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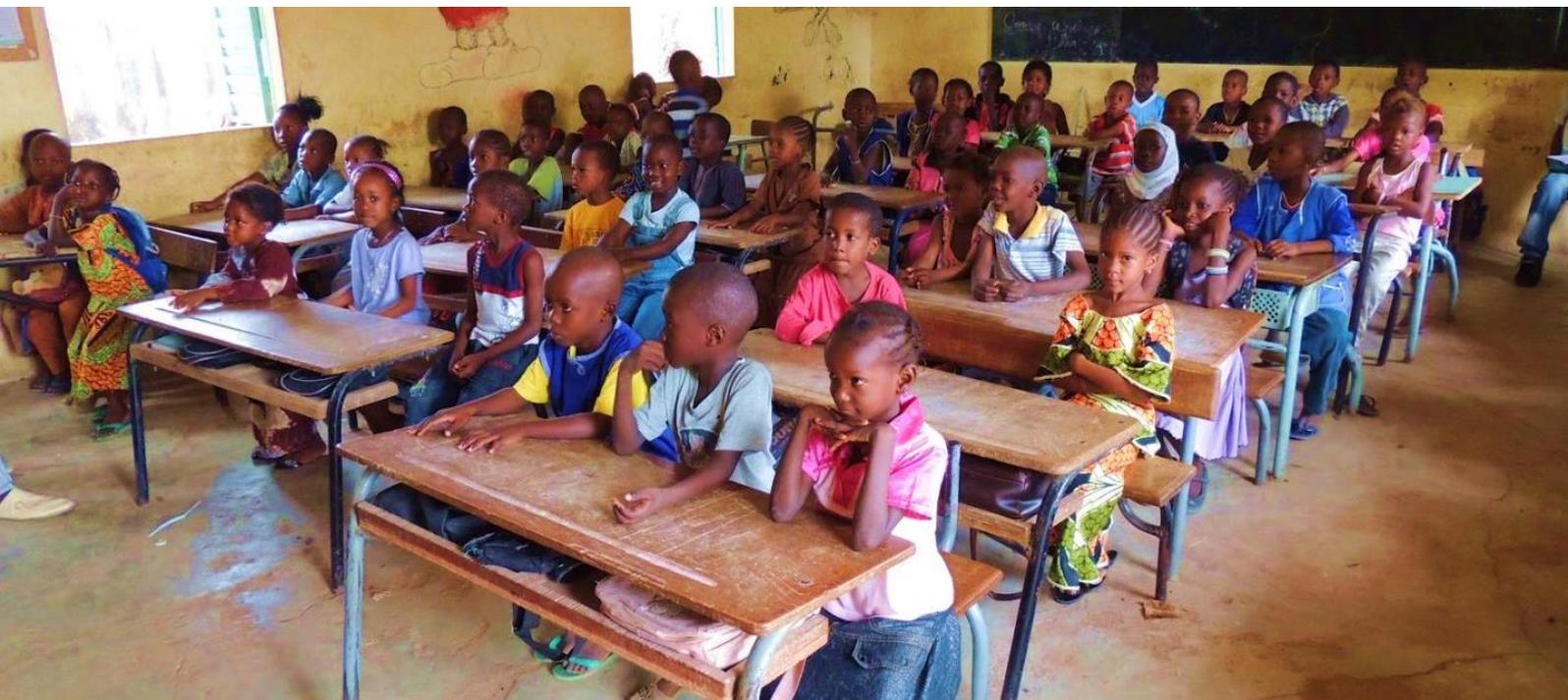


THE PROMOTION AND USE OF LOCAL LANGUAGES IN PRIMARY EDUCATION IN SENEGAL

**SUMMARY OF THE EVALUATION REPORT ON THE IMPACT OF THE ARED
MODEL**

JANUARY 2014

[TRANSLATION FROM FRENCH]



Description of the ARED model

Native language gives a child the possibility of verbalizing their thoughts and integrating successfully into the world around them. The use of a foreign language unique to school puts them in a situation of regression.¹ School learning becomes more problematic when learners speak a completely different language there than at home, and this can create a symbolic break between the two major institutions of socialization; school and family. Therefore, many countries have adopted bilingualism in the early years of schooling for students. This is the case in several African countries, including Benin, Burkina Faso, Burundi, Mali, and Niger. In these countries national reforms aimed at introducing one (or more) national language(s) as the primary language of instruction were conducted.

