

Long-term Assistance and Services for Research (LASER)

Partners for University-Led Solutions Engine (PULSE)

Bar ama Baro - "Teach or Learn"

Somalia's Accelerated Quality Learning Program

Level 2 Baseline Report

SUPPLEMENT TO AGREEMENT NO. AID-7200AA18CA00009
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ABOUT LASER PULSE

LASER (Long-term LASER (Long-term Assistance and SErvices for Research) PULSE (Partners for University-Led Solutions Engine) is a $70M program funded through USAID's Innovation, Technology, and Research Hub, that delivers research-driven solutions to field-sourced development challenges in USAID partner countries.

A consortium led by Purdue University, with core partners Catholic Relief Services, Indiana University, Makerere University, and the University of Notre Dame, implements the LASER PULSE program through a growing network of 3,000+ researchers and development practitioners in 74 countries.

LASER PULSE collaborates with USAID missions, bureaus, and independent offices and other local stakeholders to identify research needs for critical development challenges, and funds and strengthens capacity of researcher-practitioner teams to co-design solutions that translate into policy and practice.

ABBREVIATIONS

ABE	Accelerated Basic Education
BAB	Bar ama Baro
EGRA	Early Grade Reading Assessment
ELRC	Evaluation and Learning Research Center
EGMA	Early Grade Math Assessment
L1	Level 1
L2	Level 1
MoECHE	Ministry of Education, Culture, and Higher Education
OOSCY	Out of school children and youth
RAN	Resilient Africa Network
SORDI	Somalia Research and Development Institute
UNESCO	United Nations Educational, Scientific and Cultural Organization
USAID	United States Agency for International Development

TABLE OF CONTENTS

Acknowledgements 2
About LASER PULSE 2
Abbreviations 3
1 Introduction 5
2 Tool Development 5
2.1 EGRA and EGMA Adaptation Workshop for BAB Level 2 6
2.1.1 EGRA Level 2 Assessment 6
2.1.2 EGMA Level 2 Assessment 8
2.2 Piloting the EGRA and EGMA Level 2 Tools 10
3 Level 2 Baseline Data Collection and Quality Assurance 10
3.1 Data Collection challenges by State 12
3.1.1 Hirshabelle 12
3.1.2 Jubaland 12
3.1.3 Benaadir 13
3.1.4 Southwest 13
3.2 Data Quality Assurance 13
3.2.1 Item Analysis (Difficulty and Differentiation) 13
3.2.2 Ceiling and Floor Analysis 17
3.2.3 Enumerator Bias 17
4 Data Analysis and Results 18
4.1 EGRA Results by Subgroup 19
4.2 EGMA Results by Subgroup 21
4.3 EGRA and EGMA performance by subtask 24
5 Summary and Conclusions 26
Appendix 1: EGRA and EGMA Level 2 Workshop Development Participants 29
MoECHE Experts 29
UNESCO and Somali Education Experts 29
SORDI research team 29
Appendix 2: EGRA and EGMA Development Workshop Agenda 30
Agenda for EGRA Level 2 Development 30
Agenda for EGMA level 2 Development 32
Appendix 3: Data Collection Field Notes 34
Appendix 4: Data Quality Assurance 52

1 INTRODUCTION

The Bar ama Baro - "Teach or Learn" program (BAB), supported by USAID/Somalia, aims to increase access to quality Accelerated Basic Education (ABE) for out of school children and youth (OOSCY) ages 9-16 in targeted areas of Somalia. An international consortium, led by Creative Associates, International, began implementing the accelerated basic education curriculum in August 2021 in 197 schools with 808 classrooms across 11 target districts in Somalia. They recruited 808 teachers (24% female) and enrolled 39,930 learners (48% female). Over the course of this 5-year project, BAB plans to establish 500-700 ABE centers/schools using the BAB model across 11-15 districts in Somalia and reach 100,000 unique learners[1].

The BAB external evaluation is following a cohort of BAB and formal primary students over two academic years. The Early Grade Reading Assessment (EGRA) and Early Grade Math Assessment (EGMA) are key tools for measuring student academic outcomes in the BAB ABE external evaluation longitudinal study. Designed as simple, low-cost measures of literacy and numeracy, these oral assessments measure basic reading and math skills. BAB adapted these instruments for the Somali context with the support of the MoECHE to measure learner outcomes in their Level 1 cross-sectional sample.

The external evaluation incorporated the BAB-developed Level 1 EGRA and EGMA instruments in the longitudinal learner survey administered to all cohort members at baseline (August-October 2021) and midline (April-May 2022) – after one year of academic instruction. The evaluation team, in collaboration with the Somali MoECHE, developed new EGRA and EGMA tools for BAB longitudinal cohort Level 2 and grade 3 data collection to enable appropriate measurement of learning across 2 years of BAB ABE instruction.

This Level 2 Baseline Report of the BAB program describes development, testing, data collection, quality assurance, and analysis of EGRA and EGMA tools appropriate for measuring learning by BAB ABE learners with the Level 2 curriculum. It reports on the EGRA and EGMA Level 2 development workshop, which took place in July 2022, summarizing changes in the instruments for Level 2 assessment and presenting findings from the pre-test that BAB level 2 and formal primary grade 3 students completed in September 2022.

2 TOOL DEVELOPMENT

The LASER external evaluation team oversaw modification of the EGRA and EGMA instruments developed for BAB Level 1 use to better match the Level 2 (L2) and grade 3 curricula and maximize understanding of student learning. These L2 tools were deployed in August-September 2022 to obtain student baseline measures at the beginning of the L2 or grade 3 academic year. They will be used again in April-May 2023 to capture student growth over one academic year.

[1] Note: In August 2022, BAB initiated their second cohort of ABE in over 2000 classes in 442 schools across 28 districts. By December 2022, BAB reported implementation in 31 districts.

2.1 EGRA AND EGMA ADAPTATION WORKSHOP FOR BAB LEVEL 2

The Somali Research and Development Institute (SORDI), in collaboration with Resilient Africa Network (RAN) and the MoECHE, convened a three-day workshop in Mogadishu, Somalia from July 4-7, 2022 for the purpose of adapting and updating the EGRA and EGMA instruments used with Level 1 learners to more accurately reflect the BAB Level 2 curriculum. Workshop participants included EGRA and EGMA and curriculum development experts from the MoECHE, education experts from UNESCO with experience in Somalia, Somali language and early education experts, and SORDI researchers (see participant list in Appendix 1). Taking place concurrently, EGRA and EGMA sessions reviewed each assessment sub-section, identified need for modification based on item difficulty for the test population calculated at baseline and midline and level of complexity relative to the L2 curriculum. In general, the education experts were concerned with ensuring that all sub-section items were able to differentiate appropriately among students with varying levels of ability (e.g., variations in performance were not random) and reflected a level of complexity and difficulty in line with the BAB Level 2 and grade 3 formal school curricula. Agendas for the concurrent workshops are included in Appendix 2. The following sections summarize adaptations and modifications resulting from workshop discussions.

2.1.1 EGRA Level 2 Assessment

Examination of BAB and formal primary evaluation cohort student scores on the Level 1 EGRA assessment at baseline shows scores above 50% for 3 of 9 subsections: listening comprehension, dictation 1, and phonemic awareness (Figure 1). After one year of instruction, BAB and formal primary grade 2 cohort students had mean scores above 50% on the EGRA Level 1 exam for 5 of the 9 subsections (listening comprehension, dictation 1, dictation 2, letter sound, and phonemic awareness) and approached 50% for 3 other subsections (oral reading fluency, real words, and invented words) (Figure 2). Thus, after one year of academic instruction, Level 1 and grade 2 learners achieved mean scores greater than or approaching 50% for all EGRA Level 1 subtasks except reading comprehension. Mean scores for phonemic awareness, listening comprehension, and dictation 1 exceeded 80% correct after one year of academic instruction. Increasing EGRA subsection item difficulty for Level 2 assessment was necessary to minimize ceiling effects (inability to adequately measure learning growth because the assessment is too easy) and to reflect the greater complexity of content in the Level 2 reading curriculum.

After reviewing student performance, workshop participants suggested a number of modifications to increase the level of complexity in the EGRA Level 2 assessment. In general, suggested adaptations replaced common letters and words with less common letters and words and one syllable words with similar multi-syllable words. Workshop participants also recommended increasing the complexity and length of stories and adding additional time to some sub-sections to offset increased difficulty. Table 1 summarizes modifications to EGRA Level 2 by subsection.

Figure 1: EGRA mean subscale scores for BAB Level 1 and Formal Primary Grade 1 and 2 at the beginning of the academic year

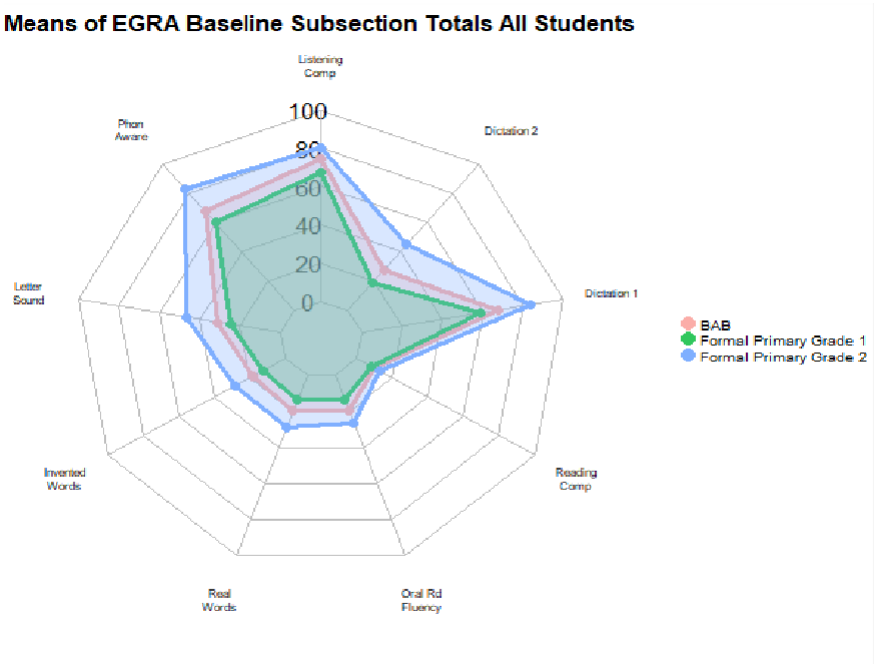


Figure 2: EGRA mean subscale scores for BAB Level 1 and Formal Primary Grade 1 and 2 at the end of the academic year

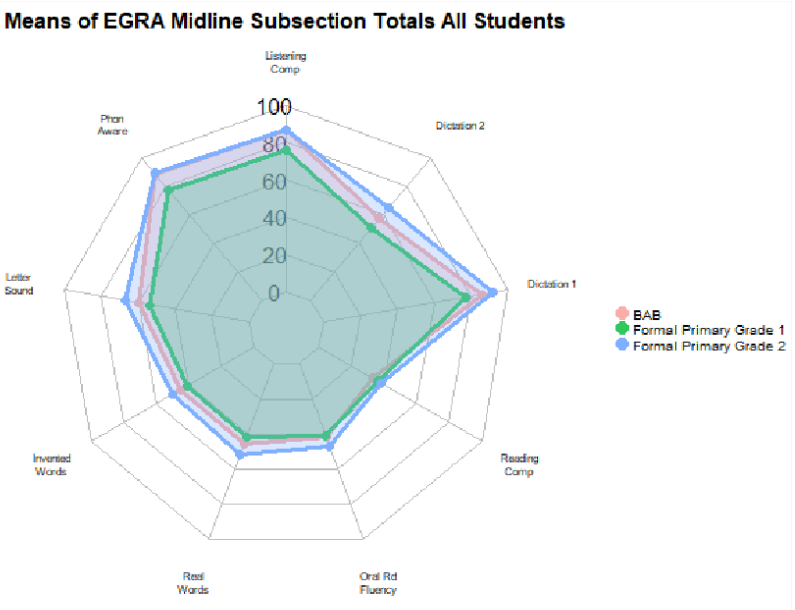


Table 1: Summary of Adaptations to EGRA Assessment for Level 2 by Subsection

EGRA Sub-Section	Changes in L2 Assessment
Listening Comprehension	Increased story length by 50%
Phonemic Awareness	Changed to identifying 1 out 3 words with different initial sound
Letter Sound Identification*	All letters replaced with semi-identical letters
Invented Words*	Some existing words replaced and new ones added (total: 50 words)
Familiar Words*	Some existing words replaced and new ones added (total: 50 words)
Oral Fluency	Longer and more complex story
Dictation 1	All letters replaced with more complex ones (identical position/shape)
Dictation 2	Five new words identified

* Experts recommended more time for these sub-sections.

2.1.2 EGMA Level 2 Assessment

Examination of BAB and formal primary evaluation cohort student scores on the Level 1 EGMA assessment at baseline shows scores above 50% for 3 of the 8 subsections: number identification, number discrimination, and word problem (Figure 3). After one year of instruction, BAB and formal primary grade 2 cohort students had mean scores above 50% on the EGMA Level 1 exam for 5 of the 8 subsections (number identification, number discrimination, word problem, subtraction level 1, and addition level 1) (Figure 4). Thus, after one year of academic instruction, Level 1 and grade 2 learners achieved mean scores greater than or approaching 50% for all EGMA Level 1 subscales except missing number, addition level 2, and subtraction level 2 – with each of these subscale means at or approaching 40%. Increasing EGMA subsection item difficulty for Level 2 assessment was necessary to minimize ceiling effects (inability to adequately measure learning growth because the assessment is too easy) and to reflect the greater complexity of content in the Level 2 math curriculum.

After reviewing student performance, workshop participants suggested a number of modifications to increase the level of complexity in the EGMA Level 2 assessment. In general, adaptations added more multi-digit numbers across the different EGMA sections to increase the level of difficulty and introduced new subsets for multiplication and division. Some of the Level 1 items were kept to allow comparison with midline findings.

Figure 3: EGMA mean subscale scores for BAB Level 1 and Formal Primary Grade 1 and 2 at the beginning of the academic year

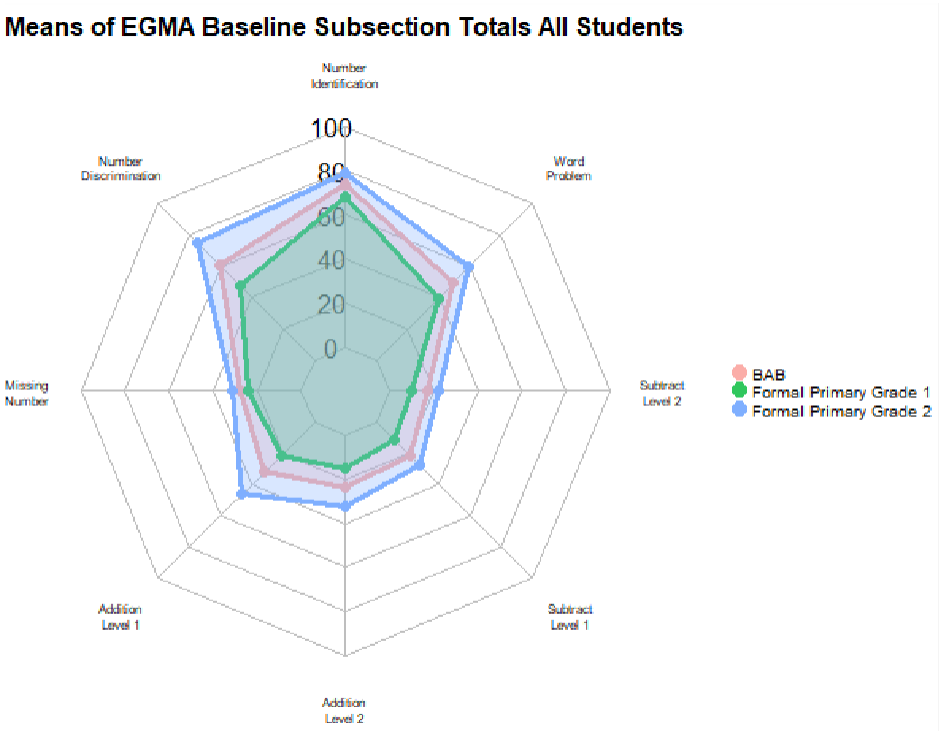


Figure 4: EGMA mean subscale scores for BAB Level 1 and Formal Primary Grade 1 and 2 at the end of the academic year

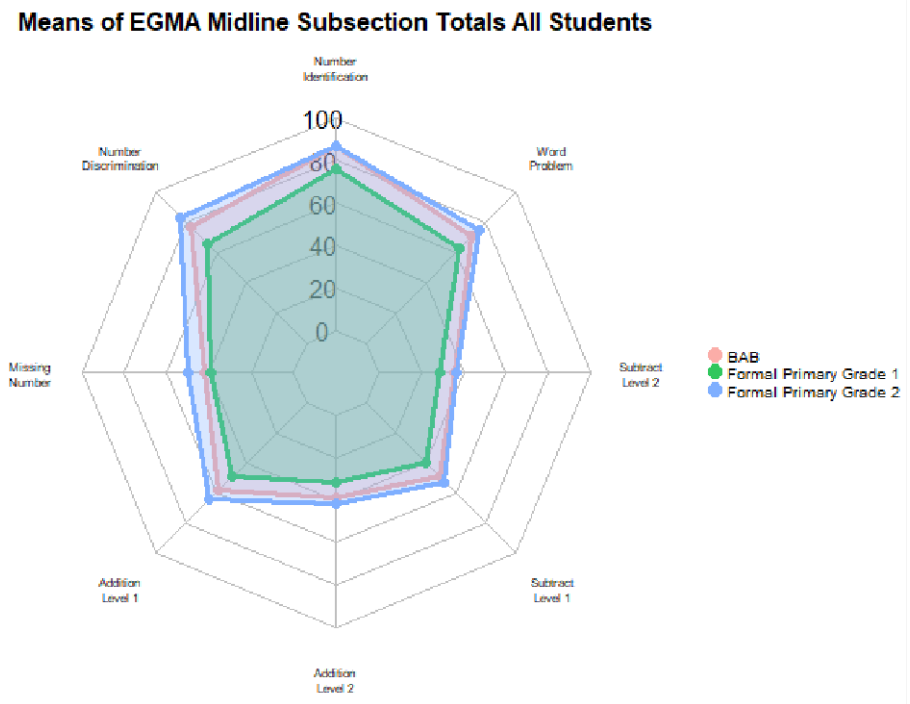


Table 2 summarizes adaptations to the EGMA Level 2 assessment by subsection. Subsections with an asterisk (*) are untimed tests with stop rule after four failed attempts.

Table 2: Summary Table of EGMA Level 2 Sections and Status

EGMA Sub-Section	Changes in L2 Assessment
Number Identification	Incremental increase from 3- to 7-digit numbers
Number Discrimination	Incremental increase from 3- to 6-digit numbers
Missing Number*	More complex numbers, now also includes one set on multiplication
Addition	Incremental increase from 2- to 5-digit additions
Subtraction	Incremental increase from 2- to 5-digit subtractions
Multiplication	NEW! Based on BAB syllabus, 1- and 2-digit numbers
Division	NEW! Based on BAB syllabus, 1- and 2-digit numbers
Word Problems	Up to 4-digit numbers to solve different word problems

* Sections are untimed tests with stop rule after four failed attempts

2.2 PILOTING THE EGRA AND EGMA LEVEL 2 TOOLS

SORDI enumerators pilot-tested the newly created Somali Level 2 EGRA and EGMA assessments with a group of 20 students at AL Mumtaz school – a formal primary school in the Deynile district in Benaadir Region that includes a co-located BAB program. To mirror our evaluation study sample, pilot subjects included BAB students moving from Level 1 to Level 2 and formal primary students moving from grade 2 to grade 3. Pilot testing included examining question reliability, monitoring time needed to complete items, and item difficulty. The pilot data collection also tested for uploading errors with the Tangerine software.

Overall, the modified Level 2 EGRA and EGMA instruments functioned well in the pilot, with the majority of items meeting or surpassing our expectations. However, the pilot identified a few items requiring modification, including narrations that were longer than a minute in length and questions with challenging difficulty levels. These items were modified to improve assessment function. Likewise, the pilot identified a few technical problems with the assessments in Tangerine, which were subsequently corrected.

