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Continued Reading Success in the DRC

PROJECT D'AMELIORATION DE LA QUALITE DE L'EDUCATION (PAQUED) Year 2 Impact Study

Introduction

May 2015

The Project D'Amelioration de la Qualite de l'Education (PAQUED) was a 5-year project intended to strengthen teaching and learning so that children leave primary school with solid literacy/numeracy skills. A 6-month extension in 2014-15 focused on supporting Ministry of Education partners in the effective roll-out of their national reading and writing curriculum and teacher training policy. PAQUED was financed by the United States Agency for International Development (USAID) and implemented by Education Development Center, Inc. (EDC), in partnership with the Ministry of Education (MEPSP).

This brief presents findings from an impact evaluation of the project's 6-month 2014-2015 experimental reading intervention in Lingala in Grade 1 and French in Grade 2 in 16 experimental schools in Mbandaka in DRC's Equateur province. The program was developed to assist the MEPSP in experimenting with research-based approaches to implementing their new national primary reading and writing standards and their teacher professional development policy. EDC's Read Right Now! (RRN) literacy approach was of particular interest to the MEPSP because it intentionally combines robust teacher professional development opportunities and enhanced teaching and learning materials with daily routines of balanced literacy activities that can be adapted to any language.

In 2013-14, teachers in these schools received an intensive training and support program focused on teaching reading in French, which included regular coaching visits, regular cluster and school-based meetings, materials (guides, read-alouds, and student readers), weekly interactive audio instruction programs specific to reading,



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and one large face-to-face training. For 2014-15, these grade 1 and 2 teachers received a refresher training on how to implement the Read Right Now! weekly cycle of reading activities using available materials. For Grade 1 teachers, the training focused on the implementing the program in Lingala using a series of new reading materials in Lingala developed by EDC in collaboration with the MEPSP. Grade 2 teachers were trained to continue following the same weekly cycle and French reading materials used during the 2013-14 academic school year. These activities cover all the essential sub skills of reading—alphabetic awareness, phonics, fluency, vocabulary, and comprehension. They also include writing, a key component of EDC's RRN! approach. Teachers were also encouraged to continue meeting in their school-based pedagogical forums to plan their lessons.

Overall, reading results at endline for both grade 1 and 2 students were significantly better than their control counterparts. Gains from 2014-15 for both grade 1 and 2 experimental students were significant across all subtests including letter naming, high frequency word reading, text reading, and reading comprehension ($p < .000$). Along with these positive student results, teachers also maintained their daily reading activity routines without external coaching, as evidenced through classroom observations. They also reported continuing to support each other in implementing the reading program through school-based meetings, as mandated by the new teacher professional development policy of the MEPSP.

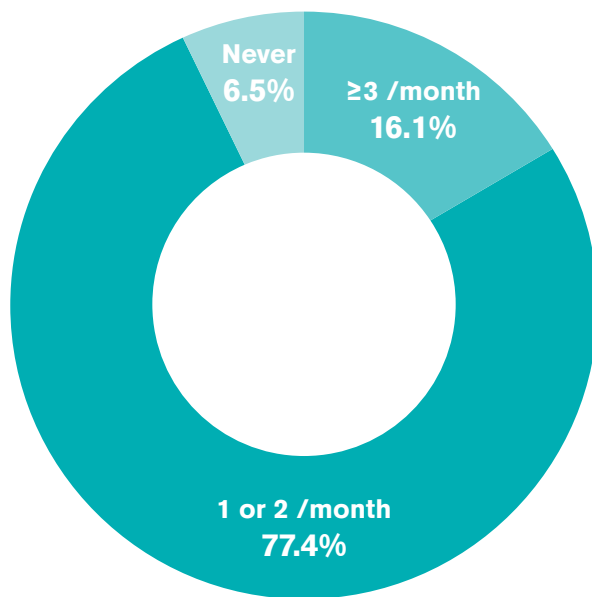
After only 6 months of intervention, students in experimental schools significantly outperformed students in control schools



The Context: PAQUED's Reading Program in Year 2

Year 2 of the PAQUED reading program featured an adaptation of the reading program for grade 1 to Lingala, based on grade 1 data from year 1 and in order to better align with the MEPSP's language policy for reading and writing. Lingala student reading materials (read-alouds and student readers) were developed, and a reading activity guide was developed and provided to teachers. Teachers were also asked to continue using the IAI programs they had used the previous year. Though primarily in French, these programs frequently asked teachers to execute activities in national language as per Ministry language policy. Teachers in grade 2 continued to follow the same reading program and materials they had employed the previous year, including IAI programming.