However, there is still no universal approach to bilingualism and several models exist. Some models include: early bilingualism which constitutes learning two languages from birth; sequential bilingualism which constitutes learning a second language when the first language is already developed; additive bilingualism with a high level of skills in the native language and communication in the second language, and reliance on the general and continuous use of the native language; and subtractive bilingualism with a decrease in the mastery of a language at the expense of acquiring another language.

Several countries in Africa are at the experimentation stage with one or more bilingual education models. In Senegal, the NGO Associates in Research and Education for Development (ARED) initiated a model of intermediate bilingual education based on teaching alternately in the first or native language and French. This method does not fit perfectly with any of the models of bilingualism identified above, but it is closer to subtractive bilingualism as it abandons native languages at the end of the fourth year of primary school (Elementary 2 or CE2, at the end of the first stage in Senegal) to allow the child to continue in French during the rest of their primary curriculum. To establish the reading skills of students, the program first develops basic skills in reading in the first language spoken by the child and then gradually transfers their skills to French. The purpose of the program is mastery of French. ARED has adopted the option to transfer or reinvest knowledge acquired in the native language into the teaching of the second language.

The approach consists of teaching three essential learning modules that each correspond to a specific stage. In the case of the first year of primary school (“Cours d’Initiation” or CI in Senegal, or Introductory Course), the teaching-learning of reading progresses as follows:

- The first module enables students to become literate in their language. At this level, they discover letters in their language that enable them to decode and understand texts constructed with these same letters. During this time, they learn to speak French.
- The second module is based on similarities between the two languages. It identifies the letters common to both languages and encourages students to be able to read in French based on their knowledge in their language.
- The third module covers the differences between the two languages, meaning the letters that are not pronounced the same way in the national language and French, as well as those that are specific to French.

¹ Poth, J., 1988. Quoted by Traoré S. La pédagogie convergente : son expérience au Mali et son impact sur le système éducatif (Translation : Convergent pedagogy: its experience in Mali and its impact on the education system). UNESCO: BIE, 2001, p.4.

Unlike the ARED program, most bilingual programs in Senegal and the Francophone sub-region introduce the national language in the first quarter of the first school year and French gradually in the second quarter, and only orally at first. This is the case for the ELAN² (Ecole et langues nationales en Afrique/School and National Languages in Africa) program example, which is the blueprint adopted by the Ministry of Education in Senegal as part of the introduction of national languages into formal education. Bilingual programs within this master plan in Senegal use the curriculum of basic education (CEB) as the national reference document for practices and strategies of teaching-learning and for the educational programs in place in the primary cycle.

ELAN: A Francophone offer for bilingual education for greater success at school.

(...) Many Francophone countries exist against the backdrop of multilingualism. However, the French language is privileged over national languages as the only language of instruction at the first level of schooling in some countries like Senegal. Non-mastery of this language often leads to communication problems in the classroom, has a negative impact on the behavior of teachers and students, and makes comprehension of scientific concepts difficult. The ELAN-Africa initiative is a response to this emergency: its purpose is to improve the quality of education in primary education in Sub-Saharan Africa by promoting bilingual education. It aims to promote and gradually introduce bilingual education into primary education, by first linking together an African language and the French language. **International Organization of the Francophonie (OIF)**

In addition, the ARED model considers several factors. Reading and mathematics textbooks in Wolof and Pulaar, adapted to CEB, are available to students. Teachers are trained before the start of classes and again in February and April and guidebooks for all levels are provided to them. Teacher monitoring is then provided by school principals to attest to the effectiveness of the teaching; a technical teaching team (TTT) comprised of ARED and representatives of technical departments of the Ministry of National Education is responsible for ensuring program guidelines for compliance with official standards and options and to strengthen the action of the project (mainly through the mobilization of human and material resources); and education and training inspectors³ do their part to ensure the mastery of teaching methodologies. Furthermore, in order to support the importance of community participation on the quality and management of education, ARED worked with inspectors to educate SMC⁴ on the issue of bilingualism.

