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USAID/Uganda School Health and Reading Program: Early Grade Reading Assessment Results

Did the USAID/Uganda School Health and Reading Program improve early grade reading skills among Primary school learners? Have teachers changed the way that they teach reading in Program schools? To answer these questions, randomized control trials (RCT) were conducted using Early Grade Reading Assessment (EGRA) data collected from Program and Control schools – baseline data at the beginning of P1 in each of the 12 program languages and then follow up data at the end of each school year. The 12 Local Languages were phased in in 3 “clusters” of 4 languages each starting in 2013 – the first Cluster 1 learners have now finished P3, Cluster 2 have finished P2 and Cluster 3 learners have finished P1. Results to date indicate that in virtually every language, increases in reading skills beyond those found in controls schools are taking place – and that teachers are changing the way they are teaching reading.

Cluster 1 – End of Primary 3

Languages: Ateso, Leblango, Luganda, Runyankore-Rukiga

Districts: Wakiso, Gomba, Kiruhura, Bushenyi, Kabale, Kumi, Katakwi, Serere, Apac, Lira, Kole

By the end of P3: Learners in Program Schools were reading more words than learners in control schools and are closer to becoming fluent readers in both Local Language and English. In Ateso, 18% of P3 learners could read 20 or more words per minute (wpm) compared to 7% in control schools; in Leblango, 14% of program learners reached this mark compared to 9% of control learners. In Luganda, 44% in program learners read 20 or more wpm compared to 33% in control schools and in 53% in Runyankore-Rukiga program schools compared to 50% in control schools.



CLUSTER 2 – End of Primary 2

Languages: Runyoro-Rutooro, Lëb Acoli, Lúgbàràti, Lumasaaba

Districts: Masindi, Kyenjojo, Kabarole, Gulu, Pader, Kitgum, Arua, Mbale, Sironko, Manafwa

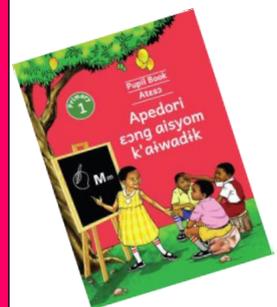
By the end of P2: Acoli and Runyoro-Rutooro schools receiving program interventions are performing significantly better than control schools in local language reading fluency and comprehension and in English reading fluency. This year, Lugbarati has also started making progress. Unfortunately, Lumasaaba program learners are making little progress. Teachers in program classrooms are teaching more from lesson plans that include appropriate early grade reading methods and more program learners are reading from printed material than learners in control schools.

CLUSTER 3 – End of Primary 1

Languages: Lugwere, Nkarimójɔŋ, Lhükonzo, Lusoga

Districts: Budaka, Pallisa, Kibuku, Nakapiripirit, Napak, Moroto, Kasese, Iganga, Kamuli

By the end of P1: P1 learners in program schools in all 4 languages performed better than P1 learners in control schools on pre-reading tasks including orientation to print, letter identification, and local language listening comprehension and letter sound knowledge. More teachers in program schools were using reading related “best practices” in the classroom (and at much higher rates than baseline) compared to teachers in control schools including ensuring learners are reading from printed material during the reading lesson, assessing learners and keeping learner attendance.



