



IMPROVING LEARNING OUTCOMES FOR OUT-OF-SCHOOL CHILDREN: EVIDENCE FROM A RANDOMIZED EVALUATION OF AN ACCELERATED LEARNING PROGRAM IN LIBERIA.

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Annotation: *Children in Liberia receive 2.2 learning-adjusted years of schooling, one of the lowest levels of educational attainment in the world. We study one approach to address low enrollment and low rates of learning: a 10-month accelerated learning program run by the Luminos Fund to help out-of-school children catch up to grade level. We conducted a randomized evaluation of the program across 100 communities in Liberia. We find that the program had large effects on reading and numeracy skills for out-of-school children, and that children in the program catch up to the learning levels of children in government schools.*

In sub-Saharan Africa learning levels are extremely low: 9 out of 10 children do not learn to read by age 10, a situation referred to as the ‘Learning Crisis’ (World Bank et al.). The majority of children on the continent are in school but learning very little. However, in Liberia there is also a large population of out-of-school children, in part a consequence of the lingering effects of the Liberian civil wars, the 2014 Ebola outbreak, and the COVID-19 pandemic. Thus, two interrelated problems are responsible for the learning crisis in Liberia: many children are still out of school, and for those who do attend school, little learning is happening in schools.

Since the turn of the twenty-first sub-Saharan Africa has made progress towards reducing the proportion of children who are out of school: Between 2000 and 2023 the out-of-school rate for primary school aged children in sub-Saharan Africa dropped from 37% to 19% (UNESCO Institute for Statistics). However, in Liberia figures worsened, with the estimated



out-of-school rate increasing from 27% in 2000 to 31% in 2023 (UNESCO Institute for Statistics). As in other countries, in Liberia COVID-19 and associated school closures slowed down years of progress toward attaining universal enrollment, likely contributing to long-term negative effects for those children who were impacted (Azevedo et al. ; Republic of Liberia Ministry of Education; Psacharopoulos et al. ; World Bank et al).

For children who enroll in school in Liberia, learning levels are low and learning gains are extremely slow, which contributes to decisions by families to unenroll their children in order to pursue income-generating activities or to marry at a young age (Kaffenberger, Sobol, and Spindelman). While official data is scarce, one recent national study by the Liberian Ministry of Education (MoE) and Innovations for Poverty Action found that Grade 3 students were able to score only 24% on a basic literacy assessment, and Grade 6 students scored marginally better (36%). (Republic of Liberia Ministry of Education). In our assessments of children enrolled in grades 1, 2, and 3 in government schools (described below), the average child is able to read only 7 words per minute (wpm) at the beginning of the school year – far below the threshold for reading fluency of at least 60 wpm – and this figure improves to only 14 wpm by the end of the school year. Fifty-three percent of students cannot read any words.

Learning outcomes in Liberian schools have improved slightly since the civil wars but remain below regional and global averages. According to the World Bank in the Liberia Human Capital Assessment report, in 2020 a child born in Liberia is expected to complete 4.2 years of schooling by the time they turn 18. When this figure is adjusted for the quality of instruction, using learning-adjusted years of school (LAYS), a child in Liberia receives the equivalent of 2.2 years of quality schooling, one of the lowest values in the world (World Bank).

The MoE-Liberia has proposed interventions to improve the quality of instruction in government schools that include teacher education and professional development; revised curricula, teaching, and learning materials; improved distribution of classroom materials; and increased coverage of school feeding programs (Republic of Liberia Ministry of Education).



However, a recent review by Angrist et al. found that even though large sums have been directed towards these types of interventions in low- and middle-income countries (LMICs) between 2000 and 2015, there has been little improvement in learning outcomes. Evans and Yuan review 96 randomized controlled trials in education targeting learning in LMICs and calculate a median standardized effect size on interventions of 0.10 SDs learning gains; even programs at the 90th percentile of effectiveness attain a modest 0.45 SDs improvement in learning outcomes. Few interventions in education are having transformative impacts on learning.

