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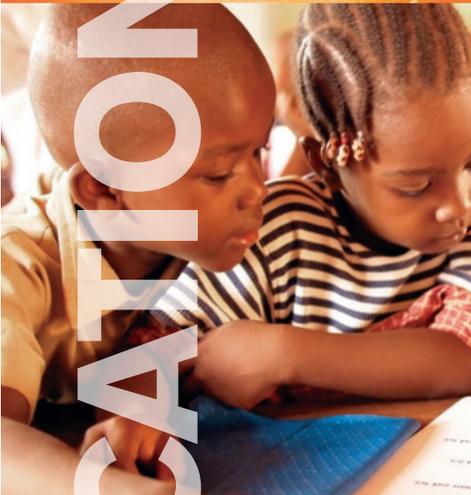
Balanced Literacy Transforms Classrooms: Evidence from Mali

March 2015

In 2009, the USAID-funded PHARE program began working in close collaboration with the Malian Ministry of National Education to introduce the Balanced Literacy approach and improve literacy instruction nationwide in the early grades. In March 2012, the government of Mali was overthrown, bringing an abrupt halt to most donor-supported activities, and ending measures underway to consolidate the Balanced Literacy implementation model and evaluate its impact on student learning. To prevent a loss of momentum during the funding hiatus, EDC, in collaboration with the Ministry, conducted a small-scale evaluation of the Balanced Literacy approach in grade 1 classrooms in 10 schools in 2013-14.

The evaluation was designed to test a research-based theory of change that holds that effective language instruction in the early grades requires (1) a balance among strategies of teaching phonics, reading comprehension, and writing, and (2) consistent routines that teachers can manage easily and that engage students in *thinking about* how to decode/encode, understand what they read, and write (not just mastering the mechanics of these processes). The study compared the performance of students in the Balanced Literacy schools with student results from Mali's 2009 EGRA baseline testing. Additionally, it explored differences in student performance across core reading domains, as well as factors contributing to success.

Overall, students in Balanced Literacy schools made impressive strides in only 6 months of instruction. First graders in the intervention schools outperformed second grade comparison students on the Early Grade Reading Assessment (EGRA), and showed dramatic gains in reading and writing skills. These gains were strong in all schools, irrespective of the language of instruction (French in the classic curriculum schools, Bamanankan in the bilingual curriculum schools).



EDUCATION

Program context

In 2008, children entering most schools in Mali faced steep odds against their learning to read or write. Reading materials in French and national languages were scarcely available. The school schedule did not allow enough time for reading instruction. Neither teachers, nor teacher trainers, nor ministry officials were aware of recent research regarding effective reading instruction in the early grades. Moreover, teachers and parents expressed beliefs that young children were simply not able to learn to read. Consequently, reading scores of students tested in grades 2 and 4 were among the lowest in West Africa. While Mali had made notable strides in improving its school system, early grade reading instruction still suffered.

Three years prior to the coup d'état, the Ministry, with support from a USAID-funded project (PHARE), had introduced the Balanced Literacy program to teach reading and writing in grades 1 through 3. Balanced Literacy asks teachers to implement specific, research-based, mutually reinforcing techniques in language mechanics (phonics), reading comprehension, and writing. The program was delivered through Interactive Radio Instruction (IRI), an audio program broadcast daily that guided teachers and students through 30 minutes of literacy instruction. A subset of schools received supplementary reading texts and more intensive training in Balanced Literacy. USAID/PHARE also enriched the policy environment with clear standards and guidelines on reading instruction.

Because the USAID/PHARE program was halted midstream after the coup d'état, no final evaluation was carried out. In 2013, EDC, in collaboration with the Ministry, launched a six-month effort in ten schools to consolidate the implementation model for Balanced Literacy and undertake an evaluation of the impact of the intervention on student learning gains in reading. This study allowed the Ministry and other stakeholders to take a close look at the effectiveness of the strategies of Balanced Literacy through an evaluation of the gains in performance in reading and writing of grade 1 students who had participated in just six months of the program.