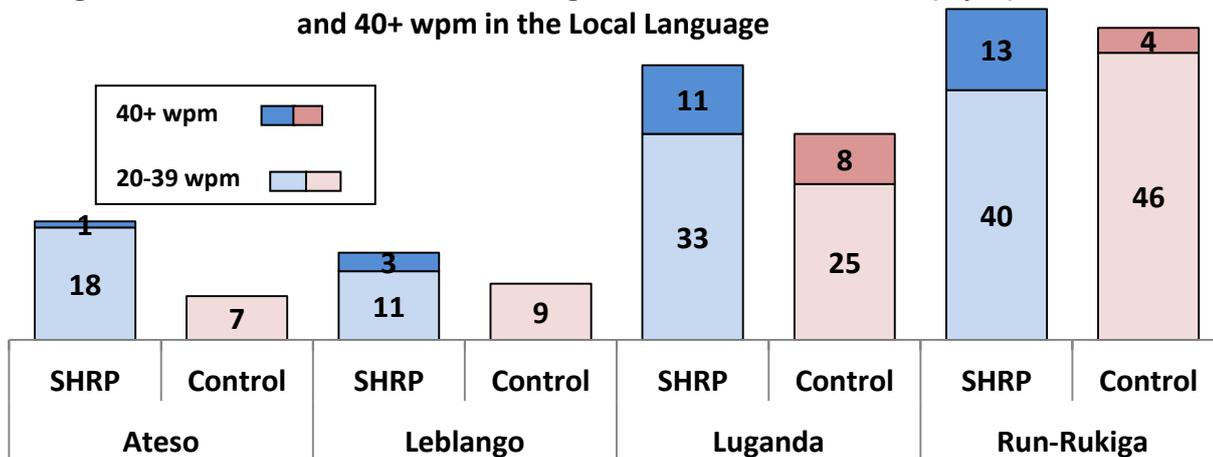
A note about measuring, monitoring and interpreting Oral Reading Fluency or Words Per Minute (wpm) in the Ugandan context: Though there is abundant ERGRA data world-wide showing unexpectedly low levels of reading achievement, there is less data to determine expected increases and trends associated with reading interventions at scale such as the School Health and Reading Program. For reporting, “benchmarks” of 20 or more wpm and 40 or more wpm are used. Though this is below the 60 wpm “fluent reader” benchmark, that is often cited, caution needs to be exercised when working across diverse languages. Abadzi (“Developing cross-language metrics for reading fluency measurement”, 2012) provides an example of increasing reading fluency measures by 30% to account for the difference in word length in Bantu languages, for example. This needs to be taken into consideration in Uganda when looking not only at the overall reading levels, but the changes over time and differences between Program and control learners.

Cluster 1 – Results at the end of P3

The EGRA data presented here for Cluster 1 include 4,541 learners in program schools and 1,468 learners in control schools at the beginning of P1 in February, 2013 compared to 1,320 learners in program schools and 1,431 learners in control schools at the end of P3 in October, 2015.

C1 Oral Reading Fluency in Local Language: Differences in Local Language Oral Reading Fluency (or words per minute) between program and control learners are notable and have increased more in program schools than control schools as shown in the Figure 1¹. **Figure 1** shows the percent of learners who could read 20-39 words per minute (wpm) and 40 or more wpm at the end of P3. At baseline, all language groups (treatment and control) started from zero.

Figure 1: Percent of P3 learners reading 20-39 Words Per Minute (wpm) and 40+ wpm in the Local Language



In Ateso, the percent of learners reading 20 or more words a minute increased to 19% (18% reading 20-39 wpm and 1% reading more than 40 wpm) in program schools and to 7% in control schools. In Leblango, 14% of program learners could read 20+ words per minute (3% read more than 40 wpm), compared to 9% for control learners. In Luganda, 44% of program learners could read more than 20 wpm compared to 33% in control schools. For Runyankore-Rukiga, the percent of learners reading 20 or more words per minute increased to 53% compared to 50% in control schools but the percent of program learners reading over 40 wpm was 13% in program compared to only 4% in control. **In every language, programs learners are shifting to higher levels of reading at higher rates than control learners.**

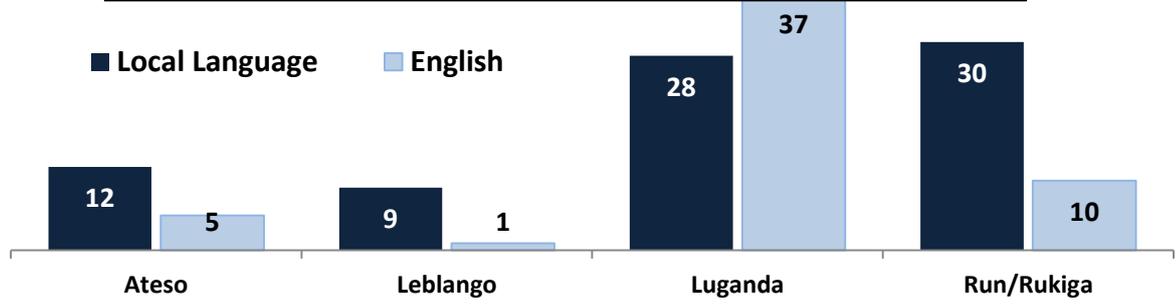
C1 Oral Reading Fluency and Comprehension English: In English, almost 66% of learners in Luganda speaking program schools could read 20+ WPM in English compared to only 53% in control schools. In Runyankore-Rukiga,