In this paper, we study one model to address the dual problems of low access to education and low rates of learning: an accelerated learning program for out-of-school children (OOSC) run by the Luminos Fund in Liberia. The Luminos Program is a 10-month program that teaches children basic reading and numeracy skills and supports children's socio-emotional development. The Luminos Program covers the first three grades of school in order to help OOSC catch up to grade level and enroll into government schools. Luminos was founded in 2016 and currently runs programs in Ethiopia, Ghana, Lebanon, Liberia, and The Gambia.

Over the 2022–2023 school year, we conducted a clustered randomized controlled trial (RCT) of the Luminos Program in Liberia. Out of 100 eligible communities, we randomly allocated 50 communities to the treatment group and 50 communities to the control group. We assessed 1,502 OOSC at baseline and endline on literacy (using the Early Grade Reading Assessment, or EGRA) and numeracy (using the Early Grade Math Assessment, or EGMA) in 49 treatment and 49 control communities. We also assessed 348 government schoolchildren (GSC) in grades 1, 2, and 3 from the nearby primary schools in every study community to provide a benchmark for learning gains of enrolled students.

We find that the Luminos Program had large, positive, and statistically significant effects after ten months on all assessed reading and numeracy skills. Children in the treatment group were able to read 4.5x as many words per minute and complete twice as many addition and subtraction problems at endline compared to children in the control group. Treatment effects



were between 0.5 SD and 2.1 SD for all reading and numeracy subtasks, and specifically were 1.6 SD for reading simple words and 0.6 SD for addition and subtraction. Effects were similar in size for girls vs boys, younger vs older children, children who were previously enrolled in school vs dropouts, and children who started with lower baseline learning levels vs higher baseline learning levels. Compared with similarly-aged children enrolled in nearby government schools, OOSC in the treatment group started with lower learning levels but surpassed their GSC peers in terms of reading and nearly caught up in terms of numeracy by the end of the program.

Our study contributes to three strands of literature in an understudied region. First, we contribute to the literature on how to improve foundational learning outcomes in LMICs. There have been several studies in the past couple of decades on how to improve education in low-resource and the strong threshold effects whereby future learning is not possible until reading fluency has been attained (Abadzi), there is a need for more evidence on what types of approaches can generate transformational learning outcomes in developing countries. Akyeampong et al. highlight three interventions that are ‘great buys’ to improve learning outcomes in developing countries because they are both cost-effective and supported by a strong body of evidence: providing information on the benefits, costs, and quality of education; supporting teachers with structured pedagogy; and targeting teaching instruction by learning level. We provide further evidence that one of these intervention categories – structured pedagogy, which is a key component of the Luminos Program – can be an effective approach to improving learning outcomes in LMICs.

Second, we contribute to the literature on what works to improve learning outcomes in an education system with some of the lowest learning levels in the world. Learning outcomes remain critically low in Liberia, yet relatively few rigorous evaluations have been conducted to identify which interventions are effective in helping Liberian children catch up to their peers in other countries. One of the few education programs in Liberia that has been rigorously evaluated is the Liberia Education Advancement Program (LEAP).^{Footnote¹} LEAP is a multi-



partner public-private partnership that was designed to build capacity within Liberia's education system and improve student learning outcomes. A recent randomized controlled trial of LEAP found that after three years students in LEAP schools performed 0.18 SDs better in math and 0.21 SDs better in English, compared to students in control schools (Romero and Sandefur). We contribute to this nascent literature in Liberia on how public and private education providers can deliver meaningful learning gains.

Finally, our study contributes to literature on how to integrate OOSC into the formal school system. To our knowledge there is little evidence on what works to help integrate primary-school aged OOSC into the formal education system in LMICs. One exception is a study by Ferráns et al, who found that a 7-month accelerated learning program led to positive, small-to-medium impacts on literacy and numeracy for OOSC in northeast Nigeria. We build on this work by highlighting a successful approach to generating large learning gains for out-of-school children in Liberia.