The ARED intervention in elementary school was conducted in two successive phases and over two years. The first phase (October 2009-November 2011) dealt with 30 classrooms. The ARED program took place during the free afternoons (Monday, Wednesday and Friday) and only in the national language. It was during the second phase of the program (November 2011-November 2013) that the ARED bilingual education model was actually initiated. The bilingual program actually became part of official teaching hours. It was implemented in eight new CI and six CP⁵ of the 30 classrooms in phase 1. The training materials were developed and tested with these 14 pilot classrooms. In 2012-2013, 100 new CI classrooms were targeted. The ARED bilingual education model is used in 114 classes. It was therefore appropriate to evaluate the program in order to enrich its structure and content in terms of the following phases.

² The ELAN-Africa initiative is part of the international guidelines of UNESCO, the International Organization of the Francophonie, the African Union, and the Association for the Development of Education in Africa for a partnership between African languages and international languages and the better integration of African languages and cultures into education systems.

³ In Senegal, an inspector is part of the Ministry of National Education. As a trainer, their main goal is to provide leadership and teacher training to raise teaching levels.

⁴ The School Management Committee (SMC) is a key element of school management in Senegal. It is an organization that aims to improve access, quality, and management of education through community participation, local authorities, and other partners.

⁵ The CP or Cours Préparatoire/Preparatory Course is the second year of primary school in Senegal.

Methodology

The assessment measured the impact of introducing national languages into the basic education system in coexistence with French. This was to assess the performance of students attending bilingual classes in reading and mathematics, compared to students in traditional classes. A comparison between the pre-test results conducted in December 2012 and those of the post-test in June 2013 was used to measure the program's impact on student performance. The study focused on a comprehensive sample of 1,578 students, including 828 randomly assigned to the experimental group and 750 to the control group in the regions of Dakar, Kaolack, and Saint Louis. Six categories of students were formed from combinations of language (Wolof and Pulaar) and classes (CI, CP, and CE1). At the CI level, 53 classes were selected from 100 classes experimenting with bilingualism. In each of the selected classes nine students were randomly selected. The survey was conducted in all eight CP classes and the six CE1 classes due to the low number of classes at these levels.

The assessment was based on the overall methodology of the "Early Grade Reading Assessment" (EGRA) test. EGRA was adopted and successfully used in several African countries, including Kenya, Liberia, Mali, Mozambique, Nigeria, etc. It is a standardized assessment tool, administered orally to students and designed to measure the most basic skills for reading acquisition in the early years of learning. It includes exercises on recognizing letters of the alphabet, reading simple words, understanding sentences and paragraphs, and listening followed by comprehension.

The reading tests of the assessment were designed based on the national education and learning program as defined by the CEB and focused on the educational practices of learning to read for the classes of CI, CP, and CE1. As for math tests, they were developed based on the CEB and contained numeric activities, measurement activities, geometric activities, as well as problem solving activities. The two assessment tools were administered to students in accordance with standardized protocols and guidelines. Assessments in reading and mathematics for both the experimental and control group were done in French.

The study also measured the impact of other factors on students' environments, such as the characteristics of the student, teachers and principals, as well as the SMC.

Key findings

The evaluation of the NGO ARED's bilingual program confirms that bilingualism is an important component to improving student performance in reading and mathematics in primary education in Senegal. The evaluation also shows that among all of the criteria studied, bilingualism as implemented by the ARED program has the most positive impact on students' skills in CI, CP, and CE1, followed by the availability of textbooks, the profile of teachers/principals (gender, experience, teaching methodology), support from the technical teaching team, and the school management committee's involvement in the life of the school.