3 LEVEL 2 BASELINE DATA COLLECTION AND QUALITY ASSURANCE

The external evaluation conducted baseline Level 2 EGRA and EGMA testing for 1,841 students, including longitudinal evaluation cohort subjects transitioning from BAB Level 1 to Level 2 (n=1,348) or from formal primary grade 2 to grade 3 (n=493) in August-September, 2022. Surveys were collected on a classroom basis. Therefore, the Level 2 EGRA and EGMA baseline includes some students that were not in the original cohort. These "new" students received a comprehensive learner survey including demographic and psychosocial indicators, as well Level 2 EGRA and EGMA assessments.

Returning cohort students received a streamlined survey with basic demographics (used for matching) and the Level 2 EGRA and EGMA assessments, as the complete survey was conducted at midline.

In-country experts from SORDI led all external evaluation primary data collection activities, including recruiting and training both male and female in-country research associates to conduct data collection. SORDI enumerators received training on the updated assessments and conducted Level 2 EGRA and EGMA testing at the sample school sites. All questions were read orally in the student's preferred language and enumerators recorded responses electronically using a tablet, smartphone, or other electronic device running Tangerine™ electronic data collection software (RTI International, 2018).

This report summarizes data from students who were promoted from Level 1 to Level 2 (BAB) and from Grade 2 to Grade 3 (formal primary) as well as students who were absent during midline but returned for Level 2 baseline assessment and new students. SORDI enumerators also documented the number of returning students and absent students in schools across all four states. Table 3 details the number of students and retention rates at Midline and Baseline Level 2. The original baseline cohort (including BAB and formal primary school students) numbered 2,896. Sixty-seven percent of those students (1,936) were also present and surveyed at midline. A total of 1,841 students were surveyed at baseline Level 2 – including both rising BAB Level 2 and Formal Primary Grade 3 students (note, cohort students starting grade 2 in August 2022 were not surveyed). 1331 longitudinal cohort students were present for all three data collection events (baseline, midline, L2-baseline). 605 cohort members were present at baseline and midline, but not present for L2-baseline data collection. 114 students were present at midline and L2-baseline, but not at baseline. Finally, a total of 203 students present at baseline but absent at midline, and thus characterized as "dropouts" in the midline reporting, were present for L2 baseline data collection.

Table 3: Evaluation Longitudinal Cohort Numbers at Baseline, Midline, and L2 Baseline disaggregated by program, location, and demographics

Group	Baseline Students	Midline Students	Midline Retained	BL2*	BMBL2* Retained	BM*	MBL2*	BBL2*
Totals	**2896**	**2197**	**1936 (67%)**	**1841**	**1331 (46%)**	**605**	**114**	**203**
Program								
BAB	1712	1305	1178 (69%)	1348	934 (55%)	244	61	136
Formal Primary	1184	892	758 (64%)	493	397 (34%)	361	53	67
Location								
IDP	740	557	524 (71%)	520	302 (41%)	222	11	66
Rural	556	409	332 (60%)	293	237 (43%)	95	24	27
Urban	1600	1231	1080 (68%)	1028	792 (50%)	288	79	110
IDP Family								
Not IDP Family	1675	1294	1118 (67%)	1109	809 (48%)	309	81	102
IDP Family	1221	903	818 (67%)	721	522 (43%)	296	33	101
Gender								

Group	Baseline Students	Midline Students	Midline Retained	BL2*	BMBL2* Retained	BM*	MBL2*	BBL2*
Male	1469	1119	966 (66%)	952	663 (45%)	303	63	113
Female	1427	1078	970 (68%)	889	668 (47%)	302	51	90
Age								
4 to 11 year olds	1717	1272	1148 (67%)	776	774 (45%)	374	50	125
12 to 20 year olds	1179	925	788 (67%)	1065	557 (47%)	231	64	78
State								
Benaadir	670	510	453 (68%)	474	337 (50%)	116	27	82
Hirshabeelle	558	465	414 (74%)	328	299 (54%)	115	13	9
Jubbaland	646	478	366 (57%)	338	221 (34%)	145	58	53
South-West	1022	744	703 (69%)	701	474 (46%)	229	16	59

- BL2=Baseline Level 2; BMBL2=Baseline, Midline and Baseline Level 2; BM=Baseline and MIdline; MBL2=Midline and Baseline Level 2; BBL2=Baseline and Baseline Level 2. Numbers in Paranthesis indicate the retention rate, for example the BMBL2 Retained Rate for the total (46%) = 1331 (BMBL2 student total) / 2896 (baseline student total) *100

3.1 DATA COLLECTION CHALLENGES BY STATE

Data collection challenges varied by state and district, as detailed in the field note report in Appendix 3 and summarized in the following sections.

3.1.1 Hirshabeelle

BAB classes in Jowhar take place in the afternoon, have consistent student numbers, and are running with few problems. On the contrary, schools in Balcad showed greater variation in student retention and display an array of challenges. For example, Arofag School, which is located in a rural community, enrolls many children from nomadic families who often prioritize children's contributions to family support and livelihood over education. Compounding this challenge, the Arofag School lacks adequate resources, such as chairs and tables for students and teacher pay -- non-BAB teachers report not receiving their salaries for over a year. A second school in Balcad, Ifiye School, presents a different set of challenges. This school is run by a Qur'anic teacher who is not willing to cooperate with the research team and does not seem to follow a regular class routine. The team noted that class is sometimes dismissed without any reason.

3.1.2 Jubbaland

SORDI enumerators reported a host of challenges, some dire, in BAB schools in Jubaland. At the beginning of the school year, some schools reported the lack of the L2 syllabus, while others lacked L2 text books and materials. Two schools – Nasib Bundo and the Mohamed INJ BAB Center – have neither toilets nor water. Additionally, enumerators noted fluid conditions in some schools as students switched between BAB and non-BAB classes. This issue seemed to have been prevalent at Oaamqaam

Primary School, where students also claimed multiple names and teachers did not have access to the Level 2 syllabus.

3.1.3 Benaadir

BAB classes in Benaadir are primarily held in the afternoon. Enumerators reported difficulty tracking down students in some schools, as classes had only recently returned to session.

3.1.4 South-West

Baydhabo experienced an influx of migrants during the summer. As a result, many BAB schools absorbed new students. This resulted in a complex data collection scheme which captured in our longitudinal cohorts 1) existing students who are now Level 2, 2) existing students who were absent during midline, and 3) new students.

Some schools in South-West reported delays in resuming school operations for the new academic year due to a variety of factors, including lack of L2 materials, and construction (Al-Aflax School). These delays made data collection difficult, as students were not present during the scheduled data collection period.

3.2 DATA QUALITY ASSURANCE

As the quality of data is a direct reflection of enumerator skill and training, the evaluation team used a multistep process for ensuring enumerator and data quality that encompassed candidate selection, continuous monitoring, and pretesting before deployment, as described below:

a) SORDI initially selected baseline enumerator candidates based on their prior experience in the relevant field, competency, and relevance to the process of data collection. When possible, enumerators with baseline or midline experience were retained for L2 baseline data collection to ensure consistency.
b) Enumerators received training updates and testing to ensure their understanding of both the material and the importance of collecting the data ethically and according to protocol.
c) SORDI field supervisors reviewed data in real time to identify and address quality issues during data collection.

The evaluation team also examined all data for quality and integrity post collection. SORDI researchers reviewed all data to identify longitudinal cohort subjects and match them with their prior data. New and returning students were also identified. The lead data scientist at Purdue's Evaluation and Learning Research Center further reviewed and cleaned all data. All inconsistencies were identified and referred to SORDI researchers and local enumerators for resolution. These inconsistencies included mismatches in L2 student demographic indicators across data points (e.g. gender, age, school, program) and duplicate student IDs. Inconsistencies or unexpected item scoring patterns were also noted and resolved prior to further analysis. Data cleaning challenges and resolutions are summarized in Appendix 4.

3.2.1 Item Analysis (Difficulty and Differentiation)

Assessments like EGRA and EGMA are designed to measure learners' ability to perform certain predefined tasks. A good assessment should be able to place learners in a continuum that provides information about what each learner can and cannot do. Therefore, it should contain items with a range of difficulty (e.g., very easy, easy, moderately difficult, and very difficult, as the case may be). That

way, learners are expected to perform well on the tasks that they have mastered and poorly on tasks they have not mastered. Additionally, students who score higher on the overall assessment are expected to have a higher probability of getting each item correct. However, this is not always the case with some items. Therefore, it is important to conduct item difficulty and discrimination analysis to ascertain the quality of the assessment.

We conducted item difficulty and item discrimination analysis to ascertain the level of difficulty and discrimination of the items on the EGRA and EGMA assessments for the Somali BAB longitudinal evaluation cohort. This was done using the Classical Test Theory (CTT) framework. This framework was chosen because it has been widely used in similar studies and is easy to understand. The item difficulty index is defined as the proportion of learners who answered an item correctly. It is counterintuitive in nature, in that an item with a higher difficulty index (with values ranging from 0 to 1) implies an easier item and vice versa. The item discrimination index, on the other hand, is a measure of how well an item can distinguish between learners who have mastered a given task or the material they are being assessed on and those who have not. It is the correlation between responses to a particular item and the overall score on the assessment. Item discrimination is typically affected by two factors: item difficulty and guessing. Items that are either too difficult -- such that only a few learners can provide the correct response -- or too easy -- such that most of the learners can provide a correct response -- usually have low discrimination indices. Additionally, items in which most of the learners who supplied the correct response guess the answer would also have poor discrimination.

EGRA Level 2 assessment performed with very satisfactory discrimination and very high internal consistency.

The results from the item difficulty and discrimination analyses help us determine if we need to add some easier items or more difficult items in later rounds of assessment to combat any ceiling and/or floor effects; and if we need to modify or remove poor items in terms of discrimination. It is important to note that items with a negative discrimination index pose a great threat to the construct validity of a test/assessment. This is because it implies that learners who performed poorly on the overall assessment are more likely to supply a correct response to such items, which is a sign of construct-irrelevant variance. That is, it is something other than being knowledgeable or mastering the assigned tasks that contributes to a correct response, e.g., guess work. Therefore, such items would either need to be modified or completely removed from future administration(s) of the assessment.

The Level 2 Baseline EGRA contains a total of 324 items in 9 subsections with 1841 students completing the exam. Table 4 shows the baseline Level 2 results from the item analysis in a matrix format. The three columns indicate the difficulty level results from hard with a difficulty ranging from 0 to .5, then medium with a difficulty ranging from .51 to .85, and finally easy with a difficulty from .86 to 1. The rows down the left side indicate the discrimination analysis results from poor with a discrimination index less than or equal to .1, then fair with a discrimination index less than .3 but greater than .1, and finally good with a discrimination index greater than .3. None of the EGRA items fell into the poor discrimination category, only two items are in the fair discrimination category, and a majority of the items are in the good discrimination category. Thus, the Somalia EGRA Level 2 discrimination was very satisfactory at Level 2 baseline. A majority of the EGRA Level 2 items scored in the hard level of difficulty expected for a baseline exam – e.g., students have not yet been exposed to most of the material covered in the assessment. The reliability alpha coefficient of the overall EGRA Level 2 instrument, measuring the internal consistency of the exam, was 0.997 – mapping to a high level of internal consistency, as this statistic ranges from 0 to 1.00, with higher values indicating better internal consistency.

Table 4: Item Analysis Shows a range of difficulty and good discrimination indexes for all for baseline Level 2 EGRA items (n=1841)

	Difficulty	Items	
Discrimination	Hard (0 - 50)	Medium (51 - 85)	Easy (86 - 100)
Poor (< 0.1)			
Fair (0.1 - 0.3)		ListeningComp_03	ListeningComp_02
ood (> 0.3)	LetSound_57, LetSound_58, LetSound_59, LetSound_60, LetSound_61, LetSound_62, LetSound_63, LetSound_64, LetSound_65, LetSound_66, LetSound_67, LetSound_68, LetSound_69, LetSound_70, LetSound_71, LetSound_72, LetSound_73, LetSound_74, LetSound_75, LetSound_76, LetSound_77, LetSound_78, LetSound_79, LetSound_80, LetSound_81, LetSound_82, LetSound_83, LetSound_84, LetSound_85, LetSound_86, LetSound_87, LetSound_88, LetSound_89, LetSound_90, LetSound_91, LetSound_92, LetSound_93, LetSound_94, LetSound_95, LetSound_96, LetSound_97, LetSound_98, LetSound_99, LetSound_100, InventWord_13, InventWord_14, InventWord_21, InventWord_22, InventWord_23, InventWord_24, InventWord_25, InventWord_26, InventWord_27, InventWord_28, InventWord_29, InventWord_30, InventWord_31, InventWord_32, InventWord_33, InventWord_34, InventWord_35, InventWord_36, InventWord_37, InventWord_38, InventWord_39, InventWord_40, InventWord_41, InventWord_42, InventWord_43, InventWord_44, InventWord_45, InventWord_46, InventWord_47, InventWord_48, InventWord_49, InventWord_50, RealWords_19, RealWords_21, RealWords_22, RealWords_23, RealWords_24, RealWords_25, RealWords_26, RealWords_27, RealWords_28, RealWords_29, RealWords_30, RealWords_31, RealWords_32, RealWords_33, RealWords_34, RealWords_35, RealWords_36, RealWords_37, RealWords_38, RealWords_39, RealWords_40, RealWords_41, RealWords_42, RealWords_43, RealWords_44, RealWords_45, RealWords_46, RealWords_47, RealWords_48, RealWords_49, OralRdFlncy_23, OralRdFlncy_24, OralRdFlncy_25, OralRdFlncy_26, OralRdFlncy_27, OralRdFlncy_28, OralRdFlncy_29, OralRdFlncy_30, OralRdFlncy_31, OralRdFlncy_32, OralRdFlncy_33, OralRdFlncy_34, OralRdFlncy_35, OralRdFlncy_36, OralRdFlncy_37, OralRdFlncy_38, OralRdFlncy_39, OralRdFlncy_40, OralRdFlncy_41, OralRdFlncy_42, OralRdFlncy_43, OralRdFlncy_44, OralRdFlncy_45, OralRdFlncy_46, OralRdFlncy_47, OralRdFlncy_48, OralRdFlncy_49, OralRdFlncy_50, OralRdFlncy_51, OralRdFlncy_52, OralRdFlncy_53, OralRdFlncy_54, OralRdFlncy_55, OralRdFlncy_56, OralRdFlncy_57, OralRdFlncy_58, OralRdFlncy_59, OralRdFlncy_60, OralRdFlncy_61, OralRdFlncy_62, OralRdFlncy_63, OralRdFlncy_64, OralRdFlncy_65, OralRdFlncy_66, OralRdFlncy_67, OralRdFlncy_68, OralRdFlncy_69, OralRdFlncy_70, OralRdFlncy_71, OralRdFlncy_72, OralRdFlncy_73, OralRdFlncy_74, OralRdFlncy_75, OralRdFlncy_76, OralRdFlncy_77, OralRdFlncy_78, OralRdFlncy_79, OralRdFlncy_80, OralRdFlncy_81, OralRdFlncy_82, OralRdFlncy_83, OralRdFlncy_84, OralRdFlncy_85, OralRdFlncy_86, OralRdFlncy_87, OralRdFlncy_88, OralRdFlncy_89, OralRdFlncy_90, OralRdFlncy_91, ReadComp_02, ReadComp_03, ReadComp_04, ReadComp_05, ReadComp_06, ReadComp_07, ReadComp_08	ListeningComp_04, ListeningComp_05, ListeningComp_06, ListeningComp_07, PhonAware_01, PhonAware_02, PhonAware_03, PhonAware_04, PhonAware_05, PhonAware_06, PhonAware_07, PhonAware_08, PhonAware_09, PhonAware_10, LetSound_05, LetSound_10, LetSound_12, LetSound_14, LetSound_15, LetSound_16, LetSound_17, LetSound_18, LetSound_19, LetSound_20, LetSound_21, LetSound_22, LetSound_23, LetSound_24, LetSound_25, LetSound_26, LetSound_27, LetSound_28, LetSound_29, LetSound_30, LetSound_31, LetSound_32, LetSound_33, LetSound_34, LetSound_35, LetSound_36, LetSound_37, LetSound_38, LetSound_39, LetSound_40, LetSound_41, LetSound_42, LetSound_43, LetSound_44, LetSound_45, LetSound_46, LetSound_47, LetSound_48, LetSound_49, LetSound_50, LetSound_51, LetSound_52, LetSound_53, LetSound_54, LetSound_55, LetSound_56, InventWord_01, InventWord_02, InventWord_03, InventWord_04, InventWord_05, InventWord_06, InventWord_07, InventWord_08, InventWord_09, InventWord_10, InventWord_11, InventWord_12, InventWord_15, InventWord_16, InventWord_17, InventWord_18, InventWord_19, InventWord_20, RealWords_01, RealWords_02, RealWords_03, RealWords_04, RealWords_05, RealWords_06, RealWords_07, RealWords_08, RealWords_09, RealWords_10, RealWords_11, RealWords_12, RealWords_13, RealWords_14, RealWords_15, RealWords_16, RealWords_17, RealWords_18, RealWords_20, OralRdFlncy_01, OralRdFlncy_02, OralRdFlncy_03, OralRdFlncy_04, OralRdFlncy_05, OralRdFlncy_06, OralRdFlncy_07, OralRdFlncy_08, OralRdFlncy_09, OralRdFlncy_10, OralRdFlncy_11, OralRdFlncy_12, OralRdFlncy_13, OralRdFlncy_14, OralRdFlncy_15, OralRdFlncy_16, OralRdFlncy_17, OralRdFlncy_18, OralRdFlncy_19, OralRdFlncy_20, OralRdFlncy_21, OralRdFlncy_22, ReadComp_01, Dictation_01_01, Dictation_01_02, Dictation_01_03, Dictation_01_04, Dictation_01_05, Dictation_02_01, Dictation_02_02, Dictation_02_03, Dictation_02_04	ListeningComp_01, LetSound_01, LetSound_02, LetSound_03, LetSound_04, LetSound_06, LetSound_07, LetSound_08, LetSound_09, LetSound_11, LetSound_13

The Level 2 Baseline EGMA contains a total of 110 items in 10 subsections with 1841 students completing the exam. Table 5 shows the baseline level 2 results from the item analysis in a matrix format. The three columns indicate the difficulty level results from hard with a difficulty ranging from 0 to .5, then medium with a difficulty ranging from .51 to .85, and finally easy with a difficulty from .86 to 1. While the rows down the left side indicate the discrimination analysis results from poor with a discrimination index less than or equal to .1, then fair with a discrimination index less than .3 but greater than .1, and finally good with a discrimination index greater than .3. All of the items fell into the good discrimination category. Thus, the EGMA level 2 baseline exam performance was also performed very satisfactory. Like the EGRA assessment, a majority of the EGMA items are also in the hard level of difficulty expected due for a baseline exam – e.g., students have not yet been exposed to most of the material covered in the assessment. The reliability alpha coefficient of the overall EGMA Level 2 instrument, measuring the internal consistency of the exam, came out to 0.982 – mapping to a high level of internal consistency, as this statistic ranges from 0 to 1.00, with higher values indicating better internal consistency.

