Primary Literacy Project
Results Summary

In 2013, Mango Tree began an external impact evaluation of its Primary Literacy Project (PLP) using a Randomized Control Trial (RCT). Previously, Mango Tree monitored the impact of the program internally using the Early Grade Reading Assessment (EGRA) and its own Early Grade Writing Assessment (EGWA). Preliminary results from non-RCT evaluations show major literacy gains among pupils.

Guustaaf van de Mheen, Executive Director
gvdmheen@mangotreeuganda.org
+256(0) 773 832 736

Chelsea Peters, Program Manager
cpeters@mangotreeuganda.org
+256(0) 700 633 766

For more information visit our website at www.mangotreeuganda.org/nulp

Literacy Gains under Mango Tree's Primary Literacy Project

At the end of the 2011 and 2012 school years learner assessments were conducted for all PLP schools and at least one non-PLP ("comparison") school for each of the following coordinating centres: Adel, Loro, Adwila, Aber, Aculbanya and Adyel, all located within the Loro Core Primary Teachers College catchment area.
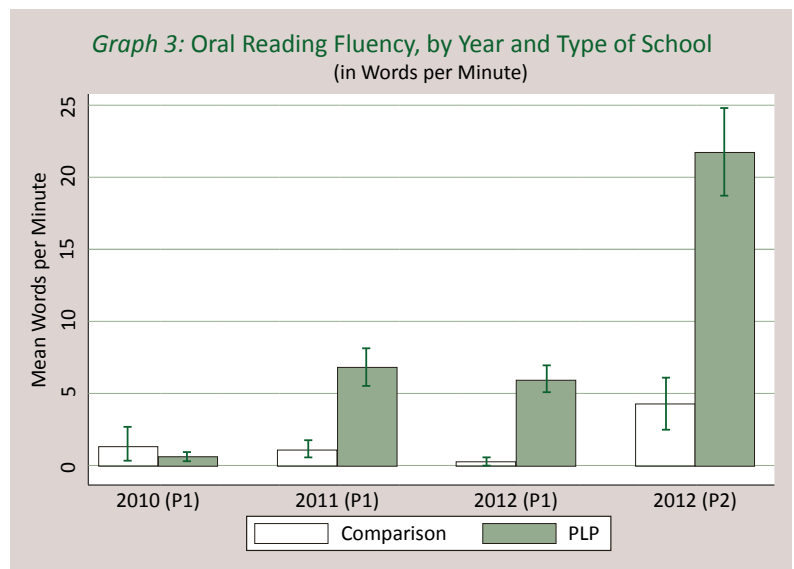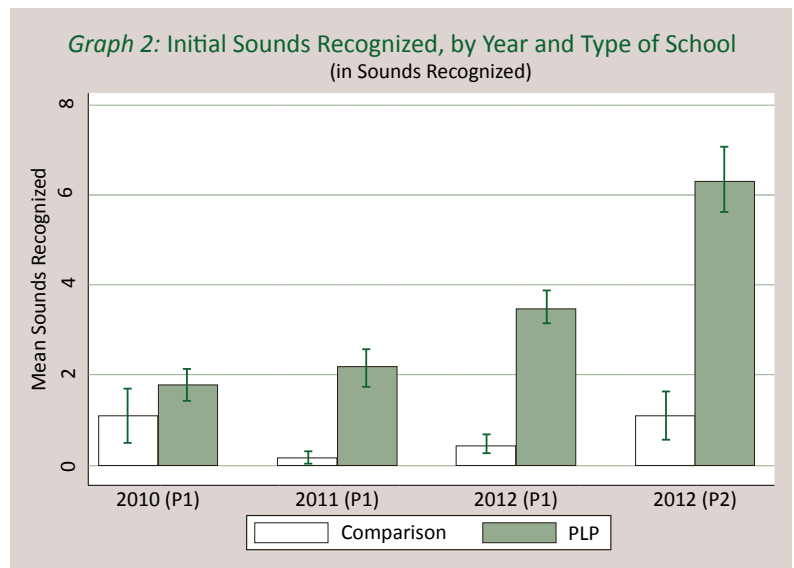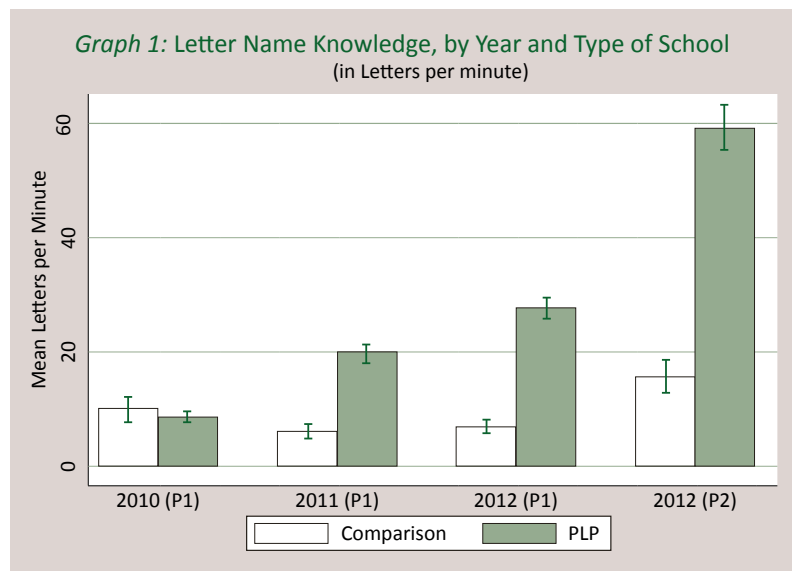
Graphs 1 to 3 summarize the results for three components of the Early Grade Reading Assessments (EGRA) that were conducted as part of Mango Tree's internal monitoring – Letter Name Knowledge, Initial Sound Identification and Oral Reading Fluency. For each year, they show the average score for treatment and comparison schools.

