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

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

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[TRANSLATION FROM FRENCH]
Description of the ARED model

The mother tongue allows the child to verbalize his thoughts and to be in harmony with the world around him. The use of a single foreign language in school suddenly puts the child in a situation of regression\(^1\). School learning becomes more problematic when the learners speak a totally different language at home. This can create a symbolic break between the two major institutions of socialization which are school and the family. Thus many countries have adopted bilingualism in the early years of schooling for students. This is the case in several African countries such as, Benin, Burkina Faso, Burundi, Mali and Niger. In these countries, national reforms aiming at the introduction of one or more national languages as a medium of primary instruction have been initiated.

However, there is still no universal approach to bilingualism and several models compete. In this respect, one can mention the following models. Early bilingualism which consists of learning two (2) languages from birth, sequential bilingualism which allows a second language to be learnt while a first language is being developed, additive bilingualism which supports a high level of communication skills in the mother tongue and in the second language and relies on the general and continuous use of the mother tongue, and subtractive bilingualism which consists in decreasing the mastery of a language in order to acquire another.

Several countries in Africa are at the stage of experimentation with one or more bilingual education models. In Senegal, the NGO Associates in Research and Education for Development (ARED) initiated an intermediate bilingual education model which aims at alternately teaching in the first or native language and in French. This method does not fit perfectly any of the models of bilingualism identified above, but is closest to subtractive bilingualism which abandons the mother tongue at the end of the fourth year of primary education (CE2, or class 4 which marks the end of the second stage in Senegal) to let the child continue in French for the rest of the primary curriculum. To establish the reading skills of the students, the program first develops basic skills in reading in the national language spoken by the child, and then brings them to gradually transfer these skills into French. The purpose of the program is the mastery of French. ARED has thus adopted a method of transfer or reinvestment of the assets of the mother tongue in the teaching of the second language. The approach aims at providing students with three (3) essential learning modules which each correspond to a specific stage. In the case of the first year of primary school (Cl or Class 1 in Senegal), the teaching and learning of reading progresses as follows :

- The first module allows the students to become literate in their own language. At this level, the students must find letters from their language which enables them to decode and understand texts constructed from the same letters. During this time, they learn to speak French.
- The second module focuses on the existing similarities between the two languages. The goal is to identify letters that are common to both languages and to help the students begin to read in French based on their knowledge of their own language.
- The third module covers the differences between the two languages, such as letters which are not pronounced in the same way in the national language and in French, or letters whose pronunciation is specific to French.

Unlike the ARED program, most bilingual programs in Senegal and in the Francophone sub-region first introduce the national language in the first quarter of the first year of primary school, followed by the introduction of French in a gradual way in the second quarter and only at a spoken level. For example, the ELAN² program (National Languages Education in Africa), which is the blueprint adopted by the Ministry of Education of Senegal as part of the introduction of national languages in formal education.

Bilingual programs following this blueprint in Senegal use as a reference the curriculum of basic education (CEB) which is the national reference document for practices and teaching-learning strategies and educational programs in place in the primary cycle.

The ARED model incorporates several activities. Textbooks and workbooks for reading and mathematics, in Wolof and Pulaar, adapted to the CEB, are made available to students. Teachers are trained before the opening of classes and again in February and April, and teacher guides for all levels of instruction are provided to them. The monitoring of teachers is then carried out by school principals who must attest to the effectiveness and proper functioning of the classes; the teaching technical staff (“ETP”) comprising ARED and representatives of technical departments of the Ministry of National Education is responsible for ensuring the guidelines of the program for the compliance with official standards. It is also responsible for strengthening the action of the project mainly through the mobilization of human and material resources. The role of the inspectors³ of education and of the ETP is to ensure the mastery of teaching methodologies. Furthermore, in order to reinforce community participation towards improving the quality and management of education, ARED worked with inspectors to inform and sensitize the School Management Committees (known as “CGE”⁴) about the benefits of bilingual education and the ARED model.