Experimental Teachers' Participation in Meetings on the Reading Program



At the beginning of the 2014/15 academic year, grade 1 teachers were trained in the new Lingala program, while grade 2 teachers participated in a refresher training on the PAQUED weekly cycle of reading activities. The trainings lasted 2 days. Unlike the previous year, no coaches were provided to teachers, so peer-to-peer support was highly encouraged to support effective program implementation. Teachers were encouraged to set up weekly group meetings at grade-level or school-based level to plan their lessons and to share experiences with the program. Endline interviews revealed that 77.4% of teachers attended 1 or 2 peer meetings per month, and 16.1% reported attending 3 or more meetings per month. Many teachers interviewed said these meetings were helpful for lesson planning, material preparation and to exchange ideas about resolving difficulties they had with certain activities.

Study Methodology Reading results were captured using an EGRA-lite tool that included letter-naming, high frequency word reading, connected-text reading, and reading comprehension, with a baseline in October 2014 and an endline in April 2015. The reading gains of grade 1 and 2 students in experimental and control schools were longitudinally tracked. Results at endline were also compared between experimental and control students.

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A classroom observation tool and a questionnaire were also utilized at endline, along with teacher focus groups. Observation and questionnaire results were combined to describe how teachers used the program independently in year 2 after being given one full year of intensive support in year 1. Teacher data also serve to contextualize the student reading results.

Sample The study of student reading performance was designed as a longitudinal school study to permit both longitudinal and cross-sectional analysis and comparisons among experimental and control groups. The sample included students from all 16 of the experimental schools in Mbandaka and from 6 similar control schools. Eight students per classroom were randomly selected by gender (4 girls and 4 boys per class). Endline included 92% of the same students who were assessed at baseline. The rest were not present in schools on the day of the endline assessment, so they were replaced with other randomly-selected students and matched using manual propensity matching based on gender and grade level. At endline, a sample of 31 teachers was randomly selected from the 60 experimental grade 1 and 2 teachers to interview, and 16 teachers were randomly selected to observe.



Summary of Findings: 2014 - 2015 Results for the Grade 1 Lingala program

Grade 1 Student Reading Performance: Overall, grade 1 student performance in the experimental schools in the areas of letter identification, familiar word recognition (vocabulary), reading of a connected text (fluency), and reading comprehension in Lingala was markedly better than that of students in control schools at the end of the year. After only 6 months of intervention, students in experimental schools significantly outperformed students in control schools ($p < .001$). Table 1 displays the results of the sub-tests.

Table 1. Grade 1 Experimental (N=249) and Control (N=64) Group Student Performance on Sub-Tests at Endline

Sub-task	Status	Mean	Std. dev.	p-value	Effect size
Number of letters read (out of 26)	Experimental	13.2	6.4	.000	0.67*
	Control	3.6	3.5		
Number of high frequency words read (out of 8)	Experimental	1.7	2.3	.000	0.45*
	Control	0.3	1.1		
Number of words read in a text (out of 20)	Experimental	3.5	6.4	.000	0.35
	Control	0.6	3.1		
Comprehension questions (out of 4)	Experimental	0.4	0.9	.001	0.26
	Control	0.07	0.5		

* large effect size

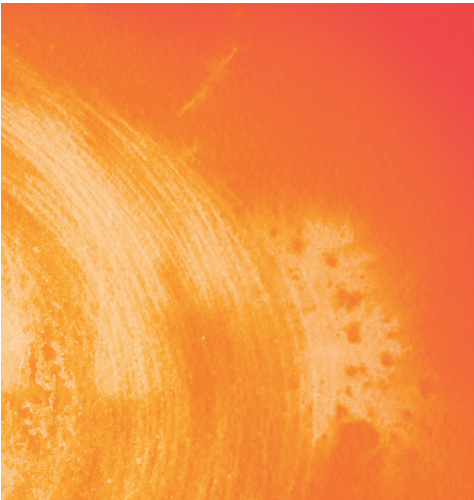
Grade 1 students also showed gains from baseline to endline. Gains were significant in all sub-tests for grade 1 students in the experimental Lingala program ($p < .000$) with fairly substantial effect sizes. Gains for Grade 1 control students were only found to be significant for letter identification.