Theory of change and research questions

The research-based theory of change behind the Balanced Literacy program is that effective language instruction in the early grades in contexts like Mali requires (1) a balance among strategies of language mechanics including phonics, reading comprehension, and writing, and (2) consistent routines that teachers can manage easily and that help students acquire tools and strategies so they can learn to decode, read and write.¹ Assuming that these factors were in place, the evaluation focused on the following key questions:

- How did student performance vary in the key competency areas tested in EGRA?
- How did the reading skills of first grade students change after six months in the program?
- How did the reading assessment results of intervention students compare with the 2009 reading assessment results of a national sample?

In the subset of study schools that were implementing a bilingual curriculum, the evaluation also examined how students' reading skills acquired in Bamanankan transferred to their reading performance in French.

¹ The practices of the balanced literacy approach are commonly used in schools in Canada and the United States, and have also been implemented successfully as part of EDC's Read Right Now! literacy approach in a range of low-capacity, resource-constrained countries in the last decade.

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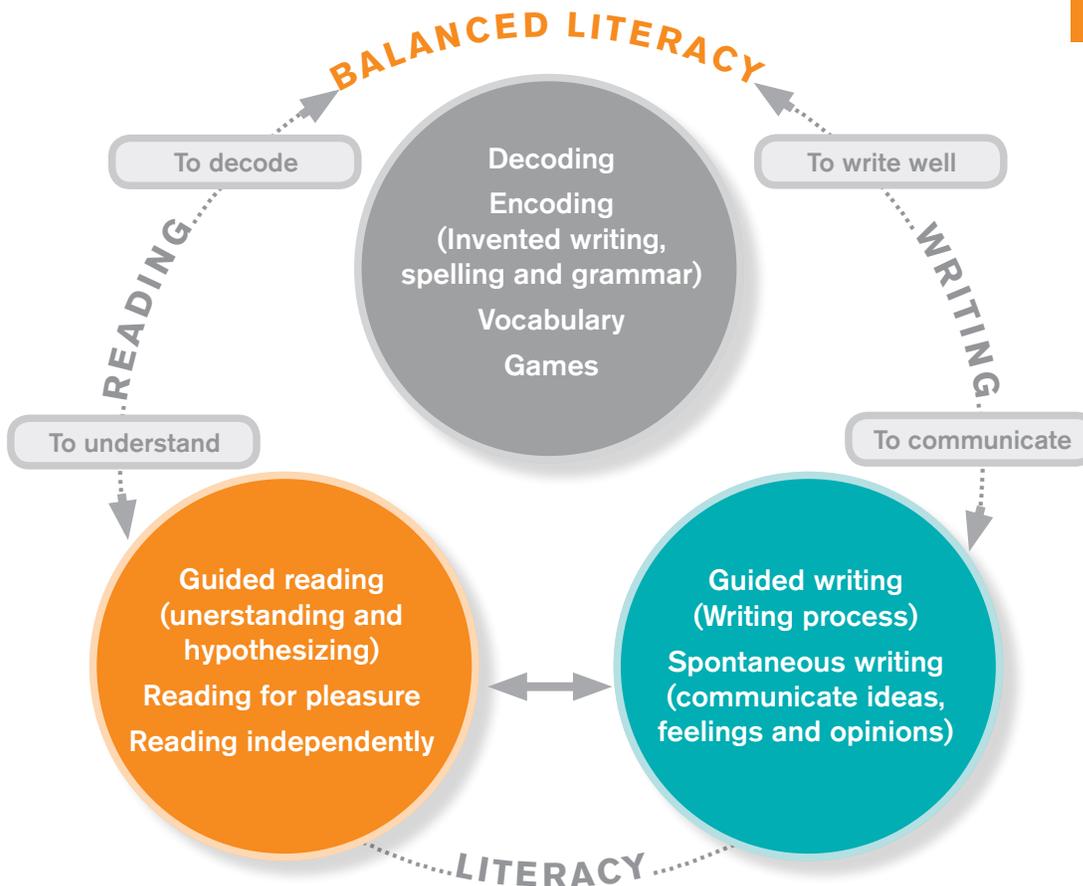


The Balanced Literacy Program

Balanced Literacy provides a unified, research-based instructional approach that is appropriate for use in all languages and pedagogical configurations in Mali (these include large and small classrooms, rural and urban settings, classrooms with trained and untrained teachers, and schools serving nomadic people). The intervention schools program encompassed:

- Explicit instruction in all the **letters of the alphabet** of the language of instruction. Both sounds and names were taught within the first month of the program.
- Games, songs, and students' oral productions were used as the main vehicles for **developing phonemic and phonetic awareness**.
- **Decoding practice** was based on interesting texts with real meaning, rather than on combining sounds by rote.
- Reading was modeled and a sense of story and narrative was fostered through **interactive guided reading activities**.
- **Text comprehension** was emphasized concomitantly with decoding skills and nurtured through exploration and dialogue from the first day of instruction.
- Interactive, integrated techniques for **writing instruction** (invented spelling exercises, guided writing) were introduced from grade one.
- **Writing for self-expression** was integrated into and valued in classroom work.