The Letter Name Knowledge test assesses a pupil's ability to recognize letters in print and name them out loud. This is a good way to predict the reading development of pupils, as evidence shows that children's reading skills grow only after they know about 80% of the alphabet.

The Initial Sound Identification test assesses a pupil's ability to recognize and say the first sound in a word read aloud to them. This is a good way to assess children's phonemic awareness skills, as in order to read successfully children must be able to hear and separate whole words into individual sounds.

The Oral Reading Fluency test assesses a pupil's ability to read words aloud in a connected text with accuracy and speed. To gain meaning from text, children **must** be able to read with fluency. This test is used to assess a child's overall reading skill.

In 2012, the PLP included both P1 and P2 classes; they are shown as separate categories. The 2010 baseline shows that learners from the comparison schools were broadly similar to those from PLP schools. After the first year of the program in 2011, PLP schools showed large gains relative to comparison schools. To give a sense of the magnitude of the improvement, *P1 PLP learners performed as well as or better than comparison learners at the end of P2, meaning that they were slightly more than one year ahead in terms of literacy.* Improvements were even larger in 2012 as P2 learners who had been exposed to the PLP for two years continued to substantially outperform their counterparts in comparison schools.

Graph 1: Letter Name Knowledge, by Year and Type of School
(in Letters per minute)

Graph 2: Initial Sounds Recognized, by Year and Type of School
(in Sounds Recognized)