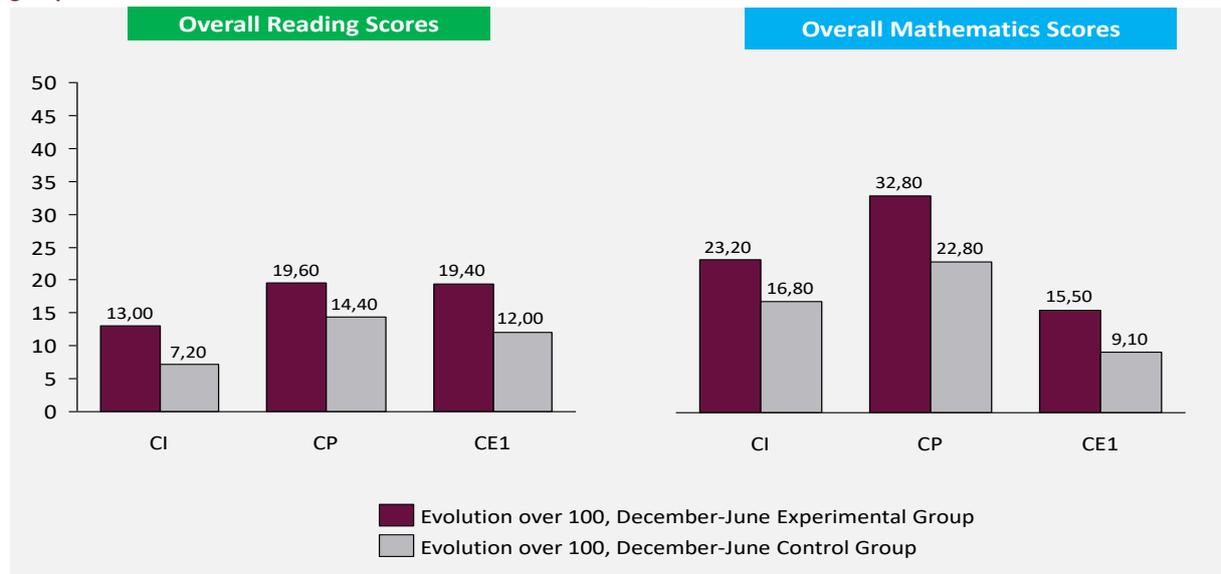
Key observations

- 1. The ARED bilingual program has a positive effect on students' abilities in reading and mathematics.***

The analysis of trends⁶ shows that the performances in reading and mathematics of the students in the ARED program are higher than that of the control group in all levels. However, this positive effect is much more noticeable in mathematics than reading, and more pronounced in the first stage (CI and CP) than in the second (CE1).

Figure 1 below shows the changes from December 2012 to June 2013 in the overall scores in reading and mathematics for every level (CI, CP, and CE1).

Figure 1: Evolution of overall scores between December 2012 and June 2013 for the experimental group and the control group



These results may be explained based on the following hypothesis:

- (i) The difference in performance between reading and mathematics can be explained by the fact that in most cases, children are faced with mathematical concepts at an early age, especially through the use of currency or various games that are in their native language. Reading is more complex in terms of basic knowledge, especially in environments where parents are not literate. Similarly, the activity of reading requires more mental, psychomotor, and cognitive operations ranging from identification to understanding through assembly, decoding, pronunciation, contextualization, semantic production, etc.
- (ii) The bilingual program was more positive in mathematics for CI and CP students experimenting with the ARED model than CE1 students. Students in the first stage responded better to the program's impact than those of CE1 and thus recorded the highest changes in scores. This could be explained by the fact that in their third year of implementation the CI and CP program components were reviewed, consolidated, and strengthened. These were mainly textbooks and teacher and principal training. At CE1, these tools are still in their first year of implementation⁷.

II. At all levels, the bilingual program remains the determinant with the most significant impact on the performance of students in reading as in mathematics.