The ARED intervention in elementary schools was conducted in two phases of two years each. The first phase (October 2009-November 2011) targeted 30 classes. During Phase I, the ARED model was delivered outside of official school hours during the free afternoons (Monday, Wednesday, Friday) and only in national languages. During Phase II (November 2011-November 2013), the ARED model of bilingual education was then introduced during official school hours. It was implemented in eight new CI (Class 1) and six CP⁵ (Class 2) selected from the 30 classes of Phase 1. The training materials

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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.
were developed and tested with 14 pilot classes. In 2012-2013, 100 new CI (Class 1) classes were opened. The ARED model of bilingual education now includes 114 classes. It was therefore appropriate to evaluate the program in order to enrich its structure and contents before further expansion.

**Evaluation Methodology**

The goal of this evaluation was to measure the impact of the introduction of two local languages (Wolof and Pulaar) coexisting with French in early primary school classes in Senegal. The effort aimed at assessing whether the students attending bilingual classes performed better than students in traditional classes in reading and mathematics. A comparison between the results of the pre-test 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 randomly selected from the experimental group and a control group in the regions of Dakar, Kaolack and Saint Louis. Six categories of students were formed from combinations of the different languages (Wolof and Pulaar) and class levels CI, CP and CE1 (Class 1, 2 and 3). In CI (Class 1), 53 classes were selected from 100 classes experimenting with the bilingual education model. Then, in each of the selected classes, nine students were randomly selected. The survey was conducted in all eight CP (Class 2) classes and all six CE1 (Class 3) classes due to the low number of classes to draw from at those levels at the time.

The evaluation instrument was based on the comprehensive methodology of the test "Early Grade Reading Assessment (EGRA). EGRA has been adopted and successfully used in several African countries including Kenya, Liberia, Mali, Mozambique and Nigeria. It is a standardized assessment tool, administered orally to students and designed to measure the basic skills in 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 exercises.

The reading test items were designed based on the national teaching and learning curriculum as defined by the Basic Education Curriculum (CEB) in Senegal, and focused on educational practices of learning how to read for classes CI, CP and CE1 (Class 1, 2 and 3). Math tests have been developed based on the CEB and include numeric activities, measurement activities, geometry and problem solving activities. The two assessment tools were administered to students in accordance with protocols and standardized guidelines. Assessments in reading and mathematics for both the experimental and control groups were administered in French.

The study also measured the impact of other factors on learning, such as the students' environments, characteristics of students, teachers and principals, as well as School Management Committees (CGE).

**Key findings**

This evaluation of ARED's bilingual education program confirmed that bilingual education is an important component in improving student performance in reading and mathematics in primary education in Senegal. The evaluation also shows that among all the criteria under study, ARED's intervention had the most positive impact on students' reading and math skills in CI, CP and CE1 (Classes 1, 2, 3). Other key factors studied included the availability of textbooks, the profile of teachers / principals (their gender, years of teaching experience, teaching methodology), the support provided by the teaching technical staff and the level of involvement of the School Management Committee in the life of the school.
Key observations

I. The ARED bilingual education program has a positive effect on students' abilities in reading and mathematics.

The analysis of the children’s test results showed that performance of the experimental group in reading and mathematics were at all levels higher than the control group. However, this positive effect is much more noticeable in mathematics than in reading and more pronounced in the first stage (CI and CP, or Class 1 and 2) than in the second stage (CE1 or Class 3).

Figure 1 below shows the changes from December 2012 to June 2013 of the overall scores in reading and mathematics for every level (CI, CP and CE1, Classes 1,2,3).

These results can be explained by the following:

(i) The performance difference between reading and mathematics can be justified by the assumption that at the earliest age, children are faced with mathematical concepts in most cases, particularly through the use of currency or games played in the mother tongue. Basic reading skills are more complex to acquire especially in environments where parents are not literate. Similarly the activity of reading requires several mental, psychomotor and cognitive operations ranging from identification to understanding, through assembly, deciphering, encoding, decoding, pronunciation, contextualization, semantic generation etc.