Balanced Literacy provides a unified, research-based instructional approach that is appropriate for use in all languages and pedagogical configurations in Mali





This balance of strategies was incorporated into a daily program of seven instructional elements, which established a familiar pattern for teachers and students and provided a structure within which individual students' needs and progress could be addressed. Additional resources and support wrapped around these daily patterns, as described below.

Interactive Audio Instruction (IAI). Teachers and students were provided with a series of Bamanankan or French 30-minute IAI programs, to be used once each day. With the active involvement of teachers, the programs modeled strategies and techniques that enhance student learning, providing direct instruction to students and serving as on-going professional development for teachers.

Classroom Reading Kits. These kits included a teacher's guide for the IAI programs that assisted in preparing for the IAI lessons and provided additional learning activities to be carried out following the programs; an MP4 player/radio and USB key loaded with all of the IAI programs; posters, alphabet cards and flash cards; the Ministry's standards' framework for reading and writing in the primary grades; assessment tools; a teacher's guide for Balanced Literacy; supplementary texts for read-alouds and guided reading; student texts for independent reading; and song and rhyme collections.

One initial and one refresher training were provided to train teachers in the intervention schools on the Balanced Literacy strategies, the use of IAI, and the use of the classroom reading kit. The initial 6-day training was provided during the December holiday break. The 5-day refresher training was offered during the April vacation.

Ongoing face-to-face support was provided through multiple channels, including weekly classroom visits from the school principal, bi-monthly visits from pedagogical advisors, and monthly visits from Ministry and EDC program staff. These visits allowed those responsible for supporting the schools to tailor their support to each school's greatest needs, rather than taking a one-size-fits-all approach. This experience provided valuable insights for the Ministry about how to provide teachers with effective support.

Methodology

The evaluation was designed to compare the performance of grade 1 students in December 2013 (before they entered the Balanced Literacy program) with their performance in June 2014 (after they had been in the program for six months)². In lieu of students in control schools, we compared intervention school first graders' performance with that of a national sample of second grade students tested in 2009 (prior to the interventions of the USAID/PHARE project).

The **test** given to students at both baseline and endline consisted of nine subtests of the Early Grade Reading Assessment (EGRA) adapted for Mali in 2009, in French and Bamanankan. These subtests measured the reading competencies and writing conventions taught in Balanced Literacy and therefore had content validity.

The **sample** included 200 first graders. Twenty students were selected randomly from each of the ten participating schools, to represent the population of all 738 students in the intervention schools. Although the intervention schools were not selected to be statistically representative of schools across the country, they did reflect the typical profiles of Malian classrooms: large class sizes (seven schools had more than 70 students), teachers with pre-service training that was representative of the typical range in Mali (two community school teachers, two that had received alternative training, and six with degrees from Teacher Training Colleges), and few instructional materials. The selected schools were readily accessible. Of the ten participating teachers, five had been trained by the USAID/PHARE project, three had received only partial training by PHARE, and two had received no training. All ten teachers participated in the workshops in 2013-14 to train them on Balanced Literacy for the purpose of the evaluation.

Mali uses two different curricula: the majority of schools use a "classic" curriculum, in which French is the language of instruction, and others use a "bilingual" curriculum, in which students are taught first in one of Mali's eleven approved native languages (Bamanankan, in these ten schools) and then transition to French, beginning in grade 2. Five of the intervention schools used the classic curriculum, and the 20 students selected in those schools were only tested in French. The other five schools used the bilingual curriculum, and in these schools, the 20 sampled students were tested both in French and in Bamanankan, although they had never received any instruction in French.

² Students will be tested again at the end of 2nd grade in June 2015.



