

Preliminary Report of Some Findings on Primary Education in Boyo Division

January 23, 2007

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This is a brief summary of findings to date in the in the research project currently being carried out on the effectiveness of mother tongue education in the Boyo Division. This written report will provide summary charts, graphs, and statistics with a brief narrative description.

Study on Reading Skills Development

Researchers worldwide routinely use the development of reading skills in students as a good general measure of how well schools are fulfilling their mandate to educate children. In the Kom area, reading instruction reportedly takes place in both the Kom language and in English. Therefore, any assessment of reading development must be sensitive to this instructional strategy.

In the West, researchers have developed very detailed models of the progression of the development of reading skills. These models can be used by any school or teacher as a basis of comparison to identify areas of strength and weakness in skill development. In developing countries where instruction is less effective and linguistic variation complicates the educational process, such models are sketchy at best. For this reason, we extended the data gathering process to include all of primary.

Research methodology

A summary of the research design underlying most of this report is given in the following paragraphs. More detailed statements of the research design are available upon request.

Goal statement for the research component of reading skill development

Gather research data on reading proficiency among Kom-speaking children in the North West Province of Cameroon. The data form part of a broader study of reading acquisition in developing countries being carried out by the World Bank.

Steps in implementation of this component

- Design appropriate assessment instruments and protocols in Kom language and in English for children in junior primary (Grades 1, 2, and 3).
- Design appropriate assessment instruments and protocols in Kom language and in English for children in senior primary (Grades 4, 5, and 6).
- Identify and train test administrators (all native speakers of Kom with extensive educational experience).
- Arrange with local education officials for the testing to be done.
- Identify appropriate test sites in consultation with local education officials.
- Oversee test administration
 - in the design (2,100 tests in junior primary – Grades 1 to 3)
 - actually performed (1,986 tests in junior primary – Grades 1 to 3)
 - in the design (800 tests in senior primary – Grades 4 to 6)
 - actually performed (792 tests in senior primary – Grades 4 to 6)
- Do any necessary problem solving.
- Supervise evaluation of all results which will be digitally recorded.
- Record all data in an appropriate medium (EXCEL spreadsheet) and submit this data to the World Bank.

Study on instructional practices in the classroom

A number of studies have been carried out—mostly in the West—attempting to document how and how well teachers use available instructional time to achieve specified learning outcomes. Such studies carried out in developing countries suggest significant inefficiencies—a possible contributing factor to reduced effectiveness.

Research methodology

Goal statement for the research component on classroom observations

Gather data on instructional activity in the classrooms of schools in the Boyo division in Grades 1 and 2. The purpose of this component is to identify how well teachers manage available instructional time in pursuit of established learning objectives.

Steps in the implementation of this component

- Design appropriate instruments and protocols for classroom observations.
- Identify and train those who will do the observations.
- Identify appropriate observation sites.
 - in the design (16 days and 64 hours of classroom observation)
 - actually performed and recorded (16 days and 64 hours but with 4 days and 16 hours discarded because of poor recording)
- Compile data for submission to the World Bank.

Time frame of the data collection

- 7 weeks in October and November

Research on Academic Achievement

The most metric of the effectiveness of an educational system is that of various measures of academic achievement. Most typically academic achievement is measured by means of some type of standardized test.

In the first round of research in the Kom area, two such measures were employed (or studied)—a specially prepared assessment of learning in Grade 4 and a nationally administered test of academic achievement at the end of primary (Grade 6). Preliminary findings on these two measures are also provided in this preliminary report.

Research methodology

Goal statement for the research component on academic achievement

In this study, data from standardized testing was collected and used primarily in an effort to identify possible effects from the use or non-use of the Kom language as a language of instruction.