Apart from participation in the ARED program and benefiting from bilingual education, other variables had a positive impact on the educational outcomes in this study:

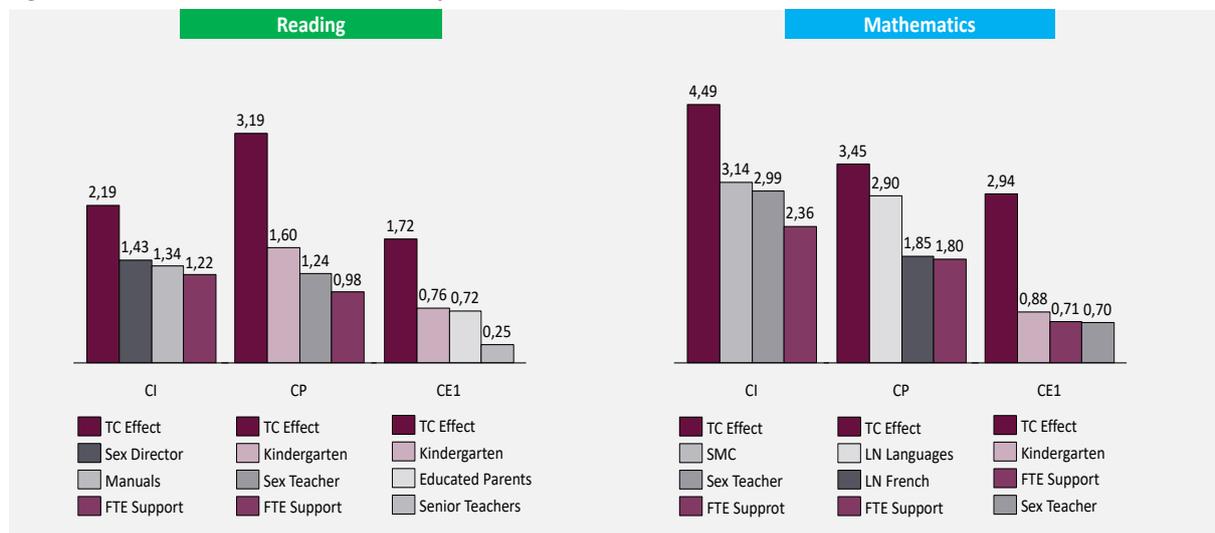
⁶ Change is measured by the difference in performance between the scores in mathematics and reading obtained in June 2012 and December 2013 by the students: the overall score of reading and mathematics was obtained for each student by adding the correct answers reported on a scale of 100.

⁷ This class was the trial stage during the evaluation.

- Gender of the school principal: the fact that the school is headed by a woman;
- Manuals: the availability of textbooks in reading and mathematics in the classroom;
- TTT support: guidance and support for teachers by the technical teaching team;
- Kindergarten: kindergarten attendance by the student;
- School teacher: the fact that the class is taught by a female school teacher;
- Educated parents: the fact that a child has parents who can read;
- Senior teachers: increase in the number of years the teacher has been active;
- SMC: the involvement of the management committee in school activities;
- LN Languages: the existence of lists of numbers in national languages in the classroom;
- LN French: the existence of lists of numbers in French in the classroom.

All of these variables contribute to enhancing student performance. However, the bilingual program (Type of Class Effect or TC Effect) remains the most decisive positive influence on the performances of students in both reading and mathematics as seen in Figure 2.

Figure 2: Effect of context variables on the performance of students



In reading, the effect of the bilingual program in relation to other factors is more significant in CP than in the other classes. In Senegal, the elementary school curriculum is structured in stages (CI-CP; CE1-CE2; CM1-CM2⁸); a student completes each phase of the educational program once a stage is completed. As such, learning is consolidated at the end of each stage (such as CP); this is also when students are expected to master key fundamentals at the end of each stage. This explains the performance of students in CP. The strong impact of bilingualism on reading performance in CP may be associated in part to the effect of the end of a stage.