Box 1: Reading Sub-tests for Grade 1 Students

PHONICS

- Identify the initial sound of words (phonemic awareness)
- Identify the sound of graphemes (phonemic awareness) ⌚
- Read invented words (decoding). ⌚
- Write dictated invented words with phonetically correct spelling

FLUENCY

- Read familiar words (sight word vocabulary) ⌚
- Read connected text of 50 words (fluency) ⌚

COMPREHENSION

- Answer questions on the connected text* (reading comprehension)
- Answer questions on a text read aloud by the tester (listening comprehension)

WRITING

(conventions of written text)

- Write a sentence, correctly spelling three words
- Follow conventions (word direction, spacing, capitalization) ⌚ = timed at 1 minute

* only assessed for students who attempted connected text reading.

In both classic and bilingual comparisons, and after only 6 months of intervention, first graders in intervention schools significantly outscored (at the $p < .01$ level) their second grade comparison counterparts



Findings

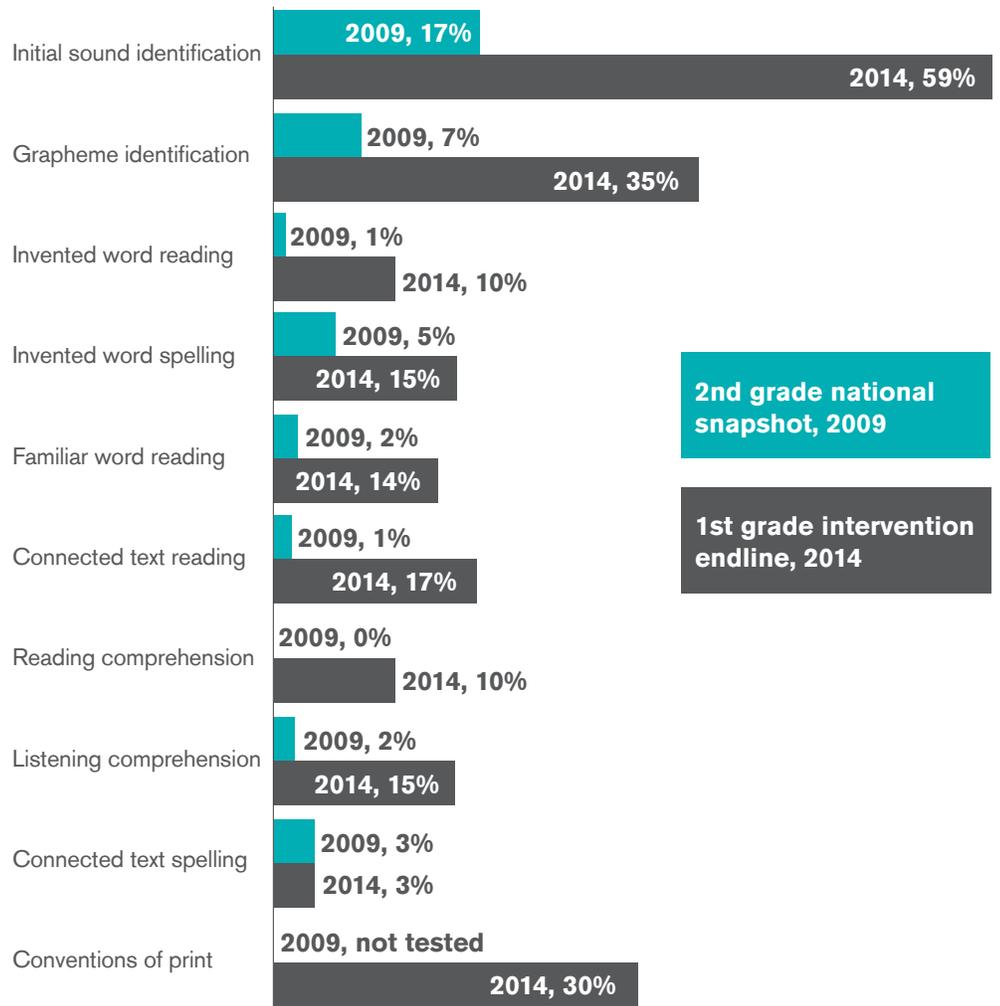
We analyzed the reading and writing performance of first grade students in the intervention schools in two ways:

- Gains after six months of participation in the Balanced Literacy program;
- Comparisons with the performance of a national sample of second graders tested on EGRA in 2009³.