¹ Differences in Ateso are statistically significant with medium effect sizes (0.53 for 20-39 wpm). In Runyankore-Rukiga the difference in 40 and over is statistically significant (effect size 0.34). The only significant gender differences were for Luganda 40+ wpm where program girls were higher than boys and for Ateso, 20-39 wpm where control boys were higher than girls.

though 53% of learners could read more than 20 wpm which is not much different than 51% for control learners – 21% of program learners could read 40 or more words per minute compared to only 15% for control learners. In Ateso, 17% of program learners could read 20 or more words per minute compared to 5% of control learners. Leblango program learners seem to have only a slight advantage over control learners –7% reading 20 or more words per minute compared to 4%².

In prior years, it was the case that learners could answer more questions in local language than English – even when they were able to read more words in English. **Figure 2** shows that this is still the case in all of the languages with the exception of Luganda – where, on average, learners understood more of what they read in English. In Ateso, program learners answered 12% of Local Language questions compared to only 5% of the English, Leblango it was 9% compared to 1% in English and in Runyankore-Rukiga learners answered 30% of local language questions compared to 10% of English questions.

**Figure 2: Percent of Reading Passage Questions Answered Correctly
Local Language and English
Program Schools -- Follow Up 2 (end of P3)**



Understanding more in Local Language than English even when the number of words read is the same (as is the case in Ateso and Runyankore-Rukiga) lends support to learning in local language but this may be language specific especially as learners progress to P3 (in the case of Luganda speaking schools which have higher levels of access to English by way of teachers, print and media) and P4.

Learners in Ateso, Leblango, and Runyankore-Rukiga speaking program schools understand more of what they read in local language than in English

CLUSTER 2: Results at the End of P2

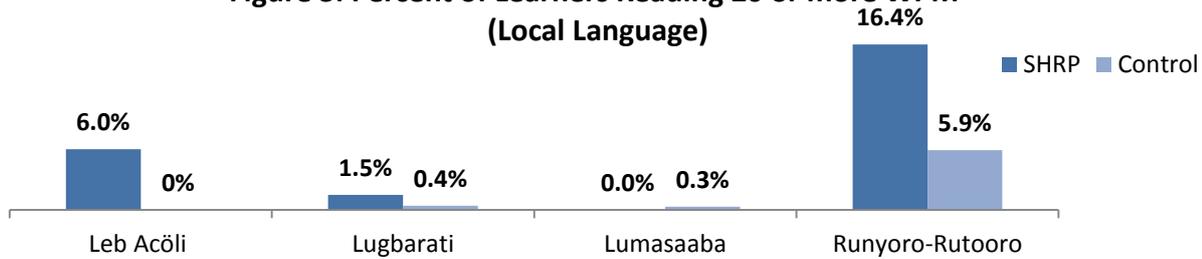
For Cluster 2, EGRA data from 3,119 P2 learners (1,582 program and 1,537 control learners) collected in October, 2015 were compared to baseline data collected from 3,893 program and 3,577 control learners at the beginning of P1 in February, 2014. In addition, 33 P2 reading lessons were observed and 89 P2 teachers and 116 head teachers were interviewed.