In mathematics, the effect of the bilingual program in relation to other variables is more significant in CE1 (despite the weak performances) than in CI. In CP, the effect of bilingualism is little more significant than other factors such as the existence of lists of numbers in national languages in the classrooms (LN Languages). Thus, unlike the performances in reading where bilingualism had a greater effect in CP, the performances in mathematics have been impacted the most by bilingualism in CI and CE1.

Several questions can be raised: Would bilingualism be more effective in learning how to read? Would correspondence between the AREP program and CEB be more consistent in reading and mathematics? Is CEB as well structured as the competency-based approach to teaching mathematics?

⁸ The Middle Courses 1 and 2 represent the 5th and 6th years respectively of primary school in Senegal before continuing onto secondary school.

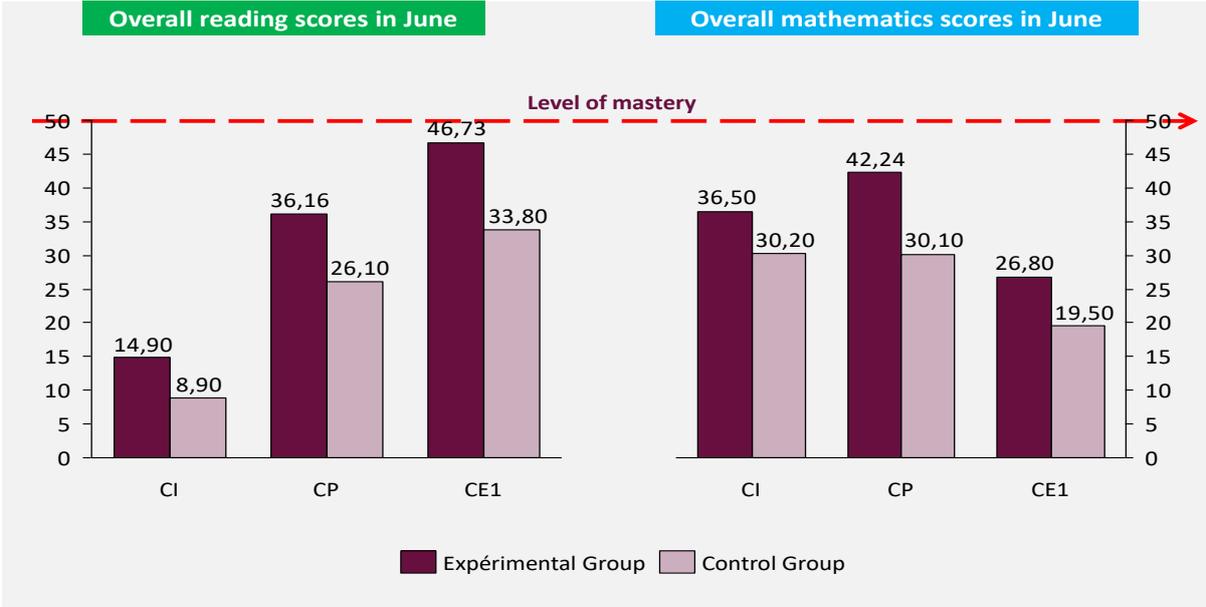
In addition to the bilingual program, several variables influence student performance in reading and mathematics. Analysis of evaluation results shows that these determinants contribute unevenly to improving performance as well as the importance of focusing on those that affect the most positive learning outcomes. The most significant variables involved in improving student achievement at all levels could be identified as levers for improving performance.

III. Bilingualism alone does not provide a complete answer

Given the significant results that emerge from the analysis of the impact of contextual variables, the bilingual program alone does not provide a complete answer to the challenges of improving performances in reading and mathematics for students in primary education in Senegal. This is explained by the fact that school results in the bilingual program are still below the level of mastery.⁹ The level of mastery is the benchmark adopted by the Government of Senegal in their general education policy in the education sector to measure student performance, hence its importance in the context of the study. It is shown in the percentage of students who obtained 50% of the overall score in reading and/or mathematics, as this is the minimum level expected.