EGMA Level 2 assessment performed with very satisfactory discrimination and very high internal consistency

Table 5: Item Analysis Shows a range of difficulty and good discrimination indexes for all for baseline level 2 EGMA items (n=1841)

	Difficulty	Items	
Discrimination	Hard (0 - 50)	Medium (51 - 85)	Easy (86 - 100)
Poor (< 0.1)			
Fair (0.1 - 0.3)			

Good (> 0.3)	NumIdentify_11, NumIdentify_12, NumIdentify_13, NumIdentify_14, NumIdentify_15, NumIdentify_16, NumIdentify_17, NumIdentify_18, NumIdentify_19, NumIdentify_20, NumDisc_07, NumDisc_08, NumDisc_09, NumDisc_10, MissNum_03, MissNum_04, MissNum_05, MissNum_06, MissNum_07, MissNum_08, MissNum_09, MissNum_10, AddLvl1_04, AddLvl1_06, AddLvl1_07, AddLvl1_08, AddLvl1_09, AddLvl1_10, AddLvl1_11, AddLvl1_12, AddLvl1_13, AddLvl1_14, AddLvl1_15, AddLvl1_16, AddLvl1_17, AddLvl1_18, AddLvl1_19, AddLvl1_20, AddLvl2_01, AddLvl2_02, AddLvl2_03, AddLvl2_04, AddLvl2_05, SubLvl1_02, SubLvl1_04, SubLvl1_06, SubLvl1_07, SubLvl1_08, SubLvl1_09, SubLvl1_10, SubLvl1_11, SubLvl1_12, SubLvl1_13, SubLvl1_14, SubLvl1_15, SubLvl1_16, SubLvl1_17, SubLvl1_18, SubLvl1_19, SubLvl1_20, SubLvl2_01, SubLvl2_02, SubLvl2_03, SubLvl2_04, SubLvl2_05, MultLvl1_01, MultLvl1_02, MultLvl1_03, MultLvl1_04, MultLvl1_05, MultLvl1_06, DivLvl1_01, DivLvl1_02, DivLvl1_03, DivLvl1_04, DivLvl1_05, DivLvl1_06, WordProb_01, WordProb_02, WordProb_03, WordProb_04, WordProb_05, WordProb_06, WordProb_07, WordProb_08	NumIdentify_01, NumIdentify_02, NumIdentify_03, NumIdentify_04, NumIdentify_05, NumIdentify_06, NumIdentify_07, NumIdentify_08, NumIdentify_09, NumIdentify_10, NumDisc_01, NumDisc_02, NumDisc_03, NumDisc_04, NumDisc_05, NumDisc_06, MissNum_01, MissNum_02, AddLvl1_01, AddLvl1_02, AddLvl1_03, AddLvl1_05, SubLvl1_01, SubLvl1_03, SubLvl1_05	

3.2.2 Ceiling and Floor Analysis

We calculated ceiling and floor effects by the percentage frequency of lowest or highest possible scores achieved by respondents on both the EGRA and EGMA. For EGRA, 8.5% of respondents scored in the lowest 10%, while 13.1% scored in the upper 10%. For EGMA, 24.7% scored in the lowest 10%, while 2.1% scored in the upper 10%. Ceiling and floor effects are generally considered significant if they are higher than 15% (Terwee, et al. 2007). For our sample, **no ceiling effects were noted for either EGMA or EGRA.** Although the EGMA showed a floor effect, it is not concerning, as the EGMA level 2 exam included new sections with higher-level skills previously not known to students. Table 6 shows the distribution of BAB longitudinal evaluation cohort EGRA and EGMA scores on the Level 1 EGRA and EGMA assessments at baseline and midline and the Level 2 EGRA and EGMA at baseline Level 2.

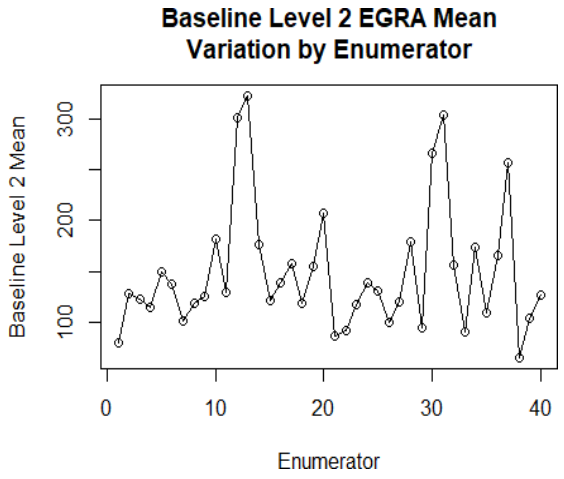
Table 5: Distribution of BAB longitudinal evaluation cohort EGRA and EGMA scores for Level 1 and Level 2 assessments at baseline, midline, and baseline Level 2

Assessment	Learner Scores (%)	Baseline Level 1	Midline Level 1	Baseline Level 2
EGRA	0	42 (1.5%)	31 (1.4%)	14 (0.8%)
	0-10	275 (9.5%)	76 (3.5%)	156 (8.5%)
	90-100	65 (2.2%)	347 (15.8%)	241 (13.1%)
	100	4 (0.1%)	69 (3.1%)	94 (5.1%)
EGMA	0	137 (4.7%)	73 (3.3%)	186 (10.1%)
	0-10	578 (20%)	195 (8.9%)	455 (24.7%)
	90-100	58 (2%)	179 (8.1%)	39 (2.1%)
	100	12 (0.4%)	41 (1.9%)	1 (0.1%)

3.2.3 Enumerator Bias

As part of the data quality assurance process, the research team completed analysis to check for possible enumerator bias. The overall EGRA total mean was 151, while the mean of data collected by enumerators ranged from 64.5 to 323.5 (Figure 5a); the overall EGMA Total mean was 37.4, while the mean of data collected by enumerators ranged from 15.5 to 83.4 (Figure 6a). These results raised questions about the potential for data bias resulting from errors or inconsistencies in the way enumerators were using the data collection tools. To test for possible enumerator bias, we used box plots to identify outliers and replaced learner IDs with the corresponding enumerator IDs. **Analysis revealed no outliers for EGRA (figure 5b) and no outliers for EGMA (Figure 6b). Thus, we concluded that variation is within acceptable levels and evidence of enumerator bias is insignificant**.

Figure 5a: EGRA Mean Variation by Enumerator and Figure 5b: Box plot of student EGRA scores identified by enumerator for BAB Level 2 and Formal Primary Grade 3 at the beginning of the Academic Year



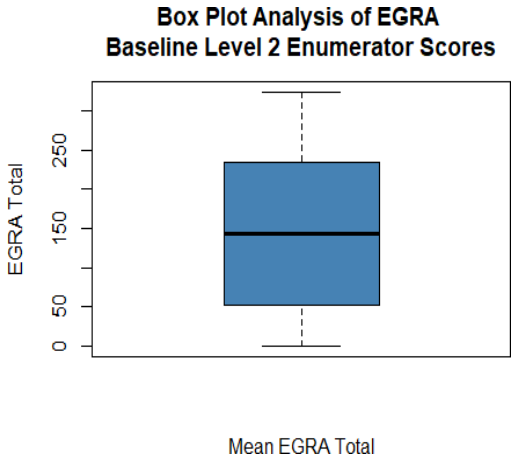
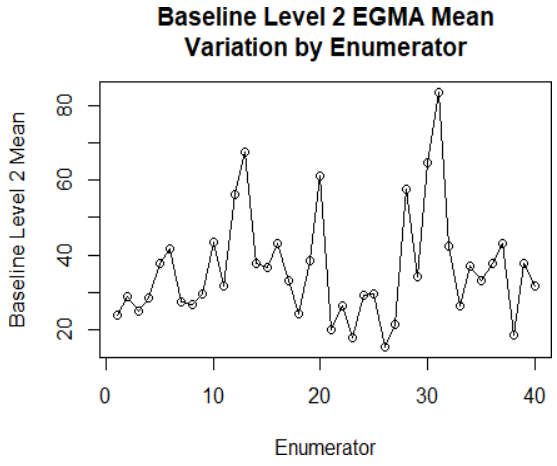
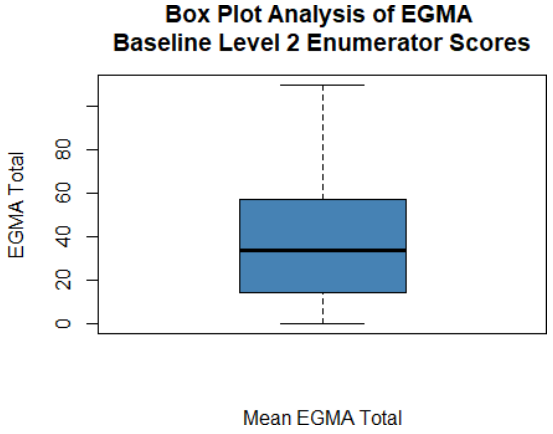


Figure 8A: EGMA Mean Variation by Enumerator and Figure 8B: Box plot of student EGMA scores identified by enumerator for BAB Level 2 and Formal Primary Grade 3 at the beginning of the Academic Year





4 DATA ANALYSIS AND RESULTS

We calculated mean total EGRA and EGMA assessment scores disaggregated by subgroup of interest and tested for significant differences among the subgroups. A Shapiro-Wilk normality test was performed on each subgroup to check for normality of the item distribution. If the item was found to have a normal distribution across the subgroup, we performed a one-way Anova test on the subgroup to check for a significant difference of means between the subgroups. If the distribution was not found to be normal, we performed a Kruskal-Wallis test to check for a significant difference of medians between the subgroups. Tables 6 (EGRA) and 7 (EGMA) show results be subgroup. All subgroups where a significant difference was found are marked by a '*' next to the Group Label. Data for this analysis includes all students

completing the Baseline Level 2 EGRA and EGMA assessments and assessments at one or more other time point (baseline, midline, or both).

4.1 EGRA Results by Subgroup

Table 6 shows baseline Level 2 EGRA overall results disaggregated by subgroup. Formal primary grade 3 learners scored significantly higher on the baseline Level 2 EGRA assessment, with a mean score of 60.93, than BAB Level 2 learners, with a mean score of 49.8. Students attending school in an IDP location or identifying as belonging to an IDP family scored significantly lower on baseline L2 EGRA assessments than other students in both BAB and formal primary classrooms. Younger students (4-11 years) also significantly underperformed older students (12-20 years) in both BAB and formal school classes. Female BAB students significantly underperformed male students on the baseline L2 EGRA. Although differences by gender were also noted for formal primary students, it was not statistically significant. Interestingly, student's primary dialect was significantly correlated with baseline L2 EGRA scores for both BAB and formal primary students – although in opposite ways. BAB students reporting a primary dialect other than Maay or Maxaa tiri scored significantly lower on the baseline L2 assessment than majority dialect speaking students, while formal primary students reporting a dialect other than Maay or Maxaa tiri scored significantly higher than majority speaking students. This finding is in line with midline results with the L1 EGRA assessment. Finally, location was significantly correlated with student scores on the L2 EGMA baseline assessment, with BAB students in Hirshabelle scoring significantly higher than BAB students in other states (also in line with midline L1 EGMA findings). Location was also significantly correlated with learner performance for formal primary school learners, with learners in Southwest scoring the highest, followed by Hirshabelle students. Students in Jubaland and Benaadir Region had the lowest scores.

Program (BAB vs Formal Primary), IDP location and affiliation, gender, age, primary dialect, and state were all significantly correlated with student L2 Baseline Scores.

Table 6: Baseline Level 2 EGRA Overall Test Results disaggregated by subgroup

Group		Subgroup	Mean	SD	Diff from Overall Mean
All Longitudinal Study Students Baseline Level 2 EGRA Total Percent Correct			**53.29**	**30.44**	
Program Inclusion	*	BAB (n=1131)	49.80	29.33	-3.49
		Formal Primary (n=517)	60.93	31.45	7.64

Group		Subgroup	Mean	SD	Diff from Overall Mean
Baseline Level 2 BAB EGRA Total Percent Correct			**49.80**	**29.33**	
Location Type	*	IDP (n= 298)	44.63	30.16	-5.17
		Rural (n= 214)	51.80	28.39	2.01
		Urban (n= 619)	51.59	29.00	1.80

Group		Subgroup	Mean	SD	Diff from Overall Mean
IDP Family	*	Not IDP Family (n= 612)	51.67	27.26	1.87
		IDP Family (n= 519)	47.59	31.48	-2.21
Gender	*	Male (n= 573)	51.90	28.08	2.10
		Female (n= 558)	47.64	30.44	-2.16
Age	*	4 to 11 year olds (n= 486)	42.26	29.42	-7.54
		12 to 20 year olds (n= 645)	55.48	27.98	5.68
Social Economic Status		none (n= 102)	54.69	31.63	4.89
		low (n= 356)	49.81	32.16	0.02
		medium (n= 376)	48.98	27.81	-0.81
		high (n= 220)	50.95	25.98	1.15
Mother's Literacy		No (n= 660)	50.62	29.61	0.83
		Yes (n= 410)	49.82	29.08	0.02
Father's Literacy		No (n= 488)	49.41	30.51	-0.39
		Yes (n= 582)	51.07	28.44	1.27
Lives without Parents		No (n= 1024)	50.43	29.34	0.63
		Yes (n= 46)	47.80	30.90	-1.99
Dialect Spoken	*	Maay (n= 450)	48.15	32.02	-1.65
		Maxaa tiri (n= 603)	52.52	27.11	2.72
		Other (n= 17)	29.35	23.01	-20.44
State	*	Benaadir (n= 290)	43.87	27.18	-5.93
		Hirshabeelle (n= 256)	65.48	19.54	15.69
		Jubbaland (n= 192)	43.80	30.61	-6.00
		South-West (n= 393)	46.89	31.91	-2.91

Group		Subgroup	Mean	SD	Diff from Overall Mean
Baseline Level 2 Formal Primary EGRA Total Percent Correct			**60.93**	**31.45**	
Location Type	*	IDP (n= 81)	39.62	30.58	-21.31
		Rural (n= 74)	44.12	29.56	-16.81
		Urban (n= 362)	69.14	28.32	8.20
IDP Family	*	Not IDP Family (n= 380)	65.02	29.59	4.09
		IDP Family (n= 137)	49.58	33.69	-11.35
Gender		Male (n= 266)	62.63	31.33	1.70
		Female (n= 251)	59.13	31.54	-1.80

Group		Subgroup	Mean	SD	Diff from Overall Mean
Age	*	4 to 11 year olds (n= 192)	53.51	31.22	-7.43
		12 to 20 year olds (n= 325)	65.32	30.79	4.39
Social Economic Status		none (n= 43)	60.63	35.16	-0.30
		low (n= 107)	60.18	36.20	-0.75
		medium (n= 187)	59.41	29.69	-1.52
		high (n= 124)	67.96	27.70	7.03
Mother's Literacy		No (n= 226)	58.96	32.62	-1.97
		Yes (n= 238)	64.87	30.16	3.94
Father's Literacy		No (n= 147)	59.22	32.39	-1.71
		Yes (n= 317)	63.27	31.02	2.34
Lives without Parents		No (n= 439)	61.68	31.47	0.75
		Yes (n= 25)	67.44	31.82	6.51
Dialect Spoken	*	Maay (n= 139)	59.76	33.67	-1.17
		Maxaa tiri (n= 261)	55.99	28.95	-4.94
		Other (n= 64)	91.28	17.63	30.35
State	*	Benaadir (n= 156)	49.72	28.52	-11.21
		Hirshabeelle (n= 65)	62.74	20.87	1.81
		Jubbaland (n= 140)	51.69	32.44	-9.24
		South-West (n= 156)	79.67	28.23	18.74

4.2 EGMA RESULTS BY SUBGROUP

Table 7 shows baseline Level 2 EGMA overall results disaggregated by subgroup. As seen with the EGRA assessment, formal primary grade 3 learners scored significantly higher on the baseline Level 2 EGMA assessment, with a mean score of 37.64, than BAB Level 2 learners, with a mean score of 30.00. IDP status was not significantly correlated with student scores on the L2 EGMA assessment for students in the BAB program. However formal primary students attending a school in an IDP location or identifying as belonging to an IDP family scored significantly lower on baseline L2 EGRA assessments than students attending school in another location or not identifying as belonging to an IDP family. Younger students (4-11 years) significantly underperformed older students (12-20 years) in both BAB and formal school classes. Female BAB students significantly underperformed male students on the baseline L2 EGMA. Although differences by gender were also noted for formal primary students, it was not statistically significant. As with the EGRA results, student's primary dialect was significantly correlated with baseline L2 EGMA scores for both BAB and formal primary students – although again in opposite ways. BAB students reporting a primary dialect other than Maay or Maxaa tiri scored significantly lower on the baseline L2 assessment than majority dialect speaking students, while formal primary students reporting a dialect other than Maay or Maxaa tiri scored significantly higher than majority speaking students. Finally, location was significantly correlated with

student scores on the L2 EGMA baseline assessment, with BAB students in Hirshabeelle and Southwest scoring significantly higher than BAB students in Jubbaland and Benaadir. Location was also significantly correlated with learner performance for formal primary school learners, with learners in Southwest scoring significantly higher that students in Hirshabeelle, Jubbaland and Benaadir Region.

Table 7: Baseline Level 2 EGMA Overall Test Results

Group		Subgroup	Mean	SD	Diff from Overall Mean
All Longitudinal Study Students Baseline Level 2 EGMA Total Percent Correct			**32.39**	**24.69**	
Program Inclusion	*	BAB (n=1131)	30.00	23.54	-2.40
		Formal Primary (n=517)	37.64	26.31	5.25

Group		Subgroup	Mean	SD	Diff from Overall Mean
Baseline Level 2 BAB EGMA Total Percent Correct			**30.00**	**23.54**	
Location Type		IDP (n= 298)	30.08	24.83	0.09
		Rural (n= 214)	27.25	23.30	-2.75
		Urban (n= 619)	30.90	22.94	0.91
IDP Family		Not IDP Family (n= 612)	29.75	21.40	-0.24
		IDP Family (n= 519)	30.28	25.86	0.29
Gender	*	Male (n= 573)	33.04	23.34	3.04
		Female (n= 558)	26.87	23.36	-3.12
Age	*	4 to 11 year olds (n= 486)	23.72	22.80	-6.28
		12 to 20 year olds (n= 645)	34.73	23.00	4.73
Social Economic Status		none (n= 102)	31.17	25.31	1.17
		low (n= 356)	29.88	25.82	-0.11
		medium (n= 376)	29.57	22.11	-0.42
		high (n= 220)	32.26	20.29	2.27
Mother's Literacy		No (n= 660)	30.73	22.99	0.74
		Yes (n= 410)	30.13	24.30	0.14
Father's Literacy		No (n= 488)	29.50	23.76	-0.50
		Yes (n= 582)	31.35	23.24	1.35
Lives without Parents		No (n= 1024)	30.50	23.41	0.51
		Yes (n= 46)	30.50	25.51	0.50
Dialect Spoken	*	Maay (n= 450)	32.23	24.42	2.24
		Maxaa tiri (n= 603)	29.69	22.77	-0.31
		Other (n= 17)	13.65	14.76	-16.35

Group		Subgroup	Mean	SD	Diff from Overall Mean
State	*	Benaadir (n= 290)	27.43	22.25	-2.56
		Hirshabeelle (n= 256)	34.79	16.19	4.80
		Jubbaland (n= 192)	23.94	29.53	-6.06
		South-West (n= 393)	31.72	24.42	1.72

Group		Subgroup	Mean	SD	Diff from Overall Mean
Baseline Level 2 Formal Primary EGMA Total Percent Correct			**37.64**	**26.31**	
Location Type	*	IDP (n= 81)	22.12	22.73	-15.52
		Rural (n= 74)	23.57	26.20	-14.07
		Urban (n= 362)	43.99	24.52	6.35
IDP Family	*	Not IDP Family (n= 380)	39.71	25.15	2.07
		IDP Family (n= 137)	31.89	28.62	-5.75
Gender		Male (n= 266)	40.06	27.46	2.42
		Female (n= 251)	35.08	24.85	-2.56
Age	*	4 to 11 year olds (n= 192)	31.99	25.84	-5.65
		12 to 20 year olds (n= 325)	40.98	26.06	3.34
Social Economic Status		none (n= 43)	37.00	33.20	-0.64
		low (n= 107)	38.05	28.48	0.41
		medium (n= 187)	36.85	24.76	-0.79
		high (n= 124)	41.22	23.59	3.58
Mother's Literacy		No (n= 226)	37.51	27.09	-0.13
		Yes (n= 238)	39.11	25.30	1.47
Father's Literacy	*	No (n= 147)	34.07	26.70	-3.57
		Yes (n= 317)	40.31	25.73	2.67
Lives without Parents		No (n= 439)	38.27	26.06	0.63
		Yes (n= 25)	39.44	28.66	1.80
Dialect Spoken	*	Maay (n= 139)	37.78	27.26	0.14
		Maxaa tiri (n= 261)	33.37	25.19	-4.27
		Other (n= 64)	59.77	14.76	22.13
State	*	Benaadir (n= 156)	29.96	22.78	-7.68
		Hirshabeelle (n= 65)	30.55	10.67	-7.09
		Jubbaland (n= 140)	33.21	32.19	-4.43
		South-West (n= 156)	52.25	22.29	14.61

4.3 EGRA AND EGMA PERFORMANCE BY SUBTASK

We also examined student performance on EGRA and EGMA subtasks. Each subtask included a set of one to 100 items. Subtasks were scored as the percentage of items correct out of the total number of items (from 0-100%). The aggregate score is the mean of all subtask scores.