(ii) The bilingual education program was more beneficial in mathematics to CI and CP (Class 1 and 2) students than to CE1 students (Class 3). Indeed, students of the first stage responded better to the effect of the program than CE1 (Class 3) students and thus recorded the highest changes in scores. This could be explained by the fact that the components of the program at the CI and CP levels (Class 1 and 2) were reviewed.

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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.
consolidated and strengthened during the third year of implementation mainly through revisions to the ARED workbooks and teacher and principal training programs. Conversely, in CE1 (Class 3), the ARED instructional and learning materials and teacher training program are still in their first year of implementation.

II. **ARED’s bilingual education program was the variable with the most significant impact on student performance in reading and mathematics.**

Other variables that had a positive impact on educational outcomes in this study included:

- 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;
- Support of the teaching technical staff (“ETP”): guidance and support of teachers provided by the teaching technical staff;
- Kindergarten: student attendance at the kindergarten level;
- School teacher: the fact that the class is held by a female school teacher;
- Educated parents: the fact the child has parents who can read;
- Seniority of the teachers: increasing the number of teaching years for teachers;
- School Management Committee (“CGE”): the involvement of the Management Committee in school activities;
- National languages: the existence of lists of numbers in national languages in the classroom;
- French: the existence of lists of numbers in French in the classroom.

While all of these variables contributed to enhancing student performance, the bilingual education program (Type of Class Effect class or “TC”) had the strongest effect on the performance of students in both reading and mathematics as shown in Figure 2.

**Figure 2: Effect of context variables on student performance**

In reading, the effect of the bilingual education program is greater in CP (Class 2) than in other classes. In Senegal, the primary education curriculum is divided into three stages: CI-CP, CE1-CE2, CM1-CM2 (Classes 1 to 6). All teaching / learning is considered to be completed at the end of a stage.

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7 This class was still in the trial stage during the evaluation.
8 The Middle Courses 1 and 2 represent the 5th and 6th years respectively of primary school in Senegal before continuing onto secondary school.
(like CP or Class 2), and the consolidation of skills (or not) by the end of each stage is expected to affect overall student performance. The strong impact of bilingual education on reading performance in CP (Class 2) may be associated in part with this end-of-stage effect.

In mathematics, the effect of the bilingual education program in comparison to other variables is stronger in CE1 (Class 3) (despite the overall poor performance at this level) and CI (Class 1). In CP (Class 2), the effect of bilingual education is a little more important than other factors thanks to the existence of lists of numbers in national languages in the classroom (LN Languages). Thus, unlike the reading performance where bilingual education seems to have more of an effect in CP (Class 2), performance in mathematics is effected most by bilingual education in CI and CE1 (Classes 1 and 3).

These results raise several questions: is bilingual education most effective for learning how to read in the early grades? Does the alignment of the ARED teaching and learning materials with the CEB (Basic Education Curriculum) make more sense in reading than in mathematics? Is the CEB well-structured for the competency-based approach in teaching mathematics?

As noted earlier, several factors, in addition to the bilingual education program, influence student performance in reading and mathematics. The analysis of the results of this evaluation shows that these factors contribute unevenly to improving performance, hence the importance to focus on those which have the most positive effect on learning outcomes. The most significant factors involved in improving student achievement at all levels could be used as levers to improve performance even more.

**III. Bilingual education alone does not provide a complete answer.**

Given the results of the analysis of the effect of other contextual factors, it is worth noting that the bilingual education program alone does not provide a complete answer to the challenges of improving the performance of Senegalese primary school students in reading and mathematics. Despite the positive results, students’ scores in the bilingual education programs are still below the “threshold of mastery”\(^9\). The “threshold of mastery” is the benchmark adopted by the Government of Senegal in their general education policy to measure student performance, hence its importance in the context of this study. It is measured by the percentage of students who obtained 50% (the minimum acceptable score) of the overall possible score in reading and mathematics.

Figure 3 shows the overall scores in reading and mathematics compared with the threshold of mastery for every level of classes experimenting with the bilingual education program and in control classes.

\(^9\) The minimum level of mastery is indicated by an overall score of 50 points or more on a scale of 0 to 100.
The scores of the experimental group are at all levels higher than those of the control group. Students in experimental classes are closer to the threshold of mastery than students in control classes.