Figure 3 below shows the overall scores in reading and mathematics for each level of classes experimenting with the bilingual program as well as the control classes relative to the level of mastery.

Figure 3: Comparison between the level of mastery and overall scores for the experimental group and the control group



The scores of the experimental group were all higher than those of the control group. The students in experimental classes are closer to the level of mastery than those in control classes.

In the CI bilingual classes, students lack 35.1 points on average to reach the level of mastery in reading. In CP, the gap is 13.84 points. The smallest difference is in the CE1 experimental group in reading with 3.27 points. This CE1 result is explained by the fact that all students of CI, CP, and CE1 were subjected to the same reading test with the same level of difficulty except for the reading and comprehension section that was adapted to each level. In mathematics, the trend is different. CE1 students in the experimental class recorded the highest gap relative to the level of mastery with a 23.2 point difference on average, followed by students in CI with 13.5 points and those of CP with the smallest variance from the level of mastery with 7.76 points.

⁹ The minimum level of mastery is indicated by an overall score of 50 points or more on a scale of 0 to 100.

Overall, the widespread low level of elementary students in reading and mathematics should be noted as there is evidence of differences in their performance relative to the level of mastery. According to ARED, CI teachers have been slow to assimilate the process of transferring the national language to French and educational support has been mainly focused on this passage (vital to the rest) of the first language to the second language (L1 to L2), neglecting the didactics of disciplines where teachers display shortcomings. However, in bilingual classes a significant lessening of the gap has been observed as one goes up a level in reading. This result should be emphasized, especially as it is confirmed in mathematics that the deviation from the level of mastery is again widening from CP to CE1 after slightly improving from CI to CP. This once again reflects widespread poor performance in mathematics, especially at the CE1 level, as observed above.

For the specific case of CE1, the following possibilities may help to understand the low math scores:

- In a logical progression (CI-CP or CE1-CE2), the 1st year is a year of acquisition and the 2nd a year of consolidation. In principle the teacher should stay with their students throughout an entire stage to finish their program. If they don't finish the 1st year or detect gaps for certain students, they can redress their teaching the 2nd year. In the case of CE1, students are in a year of acquisition in the first year of the second stage.
- In addition, a 1st stage student could have difficulties if they change schools or teacher if their basic skills are not already established as gaps are cumulative; they could lag behind in the 1st stage onto the 2nd (or CP to CE1).
- From CP to CE1, the introduction of new disciplines in mathematics may burden the program.
- Finally, another important consideration is that students cannot repeat a class in the same stage, and can therefore move onto CE1 with shortcomings.

Thus, even if the ARED program could improve student performances in reading and mathematics, for the most part they remain below the minimum level of mastery.

Recommendations

The ARED bilingual program must integrate and/or strengthen elements such as the availability of textbooks, the involvement and collaboration of stakeholders at all levels, and teacher training on the didactics of disciplines.

In schools:

- **Availability of textbooks:** The widespread use of textbooks in target classes (especially CE1 where an absence of textbooks was noted in all regions) would be one of the keys to program success to ensure effective teaching and achieving the goals of academic success. Certainly, the results from using the bilingual program in reading and mathematics reveals efforts in the management, production, and distribution of textbooks to students by ARED, but these actions could be improved by the widespread and timely distribution of textbooks within classes. Despite their availability within classes, it would be important to extend their use outside school. Indeed, although ARED provides each student with two (2) textbooks (French and local language) for reading and one (1) textbook for mathematics for students in CI and CP, teachers always keep the textbook with them until the end of the course. It would be useful for ARED to make all textbooks fully available to students to enable them to complete their homework after school. Therefore, ARED should print more textbooks for the new students at each level every school year and ensure that all have access to them.
- **Support for the teaching staff:** It would be important to focus on teaching methods used in classes when: (i) standardizing the level of classes to the methodology required in the bilingual program, (ii) performing regular teacher evaluations, and (iii) developing training plans targeted to the identified challenges. Education inspectors should also be more aware of the

importance of the framework established for the regular monitoring of principals and teachers in the field.