C2 Oral Reading Fluency in Local Language: At the end of P2, a higher percent of program learners are able to read 20 or more words per minute compared to control learners in 3 of the 4 languages (**Figure 3**). Six percent of Leb Acöli learners in program schools could read over 20 local language words per minute, compared to 0 in control schools. In Runyoro-Rutooro, 16.4% of P2 learners could read 20 or more wpm, compared to 5.9% in control schools³. For Lugbarati, 1.5% of program learners reading 20 or more wpm compared to 0.4% for control and for Lumasaaba 0% for program compared to 0.3% for control. Performance in Lugbarati and Lumasaaba is not different from that for Ateso from Cluster 1 which had also increased very little by the end of P2, but has

² Differences were statistically significant for Ateso, in Luganda program effect size for 60+ wpm was 0.74.
³ Differences between program and control are statistically significant for Leb Acoli and Runyoro-Rutooro.

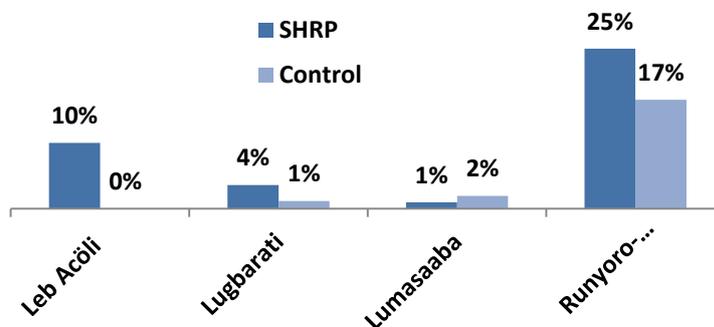
seen tremendous growth over control in P3). However, – the lack of any real change in Lumasaaba program needs to be examined.

Figure 3: Percent of Learners Reading 20 or more WPM (Local Language)



C2 Reading Comprehension in Local Language: By the end of P2, Cluster 2 learners in program schools were able to answer more reading comprehension questions than at baseline and significantly more than learners in control schools.⁴ **Figure 4** shows that more P2 learners from program schools could correctly answer at least one local language reading comprehension question than P2 learners from control schools in Leb Acöli (0% for control compared to 10% for Program), Lugbarati (1% control, 4% Program) and Runyoro-Rutooro (17% control, 25% Program). In Lumasaaba, there was no difference between Program and control learners.

Figure 4: Percent of Learners who correctly answered 1 Reading Comprehension question (Local Language)



C2 Oral Reading Fluency and Comprehension in English: P2 learners receiving the program intervention can also read more words per minute in English (with the exception of Lumasaaba): In Leb Acöli, 6% of learners in program schools read over 20 English words per minute compared to less than 1% in control schools. In Runyoro-Rutooro, the difference was even greater, with 15% of program and just 3% of control learners reading over 20 English wpm⁵. In Lugbarati, no learners in control schools read over 20 English wpm, compared to 2 % of learners in program schools.

P2 learners in program schools also understand more of what they are reading in English than learners in control schools: three to five times as many program learners than control learners answered at least one English reading comprehension question correctly in Leb Acöli, Lugbarati and Runyoro-Rutooro.

Teachers in the Classroom in Cluster 2: Observations in 33 P2 literacy classrooms show that more program teachers plan and implement best practices for reading instruction including reading words from printed text (13% control, 83% SHRP), following printed text with finger pointing (0% control, 72% SHRP), and guiding learners to answer comprehension questions based on the story read (0% control, 50% treatment). Additionally, teachers

⁴ With the exception of Lumasaaba, all differences in mean reading comprehension questions answered correctly (local language) were statistically significant, with a large effect size for Acöli.

⁵Differences were statistically significant for both Leb Acöli and Runyoro-Rutooro.