Graph 3: Oral Reading Fluency, by Year and Type of School
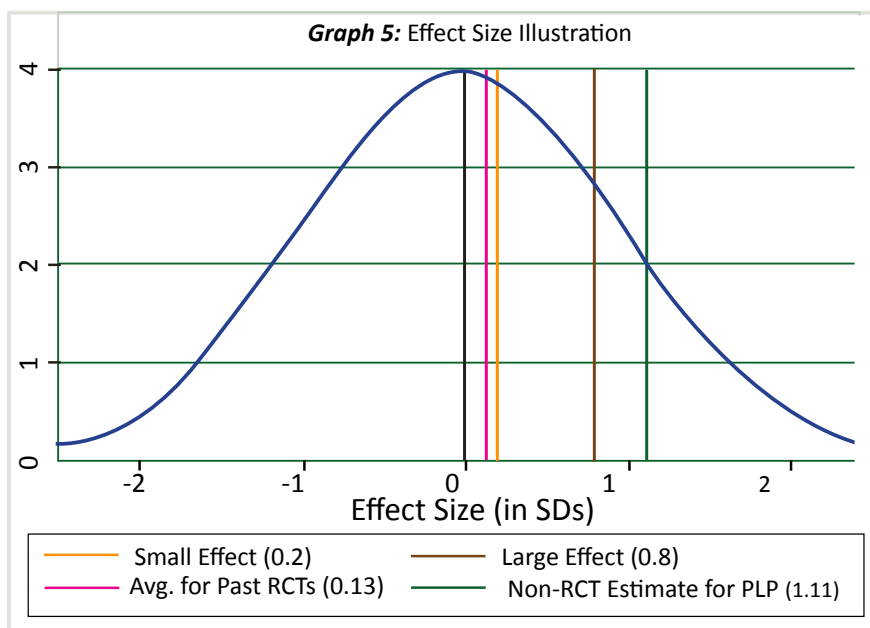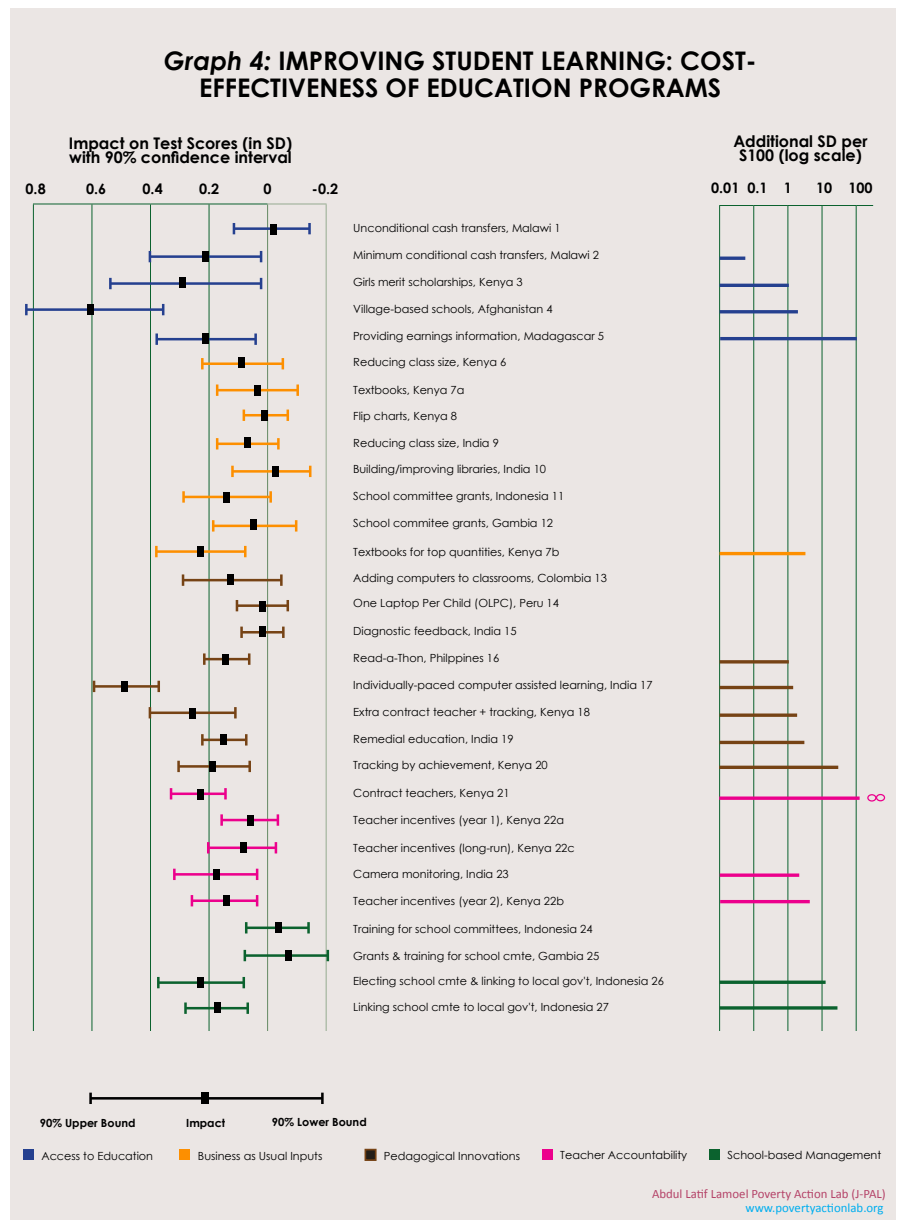(in Words per Minute)