Within the intervention sample, first grade students showed significant gains from baseline to endline on all nine subtests, regardless of the type of school or language. In addition, in both classic and bilingual comparisons, and after only 6 months of intervention, first graders in intervention schools significantly outscored (at the $p < .01$ level) their second grade comparison counterparts, as shown below.

The drop in zero scores among intervention school students was also significant on each subtest. Figure 1 demonstrates the dramatic and significant drop off in zero scores, which shows that many students moved from being complete non-readers and writers to having at least some fundamental reading skills.

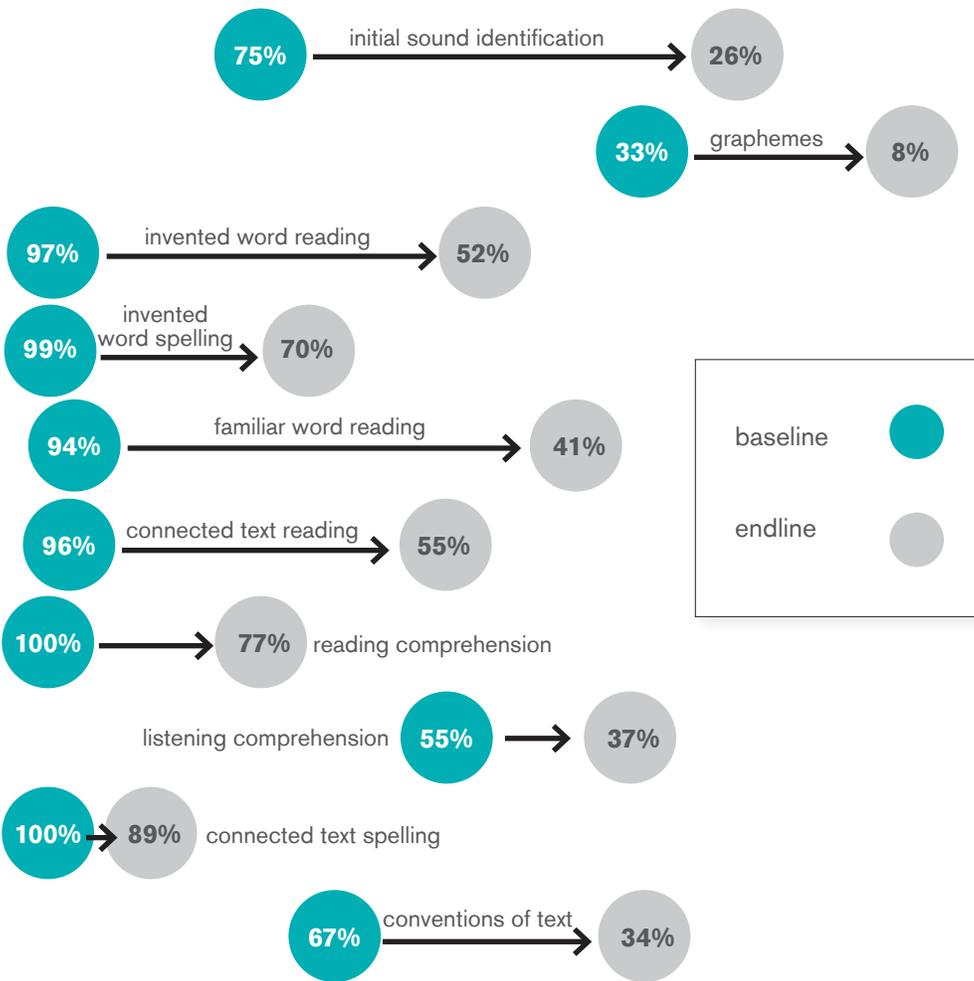
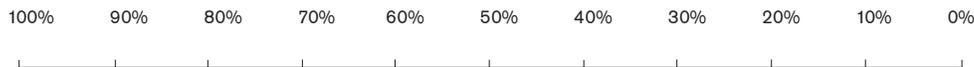
Figure 1. Endline (June 2014) EGRA results among 1st grade intervention students compared with 2009 EGRA results among 2nd grade national sample (average scores)



³ First graders were not tested in 2009.