Table 2. Grade 1 Experimental (N=249) and Control (N=64) Group Student Mean Gains in Reading Across 2014/15 Academic Year

Sub-task	Status	Mean Gain	Std. dev.	p-value	Effect size
Number of letters read (out of 26)	Experimental	10.1	6.7	.000	0.83*
	Control	2.9	3.3	.000	0.66*
Number of high frequency words read (out of 8)	Experimental	1.7	2.3	.000	0.58*
	Control	0.3	1.1	.075	0.24
Number of words read in a text (out of 20)	Experimental	3.4	6.4	.000	0.47
	Control	0.6	3.1	.148	0.19

* large effect size

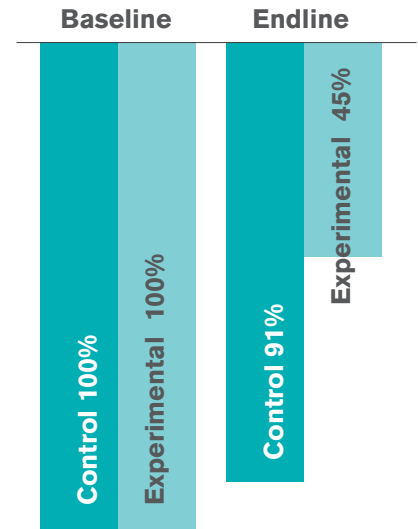




The proportion of grade 1 students in the Lingala program with zero scores dropped by more than half over the 6 months of the intervention, while the proportion of control students with zero scores was reduced by only 10%.

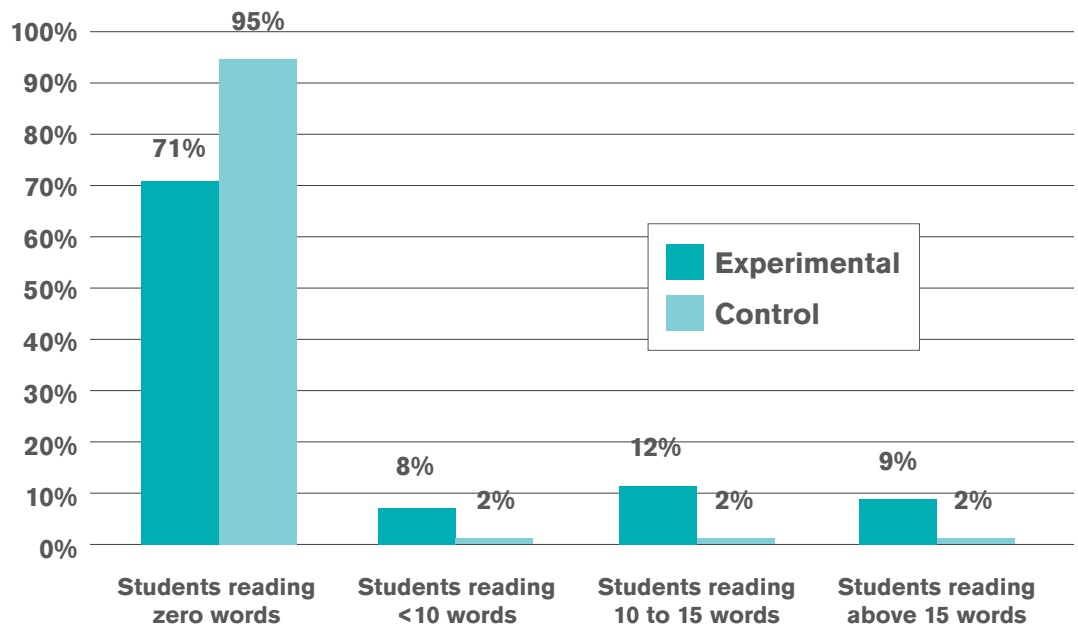
Reduction in zero scores. The proportion of grade 1 students with zero scores dropped substantially in both groups but more so for those grade 1 students in the experimental Lingala program. At baseline, virtually every grade 1 student scored zero in every subtest. This was not surprising, as students only enter primary school at Grade 1 and many do not attend pre-primary. Figure 4 shows how zero scores in high frequency word reading (vocabulary) changed over the 2014/15 academic year. The proportion of grade 1 students in the Lingala program with zero scores dropped by more than half over the 6 months of the intervention, while the proportion of control students with zero scores was reduced by only 10%.