Comparing the PLP's Impact to Similar Interventions

The graphs on this page illustrate the PLP's expected impact compared to other similar education programs. Graph 4, from the J-PAL website, (http://www.povertyactionlab.org/policy-lessons/education/student-learning), shows the results from education projects evaluated by J-PAL based on learners' reading test scores. Test score results are given in terms of standard deviation (SD). The SD (also called the effect size) shows how well learners receiving the education program did in comparison to children who did not[1].

Graph 5 shows what effect size means. The dark blue curve shows how learners in an evaluation normally perform. An average learner on this curve is at zero. The light and dark brown vertical lines show an average "small" and "large" effect from an education program. A really successful program will have a large effect on learners' performance. So a large effect would be a program that moves learners from 0 (the normal average) to 0.8.

The red line shows the average effect size across all of the projects evaluated in the J-PAL graph. Most programs had very small effects. The largest effect measured in one of the projects was 0.59 SDs – which is still below the average large effect size of 0.8.

Graph 4: IMPROVING STUDENT LEARNING: COST-EFFECTIVENESS OF EDUCATION PROGRAMS

Impact on Test Scores (in SD) with 90% confidence interval

Additional SD per $100 (log scale)

- Unconditional cash transfers, Malawi 1
- Minimum conditional cash transfers, Malawi 2
- Girls merit scholarships, Kenya 3
- Village-based schools, Afghanistan 4
- Providing earnings information, Madagascar 5
- Reducing class size, Kenya 6
- Textbooks, Kenya 7a
- Flip charts, Kenya 8
- Reducing class size, India 9
- Building/improving libraries, India 10
- School committee grants, Indonesia 11
- School commitee grants, Gambia 12
- Textbooks for top quantities, Kenya 7b
- Adding computers to classrooms, Colombia 13
- One Laptop Per Child (OLPC), Peru 14
- Diagnostic feedback, India 15
- Read-a-Thon, Philippines 16
- Individually-paced computer assisted learning, India 17
- Extra contract teacher + tracking, Kenya 18
- Remedial education, India 19
- Tracking by achievement, Kenya 20
- Contract teachers, Kenya 21
- Teacher incentives (year 1), Kenya 22a
- Teacher incentives (long-run), Kenya 22c
- Camera monitoring, India 23
- Teacher incentives (year 2), Kenya 22b
- Training for school committees, Indonesia 24
- Grants & training for school cmte, Gambia 25
- Electing school cmte & linking to local gov't, Indonesia 26
- Linking school cmte to local gov't, Indonesia 27

90% Upper Bound — Impact — 90% Lower Bound

Access to Education   Business as Usual Inputs   Pedagogical Innovations   Teacher Accountability   School-based Management

Abdul Latif Lamoel Poverty Action Lab (J-PAL)
www.povertyactionlab.org

Graph 5: Effect Size Illustration

Effect Size (in SDs)

- Small Effect (0.2)
- Large Effect (0.8)
- Avg. for Past RCTs (0.13)
- Non-RCT Estimate for PLP (1.11)

Finally, the green line shows Mango Tree's best non-RCT estimate of the effect from one year of the PLP. This is based on comparing schools with the PLP to other nearby comparison schools that had similar scores before the program.

In Mango Tree-supported schools the average effect size across all EGRA sub-tests is 1.11 SDs, which is far above what is considered a large effect (0.8). For oral reading fluency the effect is more than 2.0 SDs.

This means that children in Mango Tree schools are performing far better than children in any other reading program evaluated by J-PAL.