We summed the 9 sub-sections of the EGRA in equal weights to create a Total EGRA Score out of 100 possible points. Likewise, we summed the 8 sub-sections of the EGMA in equal weights to create a Total EGRA Score out of 100 points. Figures 9 and 10 illustrate EGRA L2 baseline scores for each subtask for BAB Level 2 and formal primary grade 3 students at the beginning of the academic year using a bar graph (Figure 9) and radar graph (Figure 10). Formal primary grade 3 students scored higher on all EGRA subtasks than their BAB Level 2 peers.

Figure 9: Baseline Level 2 EGRA Subsection Bar chart by Program Type

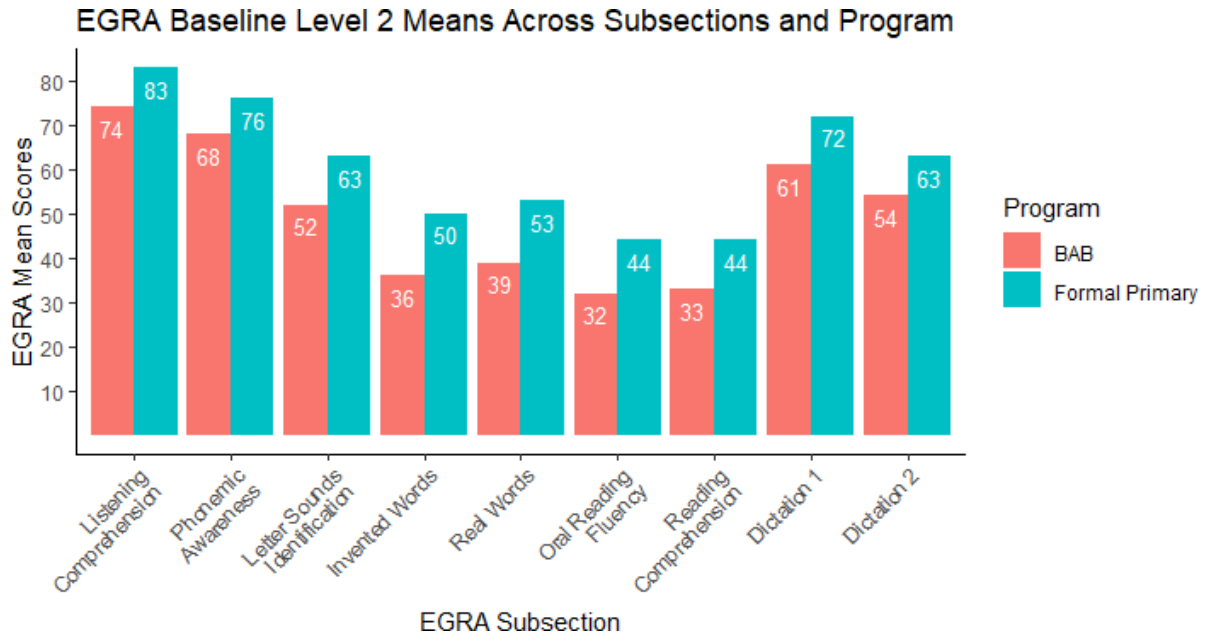
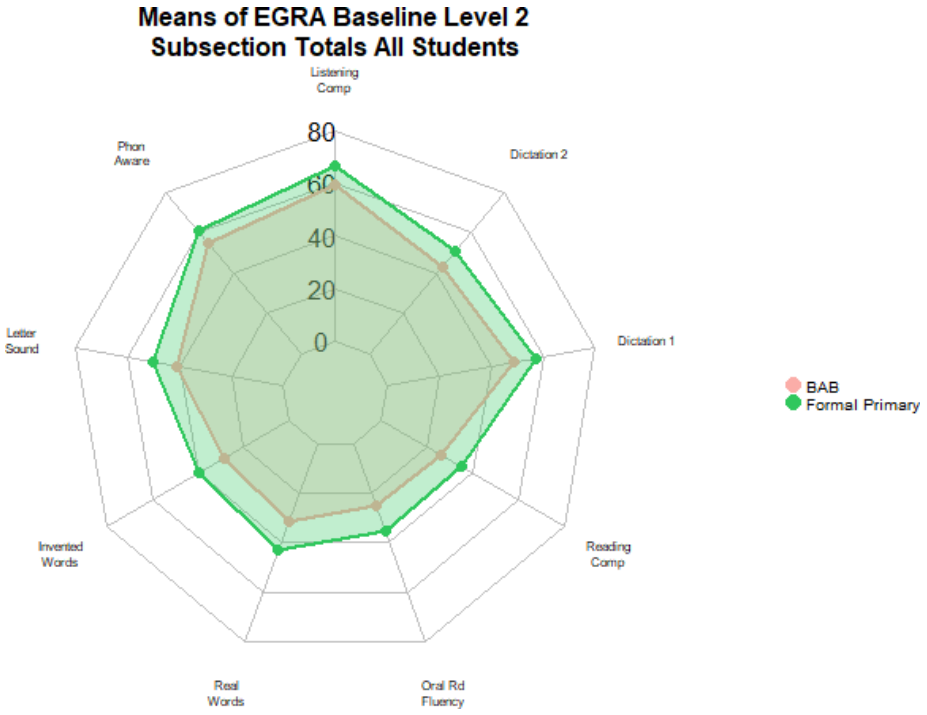


Figure 10: EGRA mean subscale scores for BAB Level 2 and Formal Primary Grade 3 at the beginning of year 2



Figures 11 and 12 illustrate EGMA L2 baseline scores for each subtask for BAB Level 2 and formal primary grade 3 students at the beginning of the academic year using a bar graph (Figure 11) and radar graph (Figure 12). Formal primary grade 3 students scored higher on all EGMA subtasks than their BAB Level 2 peers.

Figure 11: Baseline Level 2 EGMA Subsection Bar chart

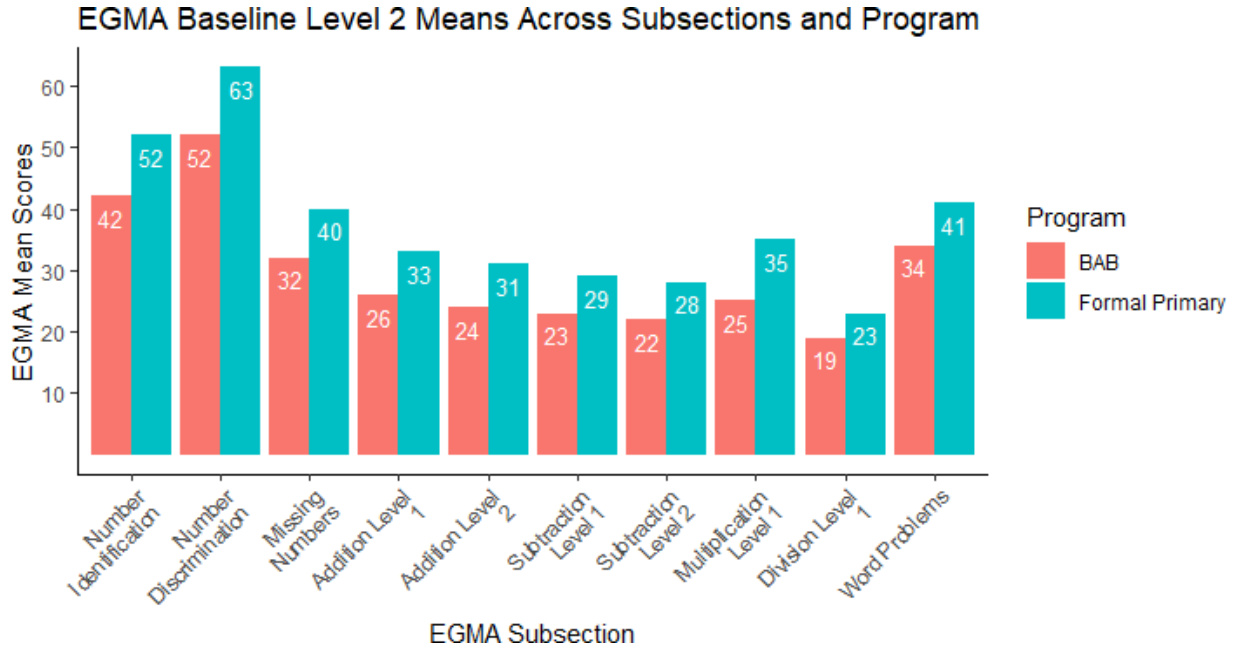
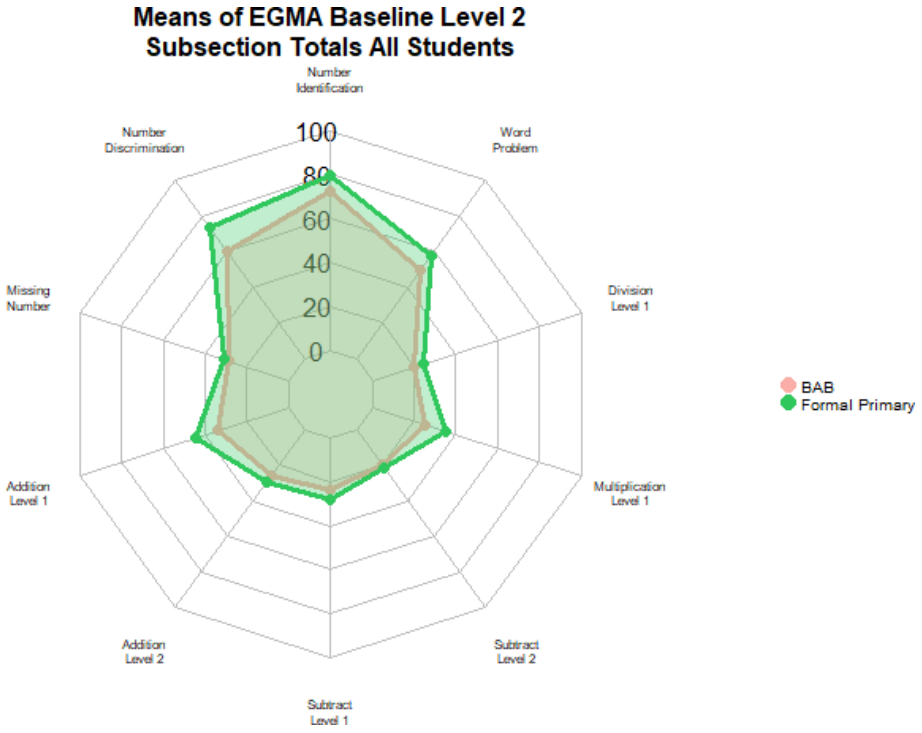


Figure 12: EGMA mean subscale scores for BAB Level 2 and Formal Primary Grade 3 at the beginning of year 2



5 SUMMARY AND CONCLUSIONS

The BAB external evaluation developed, tested, and deployed EGRA and EGMA Level 2 assessments to document learner reading and math skills at the beginning of BAB Level 2 and formal primary grade 3. The evaluation will use these tools again at the end of the academic year to assess student learners. SORDI and RAN researchers worked with education experts from the MoECHE and UNESCO, as well as, Somali language and early education experts to modify the Level 1 EGRA and EGMA instruments, developed by Creative Associates and collaboration with the MoECHE and used by the external evaluation for baseline and midline data collection, to reflect the greater complexity of the Level 2 curriculum.

SORDI enumerators pilot-tested the newly created Somali Level 2 EGRA and EGMA assessments with a group of students that mirror the sample population. Pilot testing included examining question reliability, monitoring time needed to complete items, and item difficulty. The pilot data collection also tested for uploading errors with the Tangerine software. Minor modifications were made to the L2 assessments based on pilot results.

The external evaluation conducted baseline Level 2 EGRA and EGMA testing for 1,841 students, including longitudinal evaluation cohort subjects transitioning from BAB Level 1 to Level 2 (n=1,348) or from formal primary grade 2 to grade 3 (n=493) in August-September, 2022 using the new L2 EGRA and EGMA assessments.

The evaluation team examined all data for quality and integrity during and post collection and resolved all inconsistencies prior to data analysis. The evaluation team is incorporating several modifications and additions to data quality and assurance protocols for endline data collection based on lessons learned from baseline, midline, and L2 baseline experiences.

The evaluation team tested the L2 EGRA and EGMA assessments for item difficulty and item discrimination to ascertain appropriateness of the level of difficulty and discrimination of the items on the EGRA and EGMA assessments for the Somali BAB longitudinal evaluation cohort. Both L2 EGRA and EGMA assessments performed with very satisfactory discrimination and very high internal consistency. We also noted no ceiling effects for either EGMA or EGRA for the L2 baseline. Finally, tests for enumerator bias revealed no outliers for either EGRA or EGMA when data was disaggregated by enumerator, suggesting acceptable levels of variation and insignificant enumerator bias.

Overall, results of the Level 2 EGRA and EGMA baseline assessments yielded results that are consistent with data obtained from baseline and midline data collection activities. Students beginning formal primary grade 3 scored higher on all EGRA and EGMA subtasks than students beginning the BAB Level 2 program. These findings are expected given that BAB students scored lower on L1 EGRA and EGMA assessments at the end of Level 1 than formal primary school students finishing grade 2 (midline). In addition, mean scores for the EGRA exam were higher for both formal and BAB students than those on the EGMA exam. This finding is also not surprising in an oral culture like Somalia, where students often use literacy skills, such as listening comprehension, more frequently than numeracy skills during their everyday lives. Although mean scores on the EGRA for several subtasks were above 50 at L2 baseline, ceiling and floor tests indicate the instruments are behaving well.

Location and demographic variables correlated with learner performance

- Program
- School location in an IDP camp
- Student status as an IDP,
- Age
- Gender
- Primary dialect
- Somalia state

Consistent with the midline findings, several location and demographic variables were correlated with learner performance. These include: school location in an IDP camp, student status as an IDP, age, gender, primary dialect, and the Somalia state. Generally, students attending a school located in an IDP camp or identifying as a member of an IDP family scored lower on EGRA and EGMA assessments regardless of program type (formal primary or BAB). Results from the baseline L2 evaluation also reflect depressed scores for these populations for formal primary and BAB students on the EGRA and for formal primary students on the EGMA. Baseline EGMA L2 results for BAB students do not show significant disadvantage for students attending schools in an IDP setting or belonging to an IDP family. Examination of student performance by location type (urban, rural, and IDP) shows little variation among the BAB cohort mean scores (3.65 points) but a much higher variation (21.89 points) between the highest and lowest scoring formal primary school locations, with students in urban schools scoring almost twice as well as rural and IDP located students. These results may suggest more parity in instruction among BAB schools that formal primary schools.

We are also noted significant differences between age groups for both BAB and formal primary students in both the EGRA and the EGMA. Further, male students had small, but significantly higher, means on the EGMA, but not EGRA, than the female students. We noted similar age and gender differences on the Baseline Level 1 EGRA and EGMA scores that disappeared by the end of the school year. Suggesting that, while younger and female students began at disadvantage for Level 1, they were able to catch up and no longer had significant differences by the time they reached the end of the school year.

BAB students with a primary dialect other than the two principal dialects of Maay and Maxaa tiri scored significantly lower than their counterparts, yet formal primary students with another dialect scored significantly higher than their counterparts on both the EGRA and EGMA exams. Simliar results were also noted for midline results and will be examined in more detail as part of an endline case study.

Finally, as in previous data collection rounds, the L2 baseline data showed variation in student EGRA and EGMA scores by state, with BAB students in Hirshabeelle outperforming BAB students in other states, and formal primary school students in Southwest state slightly outperforming Hirshabeelle students and scoring significantly higher than students in Benaadir and Jubbaland. Ongoing analysis and endline data collection seeks to determine key contributors and barriers to student learning across location.

Results of L2 Baseline data collection and analysis support the modified L2 EGRA and EGMA as appropriate and consistent instruments for assessing learning for Somali students in BAB Level 2 or grade 3. Baseline findings are consistent with findings obtained with the EGRA and EGMA exams used at baseline and midline.

APPENDIX 1: EGRA AND EGMA LEVEL 2 WORKSHOP DEVELOPMENT PARTICIPANTS

MOECHE EXPERTS:

1. Osman Muallim Abdirahman, MoECHE EGMA Team
2. Faysal Abdullahi Mukhtar, MoECHE EGMA Team
3. Abdullahi Mohamed Hassan, MoECHE EGMA Team
4. Mohamed Abdi Sulub, MoECHE EGMA Team
5. Hussein Ahmed Salad, MoECHE EGRA Team
6. Mohamed Ali Bare, MoECHE EGRA Team
7. Hussein Toxow Farah, MoECHE EGRA Team
8. Abdulkadir Ali Aliyow, MoECHE EGRA Team
9. Mr. Mohamed Mukhtar, director of the MoECHE Curriculum Development Department

UNESCO AND SOMALI EDUCATION EXPERTS:

10. Mr. Abdi Toxow, UNESCO education expert
11. Miss Shukri Bafo, Somali language expert
12. Miss Marian Bulle, Somali early education expert

SORDI RESEARCH TEAM:

13. Farah BASHIR
14. Miss Asia Mohamed
15. Mr. Amin Jamal
16. Mr. Fuad Dahir
17. Miss Hawa Abdullah

APPENDIX 2: EGRA AND EGMA DEVELOPMENT WORKSHOP AGENDA

AGENDA FOR EGRA LEVEL 2 DEVELOPMENT

EGRA				
Day	Time	Session	Items	Reason
Day 1				
	8:00am-8:30am	Participant Registration and Opening Remarks		
	8:30-9:30am	Workshop Objective, Agenda - Rules & Regulations		
	9:30-10:30am	Listening Comprehension / Development of New Component	All	Too easy
	10:30 – 11:00 am	Break Time		
	11:00am-11:30am	Listening Comprehension / Practice: Reflections	All	Too easy
	11:30am-12:30pm	Phonemic Awareness/ Development of New Component	All	Too easy
	12:30-1:30pm	Lunch Time		
	1:30-2:30pm	Phonemic Awareness Practice: Reflections	All	Too easy
	2:30pm-3:30pm	Letter Sound Identification	All	52 - 100 based on DIF, all others based on easiness
Time		DAY 2		
	8:00-8:30am	Recap of Day One		
		Invented Words Practice:	3, 9, 10, 14, 31, 39-50	DIF and poor discrimination