Figure 1. Changes In Zero Scores In High Frequency Words Read (%) Over The Course Of 2014/15 Academic Year: Grade 1 Lingala Students



Students meeting benchmarks. At endline, 21% of grade 1 experimental students tested read at or above the fluency benchmark set by the MEPSP for local language reading for grade 1 while only 4% of the control students tested reached this benchmark.

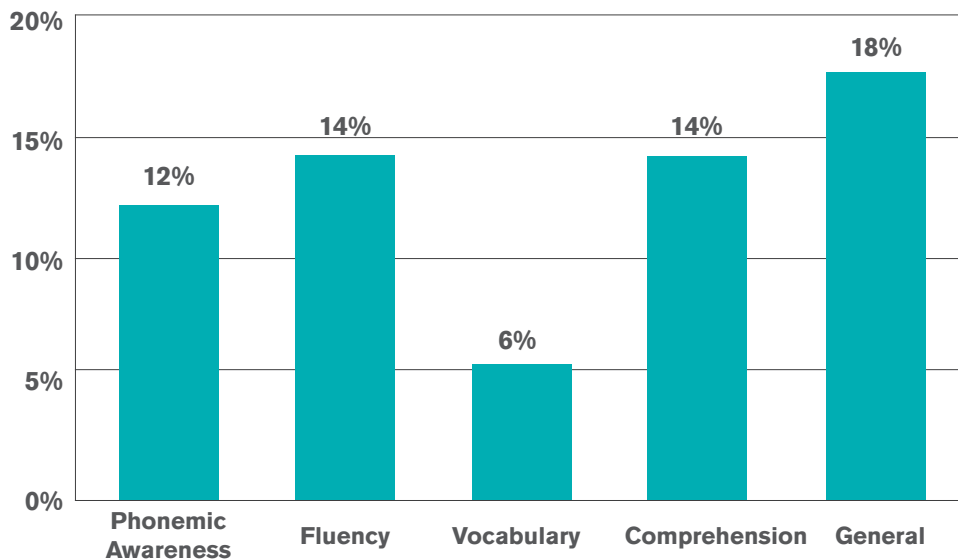
Figure 2. Grade 1 Students' Performance In Fluency Against National Benchmarks Set For 1st Grade National Language





Teachers' classroom practice. Grade 1 experimental teachers dedicated an equal amount of instructional time to developing each sub-skill of reading with the exception of vocabulary. Several grade 1 teachers cited not needing to spend as much time on explaining vocabulary this year as last year because the stories were in a language that their students easily understood and spoke at home. This permitted more time for in-classroom reading practice in the “general” category of instructional practice (pair reading, choral reading, individual reading, and writing practice). This equal attention to developing every sub-skill daily may have contributed to the gains across sub-skills (letter naming, text reading, and reading comprehension) in experimental schools.

Figure 3. Proportion of Instructional Time Devoted to Each Sub-skill (Grade 1 Experimental Teachers)



Teachers opinions of the new Lingala reading program. Many grade 1 teachers who had been trained in the French reading program the previous year found it easy to make the transition into teaching in Lingala. In addition, several applauded the new materials in a language their students could easily understand. They also found the reading guide, read-alouds, student readers and weekly cycle easy to use and follow. Many teachers noticed that their students rapidly learned the alphabet and that they began decoding words more quickly than they had last year when learning to read in French. This was likely due in part to the transparency of Lingala as a language, but it also may reflect students' ability to use their oral language skills in Lingala to decode familiar words. Overall, teachers were quite enthusiastic about a reading program in national language and asserted that they would continue with it the following year.