In communities:

The involvement of communities in actual program implementation was one of the failings that ARED should take into account in its future interventions. Established by Decree n°2002-652 of July 2nd 2002 on the establishment, organization, and functioning of PDEF management bodies, the existence of an SMC, which is monitored by school inspectors and principals, is mandatory in every school. Several non-functional SMCs reported not being aware of the bilingual program or had only vaguely heard of it. With an aim to expand, the multiplicity of decisions including the choice of language variety, levels of introduction, and volume of languages require ARED to have strong community involvement in its bilingual program.

The lack of communication and consultation about the potential benefits of bilingual education could lead to the reluctance of some actors. Campaigns to raise awareness among families could lead to improving student monitoring at home through resolutions such as reducing household chores for children and investing in educational support (books). To do this, it would be appropriate to review the approach used by ARED, which was believed by inspectors to raise awareness in communities. Is this the right formula? Is what didn't work for many SMC imbued in the program? Is it related to SMC methods of operation? ARED will revisit this issue with all stakeholders to find a better way to reach a consensus on the best communication strategy.

At the State level:

Several actions should be taken and require State intervention –the only regulatory authority of national education –to consolidate gains:

- The reluctance of a percentage of teachers, supervisory staff, and certain parents to use national languages should lead the State to play a unifying role through the popularization of the bilingual model and its results through documentary films, knowledge-sharing workshops, etc..
- Through the Ministry of National Education, the State and its concerned departments could support ARED in the selection and ongoing training of teachers with a mastery in the language of instruction as well as invest in the implementation and maintenance of quality control services through periodic monitoring exclusively dedicated to bilingual classes.
- Planning, preparation, production, and revision of educational materials should be supported by authorities in the context of providing technical teams and resources from the Ministry of National Education.
- Active participation in program evaluation would be a key success factor as well as assistance in inspections of the planning and conduct of periodic evaluations. This could result in preparation of the logistics necessary for the proper conduct of the mission (letters addressed to school principals, development of the school calendar to avoid disruptions due to strikes, provision of inspectors to make evaluations during class lesson observations, teachers' awareness of the evaluation objectives, etc.).
- The Ministry of Education should actively ensure that a minimum of learning resources is available within each class (regardless of bilingual program). The textbook deficit is unacceptable in reading (one book for three students) and numeracy (one book for five students) and explains the low impact of certain inputs such as books on the quality of learning. Specifically, provisions should be made for the regulatory framework to be respected as it is known that some of its components, such as the list of numbers, help improve performances in mathematics, as demonstrated in this evaluation.

At the level of other bilingual programs:

- The establishment of a parallel literacy program dedicated to adults in bilingualism intervention areas will contribute to strengthening the possibilities for at-home monitoring of students by family members. The analysis of the determinants shows that students who have one or more parents who know how to read helps improve their performance.
- The exchange of assessment tools as recently initiated by ARED on the request of actors from other bilingual programs, including the ADLAS program (Association for the Development of the Saafi Language), is a sign of willingness to share experiences and should be continued and led in a comparative approach of different programs to study the possibility of adopting a common measurement on the most profitable type of bilingualism for students.
- The establishment of an integrated monitoring-evaluation framework that brings together various existing bilingual programs facilitates the centralization of data and encourages decisions on the best approaches and teaching methodologies.

At the level of partners:

- The funding of specific studies on determinants would better measure the stakes that context variables have on student performance and facilitate impact measurement of bilingual programs on educational outcomes. This study takes into account aspects such as the reactions of students, parents, and the community vis-à-vis the program, as well as program effectiveness (costs compared to benefits), among other points.
- Technical and financial partners could also focus their efforts on the implementation of semi-private experimental bilingual schools that over time will be able to generate their own funds and empower themselves. Successful models already exist in African countries such as Kenya.