Evaluation Summary: The Northern Uganda Literacy Program
Mango Tree

Mango Tree’s program, which seeks to improve literacy skills among students in primary grades 1-3 through using the mother tongue as the primary language of instruction, was found to produce significant gains in literacy skills. A lower-cost version of the same program also showed significant gains, with approximately half the effect size as the full-cost program.

I. CONTEXT

In developing countries, a greater number of students have gained access to primary education, but this has not come along with increases in learning or literacy. The average impact on learning for development programs focusing on primary education is very small (0.14 standard deviations).

In the Lango sub-region in northern Uganda, where the Northern Uganda Literacy Program operates, there are over 2 million people who speak Leblango. As fallout from the civil war from 1987-2007, the region suffers from high levels poverty, poor infrastructure, and poor education levels, including for literacy. A 2009 assessment found 80% of students in the region couldn’t read any words at the end of grade 2, and a 2010 assessment found that almost none could read a single letter at the end of grade 1. Uganda mandates mother-tongue instruction in primary schools in early grades, but this is not well enforced and teachers are not always trained in local languages.

II. PROGRAM DESCRIPTION

The Northern Uganda Literacy Program (NULP), developed and implemented by Mango Tree, focuses on improving literacy skills in primary grade 1-3 students. The components of the program include:

- **Mother tongue** instruction with teachers teaching wholly in the mother tongue.
- **Teacher training** that focuses on practical skills. Teachers attend a 5-day residential workshop to learn about the Leblango language, as well as three other residential trainings on literacy methods during school holidays and six Saturday trainings throughout the year.
- **Teaching materials** provided to support instruction. In conjunction with teachers and government officials, Mango Tree developed primers and readers, as well as guides for teachers that script out each lesson. In addition, they provide slates to classrooms for each student to use to practice writing and make it easier for teachers to review student work in large classes (as students can hold up their slates).
- **Parent and community engagement** periodically throughout the year. Three parent meetings are held each year, reviewing mother-tongue instruction and how parents can support their children in developing literacy skills, and includes training for parents on using reading assessment tools.
The study, conducted through researchers at the University of Illinois at Urbana Champaign and the University of Minnesota, has been evaluating the program since 2013.

In addition to the program as described above, this study also evaluated a lower-cost version of NULP designed to be more easily scalable and relying on implementation by government officials rather than Mango Tree staff. In this version, teacher training and monitoring were conducted by Coordinating Centre Tutors (CCTs), who are government staff designated to train and support primary school teachers. While the lower-cost version provided the same primers, readers, and teachers’ guides to program classrooms, classrooms did not receive writing slates, which are costly.

III. EVALUATION DESIGN

The evaluation used a clustered randomized control trial to compare the full version of NULP and the low-cost version to a control group of schools which did not receive any Mango Tree programming. In 2013, the program was implemented in grade 1, and 38 schools were included in the study.

Assessments were conducted at each school at the beginning and end of the year for 50 randomly selected students in each school. Three tests were used: EGRA, as adopted to the Lango language, an oral English test developed by Mango Tree, and a writing test also developed by Mango Tree. Major metrics used were a student’s ability to identify letters and write his or her name.

During school visits, staff also conducted student and teacher surveys as well as classroom observations. Data collected included attendance and enrollment, teacher attitudes, and student attitudes, effort, and perceptions of ability. During classroom observations, staff recorded teaching methods used and levels of student engagement.

IV. MAIN FINDINGS

Effects were measured in standard deviation gains, allowing comparison across types of tests and with other programs. The full version of the program resulted in notably large gains in reading and writing ability across all measures and some gains in English speaking ability, with knowledge of letter names increasing by the largest margin (by 1.04 standard deviations as compared to the control group). The low-cost version showed smaller improvements; improvements in letter name recognition were less than shown under the full program (0.42 standard deviations as compared to 1.04 standard deviations), and reading scores improved slightly but not significantly (see diagram on the following page).
Student survey results showed students gaining confidence in their academic abilities as well as enthusiasm for school, though they did not report changes in the level of effort put into their education. As with exam scores, effects were larger in the full program than the low-cost version (see diagram below).
Changes in teacher behavior and attitudes were also seen as a result of the program. Teachers and students spent more of their time speaking in Lango and students were more likely to be spending time reading sounds and sentences and working from primers or readers (see diagram below).

V. COST EFFECTIVENESS

When measuring by ability to improve knowledge of letter names, the low-cost version of the program is slightly more effective (yielding improvement in letter name recognition by 0.09 standard deviations per dollar, as compared to 0.07 standard deviations in the full program).

However, when looking at reading abilities overall, the full program was twice as cost-effective as the low-cost version (see figures in the table below). In fact, the low-cost version resulted in declines in certain aspects of writing and English speaking abilities as compared to the control group (even while showing improvements in the main writing metric, the student being able to write his or her name), while the full program resulted in improvements in writing abilities across the board and on parts of the English speaking exam. This illustrates that even while the low-cost version may be more effective in improving the major “headline” metrics, it is necessary to use cost-effectiveness measures very carefully as they can mask important (and in this case, negative) variation within a program. The full program, which resulted in the large increases in performance seen, is actually one of the most cost-effective education programs that have been experimentally measured.
VI. INTERPRETATION AND RECOMMENDATIONS

How was NULP able to yield such large improvements in reading ability? The way in which students and teachers spent time in the classroom changed, with more time likely spent on developing reading and Leblango skills rather than having students memorize and repeat words in English, as was more common in control schools.

This study shows that large gains in learning in rural African classrooms are possible. Whether the optimal strategy is to invest in more costly, yet more beneficial programs depends in part on longer term outcomes on learning. Moreover, further research is needed to identify which components of NULP were necessary to achieve the large gains seen and which components could be cut to actually make the program more cost-effective. Another area for research is looking at the role of teacher motivation and effort in improving learning outcomes.

VII. REFERENCES