Summary of Findings: 2014 - 2015 Results for the Grade 2 Reading Program in French

Grade 2 Student Reading Performance: The majority of grade 2 students tested had also participated in year 1 of the experimental reading program. Thus, the results presented in this section reflect student gains after 2 years of a French reading program. Overall, the grade 2 student performance in the experimental schools in the areas of letter identification, familiar word recognition (vocabulary), and reading of a connected text (fluency) was significantly better than that of students in control schools at the end of the year ($p < .001$). Reading comprehension did not significantly differ across both groups. Table 3 displays the results of the sub-tests.

Figure 4. Grade 2 Mean Scores, By Subtest

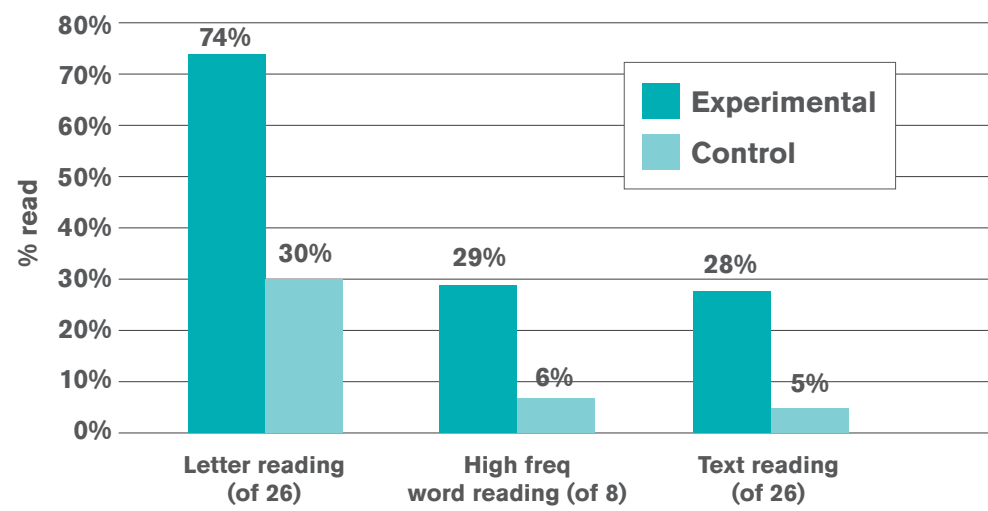


Table 3. Grade 2 Experimental (N=226) and Control (N=57) Group Student Performance on Sub-Tests at Endline

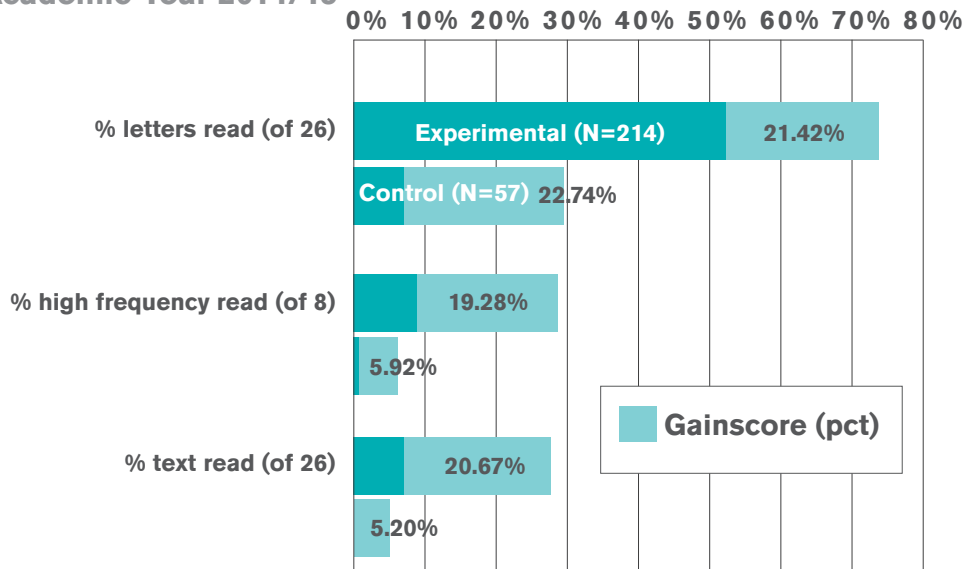
Sub-task	Status	Mean	Std. dev.	p-value	Effect size
Number of letters read (out of 26)	Experimental	19.4	6.7	.000	0.77*
	Control	7.9	6.9		
Number of high frequency words read (out of 8)	Experimental	2.3	2.7	.000	0.48*
	Control	0.5	1.6		
Number of words read in a text (out of 20)	Experimental	5.6	6.4	.000	0.49*
	Control	1.1	3.6		
Comprehension questions (out of 4)	Experimental	0.1	0.5	.801	0.028
	Control	0.1	0.6		

