Analytic Research into Contextual Factors that Impact Reading Outcomes

LARA's contextual factors research addressed the following questions:

1. What student-, teacher-, and school-level factors are associated with higher local language and English reading performance in Uganda?
2. What are the student-, teacher-, and school-level characteristics associated with gains in learning outcomes?
3. What are the implications of the findings for implementing reading programs in Uganda?

The research involved a review of the existing literature on the contextual factors affecting reading outcomes and analysis of existing LARA and SHRP datasets. The analyses included demographic factors, such as socioeconomic status, but the focus was mainly on predictors of learning outcomes that could be potentially incorporated into future education programming. The key findings of the study are summarized below:

Schools, Classrooms and System Factors Associated with Reading Achievement

Factors found to be significantly associated with reading achievement include teacher training and support, head teacher training, regular preparation and review of lesson plans, learners access to pupil books, community support (as evidenced by SMC support to school activities in general and reading-promoting activities) and class size. *Table 1* shows the additional words read associated with each of the factors. The additional words read associated with these factors ranged from 1.3 to 8.0 in the local language and 2.3 to 9.1 in English.

Table 1. Contextual Factors Associated with Reading Achievement and Gain: Schools, Classroom, and System

Circles represent statistical significance: ∘∘∘P<0.001, ∘∘P<0.01, ∘P<0.05: Check marks represent effect size: ✓✓✓=0.50 or more, ✓✓=0.20-0.49, ✓ = less than 0.20: Shading represent percent practicing a behavior; dark blue=few (<30%), medium blue=some (30%-59%), light blue=many (=/>60%): Boxes with blue border are gains.

Factor	Local Language	English
Head teacher training	4.4✓✓∘∘∘	3.2✓∘
Teacher training	8.0✓✓✓∘∘∘	6.8✓✓∘∘∘
School administrator observes teacher	1.9✓∘	
Evidence of regular lesson planning	2.5✓✓∘∘	3.6✓✓∘
Lesson plans reviewed every week		9.1✓✓∘
Up-to-date attendance records	1.3✓∘∘	
Coordinating center tutor (CCT) observes class	2.4✓✓∘	
At least half the learners have books	4.3✓✓✓∘	
SMC supports activities	2.4✓✓∘	
SMC supports activities that promote reading		2.3✓✓∘

Figure 1. Class size reduction and gains in reading
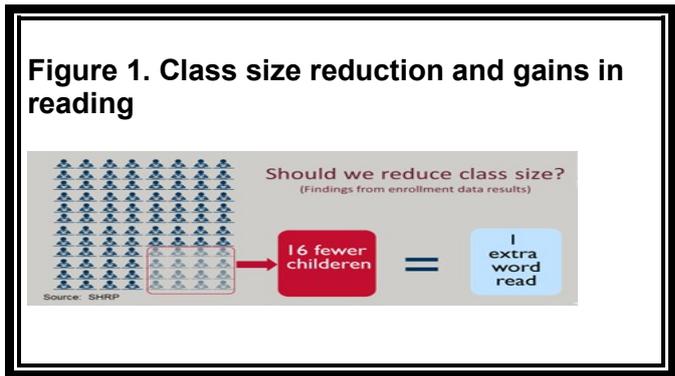
Class enrollment was also associated with reading achievement: sixteen less students in a classroom led to a gain of one additional words (**Figure 1**). However, this is certainly a more modest gain compared to other factors and may not be a cost-effective focus.

Teacher Characteristics and Instructional Practices Associated with Reading Achievement

Teachers characteristics associated with significant reading achievement (or gain) include teachers' sex, years of experience, and language of instruction (LOI) as shown in *Table 2*.

Table 2. Contextual Factors Associated with Increased Reading Achievement and Gain: Teacher Characteristics.

Circles represent statistical significance: ∘∘∘P<0.001, ∘∘P<0.01, ∘P<0.05: Check marks represent effect size: ✓✓✓=0.50 or more, ✓✓=0.20-0.49, ✓ = less than 0.20: Shading represent percent practicing a behavior; dark blue=few (<30%), medium blue=some (30%-59%), light blue=many (=/>60%): Boxes with blue border are gains.