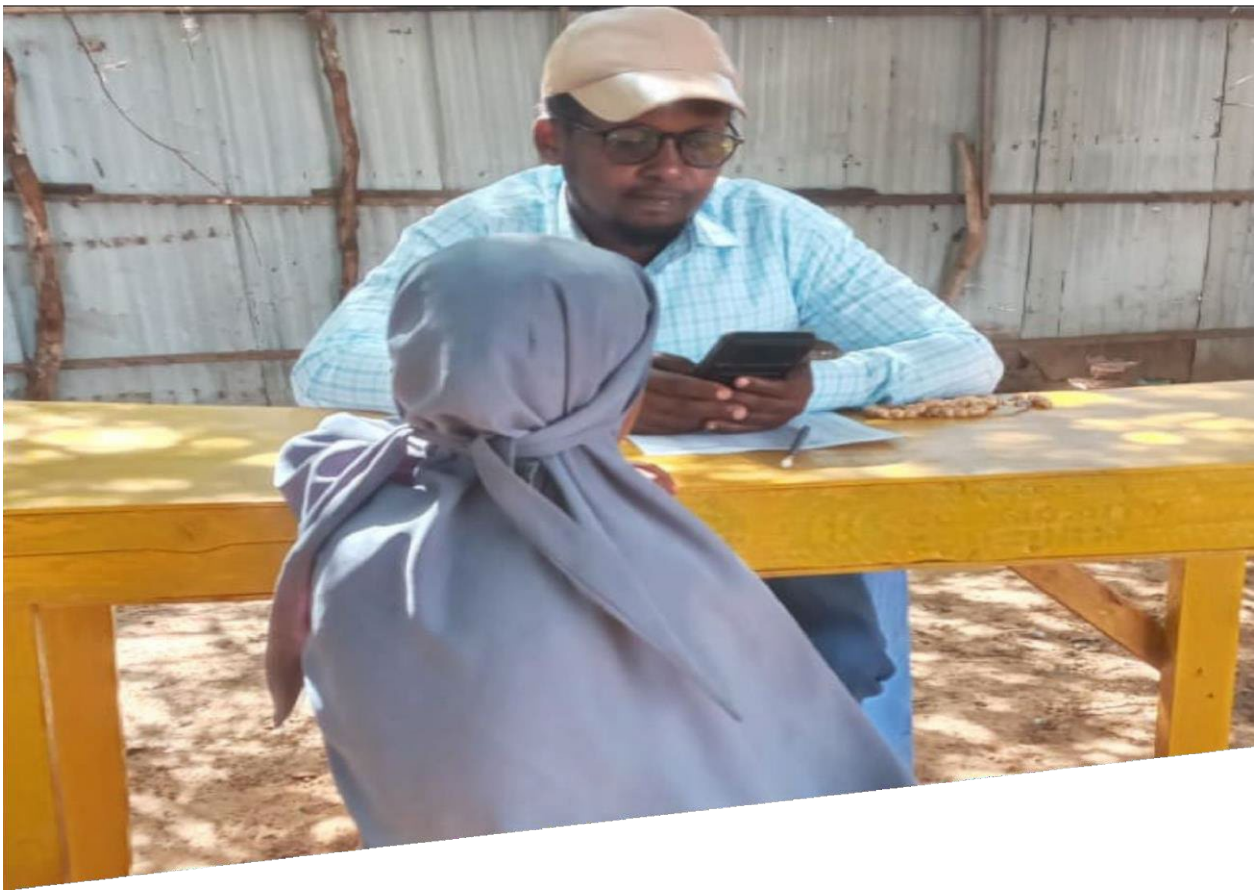
	8:30-9:30am	Reflections		
	9:30-10:30am	Familiar/Real Words Practice: Reflections	2, 24, 34, 36, 37,38, 40, 41, 44-50	DIF
	10:30-11:00am	**Break Time**		
	11:00am-11:30pm	Oral Reading Fluency Practice: Reflections	1, 2, 5, 7, 9, 10, 12, 13, 17, 20, 31, 44, 52, 54-66	DIF
	11:30am-12:30pm	Reading Comprehension Practice: Reflections	5	DIF and poor discrimination
	12:30-1:30pm	**Lunch Time**		
	1:30-2:30pm	Dictation 1	All	Too easy
	2:30-3:30pm	Dictation 2 Practice: Reflections	1, 4	DIF and poor discrimination
Time		**Day 3**		
	8:00-8:30am	Development of Day 2		
	8:30-9:30am	Final Development of BAB Curriculum for LEVEL 2 EGRA		
	9:30-10:30am	Piloting EGRA Level Two		
	10:30-1:00am	**Break Time**		
	11:00-11:30pm	Group Discussions on Developments of the Tool		
	11:30am-12:30pm	Presentation of the feedback and Development of EGRA Level Two		
	12:30-1:30pm	**Lunch Time**		
	1:30-3:00pm	Final Development of Level two EGRA		
	3:00-3:30pm	Closing Remarks		

AGENDA FOR EGMA LEVEL 2 DEVELOPMENT

Day	Time	Session	Items	Reason
Day 1				
	8:00am-8:30am	Participant Registration and Opening Remarks		
	8:30-9:30am	Workshop Objective, Agenda - Rules & Regulations		
	9:30-10:30am	Number Identification/ Development of new Component	All	All too easy, 1 contains DIF
	10:30 – 11:00 am	**Break Time**		
	11:00am-11:30am	Number Identification/ Practice: Reflections	All	All too easy, 1 contains DIF
	11:30am-12:30pm	Number Discrimination	All	Too easy
	12:30-1:30pm	**Lunch Time**		
	1:30-2:30pm	Number Discrimination Practice: Reflections	All	Too easy
	2:30pm-3:30pm	Missing Number Practice: Reflections	1, 2, 5, 7, 8-10	Too easy, poor discrimination
Time		**DAY 2**		
	8:00-8:30am	Recap of Day One		
	8:30-9:30am	Addition Level 1 Practice: Reflections	All	16-20 based on DIF, others too easy

	9:30-10:30am	Addition Level 2 Practice: Reflections	1, 2, Strat2, Strat3	1 and 2 are too easy, others based on DIF
	10:30-11:00am			All
	11:00am-11:30pm	Subtraction Level 1 Practice: Reflections	1, 9-20	9 and 10 have low discrimination while others contain DIF
	11:30am-12:30pm	Subtraction Level 2 Practice: Reflections	Strat2, Strat3	Strat 3 contains DIF, Strat 2 has low discrimination
	12:30-1:30pm	**Lunch Time**		
	1:30-2:30pm	Word Problems	4, 5, Strat1, Strat 2, Strat4	4, 5, Strat1, Strat2 and Strat 4 based on DIF, others are too easy
	2:30-3:30pm	Word Problems Practice: Reflections	4, 5, Strat1, Strat 2, Strat4	4, 5, Strat1, Strat2 and Strat 4 based on DIF, others are too easy
Time		**Day 3**		
	8:00-8:30am	Development of Day 2		
	8:30-9:30am	Final Development of BAB Curriculum for LEVEL 2 EGMA		
	9:30-10:30am	Piloting EGMA Level Two		
	10:30-1:00am	**Break Time**		
	11:00-11:30pm	Group Discussions on Developments of the Tool		
	11:30am-12:30pm	Presentation of the feedback and Development of EGMA Level Two		
	12:30-1:30pm	**Lunch Time**		
	1:30-3:00pm	Final Development of Level two EGMA		
	3:00-3:30pm	Closing Remarks		

APPENDIX 3: DATA COLLECTION FIELD NOTES



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LEVEL TWOBASELINE DATA

COLLECTION

OCTOBER 2022

F IELDREPORT

Table of Contents

FIELD REPORT

Executive summary

Sites covered

Field notes

Hirshabeelle State

Jowhar

Balcad

Jubbaland State

Kismaayo

South-West State

Barawe

Baydhabo

Diinsoor

Walanlawayn

Benaadir State

Kaxda

Xamarwayne

Shabis

Deynile

EXECUTIVE SUMMARY

This field report covers all areas that are currently being surveyed. The surveys was conducted in South-West, Benaadir, Jubbaland, and Hirshabeelle, which are the four states chosen. The district level surveys are described in the report (refer to the table below). The 43 sites that were chosen offer BAB and Non-BAB classes.

Since it was longitudinal study, the teams are covering the same students who were promoted to level two and those who were promoted to Grade three. In this survey, the teams conducted level two EGRA/EGMA assessments for the students that participated in the midline assessment and those who were not in the list of midline they were assessed at Level two EGRA/EGMA with learner survey. Only new head teachers and teachers were interviewed but most were old teachers that were surveyed in the midline assessment. Find below overviews of students, teachers and head teachers assessed by the enumerators at each site along with the challenges and dropouts reported by the teams.

The teams noted that the sites did not enroll new level two students except for Baidoa which had interviewed significant new numbers of students. There were some students that were recorded in the baseline assessment that were absent during the midline assessment and that have returned now for level 2 assessments.

5.1 SITES COVERED

State	District	School	BAB	Non-BAB
Hirshabeelle State	Jowhar	Jahweyn One Primary School	X	
		Moyko Primary School	X	
		Jahweyn Two Primary School	X	
		Horseed Primary and Secondary School	X	X
	Balcad	Carafaag primary school	X	X
		Ifiye School	X	X
		Sunshine school	X	X
		Garasbinto school	X	
Jubbaland State	Kismaayo	Yontoy Primary School	X	X
		Qaamqaam Primary School	X	X
		Ahmed Gurey School	X	X
		Wadajir Primary School	X	X
		Nasiib Buundo Kismayo School	X	X
		Mohamed INJ BAB Center	X	
		Kismayo Primary and Secondary School	X	X
South-West State	Baydhabo	Aboore Primary School	X	
		Kormari Primary School	X	
		Moqor iyo Maanyo IDP School	X	
		Robey Gudud IDP School	X	
		Al-Abrar School	X	
		Qansax Dhere School	X	
		Shabeelow School	X	
		Sheikh Asharow School	X	X
		Mustaqbal School	X	X
		Hanaano School		X
	Wanlawayn	Bakaal School	X	

		Xudurweyne School	X	
		Danwadaage School	X	
	Diinsoor	Yaqshiid School	X	
		Waabari School		X
	Baraawe	Zeynil Abidiin School	X	X

		Al-Aflax School	X	
Benaadir	Kaxda	Almawaahib School	X	
		Nabadoon School	X	
		Osama Bin Zaid 3 School	X	X
		Dhameen School	X	X
		Daaru-altarbiya School	X	X
		Mo'alim Jama' School	X	X
		Garasbaley School	X	
		Horseed School	X	
		Horyaal School	X	
		Dur Dur School	X	
		South Pole School		X
		Aqoon bile School		X
		Kulmis School		X

FIELD NOTES

HIRSHABEELLE STATE

JOWHAR DISTRICT

Jahweyn 1 Primary School (*5th September 2022)*

On the date above, the team surveyed 34 Level2B BAB students in the school mentioned above.

The BAB classes are usually conducted in the afternoon shift and the BAB teachers weren't replaced yet, other than that, there seemed to be no challenges.

Moyko Primary School **(6th – 7th September 2022)**

The team successfully surveyed and interviewed Moyko Primary school and found 44 BAB level2B students. They discovered that BAB classes were conducted in the afternoon. The team discovered that this site had no issues or challenges.

Jahweyn Two Primary School (3rd – 4th September 2022)

On this site, the enumerators assessed 48 BAB-Level2D were interviewed, in total, 48 students were interviewed. The assessment were conducted in the afternoon shift. The teachers weren't able to be interviewed because the registered BAB teachers still work at the BAB center and have not been replaced.

Horseed Primary and Secondary School (*10th -12th September 2022)*

In May of this 2022, the team visited the school mentioned above and interviewed the students there that happened to be 42 BAB level2E students and 28 None-BaB (Grade3) students. All BAB classes were conducted in the afternoon additionally, the team also reported that there were no challenges encountered.



BALCAD DISTRICT

Sunshine School (4th - 5th September 2022)

The team interviewed 47 students in total (16 non-BAB, 30 BAB). There were 4 returning students and 3 absentees. There was no teacher or head teacher survey.

Carafaag School *(6th September 2022)*

17 students were assessed at this site. 9 learners were from BAB and the remining 8 were from non-BAB.

Challenges:

The team encountered a problem from the school regarding the community. The community is majority Nomadic people and do not see the value in education. Additional reason of not responding to the school is the parents' need of the children to help out. The administration complained about lack of chairs and tables. Small renovations or an enclosure is needed. Non- BAB teachers have been without salary/incentive for a year and a half.

Ifiye School *(7th September 2022)*

A total of 29 learners were assessed at this site. 17 were from BAB Level2 and 12 were from Non- BAB Grade 3. There were 9 students that were absent and the reasons were not made clear to the team.

Challenges:

The school teacher is a Quranic teacher. He is sometimes available for class and at other times he dismisses the classes with no reason. He was not willing to cooperate with the team when asked for an interview.

Garasbinto School (9th - 10th September 2022)

Enumerators assessed 40 BAB learners from Level2D. There was one dropout and 6 absentees with reasons which are listed below:

- Some were sick
- Some had reportedly encountered problems with the Quranic teacher



JUBBALAND STATE

KISMAAYO DISTRICT

Yontoy Primary School (5th September 2022)

Yontoy Primary school in Kismayo district was surveyed by the team. Non-BAB grade 3 and level Two BAB class B were covered. The team found that the available rosters were level one Grade 3 and Level 2B and the classes were conducted in the morning shift. Out of 88 students there, 69 were B AB students, 4 of them weren't promoted to Level 2. No teachers were interviewed.

Challenges:

A key challenge faced is that the school did not receive the syllabus for level two BAB classes. It should also be noted that the team travelled to Yontoy in two different days.

Qaamqaam Primary School (7th September 2022)

A total of 53 out of 81 students were interviewed at this site from bot BAB and Non-BAB. Some students were absent and others dropped out. From the Non-BAB, Grade 3 students were available and interviewed and Level two BAB class L2A. the classes were conducted in the morning shift. No teachers were interviewed on this site visit.

Challenges:

One of the main challenges was that students are not in the right classes and kept being moved around and most ABE students were collected from other classes. Additionally, there were several students who claimed multiple names. Another key challenge was that Level 2 syllabus for BAB classes were not available for teachers and students. To add onto all the above, the headmaster is a newly appointed one.

Remarks:

An additional remark would be that the whole team travelled at 07:30 am and reached to Qaamqaam primary school at 09:00 am to 03:30 pm.

Ahmed Gurey School (4th September 2022)

The team visited Ahmed Gurey school and found that it was both a BAB and a Non-BAB school, in Grade 3, they found that there were 26 Non-BAB students out of 37 students and in Level 2, there were 31 BAB students out of 36 students. They found that classes were carried out in the afternoon shift. They didn't interview either the teacher or the head teacher.

Challenges:

The research yielded two key issues, the first being that there were no textbooks for the students and the second being students finding the transition from BAB to formal classes difficult.

Wadajir Primary School (3rd September 2022)

The team interviewed level Two BAB class and Non-BAB Classes Grade 3. They found that BAB level Two students arrive in the afternoon shift, and that was when the interview was conducted, although some students were absent. The teachers and head teacher weren't interviewed.

Challenges:

The main challenge they came across was that Level two BAB classes do not have level 2 books and the teachers are still using the Level one books to teach.

Nasiib Buundo Kismaayo School (5th September 2022)

After interviewing at this site, the team discovered that this school is both a BAB and a Non-BAB school that has available rosters. The learning is conducted in afternoon shifts. The total students interviewed were 32 students for both BB and Non-BAB classes. However, of the remaining 32 students; 7 were absent, 8 got married, 6 transferred to other schools or Quranic schools, 5 dropped out, and 4 moved to IDP Camps. The teachers and head teacher weren't interviewed.

Challenges:

The main challenges were as followed;

- The school has only four classes,
- No toilets and water points.
- The school did not have enough space to use for the student interviews and new students

Mohamed INJ BAB Center (6th September 2022)

On the site visit of this school, the team found that it was a BAB school and didn't provide Non-BAB classes. There were 38 students interviewed and the head teacher and teachers weren't interviewed. The classes were conducted in the afternoon shift and the team found out that there was a total of 47 students, and some didn't get promoted to Level 2 and others were dropouts.

Challenges;

The key challenges faced were as follows;

- There were no toilets and water points,
- No available classes for the students (the school had only two class rooms),
- No Level 2 text books for students.

Remarks:
The team went to Mohamed INJ BAB center and interviewed BAB level (class A) in the afternoon (01:45pm to 04:00pm). The school is currently for rent

Kismaayo Primary &Secondary School (11th September 2022)
This school was both a BAB and a Non-BAB school. A total of 62 students were interviewed from Level two class B and grade 3 Non-BAB classes. The headmaster and teachers weren't interviewed.

Challenges:
One of the main challenges experienced by the team at this site was that the principal was not collaborative, he refused for the interviews to be conducted, the team was very persuasive however, and managed to convince him in the end, even then, he only agreed to one day for the interviews. The other challenge was that some students were absent and others were dropouts.

Remarks:
The whole team went to Kismayo primary school at 01:00 pm to 05:30 pm.



BENAADIR STATE

KAXDA DISTRICT

Almawahib school (4th September 2022)

This school is a BAB school and the students interviewed were BAB level - 2a students, 19 students in total were interviewed. The team found out that the students here learnt in the afternoon shift. The head teacher and teachers weren't interviewed, and there were no additional challenges.

Nabadoon school (3rd – 7th September 2022)

The learners at this site were all BAB students. The team was able to observe one class and interview 38 students (5 returning students), all of the students were BAB Level-2a, and all the classes were conducted in the afternoon session. The teachers and the head teacher weren't interviewed and there were no key challenges. The additional remarks were that 2 students were absent while 4 students dropped out.

Osama Bin-Zeyd School (3rd - 18th September 2022)

This school has both BAB and Non-BAB students, in total, 5 returning BAB students and 27 new BAB students along with 12 Non-BAB students were surveyed. The BAB students were in Level - 2a and the Non-BAB students were in Grade - 3a. The BAB students took the afternoon shift while the Non-BAB students were in the morning shift. None of the teachers were interviewed.

Dhameen school (30th August - 5th September 2022)

At this school, the team was able to interview 24 BAB (6 returning students) students and 28 non BAB students. The BAB students were Level - 2 students while the Non-BAB students were Grade- 3 students. All the BAB students at this site learnt in the afternoon shift, whereas non BAB students were in the morning shift.

Challenges:

The main challenge faced by the team was the lack of availability of the students and this resulted in multiple visits to the school in order to finish the interviews.

Remarks:

One student switched from BAB to Non-BAB.

SHABIS DISTRICT

Dar Altarbiya School (5th September 2022)

The team conducted a survey at this location and found that it was both a BAB and Non-BAB school. They interviewed 29 students BAB Level-2a (11 returning students) students and 13 students who were Non-BAB Grade-3a. Both the BAB and Non-BAB students both studied in the afternoon shift. One of the key challenges was that two Non-BAB students were enrolled as BAB students and that caused a little confusion.

Three students were absent and two dropped out from BAB. In the Non-BAB, all the students were present but four dropped out.

XMARWAYNE DISTRICT

Mo'alim Jama' School (6th - 12nd September 2022)

The team conducted a successful field survey at this site for both morning and afternoon classes, they interviewed 30 BAB students (7 returning students) and 28 Non-BAB students (7 returning students). The 30 BAB students were Level - 2a students, and the 28 Non-BAB students were Grade - 3a students. The BAB students all studied in the afternoon shift while the Non-BAB students studied in the morning shift. No teachers were interviewed, and no key challenges were recorded.

Remarks:

For the BAB students, 2 were absent, and 3 dropped out; for Non-BAB students, 3 students were absent, while 7 dropped out.

DAYNILLE DISTRICT

Garasbaley School (31st August 2022)

All the students at this site were BAB students, and the team was able to able to observe one class and interview total students of 34 (4 returning students), all of them being BAB Level-2a. The BAB students at this site were all learning in the afternoon shift. No teachers were interviewed and no further challenges were recorded.

Horseed School (31st August - 3rd September 2022)

At this site, the team successfully covered one class and interviewed 45 (6 returning) students. All of the students were BAB students and were Level-2c students. The students were in the morning shift, and no teachers were interviewed.

Challenges:

The key challenge faced was that some students were absent causing a delay in interviews and that resulted in more days out in the field.

Remark:

There was one dropout in the school.

Horyaal school (30th August - 13th September 2022)

The team completed a field survey in one of the classes at Horyaal School and interviewed 33 (5 returning) students. All of the students were BAB students and were level - 2a students. The students learnt in the morning shift, and one teacher was interviewed.

Challenges:
A key challenge faced was that locating the students for the interview was difficult because the students were arriving late.

Dur Dur School (29th August - 13th september 2022)
At this site, the team completed a survey in one class at Dur Dur school and interviewed 35 BAB students. All the students were BAB Level 2a students, the students learnt in the afternoon shift. No teachers were interviewed, and no key challenges were recorded, it should be noted thought that 7 students dropped out.

South Pole School (4th - 6th September 2022)
The team was able to observe one class and interview 29 (7 returning) students, all of the students were Non-BAB except one student that was transferred to BAB. The 29 Non BAB students were in Grade- 3A and were in the morning shift. No teachers were interviewed.

Challenges:
The teams main challenge was that the semester had just begun, causing a large number of students to not attend the first few days or be late, this caused the survey to take multiple days.



Aqoonbile school (4th September 2022)

At this school, the team managed to overview one class and interviewed 24 (4 returning) Non- BAB students in Grade- 3A. All the students interviewed were in the morning shift. There were no teachers interviewed and no key challenges faced.

Kulmis school
The team successfully met up with and interviewed 24 (7 returning) students at this location, all of them were Non-BAB students in Grade- 3A and all of them in this field overview were afternoon shift. No teachers were interviewed and no key challenges were experienced. An additional remark would be that 2 students were absent.

SOUTH-WEST STATE

A point of note in this state is that there 3 primary categories the students at each site are divided into. Namely, the number of students that were actually assessed, the number of students that passed to level 2 and were not on the list in the midline assessment, and new students. This was the case for majority of the sites.

BAYDHABO DISTRICT

Kormari (3rd– 14th September 2022)

The team assessed 25 BAB students. The students surveyed were visited 2 times both in the morning shift. There were no students who passed to level two and were not in the list of midline assessment. There were 28 new students.

Aboore Primary School (4th September 2022)
The school was visited in the morning shift. 22 students were assessed. Students who passed to level two and were not in the list of midline assessment were 7. There were 14 new students.

Mogor iyo Maanyo 2 School (4th September 2022)
There were six new students. 17 students were surveyed and the number of Students who passed to level two and were not in the list of midline assessment were 6. At this school, the team conducted the surveyed in the afternoon shift as it was the only time BAB classes were available.