Figure 2. Average percent of students who scored zero on a subtest



Comparison of results in the four reading skill sub-sets

Phonics: Phonics subtests measured students' acquisition of alphabetic and syllabic awareness, phonemic awareness, and their ability to apply this awareness to spelling words. Grade 1 students' significant improvement in performance on these subtests after only six months of Balanced Literacy shows that students in both classic and bilingual schools acquired the essential initial phonics skills needed to learn to read. This suggests that, **regardless of the language of instruction, the Balanced Literacy approach enabled students to grasp the alphabetic code.** Also, because the Balanced Literacy approach helps students develop phonics skills through activities in context (like "the daily news") and through language mechanics games, students acquire strategies that they can apply on their own when reading a new text. Grade 1 intervention students in both the bilingual curriculum and classic curriculum schools also significantly outperformed their 2009 grade 2 comparison counterparts across all phonics subtests at endline. These results show the added value of the Balanced Literacy approach for student improvements in key literacy skills at the lowest primary grade.

Fluency: A familiar-word reading test and a connected-text reading test evaluated students' sight word vocabulary and ability to read words with accuracy and automaticity in and out of context. At baseline, 94% of the intervention students could not read a single word. After six months in the program, this portion had fallen to 52%, averaging 8.4 words per minute at endline as compared to the 0.2 word average they were able to read at baseline. The significant improvement on this subtest shows that the Balanced Literacy program's provision of wide and frequent exposure to text and opportunities for reading practice enabled students to make strides in developing their fluency skills in just 6 months. Grade 1 intervention students also performed better on familiar word reading, with a mean of 6.8 words read correctly (as compared to .2 words) at baseline. For these two subtests, there were significant differences between grade 1 intervention student performance at endline and the Grade 2 2009 counterparts, and those differences strongly favored grade 1 intervention students. These results suggest that the Balanced Literacy approach, specifically those elements aimed at building students' decoding and word recognition skills, were effective.

Comprehension: Grade 1 intervention students' gains in comprehension were smaller than gains in other skill sets. However, it is important to note that the number of reading comprehension questions asked of each student was dependent on the number of words they were able to read in 1 minute. The average student only read 8.4 words per minute and so, on average, most students were only asked one comprehension question. Students who were able to read at least half of the text were able to answer an average of 4 questions, indicating that those students who were able to read also understood what they were reading. Zero scores in reading comprehension fell from 100% at baseline to 77% at endline, which shows significant improvement. These improvements show that students benefitted from Balanced Literacy's interactive reading activities, which build their comprehension and vocabulary skills and strategies.

Writing: Writing at this level focuses on conventions of text (text direction, word spacing, capitalization and spelling). These skills are acquired as students become exposed to text and are given opportunities for writing experimentation, practice, and revisions. Students in the program started with low levels of skills in writing but made significant gains in six months. Gains in spelling were not as substantial but were still significant for bilingual schools. These results point to how effective the integration of writing in a reading program can be, not only to improve writing skills but also to reinforce mastery of the alphabetic code.

The Balanced Literacy program's provision of wide and frequent exposure to text and opportunities for reading practice enabled students to make strides in developing their fluency skills in just 6 months.



Skill transfer between languages

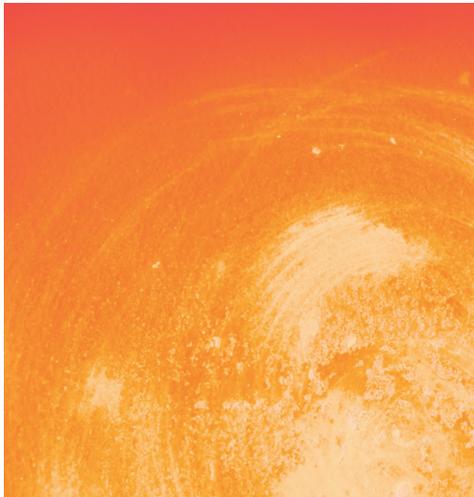
The bilingual intervention schools had better average results than the classic schools on the initial sound, familiar words (reading), reading comprehension, text reading, listening comprehension and familiar words (writing) subtests, although these results cannot be generalized given the small sample size. However, the study did explore how well students transferred reading and writing skills learned in Bamanankan to French. Students in the bilingual schools were tested in both French and Bamanankan, though they had never received instruction in French. Students in bilingual schools who were tested in French showed significant gains between baseline and endline in their French reading skills, even though teaching was conducted in Bamanankan. This suggests that the reading skills they had learned in Bamanankan transferred to French. These results indicate that certain types of skill transfer can occur naturally between languages, when students master reading competencies in their mother tongue. Students were able to apply what they had learned in mother tongue to a second language on all sub-tests except writing familiar words, as shown in table 1.