Factor	Local Language	English
Teacher is female		2.4✓∘
Teacher's mother tongue is same as the LOI	2.4✓✓✓∘	
Teacher experience (additional years)	0.4✓∘∘∘	

Figure 2 shows the instructional practices found to be significantly associated with reading achievement and gains. The x-axis is the number of additional words read, while the y-axis is the percent of teachers who implemented the practice. The size of each bubble relates to the effect size, while the bubble's color corresponds to the area of practice: books/print environment (light blue), planning (bright blue), friendly practices (light gray), assessment (dark gray), and other explicit instruction (dark blue). It is worthwhile to emphasize the practices that are associated with a greater number of words read, but one should also focus on the practices that fewer teachers undertake, as found in the lower right quadrant (high impact, few teachers doing). The practices in the circle all have to do with the promotion of a print rich environment, including learners work displayed on the walls and the displays being in the local language. The light blue bubbles – denoting all practices related to books, including teachers' guides, and the print environment – are prevalent.

Figure 2. Teacher instructional practices significantly associated with reading achievement and gains.

Teacher Instructional Practices and the Impact on Fluency
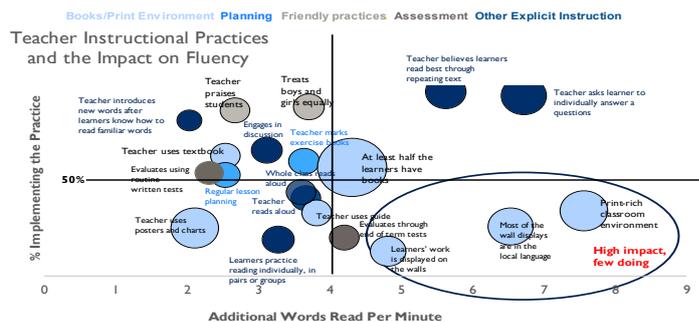
The dark blue circles represent other explicit instructional practices, including the high impact of teachers asking learners to individually answer a question, which is associated with an additional 6.7 words read. This reflects a questioning classroom and dialogic pedagogy, as does a teacher engaging learners in discussion. Learners practicing reading (individually, in pairs, or in groups) during the reading lesson is very important to their acquiring fundamental reading skills, but it is surprising how little it is done during a reading lesson—it was observed in fewer than 20% of reading lessons. Although most teachers were observed praising students (87%) and treating boys and girls the same (89%), just over half carried out the planning activities (53% regularly planned lessons and 60% regularly marked exercise books). Assessment activities were carried out even less frequently.

Learner and home characteristics associated with reading outcomes

Table 3 shows the learner and home contextual factors found to be significantly associated with reading achievement in Uganda. Learners repeating a grade or being overage are both negatively associated with reading achievement. Like teachers, a student's sex also impacts their achievements. A learner wearing shoes (proxy for social economic status) is associated with higher reading achievement and gains. Finally, a learner's exposure to someone reading in their home is significantly associated with a modest increase in the words read.

Table 3. Contextual Factors Associated with Increased Reading Achievement and Gain: Learner and Home.

Circles represent statistical significance: ∘∘∘$P<0.001$, ∘∘$P<0.01$, ∘$P<0.05$: Check marks represent effect size: ✓✓✓=0.50 or more, ✓✓=0.20-0.49, ✓ = less than 0.20: Shading represent percent practicing a behavior; dark blue=few (<30%), medium blue=some (30%-59%), light blue=many (=/>60%): Boxes with blue border are gains.

Factor	Local Language	English
Learner is repeating grade	-0.8✓∘∘	-1.4✓∘∘
Learner is overage for grade	-1.9✓∘∘∘	-3.7✓✓∘∘∘
Learner is wearing shoes	1.5✓∘∘∘	3.3✓✓∘∘∘
Learner is female	6.6✓✓✓∘∘∘	
	3.7✓✓✓∘∘∘	
Learner is exposed to someone reading in their home	0.7✓∘∘	1.1✓∘∘∘

Recommendations

Below are key recommendations for future EGR programming in Uganda.

- Use MoES-GPE/SHRP/LARA like programs daily (pupil book ratio of 1 to 1, teacher training and support, assessment)
- Invest in teacher training that works (focus on key instructional practices such as questioning and dialogic teaching, student practice and assessing student skills)
- Provide ongoing teacher support through coaching (focus on observable behaviors)
- Increase learning materials in the hands of learners and in the classroom
- Promote positive school behaviors (teacher support, SMC support, links to home, accountability)
- Promote active classroom environments
- Provide modest support to reading at home efforts
- Class size matters, but may not be the most cost-effective investment, especially without changing the availability of materials, instructional practices and school and classroom dynamics