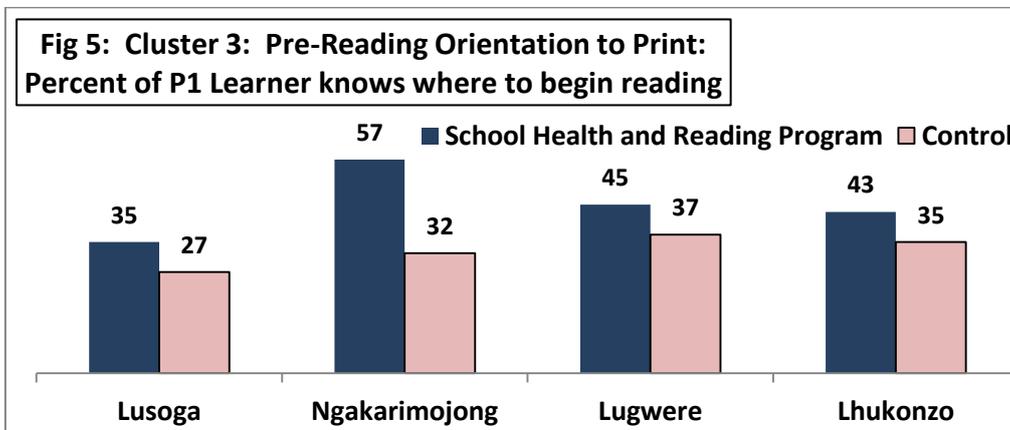
in program schools were 33% more likely to teach in the local language of instruction and twice as likely to teach according to regularly written lesson plans that incorporate steps of the EGR reading methodology.

CLUSTER 3: Results at the End of P1

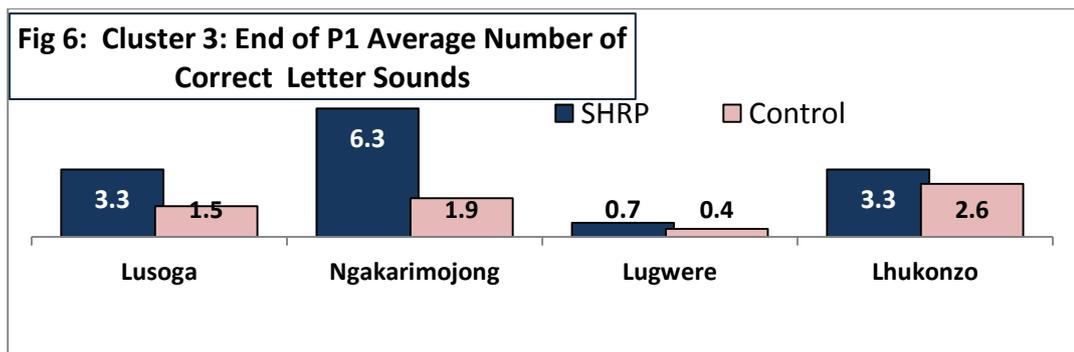
For Cluster 3 schools, EGRA data were collected from 112 randomly selected program and control school in October, 2015 at the end of P1 (1,432 control learners and 1,504 program) and the findings compared to baseline data collected at the beginning of P1 in February, 2015 (1,574 control learners and 1,599 program learners). In addition to this, 35 P1 reading lessons were observed and 104 P1 teachers were interviewed about the support that they receive and provide in the area of reading.

We would expect that before we see changes in reading, we would see improvements in foundational reading skills—before a learner can read words, they need to know the sounds of the letters. This briefer will focus on pre-, emergent and beginning LOCAL LANGUAGE literacy skills where changes are more likely to be found among P1 learners.

C3 Pre-Reading Orientation to Print: Learners were asked to place their finger where they should begin reading on a page (upper left corner of the paper/text). End of P1 learners in program schools in all 4 languages knew the correct starting place (Figure 5): for Nkakarimojong learners, 57% of program school learners assessed knew where to start reading compared to only 32% in control schools⁶.



C3 Beginning Reading Letter sounds: Another important pre-reading skill is the ability of learners to associate a letter with the correct letter sound. Again, in all 4 languages, program learners outperform control learners (Figure 6). Nkakarimojong program learners knew, on average, 6.3 letter sounds (compared to 1.9 for control). Lusoga program learners knew 3.3 letter sounds (compared to 1.5 for control).⁷ For Lugwere the figure was 0.7 in program compared to 0.4 in control and in Lhukonzo 3.3 letters correct in program compared to 2.6 in control.