Students in bilingual schools who were tested in French showed significant gains between baseline and endline in their French reading skills, even though teaching was conducted in Bamanankan.

Table 1: Transition to a second language – Learning gains in French of students in bilingual classes

Sub-test	Score			% zero scores		
	Initial	Final	Sig.	Initial	Final	Sig.
Language mechanics (phonics)						
Initial sound identification (10)	1.1	5.7	***	77%	20%	***
Grapheme recognition (100)	2.4	25.8	***	48%	3%	***
Invented word reading (50)	0	2.3	***	100%	56%	***
Invented word spelling (4)	0	0.6	***	99%	54%	***
Vocabulary and fluency						
Familiar word reading (50)	0.2	2.7	***	91%	52%	***
Connected text reading (50)	0	3.7	***	98%	69%	***
Comprehension						
Reading comprehension (6)	0	0.1	***	100%	91%	***
Listening comprehension (6)	0	0.4	***	100%	88%	***
Conventions of written text						
Connected text spelling (3)	0	0.03	NS	100%	99%	NS
Conventions of text (3)	0.5	1.2	***	50%	23%	***

Significance of the difference between baseline and endline: *: at the 10% level; ** at the 5% level; *** at the 1% level.



Factors affecting results

Though the majority of students, on average, showed excellent reading gains, the overall mean scores mask large differences among the mean scores in each of the ten schools. Of the ten schools, three (2 bilingual and 1 classic) demonstrated excellent results. Five schools (3 bilingual and 2 classic) showed moderate improvement; and two (both classic schools) showed lesser gains across all EGRA subtests. The two schools with lower scores at endline had low baseline scores and some initial reluctance and inconsistency in teachers' implementation of the Balanced Literacy approach. Nonetheless, **the results of the 1st grade students in these two lower-performing schools at endline were still superior or equal to those of 2nd grade students on the 2009 EGRA.**

Though the 10 school experience was not designed to statistically measure the impact of contextual factors on student results, some interesting relationships emerged that may help to explain the disparities in school performance. These factors include:

Involvement of the principal: In the best-performing schools, the principals regularly monitored, supported, and worked collaboratively with the teachers. In the lower-performing schools, the principals did not provide pedagogical support to the teachers. They exerted administrative control, but never actually carried out observations of lessons or provided instructional feedback to teachers.

Professionalism of the teachers: In the best-performing schools, the teachers demonstrated personal commitment, seriousness, punctuality, careful preparation of lessons, etc. They also took time to get to know their students and establish classroom rules and routines. In the lower-performing schools the teachers did not observe the recommended frequency and rhythm of IAI lessons, and fell behind other schools in executing them. They did not sufficiently prepare for the IAI lessons before actual implementation. They also were less skilled in overall classroom/behavior management, often losing instructional time to address behavioral issues.

Teacher willingness to take risks: In the best-performing schools, the teachers were willing to try new techniques and activities, even though what they were being asked to do was very different from what they habitually implemented in class or had personally experienced as students. Teachers in other schools found the new expectations daunting and were reluctant to try them. These issues were addressed by having teachers from the lower-performing schools observe teachers from a higher-performing school. These visits enabled the less-confident teachers to see their peers successfully implementing the techniques in a typical Malian classroom (with 90 plus students and children learning in a second language). This peer exchange helped convince uncertain teachers of the power of the approach and concretized for them how to successfully implement Balanced Literacy in their own classrooms. Teachers in the lower-performing schools acquired sufficient confidence to try the techniques and their students ultimately began making progress. As many schools similar to these lower-performing schools can be found in Mali, this strategy of teacher modeling and peer coaching has positive implications for mitigating issues with implementation of Balanced Literacy by the Ministry at scale.