Qansax Dhere School (5th September 2022)
This is a BAB class and the number of students assessed at the midline were 21 in the morning shift. There were 18 new students and 8 students that passed but we not on the list of midline assessments.

Shabeelow School (5th September 2022)
The team successfully surveyed 12 students. There were 5 new students. Students who passed to level two and were not in the list of midline assessment were 8. The BAB class was surveyed in the Afternoon shift.

Al-abrar School (6th September 2022)
Enumerators surveyed 13 students. The number of students that were not the list in the midline assessment but passed to level 2 were 1. The students that were surveyed at this site were on the campus in the afternoon shift. There were, however, 28 new students enrolled since the last time.

Robay Gaduud School (7th September 2022)
The BAB class at this site was visited in the Afternoon shift and the team successfully surveyed 16 students. There were 14 new students and 3 students that were not on the list of midline assessment but passed to level 2. The school had a new teacher and a teacher survey was administered.

Hanaano School (7th September 2022)
This school's Non-BAB class was surveyed in the morning shift. Students assessed at the midline were only 3. The students that passed but were not in the midline assessment were 8. No new students were in the class that was surveyed. Some of Non-BAB students that were assessed in the midline were transferred to Grade 4.

Mustaqbal School (10th – 12th September 2022)
The team surveyed both BAB and Non-BAB classes in the morning shift. There were 23 students that were assessed from the BAB class and 39 from Non-BAB class. In the Non-BAB class, it was reported that 23 students passed to level 2 but were not on the midline assessment list.

Sheikh Asharow School (11th – 13th September 2022)
At this site, both BAB and Non-BAB classes were surveyed. 26 students from Non-BAB classes were surveyed in the morning shift on a later date. On the team's first visit back to the site, they surveyed 83 students. 33 students were not on the list of students that were assessed in the midline assessment.

Remarks:
The team reported some repeated remarks and some unique observations, as follows: Mustaqbal and Sheik Asharow have dispersed the BAB students who were interviewed in both baseline and midline into different classes in both Morning and afternoon shifts. The team tracked down and interviewed the students who were on the list. Mustaqbal head teacher informed the team that those BAB students who are on the list of midline assessed students and were changed into afternoon shift were unavailable because their teacher was sick and they were given an off day.

Both learner survey and EGRA and EGMA forms were used for students who passed to level two and were not on the list of midline assessed students as well as the new students.



WANLAWAYN DISTRICT

Bakaal School (7th – 8th September 2022)

There were 3 absent students. There were no challenges or remarks reported by the team. Enumerators successfully surveyed 48 BAB Level2A students of which 7 were returning students.

Xudurweyne School (4th – 6th September 2022)
A total of 50 students were surveyed from the BAB Level2A class. Only one student was a returning student the remaining were new students.

Challenges:
The team reported that on one of the days that they were scheduled to visit the site, it rained heavily. This caused the team to lose their way on the road. Consequently, they arrived late at the site and did not manage to meet their target interview number for the day.



Danwadaage School (8th September 2022)
A total of 14 new students were assessed from BAB Level2A. There were no returning or absent students. The team noted that this site had the highest number of absentees during the previous midline assessment conducted.

BARAAWE DISTRICT

Al-Aflax School (12th September 2022)

Enumerators successfully surveyed 20 BAB students. All BAB students at this site were available in the afternoon shift. There were no teachers or head teachers surveyed.

Challenges:
The school was not opened properly and so there were some students who were absent because the center is still under construction. There are some other students who were at the countryside for farming and were waiting until construction finished. The school is now working from a small temporary center.

Remarks:
There were 8 students absent and 1 dropout.

Zeynil Abidiin School (10th September 2022)
The team interviewed 72 students in total – 43 BAB Level2 and 29 Grade-3A. No teachers or head teachers were surveyed. All classes at this site were in the afternoon shift.



Challenges:
Some BAB students were absent because there was still a lack of textbooks so lessons had not started for the students directly.

Remarks:
Two Non-BAB students were absent and one drop out. In the BAB class, 6 students were absent and two students transferred.



DIINSOOR DISTRICT

Waabari School (5th September 2022)

Enumerators surveyed 31 students from Non-BAB grade3B. The students were assessed in the afternoon shift along with two teachers. There were no challenges or observations from the team.

Yaqshiid School (5th September 2022)

The team observed 33 students from BAB Level2A in the afternoon shift with no challenges or unique observations. There were no teachers or head teachers interviewed at the site.



APPENDIX 4: COST ANALYSIS

4.0 INTRODUCTION

The LASER external evaluation examined the effectiveness and cost effectiveness of the Bar Ama Bar Accelerated Basic Education (BAB ABE) program in increasing access to quality education for Somali out-of-school children and youth aged 9-16 years. LASER's cost analysis evaluation component examined the costs associated with observed gains in educational outcomes of interest (e.g., math and literacy) and the variation of these costs across implementation sites, learning levels, participant characteristics and other constructs of interest. The cost analysis calculated the cost per output (e.g., cost to train a learning facilitator/teacher) and the cost per outcome (e.g., improvement in math and literacy outcomes per student) of the intervention. In additional, the analysis extrapolated costs associated with expanding the BAB model and/or replicating it in other areas.

4.1 STUDY OBJECTIVES

The objective of this analysis is to facilitate future planning and budget management of the program by providing insights into what works and how to best deploy resources based on data and evidence. Results from the study will be used by the USAID Somalia mission and the Ministry of Education, Culture, and Higher Education (MoECHE) of Somalia to help inform the structure and budget of BAB program's upcoming activities. This analysis provides USAID and the Government of Somalia with an understanding of what gives the most 'value for money' and if this program is sustainable for extended duration and scaled to different areas. It is also hoped that other development partners will use the results of this study to help inform the structure and budget of programming implemented to scale up the ABE model to other schools and states in Somalia. Therefore, costs incurred by the donor (USAID) as well as resources donated by the government and non-government entities are included in the total cost.

Specifically, the analysis provided in this report answers the following questions,

- What is the cost per student of increasing proficiency in reading and math skills (e.g.: non-learners, basic learners, emergent learners, etc.)?
- What is the cost per student of expanding the BaB reading, math, and SEL intervention package in intervention areas? This is estimated from USAID and the Government of Somalia's perspective.
- What is the cost per student of replicating the BaB reading, math, and SEL intervention package in new areas? This is estimated from USAID and the Government of Somalia's perspective
- What is the total cost per student of ABE instruction, disaggregated by levels (L), L1, L1-L2)
- What are the start-up costs for the BAB program?
- What is the development cost per student of teaching and learning material?
- What is the procurement cost per student of teaching and learning material? How does this cost differ by location?
- What is the implementation (production and distribution) cost for teacher training, per teacher?
- What is the estimated unit cost of teacher training when scaled up in intervention areas? This is estimated from USAID and the Government of Somalia's perspective
- What is the estimated unit cost of teacher training when replicated in new areas? This is estimated from USAID and the Government of Somalia's perspective

- What is the cost of classroom/teaching infrastructure, per student?
- What is the cost of community engagement per student?

To estimate the costs of BaB program's intervention components, we first need to understand what the intervention looked like. The BAB program is an on-going five-year primary education program that started in October, 2019 and is expected to end in October, 2024. The program aims to support the Government of Somalia in the design and delivery of comprehensive, inclusive non-formal education services. Through a combination of program design and delivery, policy support, and system change, BAB works with the Somali government and its stakeholders to improve curriculum, increase capacity, extend service reach, and strengthen learning support, ensuring that children, regardless of marginalization, will be able to access equitable, safe, conflict-sensitive education. The main objective of the program is to improve access and quality of education for school children through direct implementation of an Accelerated Basic Education (ABE) program.

In the first three years of its implementation, the program covered 11 districts and reached a total of 39,930 learners. In the fourth year, coverage was scaled to 31 districts and reached a total of 108,458 learners. Under the program, learners receive 400 minutes of instruction from the activity each week. The BaB program implementation has a number of intervention components that include systems strengthening /Somalia government staff capacity-building, in service teacher training, development and distribution of teaching and learning materials, community engagement and improvement of school infrastructure.

- **Systems Strengthening/Somalia Government Staff Capacity-Building:** The aim of this implementation component was to strengthen Somalia's education system by supporting policy reforms and data management systems for ABE programs. The BaB project supported the MoECHE to establish and run the ABE Taskforce, to develop, finalize and approve the ABE Policy and Curriculum Framework and the ABE Policy Implementation Guidelines. Through the Project Steering Committee, monthly project management meetings with Federal Member State (FMS) Ministries of Education (MoE)s and MoECHE Director Generals and monthly implementing partners meetings were held. In addition, the project held monthly meetings with Ministry of Education staff to support their efforts to strengthen and increase use of their Educational Management Information System (EMIS).

- ***In-Service Teacher Training:*** *This component of the program intended to equip teachers with the knowledge, attitudes, behaviors, and skills they require to perform their tasks effectively in the classrooms and schools. Under this intervention, all teachers were to receive both the training and coaching portions of the professional development package. In-service teacher training started in Q4 of FY2021 (implementation year 2) with a 1-hour coaching session for 746 teachers conducted by their respective head teachers, followed by a 6-day training of 127 head teacher in Q1 of FY2022. In Q2 of FY2022 the project delivered a 7 days training to 49 head teacher and 1 hour individualized coaching sessions to 616 teachers. In Q3 of FY2022, 772 teachers received 3 days of refresher training while in Q1*

and Q2 of FY2023, 845 and 558 teachers respectively received 1 hour of individualized coaching sessions (Table 1).

Table 1: In-Service Training

	Group/ Refresher Training		Coaching	
Date of Training	Number of hours of group training	Number of teachers trained	Number of hours of individualized training	Number of teachers trained
Q4-FY2 2021			1	746
Q1-FY2022	42	127		
Q2-FY2022	49	49	1	616
Q3-FY2022	16.5	772		
Q4-FY2022				
Q1-FY2023			1	845
Q2-FY2023			1	558

- **Development and Distribution of Teaching and Learning Materials:** BaB procured and distributed Teaching and Learning Materials (TLMs) consisting of Level 1 (L1), Level 2 (L2) and Level 3 (L3) textbooks and teacher guides and other scholastic materials to all learning centers. The TLMs distributed include 564,440 books and supplementary reading materials for learners, 7,966 teaching materials for teachers, 470 manuals and guides for coaches and 76 manuals and guides for teacher trainers.
- **Community Engagement:** The program engaged parents and communities to improve initiatives that support the enabling environment for education. The objective of this intervention was to increase access to education of out of school children by engaging parents and communities in back-to-school or enrolment campaigns. Implementation of this intervention included efforts to increase parental support for reading, community involvement in school governance, safety planning, and improvement in accountability of local education systems to communities and families. Implementation also included training of volunteers in after-school tutoring and other activities designed to support learning.
- **Improved School Infrastructure:** The objective of this component was to increase access to education through expanded access to safe schools and infrastructure. Activities under this component included construction of temporary and permanent classrooms, and other infrastructure such as latrines, and provision of furniture including desks and chairs. The program also distributed safe drinking water to both formal and ABE schools, through two modalities which are: (a) using water piping system where the infrastructure existed; (b) water trucking in locations where no infrastructure or piping facilities existed in BAB's intervention districts.

4.2 Methodology

In order to answer the cost analysis questions, the evaluation team employed three standard cost analysis methods i.e., retrospective, concurrent and prospective cost economy, cost efficiency and cost effectiveness analysis.

The data used was sourced from quarterly financial reports, quarterly contributions and intervention details reports, quarterly and annual implementation reports and other program reports provided by the implementing partner for the period 2020 to 2023. Expenditure data was compiled and adjusted for inflation to real 2022 prices using the US GDP deflator. Note that, due to the absence of GDP data for 2023, expenditures incurred in this year were not adjusted for inflation. Contributions which include staff time, office space, venues, materials, equipment and supplies provided or donated by the government, non-government organizations and the private sector were monetized and adjusted for inflation and added to their corresponding cost categories to compute the total, social and full costs. The different costs and perspectives computed and presented in this report are defined below.

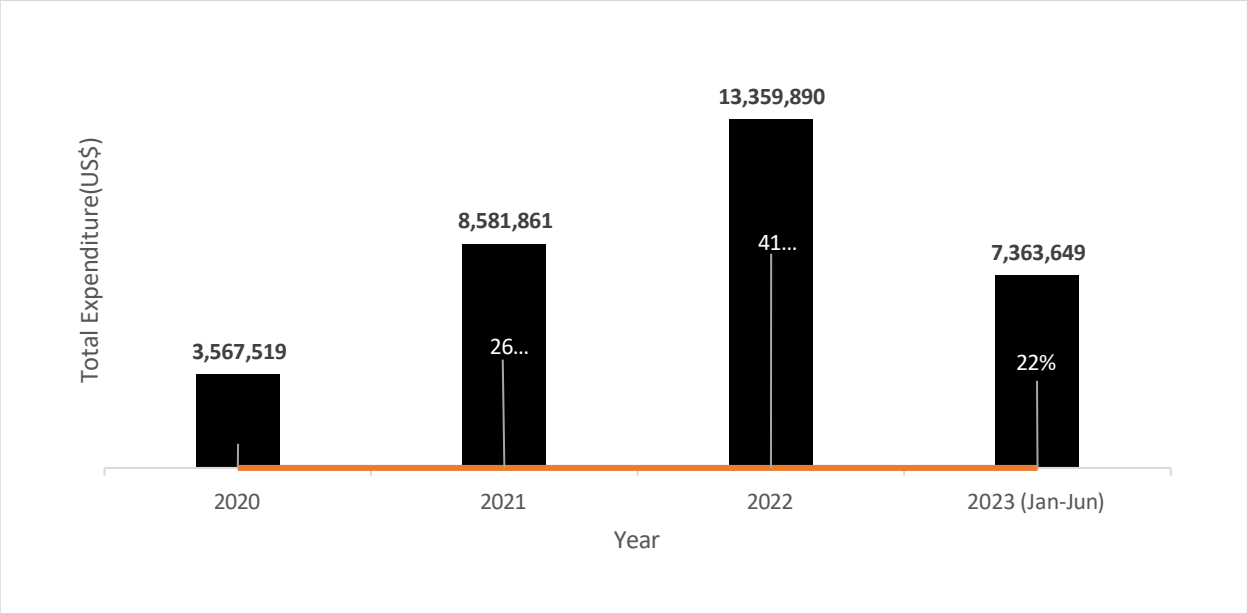
- *Total Costs/technical costs for USAID perspective* refer to expenditures incurred by USAID alone for a specific activity component. These costs don't include the cost of doing business with USAID (overheads or General Operations, Management and Reporting cost category).
- *Full Costs for USAID* involve taking total costs of USAID and redistributing General Operations, Management and Reporting category across all other cost categories. This is done because the General Operations, Management and Reporting supports all other categories and therefore excluding it in our calculations would lead to an underestimation of the true cost of the activity.
- *Total Social Costs* include expenditures (technical costs) incurred by USAID plus monetized contributions from other stakeholder to a specific activity component. These don't include the cost of doing business with USAID (overheads or General Operations, Management and Reporting cost category).
- *Full Social Costs/Full costs social perspective* – include total social costs plus the General Operations, Management and Reporting category redistributed across all other cost categories.
- *USAID perspective* – only costs incurred by USAID are considered. Monetarized contributions are not added to the calculations.
- *Social perspective* – all costs incurred by USAID plus monetized contributions from the government and other stakeholders and beneficiaries' time are considered.

4.3 Results and Discussion

4.3.1 Evolution of Expenditures and Cost Drivers

The third year of the program saw the most expenditures, with 41 % of the total expenditures incurred in 2022 followed by 26 % in 2021, 22 % in 2023 and 11 % in 2020 (Figure 1). Note that, the expenditures for 2023 cover only six months (from January to June 2023). This implies that the share of expenditures will change as the project progresses into the fifth year of implementation. Also note that, coverage was scaled from 11 to 31 districts after June 2022.

Figure 1: Evolution of Expenditures Jan 2020 to June 2023 (%)



These costs are the total before monetized contributions are added in.

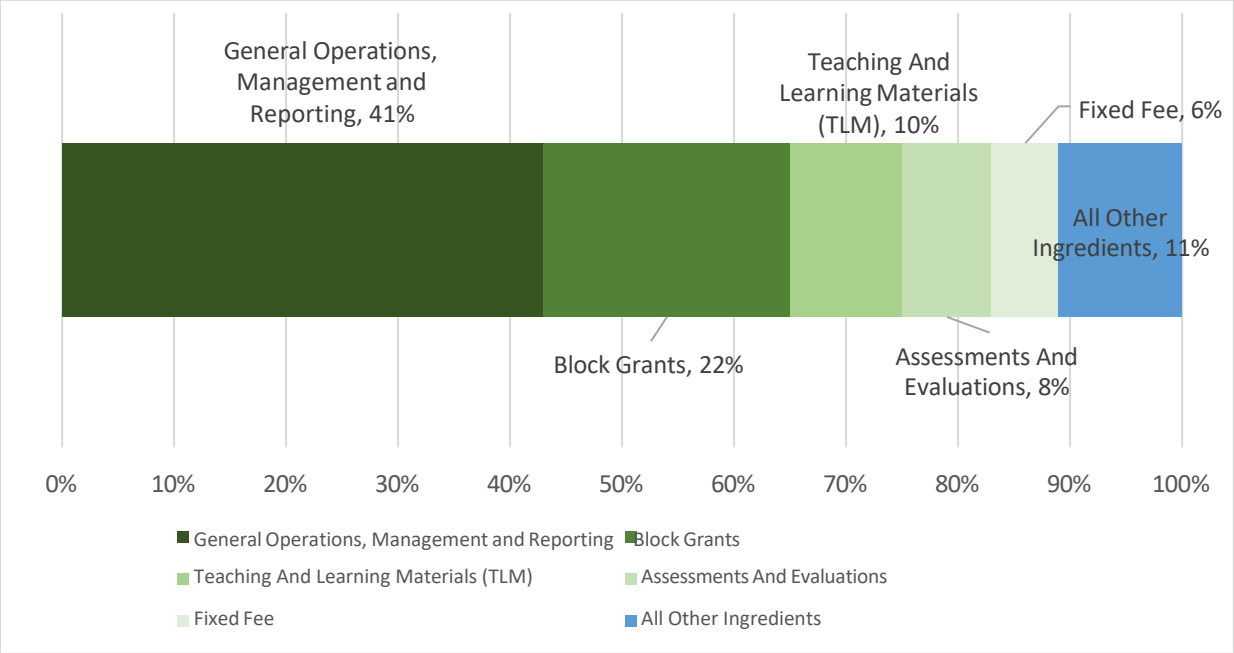
Table 2 and Figure 2 present expenditure data by cost categories incurred between Jan 2020 and June 2023. The highest expenditure was in the general management and operations category (41 %), followed by block grants (24 %), teaching and learning materials (11 %), assessments and evaluations (7 %) and fixed fee (5 %). Private sector engagement, emergency and crisis modifier expenditures categories ranked lowest.

Table 2: Total Expenditure by Cost Category (January 2020 to June 2023)

Cost Category	Total Cost USAID Adjusted Expenditure Costs	% by Cost Category
General Operations, Management and Reporting	$13,463,010	41
Block Grants	$7,921,055	24
Teaching And Learning Materials (TLM)	$3,578,825	11
Assessments And Evaluations	$2,183,132	7
Fixed Fee	$1,767,699	5
Systems Strengthening	$1,755,175	4
In-Service Teacher Training	$1,307,349	4
Parents/Community Engagement	$530,106	2
Safe Schools and Infrastructure	$278,833	1
Crisis Modifier	$83,270	0
Emergency	$4,261	0
Private Sector Engagement	$204	0

The expenditures reported in the Table 2 and Figure 2 are costs incurred by USAID only, monetized contributions from the Somali government and other stakeholders are not included. Each cost category represents an activity intervention except for general operations, and assessments and the fixed fee categories. Normally, fixed costs are reported within the different cost categories or within overheads/ general management and operations category but for this project they were reported separately.

Figure 2: Top Five Expenditure Categories (January 2020 to June 2023)



These costs are the total before monetized contributions are added in.

4.3.2 The cost per student to increase learners' proficiency levels in reading and math skills (e.g. non-learners, basic learners, emergent learners, etc.)