At the CI level (Class 1) in bilingual education class, students lagged 35.1 points on average to reach the threshold of mastery in reading. In CP (Class 2), the gap is 13.84 points. The smallest difference is in the experimental group in CE1 (Class 3) in reading with just 3.27 points. This result in CE1 (Class 3) is explained by the fact that all students in CI, CP and CE1 were subjected to the same reading test with the same level of difficulty except for the reading and comprehension parts which are adapted to each level. In mathematics, the trend is different. CE1 (Class 3) students in the experimental classes recorded the highest gap relative to the threshold of mastery with a 23.2 point difference on average, followed by CI (Class 1) students with a 13.5 point difference and CP (Class 2) students who had the smallest difference with the threshold of the mastery of 7.76 points. Overall, it is worth noting the generally widespread, low performance of elementary students in reading and mathematics evidenced by the control group’s performance relative to the threshold of mastery.

According to ARED, in CI (Class 1), teachers have been slow to assimilate the process of transferring from the local languages to French in their lesson plans, and thus educational support has mainly focused on this primordial transfer from the first language to the second language, neglecting mastery of other teaching strategies where teachers are still weak. However, one can observe in bilingual education classes a significantly smaller gap which gradually appears as one goes up in level in reading. This result should all the more be emphasized as it is confirmed in mathematics. The deviation from the threshold of mastery is again widening in CP and CE1 (Classes 2-3) after slightly improving between CI and CP (Class 1 and 2). This reflects once more the generally poor performance in mathematics especially in CE1 (Class 3), which was observed above.

For the specific case of CE1 (Class 3), the following may help to explain the low scores in mathematics:

- If one follows a previously described logic of the stages of education in Senegal’s curriculum, whereby the first year of each stage is a year of acquisition and the second year is a year of consolidation of learning, then the teacher should remain with their students throughout the
stage so they can better complete the curriculum. If the teacher fails to complete the first year or detects gaps for some students, the teacher may adjust his/her teaching in the second year to address those gaps. In the case of CE1 (Class 3), students are in a year of acquisition in the first year of the second stage.

- Moreover, a student of the first stage may have difficulty if they experience a change of school or teacher if the skills are not established as the gaps are cumulative and can be carried over from the first stage to the second stage (ie. the transition from Class 2 to Class 3). During the transition from CP to CE1 (Class 2 to 3), the introduction of new topics in mathematics makes the curriculum more challenging. Finally, another important factor to consider is that students in Senegal are not allowed to repeat a year within one stage, with the result being that a student may move up to CE1 (Class 3) with learning gaps.

Thus, even though the ARED bilingual education program improves the students’ performance in reading and math, most of them are still below the minimum threshold of mastery.

Recommendations

The ARED bilingual education program must integrate and / or enhance elements such as the availability of textbooks, the involvement and collaboration of stakeholders at all levels as well as teacher training in didactics.

In schools:

- **Availability of textbooks**: The widespread use of textbooks in the target classes (especially in CE1/Class 3 where a lack of textbooks was observed in all regions) will increase the success of the program by ensuring the effective delivery of education to achieve the goals of academic success. Even though the results achieved with this bilingual education program in reading and mathematics reveal progress in the management, production and distribution of textbooks to students by ARED, these actions could still be improved by more widespread and timely distribution of manuals in the classrooms. Even when books are available in the classroom, it is important to extend their use outside school. Indeed, although ARED provides each CI and CP (Class 1 and 2) student with two textbooks (one in French and one in a local language) in reading and one manual in local language in mathematics, teachers always collect and keep the manuals at the end of the class. It would be useful for ARED to encourage teachers to make all the manuals fully available to the students to enable them to do homework. This is possible because each school year ARED prints new textbooks for new students at each class level.

- **Support of the educational team**: It is important to continue to emphasize improvement of teaching methods used in classes by: (i) harmonizing on the class level the teaching methodology required by the bilingual education program, (ii) carrying out regular evaluations of teachers, (iii) developing training plans targeted to the challenges identified.