Factors that do not appear to explain the disparities between schools include:

Teacher pre-service training: The teachers in both the three best-performing schools and the two low-performing schools were all graduates of Mali's Teacher Training Colleges. Teachers in the intermediate-performing schools were not Teacher Training College graduates. It should be noted that the curriculum in the Teacher Training Colleges does not include preparation on the teaching of reading and writing, and Teacher Training College professors readily acknowledge that they themselves have little or no knowledge of effective methods of literacy instruction in the early grades⁴.

⁴ A draft supplement to the Teacher Training curriculum was in the process of being approved by the Ministry of Education just prior to the 2012 coup d'état, but the process was interrupted and not completed. The USAID/PHARE program also introduced an online course in reading methodology that was successfully completed by 26 professors and in the process of being expanded to some 100 professors when the coup occurred.

Peer exchange helped convince uncertain teachers of the power of the approach and concretized for them how to successfully implement Balanced Literacy in their own classrooms. Teachers in the lower-performing schools acquired sufficient confidence to try the techniques and their students ultimately began making progress.

School status: The three best-performing schools and the two lower-performing schools were all public schools.

Class size: The two highest-performing schools had an average of 86 students per class and the two lowest-performing schools had an average of 93 students. Classes in schools in the intermediate level of performance had fewer than 50 students.

Urban vs rural: One of the three best-performing schools was a rural school on the outskirts of Bamako that had existed in a temporary structure with no walls for many years. The other schools in the study were urban schools, which were equally distributed across excellent, intermediate, and less-strong performance.

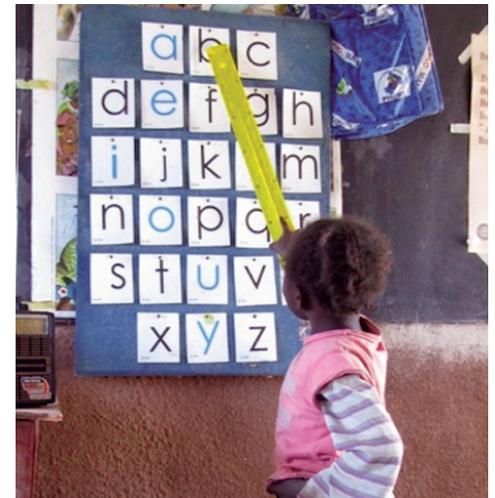
Implications

The results from this study show that early-grade students in classrooms like those in Mali (with large class sizes and diverse teacher competencies) can make significant progress in acquiring reading skills in a very short time when instruction is balanced among strategies of phonics, fluency, comprehension, and writing, and when these skills are taught through games and activities and as thinking tools. Balanced Literacy provides teachers with daily routines that they can easily manage and adapt; that encourage spontaneity from students within a predictable structure; and that foster students' development as independent readers and writers.

The Balanced Literacy program will be implemented in an additional 36 schools in the Bougouni region beginning in 2015, with funding from USAID, World Vision, and AUSAID through the All Children Reading Grand Challenge. Data from that effort will supplement these initial findings and provide important additional insights into factors affecting program success. Based on the 10 schools experience alone, the following points emerge:

- It is essential for teachers to regularly and correctly employ the Balanced Literacy strategies, respecting the recommended sequencing and effectively using the accompanying materials.
- Training sessions should address all three pillars of Balanced Literacy (phonics, reading comprehension and writing) to ensure that teachers grasp the inter-relationship of the pillars and are equipped to simultaneously develop competencies in each domain.
- Ongoing teacher support is indispensable to ensure that teachers apply the strategies from the start and that they feel empowered to do so.
- Exchanges and inter-class observations between teachers from different schools are powerful tools for ensuring buy-in and understanding of the approach.
- Training teachers from bilingual and classic curriculum schools together reduces apprehensions and issues around bilingualism, and should be promoted both for cost-effectiveness and for quality of instructional results.
- IAI remains a very cost-effective mechanism for developing both student skills in reading and writing and for teacher training and proper application of the balanced literacy strategies. Scale up of the program should continue to include an IAI component.

If these considerations are adopted into policies, realistically funded, and implemented at scale within the Balanced Literacy program, students in Mali can achieve the reading and writing standards set by the Ministry.



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The Mali Balanced Literacy program is an application 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.