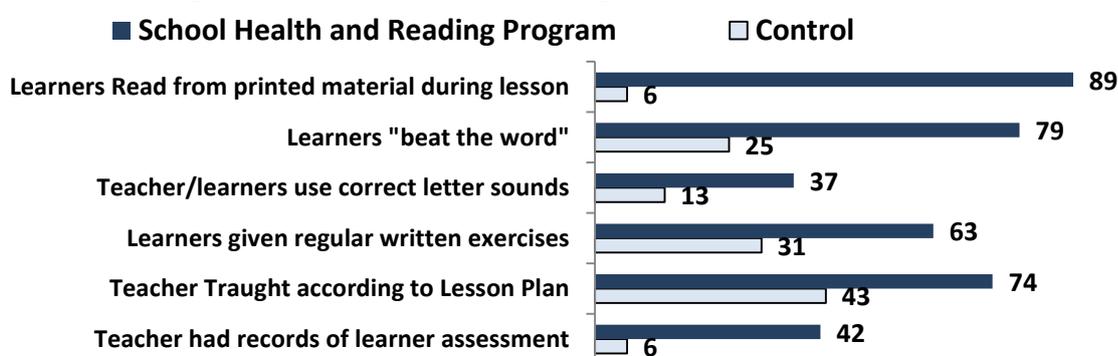
C3 Program learners know more letter sounds

⁶ The differences were significantly higher than control in Lusoga and Nkakarimojong. In Nkakarimojong boys performed better than girls.

⁷ The differences were statistically significant for both languages with medium effect sizes (above 0.5). In Lhukonzo, girls performed better than boys.

C3 Teaching in Classroom: Findings indicate that there are many reading supportive actions being undertaken by the teachers in Program classrooms that are not occurring in control classrooms. **Figure 7** shows the percentage of observed P1 reading lessons where teachers were found guiding learners to undertake reading-promoting behaviors. The percent of learners who were reading from printed material was 89% in program reading lessons compared to only 6% on control reading lessons. Individual interaction with print (pointing to the letters and words) is crucial in early reading. In 79% of Program P1 lessons observed, teachers were seen guiding learners to “beat the words” (clapping the syllables) to illustrate the concept that words are made up of syllables; this was observed in only 25% of control classrooms.

Figure 7: Cluster 3 Teachers Using Best Practices in the Classroom



C3 Support for Teachers in the Classroom: A crucial component of teacher support is ongoing observation and support for teachers in the classroom. While more P1 teachers in program schools reported that their lesson plans were checked at least weekly (53% of P1 teachers in program schools reported that their lesson plans were checked weekly compared to 42% of control teachers), they were equally likely to have had someone at the school or a CCT observe their teaching in the classroom. **Thirty-percent of program teachers reported that they were NEVER observed teaching by a CCT in the past year compared to 27% for control teachers -- and both were higher than reported at baseline.**

Other Positive Changes in Cluster 3 Program Schools: Besides the increase in reading skills in program schools, there is also evidence that school attendance or retention was higher in Lhukonzo and Njakarimojong speaking schools. School management committee (SMC) support to reading was also higher in program schools compared to control schools: 74% of head teachers in program schools reported that SMCs supported reading related activities, compared to only 49% in control schools.

Summary by Language

Though results for the languages are presented side by side, it is important to look at the changes individually for each language and not to compare them directly – some orthographies are more complex and learning to read in these languages more challenging and some languages are spoken in geographic areas known to have tremendous educational challenges. Below is a “dash board” of results to guide programmatic research and focus. Based on Program desire to have all children reading, results are not as high as expected or as hoped for but, in the Ugandan UPE school context, things are moving forward in a positive direction for program learners.

Getting there: Registering consistent changes over and above control	C1: Luganda, Runyankore-Rukiga, Ateso C2: Leb Acoli, Runyoro-Rutoro C3 Ngakaramojong, Lusoga
Progress: Program higher than control but very small differences	C2: Lugbarati C3: Lugwere, Lhukonzo
Need attention: Inconsistent, little difference between treatment and control	C1: Leblango C2: Lumasaba