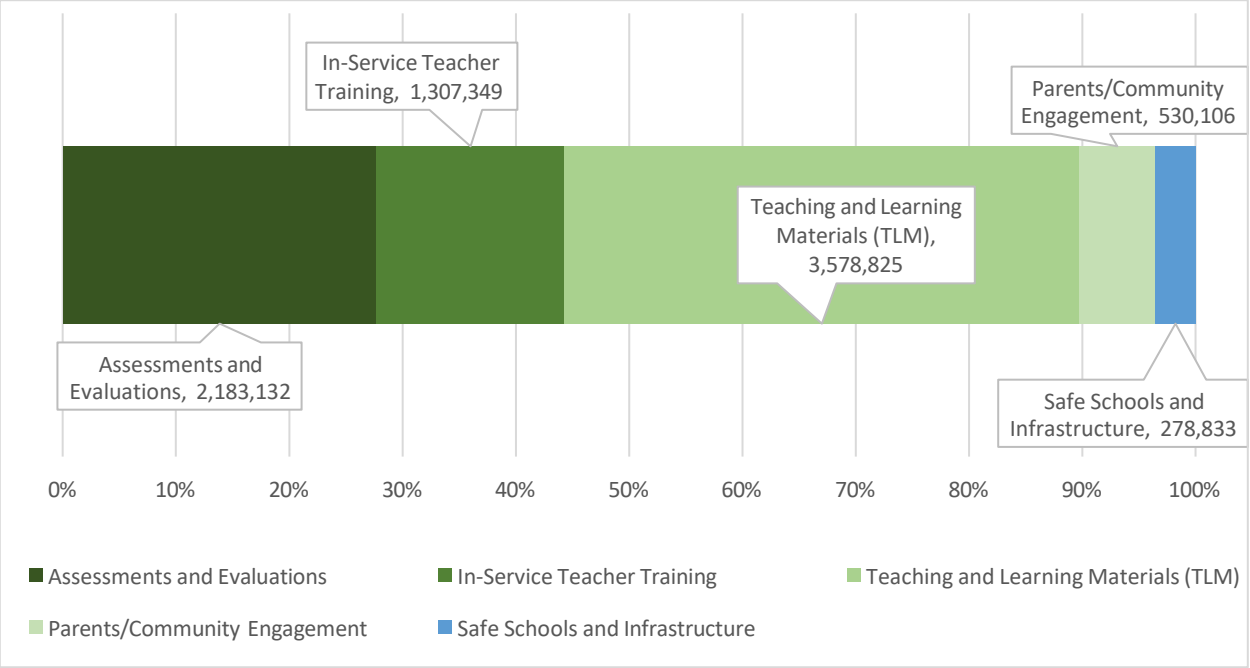
To calculate the cost per student of increasing proficiency level in reading and math skills, we consider cost categories that contribute directly to the outcome. The cost categories considered include General Operations, Management and Reporting, Assessments and Evaluations, In-Service Teacher Training, Teaching and Learning Materials (TLM), Parents/Community Engagement and Safe Schools and Infrastructure. The rationale for selecting these cost categories is presented in Table 3 below.

Table 3: Cost categories that contribute to increasing one proficiency level in reading and math skills

Cost Category included	**Reason**
General Operations, Management and Reporting	Included in full costs calculations
Assessments And Evaluations	Based on the theory of change Assessments and Evaluations contribute to learning outcomes. The monitoring, evaluation and assessment feed back into intervention to improve effectiveness.
In-Service Teacher Training	Based on the theory of change In-Service Teacher Training contributes to learning outcomes.
Teaching And Learning Materials (TLM)	Based on the theory of change Teaching and Learning Materials contribute to learning outcomes
Parents/Community Engagement	Based on the theory of change Parents/Community Engagements contribute to learning outcomes
Safe Schools and Infrastructure	Based on the theory of change Safe Schools and Infrastructure contributes to learning outcomes

Figure 3 shows the ranking of total costs that contributed directly to learning outcomes. The majority of the expenditures incured by USAID was on the development, procurement and distribution of teaching and learning materials at 45% followed by assessments and evaluation (28%), and in-service teacher training (17%). The lowest costs were on parents/community engagement at 7% and Safe Schools and Infrastructure at 4%. The low expenditure on safe schools and infrastructure is because the government, communities and other non-government entities contributed classroom spaces to the project.

Figure 3: Cost Categories that directly contributed to learning outcomes



These costs are the total before monetized contributions are added in.

BAB's impact evaluation found EGRA (reading skills) normalized gains of 33.33 and 27.08 for year 1 and year 2 respectively, and EGMA (math skills) normalized gains of 31.41 and 25.64 for year 1 and year 2 respectively. If we consider total costs (technical costs only) incurred by USAID alone (without monetized contributions), the cost per student to achieve these proficiency levels is US$ 73. If we add the proportion of General Operations, Management and Reporting spent (without monetized contributions) to the technical cost categories that contributed to learning outcomes, the full cost per student spent by USAID is US$ 121. If we consider total social costs (by adding monetized contributions from government and non-government entities to technical costs incurred by USAID), the cost per student to increase proficiency level in reading and math skills based on the EGRA and EGMA results, is to US$ 87. If we add overhead costs to the total social costs, the full social cost per student incurred to increase learning outcomes becomes US$142 (Table 4).

In other words, to achieve the learning outcomes noted above, USAID alone spent US$ 73 per student on the technical components of the intervention or US$ 123 per student overall if we include overhead costs. On the other hand, if monetized contributions are added the overall cost incurred by USAID, the government, the communities and other stakeholders (full social cost) to achieve the learning outcomes is US$ 142.

Table 4: Cost per student of increasing one proficiency level in reading and math skills

Cost-Effectiveness Without Monetized Contributions (i.e., USAID Perspective ONLY)		
Cost Type	**Cost (USD)**	**Cost per Student (USD)**
Total Costs USAID Perspective	7,878,245	73
Full Costs USAID Perspective	13,342,717	121
Cost-Effectiveness with Monetized Contributions (i.e., Social Perspective)		
Cost Type	**Cost (USD)**	**Cost per Student (USD)**
Total Costs Social Perspective	9,411,420	87
Full Costs Social Perspective	15,422,148	142

Source: Computed from Quarterly BaB Financial Reports (2020 -2023)

4.3.3 The cost per student of expanding the BAB reading, math, and SEL intervention package in intervention areas (USAID perspective)

For this question we consider the cost categories that directly impact learners access to education and outcomes. These include Assessments and Evaluations, In-Service Teacher Training, Teaching and Learning Materials, Parents/Community Engagement, and Safe Schools and Infrastructure. Since the program expanded from 11 to 31 districts with the number of schools and learners increasing from 197 to 447 and from 39,930 to 108,458 respectively, we consider the cost per student since the expansion period (July 2022 to June 2023).

Analysis results show that the cost per student (technical costs only) incurred by USAID (without monetized contributions) after expansion of BAB's ABE program is US$ 35. If we add the proportion of General Operations, Management and Reporting (overhead costs) spent by USAID (without monetized contributions) to the technical costs (full costs incurred by USAID alone), the cost per student increases to US$ 48 (Table 5).

Table 38: Cost per student of expanding the BaB intervention package in intervention areas (USAID perspective)

USAID Perspective	**Cost (US$)**	**Cost per Student (US$)**
Total Costs	3,793,408	35
Full Costs	5,257,434	48

If we take the period up June 2022 (before expansion) and compare it with the period after June 2022 (after expansion) the total cost per student incurred by USAID alone reduces from US$ 102 to US$ 35 (Table 6). This shows an improvement in implementation efficiency and suggests that the scale up was more cost-efficient than the original program implementation.

Table 39: BAB Implementation Costs Before and After Expansion

USAID Perspective	Cost (US$)	Cost per Student (US$)
Total Costs (Before Expansion)	4,084,837	102
Total Costs (After Expansion)	3,793,408	35

4.3.4 The cost per student of expanding the BAB reading, math, and SEL intervention package in intervention areas (The Government of Somalia's perspective)

For the government of Somalia's perspective, we consider two cost categories i.e. In-Service Teacher Training and, Teaching and Learning Materials when calculating the cost per student after expansion of BAB's ABE program. The reasons for excluding other cost categories are: 1. Assessment and Evaluation can be done by the government through the established federal and state structures of the formal education system. 2. Parent and Community Engagement can be done through the established government structures like Parents Teacher Associations, and 3. Safe schools and Infrastructure cost category is excluded since the government can use existing infrastructure. Even when a new school/class room is to be constructed, the government can follow the existing budgeting and policy framework outside of ABE program implementation. 4. We consider only technical costs (we don't add General Operations, Management and Reporting costs to the technical costs), since the government's overhead costs are most likely to be different from those of USAID.

Since the intervention has already been developed and the Somalia Gov wouldn't need to spend any money on development, we considered only implementation costs. This gives us a cost per student of US$ 12. (Table 7).

Table 40: Cost per student after expansion of BAB's ABE program (Government of Somalia's perspective)

Costs	In-service Teacher Training Costs (US$)	TLM Cost (US$)	Total Costs (US$)	Cost per student (US$)
Implementation	794,039	496,145	1,290,184	12

This implies that if the ABE program was transferred to the government of Somalia, implementation cost per student would be US$ 12. We therefore note that basing on the available data, transferring the BAB program implementation to government would be more cost effective.

4.3.5 The cost per student of replicating the BaB reading, math, and SEL intervention package in new areas (USAID and the Government of Somalia's perspective)

This question could not be answered with the available information. Replication requires moving a program to an entirely new context, this isn't the case for Somalia.

4.3.6 4.3.6 The total cost per student of ABE instruction, disaggregated by levels (L), L1, L1-L2)

This question could not be answered because of the way financial data reporting was structured. Specifically, expenditure data isn't disaggregated by levels.

4.3.7 The start-up costs for the BAB program

Startup activities which included staff recruitment, training and mobilization, securing offices spaces, accommodation and logistics ended in March 2020. Top five start up expenditures went to Labor (24%), General and Administrative (17%), computers 13%, Overhead allocation (11%) and Fringe Benefits (9%) (Table 8). All start-up costs fall under the General Operations, Management and Reporting cost category.

Table 41: Breakdown of Start-up Costs for BaB Program

Cost Ingredient	Sum	Share (%)
Labour	113,024	24%
General and Administrative	81,437	17%
Computers	61,303	13%
Overhead allocation	53,472	11%
Fringe Benefits	45,210	9%
Travel Out-of-town	28,763	6%
Fee	26,193	5%
Expendable Comp	18,287	4%
Danger Pay	12,561	3%
Travel Per Diem	11,819	2%
Field Labour	5,802	1%
Post Differential	4,340	1%
Prof Fees-Legal	2,843	1%
Separate Maintenance Allowance	2,324	0%
Visa Expense	2,050	0%
Fringe Benefits Field	1,973	0%
Insurance DBA	1,006	0%
Travel Local	854	0%
Supplies	815	0%
Svc/Maint-Recruitment	780	0%
Bank Charges	715	0%
Shipping	682	0%
Medical	670	0%
Equipment	420	0%
Translation	227	0%
Internet	220	0%
Printing	12	0%

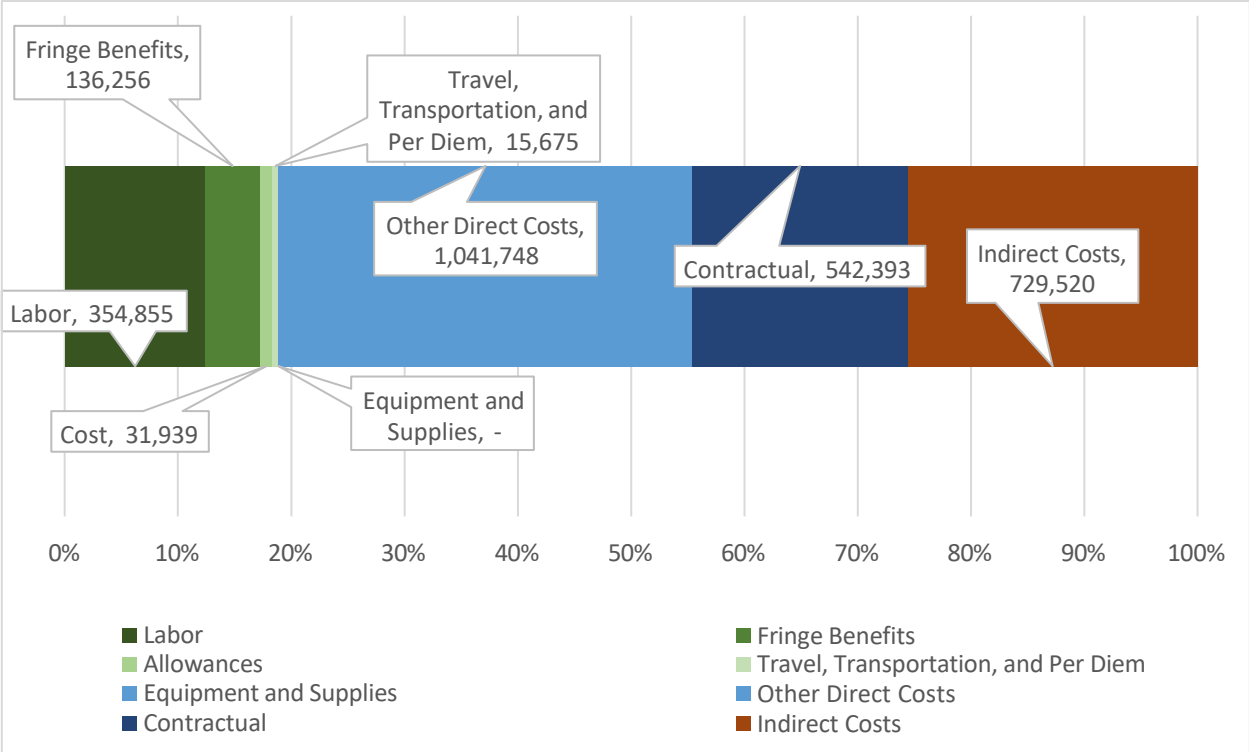
Grand Total	**477,800**	**100%**

4.3.8 The development cost per student of teaching and learning material

Costs of activities under developing teaching and learning material include labor, travel, communications, and other relevant costs incurred by the staff or the government officials while working on activities such as alignment of AEP curriculum to the national curriculum: review, pilot testing and adaptation of materials; costs of all trainings provided for materials development (training facility rental, AV aids, per-diem for participants and so on). These costs are categorized by the implementing partner into larger buckets (labor, fringe benefits, allowances, travel, transportation, and per diem, equipment and supplies, other direct costs, contractual and indirect costs) (Figure 5).

The largest expenditure on the development of teaching and training material is other direct costs followed by indirect costs, contractual, labor and fringe benefits. The government contributed staff including Federal and FMS Officers' time to the development of TLM.

Figure 5: Development cost ingredients for teaching and learning material



These costs are the total before monetized contributions or the cost of "doing business" with USAID are added in.

Results show that the total cost of developing teaching and learning material per student incurred by USAID alone (excluding monetized contributions) is US$ 26 and if we add the proportion of General Operations, Management and Reporting attributed to the development of TLM the cost per student (full cost incurred by USAID) increases to US$ 45 (Table 9).

Table 42: Cost to develop and pilot TLM

USAID Perspective	Total Costs (US$)	Cost per Student (US$)
Total Costs	2,852,386	26
Full costs	4,830,844	45

4.3.9 The procurement cost per student of teaching and learning material

We consider the costs associated with the production (printing of textbooks and teacher guides), tracking and distribution of TLMs to all learning centers. We also include costs incurred during the procurement and distribution of scholastic material and supplies including single line copy books, square line exercise books, pencils, sharpeners, rulers, lesson preparation books, blackboard dusters, blackboard rulers, manila papers, marker pens, biro pens, class registers and chalk. Salaries and wages, travel, transportation and per-diem of short-term technical assistants (STTAs) and partners who take part in the production and delivery of learning materials are also included.

The costs of Production and distribution of TLM were met by USAID alone with no contributions from other stakeholder. The total cost per student directly spent on the production and distribution of TLMs is US$ 7. If we add the proportion of General Operations, Management and Reporting assigned to TLM procurement and distribution the full cost per student of TLM production and distribution increases to US$ 11 (Table 10). Cost per location could not be computed since expenditure data is not disaggregated by location. Also, the procurement of TLM was centralized with the contracted vendors not required to provide cost information based on location.

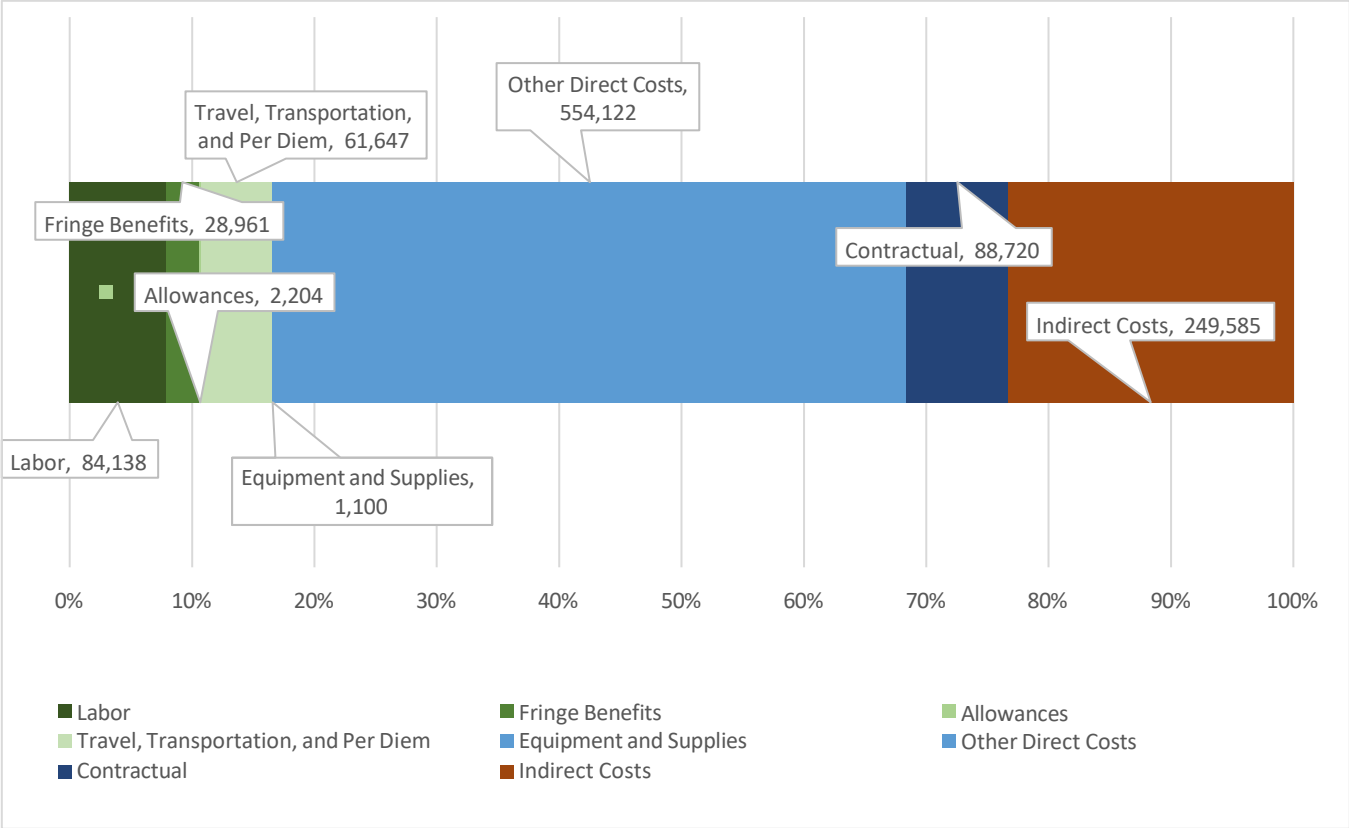
Table 43: Cost to procure and distribute TLM

Perspective	Total Costs (US$)	Cost per Student (US$)	Full Costs (US$)	Cost per Student (US$)
USAID	726,439	7	1,230,308	11

4.3.10 The implementation cost for teacher training, per teacher

All costs related to the implementation and the delivery of teacher training modules and supplementary coaching support, master trainers' training, training of district level trainers, and teachers' training are considered. We also include salaries and wages, travel, transportation, and per diem of staff, STTAs, and consultants who carry out the implementation and delivery of the teacher training and coaching support model. These costs are categorized by the implementing partner into larger buckets, (Figure 6).