* large effect size

Grade 2 students also showed gains over baseline and endline. Gains were significant in all sub-tests for grade 2 students in both groups but more so for the experimental French program ($p < .000$) with substantial effect sizes.

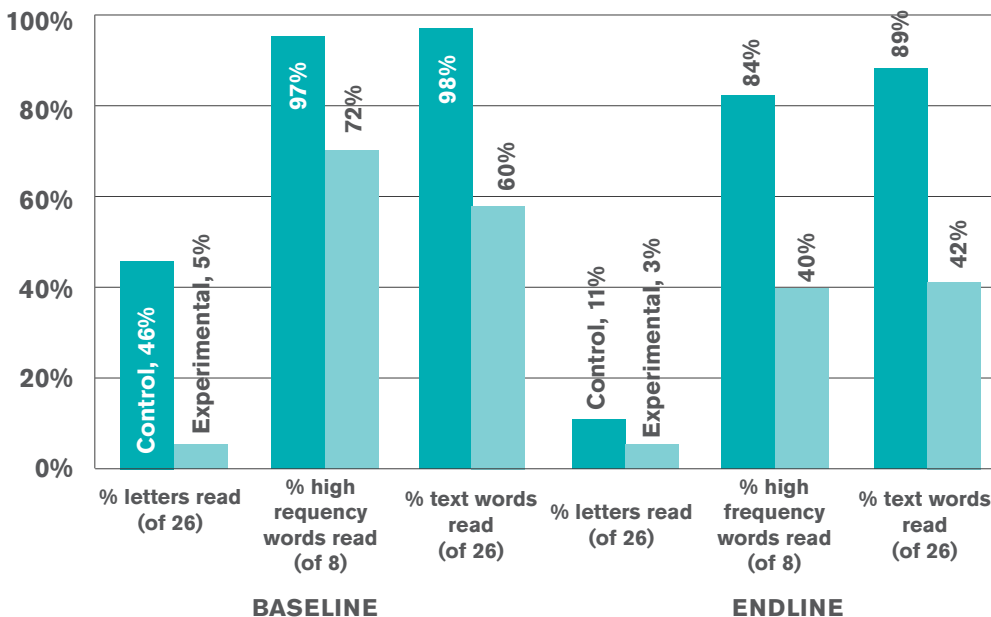
Grade 2 student performance in the experimental schools in the areas of letter identification, familiar word recognition (vocabulary), and reading of a connected text (fluency) was significantly better than that of students in control schools at the end of the year.

Figure 5. Grade 2 Student Gains in Reading Over Academic Year 2014/15



Reduction in Zero Scores: The proportion of grade 2 students with zero scores dropped substantially in both groups but more so for those grade 2 students in the experimental reading program. Figure 6 shows how zero scores in three reading subtests changed over the 2014/15 academic year. From this figure, it is clear that a larger percentage of grade 2 students who benefited from the reading program moved from zero to reading one or more words correctly: **after 6 months of intervention, experimental student zero scores dropped by about a third, while control zero scores were reduced by only about 10%.**