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[1]These impacts are normalized by the standard deviation (SD) of test scores for the control group, so that all the effects are comparable across all studies. For example, for an IQ test the average is 100 and the SD is 15, so if you raise scores from 100 to 103, the effect size is 0.2 SDs.

How is Mango Tree's Intervention Different?

Research Triangle Institute (RTI) is currently implementing a 5-year project in Uganda to develop a national literacy curriculum for Primary 1 to 4. The RTI project is underscored by an RCT. The Aga Khan Foundation (AKF) also recently concluded their Reading to Learn Project in the Lango sub-region. AKF's evaluation found a small effect size (0.18-0.20), meaning there was not a large impact on pupils' reading scores. All of these projects contain many of the same investments to the education system – materials, teacher training and support supervision. They also used the same foundational literacy components in their methodology design. The Mango Tree (MT) intervention, however, is different than other projects in a number of ways.

Slower Pace

MT's motto: "Go slow to go fast." It takes two years to introduce all the Leblango phonemes (letter sounds) through the MT model, whereas RTI and AKF introduce all the phonemes in one year. The MT model takes into account the realities of Ugandan classrooms (high learner and teacher absenteeism, under-trained teachers, lack of pre-primary preparatory skills development) and introduces the content slowly, providing lots of time for repetition and revision. The instructional approach in P1 and P2 is also similar, meaning that teachers trained in the P1 model can also easily teach the P2 model with limited training. This is not the case with the RTI and AKF models, where an entirely new training curriculum is required each year.

Focus on Language Knowledge

The MT training model recognizes the important role that knowledge of and fluency in the local language plays in effective instruction. The first training module is focused on providing teachers with a solid foundation in the Leblango orthography, including grammatical features and letter names and sounds. This approach has proven to be extremely important for standardizing instruction in a language with many dialects. Other programs do not spend much time – if any – on language training, meaning their teachers lack a basic knowledge about the language before they begin teaching children to read and write in it.

Training through Mentor Teachers

MT's training model has been developed over 3 years to address the real needs of teachers in the classroom. It focuses on the uptake of practical skills in small groups facilitated by classroom "mentor" teachers, who are experienced teachers that have mastered the MT model. The use of mentor teachers is unique to MT and gives teachers the chance to learn from their peers under the guidance of Coordinating Centre Tutors (CCTs). This differs greatly from other models where a short ToT trains CCTs, who are then expected to train teachers after only limited exposure to the methods and with no experience actually teaching them in the classroom.

Consistency through Instructional Videos

Many literacy projects loose impact due to poor training, as the training process cascades from national to local levels. To solve this problem MT uses video training. MT's videos are tied to the model and ensure consistency in training content and key messages while providing examples of excellent classroom practice using real-life situations. CCTs also use the videos on solar-powered, portable DVD players to train teachers on site at their schools, offering targeted support supervision while eliminating dependency on expensive residential training models.

Parent and Community Engagement

MT trains parents in local language education issues to help them understand why they should support Uganda's primary literacy policies. They are also trained to interpret their child's literacy report card (which MT created with teachers and translated into the local language) and use the results to support their child's learning at home, including activities like reading stories together. Parents are also trained to use a simple Parent Assessment Tool to measure their child's literacy progress. Finally, MT sponsors a one-hour weekly radio program (supported by SMS messages and surveys to engage listeners in feedback) that broadcasts literacy and local language education topics to parents, teachers and communities in the Lango sub-region.

Instructional Design Based on Local Context

Using a unique instructional design process, MT's materials have been developed continuously over the past 4 years in partnership with teachers and CCTs to ensure that what we expect of teachers and learners is clear, realistic and reflects the reality of the average resource-poor, overcrowded rural Ugandan classroom. Other models (like RTI) develop their materials in short 3-4 week writing workshops without the benefit of a sustained field-based relationship with a core group of teachers and trainers; as a result, adaptations based on field-testing are often overlooked or are difficult to integrate effectively. MT's primers are also small and inexpensive to reproduce, enabling districts, schools and parents themselves to afford getting more books into the hands of children. They are also easy to store, distribute and use in Ugandan classrooms.