Figure 6: Teacher Training Intervention Implementation Costs



These costs are the total before monetized contributions or the cost of "doing business" with USAID are added in.

The majority of the money spent on implementing teacher training was spent on Other Direct Costs (52 %) followed by Indirect costs at 23 %, Contractual and Labor both at 8 %. Travel, Transportation, and Per Diem 6 %, Fringe Benefits 3 % and Allowances at 0.2 %.

In addition to the above costs, we calculated educator training days by multiplying number of trainees and the length (in days) of each training session. The sum of the result for each session gives us the total number of educator training days. We then divide the total costs by the number of educator training days to get the cost per educator per day of training (Table 11).

Table 44: Cost for teacher training, per teacher before scaling (up to June 2022)

Type of Cost	Cost Category	Costs USD (Up to June2022)	Educator Training Days	Cost per Educator per Day of Training
Total Costs- USAID Perspective	Implementation	276,438	4783	58
Full Costs- USAID Perspective	Implementation	547,165	4783	114
Total Costs- Social Perspective	Implementation	276,438	4783	58
Full Costs- Social Perspective	Implementation	647,401	4783	135

If we look at the period since the start of the project up to June 2022 (before expansion), the direct cost incurred by USAID (without monetized contributions) to train a teacher for a day is US$ 58. If we add General Operations, Management, and Reporting costs, the full cost to train a teacher for a day increases to US$ 114. When we add monetized contributions the full social cost of training a teacher for a day is US$ 135 (Table 11).

Table 45: Cost for teacher training, per teacher up to June 2023

Type of Cost	Cost Category	Costs USD (Up to June2023)	Educator Training Days	Cost per Educator per Day of Training
Total Costs- USAID Perspective	Implementation	1,070,477	6186	173
Full Costs- USAID Perspective	Implementation	1,812,977	6186	293
Total Costs- Social Perspective	Implementation	1,070,477	6186	173
Full Costs- Social Perspective	Implementation	1,754,152	6186	284

Looking at the entire evaluation period, (since the start of the project, up to June 2023), the cost incurred by USAID (without monetized contributions) to train a teacher for a day is US$ 173 which is US$ 115 more than the cost incurred before expansion. If we add overhead costs, the full cost to train a teacher for a day increases to US$ 293. When we add monetized contributions the full social cost of training a teacher for a day is US$ 284 (Table 12).

Note that, the data available show fewer teacher trainings took place after expansion despite an increase in expenditure. Numerous requests to the implementing partner to have this clarified have borne no fruit. We therefore, request the readers to treat the results in table 11 with caution.

4.3.11 The estimated unit cost of teacher training when scaled up in intervention areas (USAID Perspective)

Considering the expansion period, we observe that 250 schools, 250 head teachers and 1,504 teachers were added to the BAB program. BAB's education training intervention uses a cascade training model in which head teachers receive 6 days of group training, teachers receive 3 days of refresher training and an hour of coaching (individual training) per semester delivered by their respective head teachers. Assuming that all new head teachers and teachers underwent training based BAB's in-service teaching training model, the number of Educator Training Days amount to 9020 (Table 13).

Table 46: BAB's ABE training Model

	Number of Days	Number of Trainees	Number of Educator Training Days
Head teacher Group Training	6	250	1,500
Teacher Group Training/Refresher Training	3	1,504	4,512
Coaching	2	1,504	3,008
Total			**9,020**

Assuming that all expenditures on teacher training after June 2022 were directed towards training new head teachers and teachers, after expansion, the total cost incurred by USAID (without monetized contributions) to train a teacher for a day is US$ 88. If we add overhead costs, the full cost to train a teacher for a day paid by USAID is US$ 140 (Table 14).

Table 47: Estimated cost to train a teacher for a day after expansion (USAID perspective)

Type of Cost	Cost Category	Costs USD (After June2022)	Educator Training Days	Cost per Educator per Day of Training
Total Costs- USAID Perspective	Implementation	794,039	9020	88
Full Costs- USAID Perspective	Implementation	1,265,812	9020	140

4.3.12 The estimated unit cost of teacher training when scaled up in intervention areas (The Government of Somalia's perspective)

We consider the increase in number of schools, head teachers and teachers in the original 11 districts since expansion (table 15).

Table 48: Increase in number of schools and classes in the 11 districts

District	Number of New School	Number of New Classes	Number of New Head teachers	Number of New Teachers
Baydhabo	27	99	27	99
Diinsoor	0	0	0	0
Baraawe	2	25	2	25
Wanlawayn	4	61	4	61
Jowhar	18	42	18	42
Balcad	21	109	21	109
Shabis	0	4	0	4
Xamarwayne	0	0	0	0
Kaxda	1	25	1	25
Dayniile	2	20	2	20
Kismaayo	24	239	24	239
TOTAL	**99**	**624**	**99**	**624**

Following BAB's education training model where head teachers receive 6 days of group training, teachers receive 3 days of refresher training and an hour of coaching (individual training) per semester, the number of Educator training days required will be 3,684 to train the new teachers and head teachers.

Using past data on trainings carried out in the 11 districts for costs of the following items Meals and refreshments, Stationery, Venue, Transportation allowance (out of town), Transportation allowance (in town), Event banner, Facilitators allowance, Vehicle rental, Printing service, Printing Certificate, and Lodging, per diem total costs for training the new head teachers and teachers amounts to US$ 114,206. Dividing this by the total number of educator training days gives us US$ 31 per teacher per training.

Therefore, to expand in-service teacher training, it would cost the government of Somalia US$ 31 per day to train a teacher (Table 16). If we compare the USAID perspective to the government's, based on the available data, we note that in-service teacher training is less costly we implemented by the government.

Table 49: Estimated cost to train a teacher for a day after expansion (Somalia Government perspective)

	Number of Days	Number of Trainees	Number of Educator Training Days	Cost (US$)	Cost per Teacher Training Day (US$)
Head teacher Group Training	6	99	594	24638	-
Group Training/Refresher Training	3	618	1,854	89568	-
Coaching	2	618	1,236	0	-
Total			**3,684**	**114206**	**31**

4.3.13 The estimated unit cost of teacher training when replicated in new areas.

This question could not be answered with the available information. Replication requires moving a program to an entirely new context, this isn't the case for Somalia.

4.3.14 The cost of classroom/teaching infrastructure, per student

Expenditures for classroom/teaching infrastructure are categorized into two i.e., permanent or semi-permanent schools/classrooms (construction, furniture, supplies) and temporary schools/classrooms (construction, furniture, supplies). The majority (98%) of the total cost was devoted to construction of temporary schools/classrooms and other infrastructure such as latrines, provision of furniture (desks and chairs) and safe drinking water. The government, communities and other non-government entities contributed classroom spaces to the project.

The total cost per student spent directly by USAID alone (without monetized contributions) on safe schools and infrastructure is US$ 3. If we consider the full costs borne by USAID (if we add the proportion of General Operations, Management and Reporting allocated to classroom/teaching infrastructure), the cost per student increases US$ 4.

When we add monetized contributions from the government, communities and other non-government entities to total expenditures by USAID, the direct cost per student (total social) increases to US$ 17. If we consider the full social costs (if we add the proportion of General Operations, Management and Reporting allocated to classroom/teaching infrastructure) plus monetized contributions, the cost per student increases US$ 27 (Table 17).

Table 50: Cost of classroom/teaching infrastructure

Perspective	Total Costs (US$)	Cost per Student
Total Costs USAID Perspective	278,833	3
Full Costs USAID Perspective	472,236	4
Total Social Costs	1,794,118	17
Full Social Costs Perspective	2,939,955	27

4.3.15 The cost of community engagement per student

Costs reported under parents/community engagement include expenditure on all labor, materials, travel, sub-contractors and other resources that have the end goal of involving parents and communities in support of the program objectives. The expenditures are categorized into development (non-recurrent) and implementation (recurrent) costs. The large share (65 %) of total costs was allocated to implementation. The total cost per student directly paid by USAID for community engagement is US$ 5 with US$ 3 and US$ 2 per student spent on development and implementation respectively. If we consider the full costs borne by USAID (if we add the proportion of General Operations, Management and Reporting allocated to community engagement), the cost per student increases US$ 8, with US$ 5 and US$ 3 per student spent on development and implementation respectively (Table 18). Note that, due to absence of data, contributions by community members such time spent attending meetings and venues donated by the communities have not been added to the calculations.

Table 51: Cost of community engagement

Total Costs - USAID Perspective	Cost (US$)	No. of Students	Cost per Student (US$)
a. PEC Intervention Development (non-recurrent costs)	184,894	108,458	2
b. Intervention Implementation (recurrent costs)	345,212	108,458	3
Development + Implementation	530,106	108,458	5

4.4 Challenges Faced and Lessons Learned Conducting Cost Analysis

The purpose of this section is to draw attention to some of the challenges faced and lessons learned by the team while conducting cost analysis. The objective is to provide feedback to USAID and cost analysts to improve the design and implementation of cost analysis evaluation for programs implemented in settings similar to the BAB ABE. Key challenges are described below, including data access, disaggregation, and inconsistent or incomplete data.

Delays in receiving data from the implementing partner: The team faced setbacks and lost considerable time due to delays in submitting data by the implementing partner. This was over come through constant dialogue between the evaluation team, the implementing partner and the USAID mission.

i. *Level of data disaggregation:* the level of data disaggregation was not consistent with some of the questions set forth in the analysis plan. As noted throughout the report, questions that required analysis based of learners' levels or geographical location could not be answered.
ii. *Inconsistencies and incomplete data:* some data provided by the implementing partner was incomplete or inconsistent. For example, some information in the contributions and dosage reports did not match that provided in the implementation report. This called for requests for revision and back and forth which was time consuming.

4.5 Conclusions and Recommendations

This study sought to examine the costs associated with observed gains in educational outcomes, the cost drivers, the variation of these costs across implementation sites, learning levels, participant characteristics as well as the costs associated with expanding the BAB model and/or replicating it in other areas.

- Results from our analysis show that the largest share of expenditures was allocated to overhead (General Operations, Management and Reporting), followed by block grants, teaching and learning materials, assessments and evaluations. Other activity intervention components including systems strengthening, in-service teacher training, parents/community engagement and safe schools and infrastructure received relatively lower allocations.
- We observe a reduction in the implementation costs per student after expansion to other implementation areas. However, results from the analysis reveal an increase in the cost of training a teacher per day after expansion to other implementation areas.
- Extrapolating costs associated with expanding the BAB model, shows a reduction in cost per student if implementation of the program is transferred to the government of Somalia**.**

Recommendations

There is a need to strike a balance between overhead costs and the other activity intervention costs that directly impact on learning outcomes. For more effective and sustainable education,

- We recommend that more resources be allocated to parent/community engagement, in-service teacher training, and safe schools and infrastructure, which are key to fostering student retention, community buy in and ownership.
- Strategies and efforts to gradually transfer the implementation of the ABE program to the Somali government should be put in place. This will lead to a reduction in costs as well as ensure sustainability of the program after USAID has left.

In addition, for smooth implementation of cost analysis for similar ABE program, the following should be considered.

- Cost categories and cost ingredients should be well spelt out during program design and where these are amended, this should be revised with the cost reporting manual.
- Cost analysis questions should inform the cost analysis manual. For example, if the questions require a certain level of disaggregation, this should be reflected in the cost reporting manual to guide the implementing partner in their development of cost categories and ingredients.
- Cost analysts should be engaged in the early stages of implementation to ensure consistencies in data collection.

APPENDIX 5: REFERENCES

AEWG (Accelerated Education Working Group) (2020). *Accelerated Education Programme Monitoring & Evaluation Toolkit.* Geneva: UNHCR. Retrieved from https://inee.org/resources/accelerated-education-programme-monitoring-evaluation-toolkit

BAB. "BAB Fy21 Annual Report." 2021.

Bandura, A. 1977. "Self-efficacy: Towards a unifying theory of behavioral change." *Psychological Review* 84 (2): 192-215.

Bedard, K., and P J Kuhn. 2006. "Where class size really matters: Class size and student ratings of instructor effectiveness." *Economics of Education Review* 27: 253-265.

Bhaumik DK, Roy A, Aryal S, Hur K, Duan N, et al. (2009). Sample size determination for studies with repeated continuous outcomes. *Psychiatric Ann,* 38,765–71.

Blozis, S.A., & Harring, J.R. (2021). Fitting nonlinear mixed-effects models with alternative residual covariance structures. *Sociological Methods & Research. 50(2), 531-566.*

Boisvert, K., Flemming, J. & Shah, R. (2017). *AEWG Guide to the Accelerated Education Principles*. Education in Crisis and Conflict Network. 4. Retrieved from https://scholarworks.umass.edu/cie_eccn/4

Dee, T., and M West. 2011. "The non-cognitive returns to class size." *Educational Evaluation and Pollicy Analysis* 33 (1): 23-46.

Doolittle, A., & Faul, A. (2013). Civic Engagement Scale: A Validation Study. SAGE Open, 1-7. http://sgo.sagepub.com/content/3/3/2158244013495542, https://youthrex.com/wp-content/uploads/2019/10/Civic-Engagement-Scale.pdf

Driskell, D. (2002). Creating better cities with children and youth. London: Earthscan https://doi.org/10.4324/9781315071930

Federal Government of Somalia (2017). *Federal Government of Somalia Ministry of Higher Education, Culture and Higher Education -- Education Sector Strategic Plan 2018-2020.* Ministry of Education, Culture and Higher Education, Federal Government of Somalia.

Feiger, P. (2012), Measuring Student Satisfaction from the Student Outcomes Survey, NCVER, Adelaide.

Flemming, Thomas, Tara Toutant, and Helen Raptis. 2002. "Class Size and Effects: A Review." *Fastback 497.*

Fredricks, Jennifer A., Phyllis Blumenfeld, Jeanne Friedel, and Alison Paris. 2005. *School Engagement.* Vol. 3, in *What Do Children Need to Flourish? The Search Institute Series on Developmentally Attentive Community and Society*, edited by Lippman L.H. Moore K.A. Boston, MA: Springer. https://doi-org.ezproxy.lib.purdue.edu/10.1007/0-387-23823-9_19.

Furr, M. (2011). *Scale construction and psychometrics for social and personality psychology*. Thousand Oaks, CA: Sage. [Crossref], [Google Scholar]

Goldstein, S.E., Young, A. & Boyd, C. Relational Aggression at School: Associations with School Safety and Social Climate. J Youth Adolescence 37, 641–654 (2008). https://doi.org/10.1007/s10964-007-9192-4

Gurka, M. J., Edwards, L. J., & Muller, K. E. (2011). Avoiding bias in mixed model inference for fixed effects. *Statistics in Medicine*, 30(22), 2696–2707.

Harter, S. (1988). *Manual for the Self Perception Profile for Adolescents.* Denver: University of Denver.

Hu, L. T., & Bentler, P. M. (1999). Cutoff Criteria for Fit Indexes in Covariance Structure Analysis: Conventional Criteria versus New Alternatives. Structural Equation Modeling, 6, 1-55. http://dx.doi.org/10.1080/10705519909540118

Jackson, Margot, Kathleen Kiernan, and Sara McLanahan. 2017. "Maternal Education, Changing Family Circumstances, and Children's Skoll Development in the United States and UK." *Annals of the American Academy of Political and Social Sciences* 674 (1): 59-84.

Jerald, C,D,. 2007. *Believing and achieving.* Issue brief, Washington, DC: Center for Comprehensive School Reform and Improvement.

Korpershoek, H., Canrinus, E. T., Fokkens-Bruinsma, M., & de Boor, H. (2020). The relationships between school belonging and learners' motivational, social-emotional, behavioural, and academic outcomes in secondary education: a meta-analytic review. *Research Papers in Education, 35*(6), 641-680.

Ladd, G. W., & Dinella, L. M. (2009, February 1). Continuity and Change in Early School Engagement: Predictive of Children's Achievement Trajectories from First to Eighth Grade? *Journal of Educational Psychology*, 190-206.

Marques, S.C., Lopez, S.J. (2014). The Promotion of Hope in Children and Youth. In: Fava, G., Ruini, C. (eds) Increasing Psychological Well-being in Clinical and Educational Settings. Cross-Cultural Advancements in Positive Psychology, vol 8.

Miettunen, J., Machova, Z., & Peterson, B.D. "Adolescent Girls' Education in Somalia – Baseline Evaluation." 2020.

Mullis, Ina VS, Michael O Martin, Pierre Foy, and Alka Arora. *Timss 2011 International Results in Mathematics*. ERIC, 2012.

OECD. 2012. "Equity and Quality in Education: Supporting Disadvantaged Students and Schools." https://www.oecd.org/education/school/equityandqualityineducation-supportingdisadvantagedstudentsandschools.htm.

Overgaauw, Sandy; Rieffe, Carloien; Broekhof, Evelien; Crone, Eveline; and Buroglu, Berna, (2017) Assessing Empathy across Childhood and Adolescence: Validation of the Empathy Questionnaire for Children and Adolescents (EmQue-CA), Forntiers in Psychology. https://doi.org/10.3389/fpsyg.2017.00870

Ravens-Sieberer, U., & Bullinger, M. (1998). News form the KINDL-Questionnair - A new version for adolescents. *Quality of Life Research, 7*, 653.

Richardson, E., MacEwen, L., & Naylor, R. (2018) Teachers of refugees: a review of the literature.

Education Development Trust

Roy A, Bhaumik DK, Aryal S, Gibbons RD. (2007) Sample size determination for hierarchical longitudinal designs with differential attrition rates. *Biometrics,*63, 699–707.

RTI International. 2017. *Setting and Using Benchmarks for Reading Performance.* 02 16. Accessed 03 14, 2022. https://ierc-publicfiles.s3.amazonaws.com/public/resources/10746_Benchmarks_brief_02-16-17_r6.pdf.

RTI International. 2014. *Early Grade Mathematics Assessment (EGMA) Toolkit.* Washington, DC: United States Agency for International Development.

RTI International. 2015. *Early Grade Reading Assessment (EGRA) Toolkit, Second Edition.* Washington, D.C.: United States Agency for International Development.

Rubie, C., Townsend, M. A., & Moore, D. W. (2004). Motivational and academic effects of cultural experiences for indigenous minority students in New Zealand. *Educational Psychology, 24*, 143-160.

Sdunzik, J., Bampoh, D. K., Sinfield, J. V., McDavid, L., Burgess, D., & Burgess, W. D. (2022). An interdisciplinary perspective on private sector engagement in cross-sector partnerships: The why, where, and how. Business and Society Review, 127(3), 591–616. https://doi.org/10.1111/basr.12283

Sirin, S. (2005). Socioeconomic Status and Academic Achievement: A Meta-Analytic Review of Research. *Review of Educational Research, 75*(3), 417-453.

Stufflebeam, D. L., & Shinkfield, A. J. (1984). Systematic evaluation: a self-instructional guide to theory and practice: Springer

Somalia Education Cluster (2017). *Annual Report 2016.* UNICEF.

Snyder, C. R., Hoza, B., Pelham, W. E., Rapoff, M., Ware, L., Danovsky, M., Highberger, L., Ribinstein, H., & Stahl, K. J. (1997b). The development and validation of the Children's Hope Scale. Journal of Pediatric Psychology, 22, 399–421.

Terwee C. B., Bot S. D. M., de Boer M. R., van der Windt DAWM, Knol D. L., et al Quality criteria were proposed for measurement properties of health status questionnaires. J Clin Epidemiol. 2007; 60(1):34–42. - PubMed

UNESCO. 2014. "Quality education needs qualified teachers." *UNESCO.* 3 10. Accessed 3 23, 2022. https://en.unesco.org/news/quality-education-needs-qualified-teachers.

USAID. "Alternative Basic Education for Pastoralists (Abe) Fact Sheet." https://www.usaid.gov/somalia/fact-sheets/somalia-alternative-basic-education-pastoralists-abe.

USAID. 2016. *Draft New Standard Indicators for PIRS for SLE.* United States Agency for International Development.

Wafula, Charles, and Godfrey Mulongo. "Are Children in South and Central Somalia Accessing Education, and Are They Learning? Baseline Information." Social Sciences & Humanities Open 2, no. 1 (2020): 100011.

Wallace Foundation. 2011. "The School Principal as Leader: Guiding Schools to Better Teaching and Learning. https://www.wallacefoundation.org/knowledge-center/Documents/The-School-Principal-as-Leader-Guiding-Schools-to-Better-Teaching-and-Learning-2nd-Ed.pdf