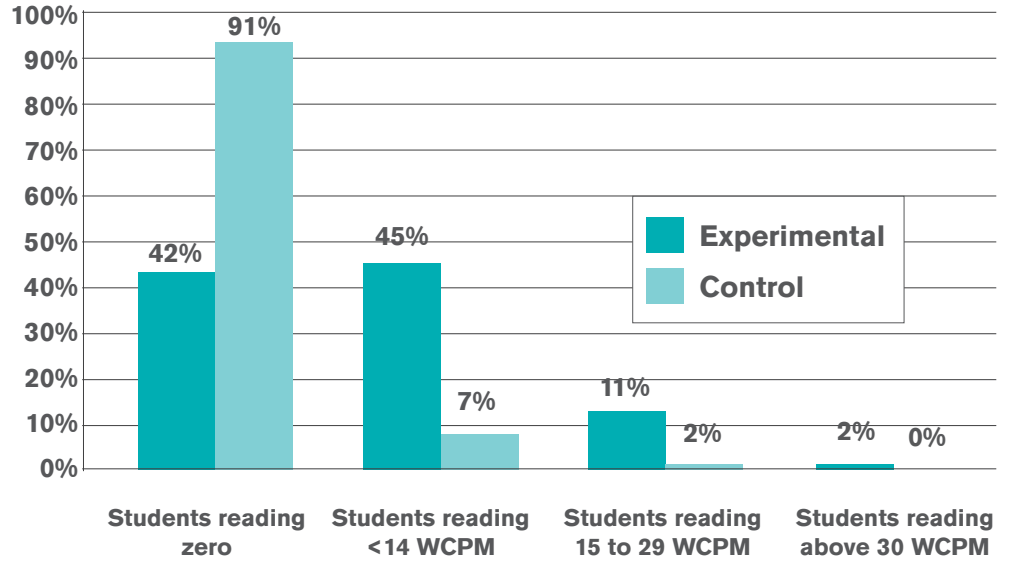
Figure 6. Percentage of Students with Zero Scores Across Baseline and Endline



After only 6 months of the program, approximately 13% of grade 2 experimental students met or surpassed the grade 3 fluency benchmark in French, while only 2% of the control students did so.

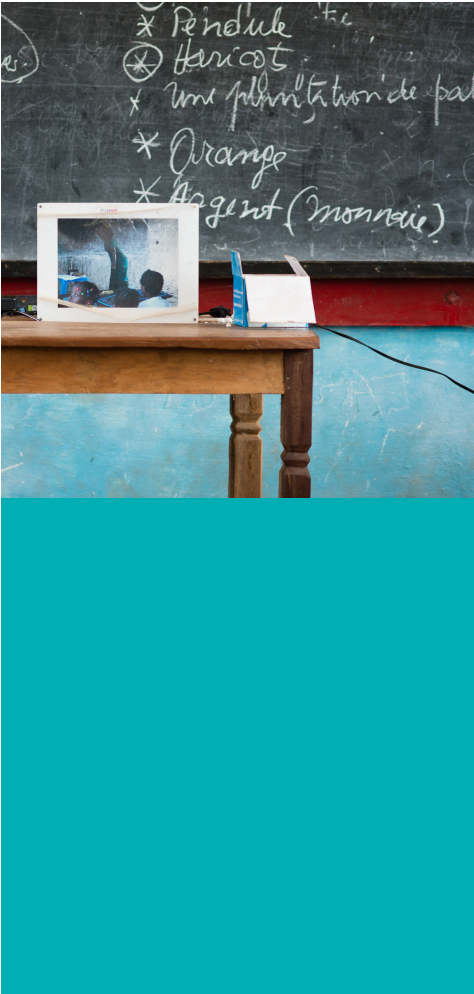
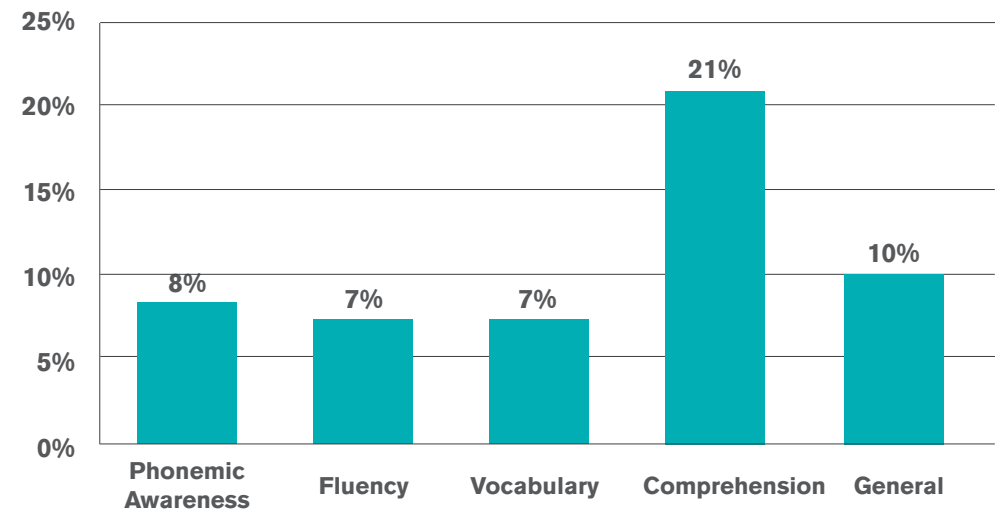
Students meeting benchmarks. In terms of reading benchmarks set by the MEPSF, after only 6 months of the program, approximately 13% of grade 2 experimental students met or surpassed the grade 3 fluency benchmark in French, while only 2% of the control students did so.