At the community level:

The involvement of communities in the effective implementation of the program was one of the gaps that ARED should take into account in its future interventions. Established by Decree No. 2002-652 of 2 July 2002 on the establishment, organization and functioning of the management bodies of the PDEF, the CGE which is monitored by inspectors and school principals is a body whose existence is mandatory in every school. Several CGEs, many of which were nonfunctional, said that they were not aware of the bilingual education program or had casually heard of it. With scaling in mind, multiple decisions related to strengthening community involvement in the bilingual education program will need to be taken. These decisions include the choice, variety and number of languages, and the levels at which they are introduced.
The lack of communication and consultation about the potential benefits of bilingual education may explain the reluctance of some stakeholders. Campaigns to raise awareness among families could encourage them to improve the support and monitoring of students at home, through resolutions such as reducing household chores for children, and investing in educational media (books). To do this, it would be appropriate to review the approach used by ARED which was to use the inspectors to reach out to the communities. Is this the right strategy? What went wrong for many School Management Committees (“CGE”) to not be fully on board with the program? Is it related to the School Management Committee methods of operation? ARED will revisit this issue with all stakeholders to find a better method of operation and reach a consensus on the best communications strategy.

**At the State level:**
Several actions should be taken and require state intervention - the only regulator of Education - to consolidate the gains:

- The reluctance of some teachers, of the support structure and of some parents on the use of local languages requires the state to play a unifying role to build awareness and support for the extension of the bilingual model and its results, through documentary films, knowledge-sharing workshops, etc.
- The State, through the Ministry of Education, and its concerned departments could support ARED in the selection and continuing professional training of teachers with a mastery of the language of instruction and invest in the implementation and maintenance of quality control services through periodic monitoring exclusively dedicated to bilingual education classes.
- Planning, preparation, production and revision of educational materials should be supported by the authorities through the provision of technical teams and of the resources of the Ministry of Education.
- Active participation in the evaluation of the program would be a key success factor and requires the assistance of inspectors in the planning and implementation of periodic reviews. This could result in a preparation of the logistics necessary to the proper conduct of the mission (letters addressed to school principals, design of a school calendar which avoids disruptions due to strikes, provision of inspectors to run assessments during classroom observations, teachers' awareness of the objectives of the review, etc.)
- The Ministry of Education should actively ensure that a minimum of learning resources is available within each classroom (regardless of the bilingual education program). The textbook deficit with unacceptable ratios in reading (one book for three students) and numeracy (one book for five students) probably explains in part the low impact of certain inputs such as books on the quality of learning. Specifically, measures should be taken for the regulatory framework to be respected, knowing that some of its components such as the list of numbers helps improve performance in mathematics, as demonstrated in this evaluation.

**At the level of other bilingual education programs:**

- The establishment of parallel literacy programs dedicated to adults in the intervention areas of bilingual education would help the at-home monitoring of students by family members. Indeed, students who have one or more parents who know how to read helps improve their performance as shown by the analysis of other factors.
- The exchange of assessment tools as recently initiated by ARED and as requested by stakeholders from other bilingual programs such as the Association for the Development of Language Saafi (ADLAS) is a sign of willingness to share experiences. This effort should be sustained to create a comparative approach to different programs and to study the
possibility of adopting a common plan of action for the most effective bilingual education models for students.

- The implementation of an integrated monitoring and evaluation framework that brings together the various existing bilingual education programs would facilitate the centralization of data and would encourage them to take joint decisions on the best approaches and teaching methodologies.

At the partners’ level:

- The funding of additional studies examining other determining factors would allow to better measure the impact that contextual factors have on student performance and would enhance the measurement of the impact of the bilingual education program on educational outcomes. This study would take into account aspects such as the reactions of students, parents and the community regarding the program, and program effectiveness (costs compared to benefits) among other things.

- The technical and financial partners could also experiment with implementation of semi-private experimental bilingual schools which, over time, will be able to generate their own funds and empower themselves. Successful models already exist in African countries such as Kenya.