Figure 7. Grade 2 Students' Performance in WCPM Against National Benchmarks Set for 3rd Grade in French



Teachers' classroom practice. Grade 2 experimental teachers Teachers' classroom practice. Grade 2 experimental teachers dedicated an equal amount of instructional time to developing each sub-skill of reading with the exception of comprehension, on which they spent more instructional time. This is not surprising, as the read-alouds and students readers are in French (a second language) and therefore require more instructional time for explanation of themes, new terms, and concepts.

Figure 8. Proportion of Instructional Time Devoted to Each Sub-Skill (Grade 2 Experimental Teachers)



Teachers Opinions After Applying Year 2 of the French Reading Program.

Experimental teachers remained enthusiastic about the program this year. All but one of the teachers interviewed cited that they thought their students were better prepared coming into Grade 2 because of their previous experience with the program in Grade 1. The only students who struggled to catch up in reading were those who had joined the school this year. All teachers reported missing the coaching support from the previous year but many felt confident that they had employed their materials and reading activities effectively. To cope with a lack of external support, teachers cited getting together 1 to 4 times a month with their grade 1 colleagues (unité pédagogique) to plan their lessons and share their experiences with the program.

Implications and Conclusions

Overall, the reading program in year 2 was well received by teachers and students alike, despite lower intensity of external support. This shows that the robust training and support offered in year 1 had a sustained impact on teaching and learning. It also suggests that teachers had internalized the weekly cycle of reading activities and found it easy to transfer it to the new Lingala program and to continue it on their own in year 2. In year 1, coaches were assigned to a subset of schools and visited their classrooms and teacher meetings regularly. This helped to ensure a degree of fidelity of implementation of the program while also helping teachers to understand the importance of every activity for developing the sub-skills of reading for their students. Therefore, we continue to recommend the importance of intensive support to teachers for at least one year.

In terms of language of instruction, this study showed that, when provided with appropriate and comprehensive learning materials and complementary instruction, grade 1 students can learn to read in their national language. These results are promising as the MEPSP rolls out a new national reading and writing program for primary schools, which calls for learning to read in national language in grade 1 and 2.

Overall, we conclude that early-grade students in the DRC can make significant progress in acquiring reading skills in a very short time when reading instruction is provided daily and is balanced among strategies of phonics, fluency, comprehension, and writing, as evidenced in the RRN! approach. This type of instruction can be achieved through providing teachers with appropriate and sufficient teaching and reading materials and robust support at the beginning of an intervention, allowing teachers to master daily routines that they can easily manage and adapt to national language and French reading instruction. As is evidenced from this study, after 1 year of robust support, teachers were able to continue applying the instructional routines and effectively utilize the materials at their disposal on their own and with the support of their peers. The routines not only elicited sustained improved instruction and improved teachers' understanding about reading instruction, as seen in the year 1 study, but also contributed to sustaining students' development as independent readers and writers.

After 1 year of robust support, teachers were able to continue applying the instructional routines and effectively utilize the materials at their disposal on their own and with the support of their peers.



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PAQUED's experimental reading program was developed as part of EDC's Read Right Now early grade and youth literacy initiative. Read Right Now is an adaptable, evidence based literacy program for low capacity and resource-lean environments.