Steps in the implementation of this component

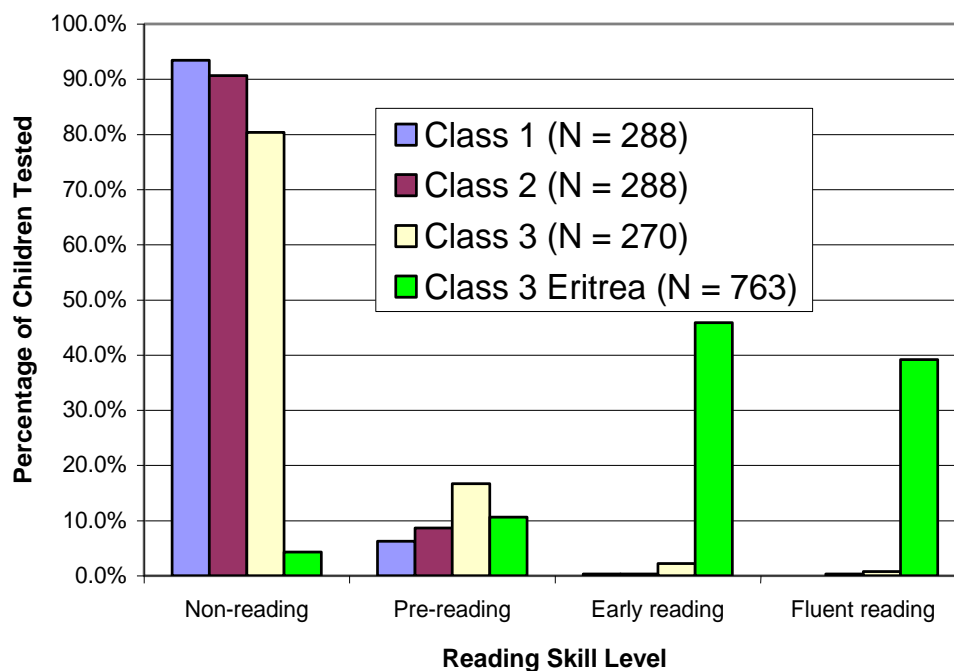
- Design and administer an appropriate test for Grade 4 students
- Extract data from provincial archives on the performance of students from Boyo Division on the First School Leavers Exam for a number of years;
 - in the design (data from the last 10 years);
 - to date as reported in this preliminary report (5 years worth of such data);

Report on Research Findings

Results from the reading assessments

Our results for the reading assessments for Classes 1, 2, and 3 are summarized in the following graph.

Figure 1. Assessment of Reading Skills in Boyo Division (partial results).



The reading results in Figure 1 are all based on the ability of children from many different schools and in current Classes 2, 3, and 4 to read a short story taken from a Class 1 textbook. Comparisons based on a Class 1 text will tend to overstate academic performance as one would expect students in more advanced classes to do well on such a task. This measure was used for the simple reason that it was common to all students tested.

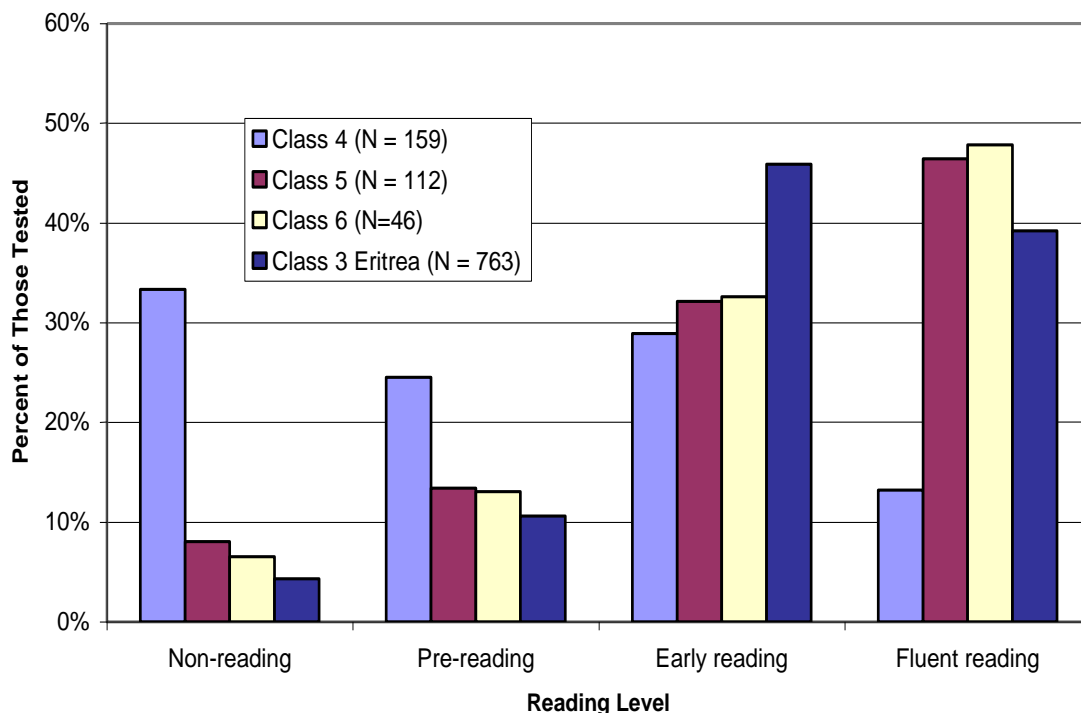
The four categories of reading ability used for analytical purposes are defined as follows:

- **Non-reading:** The person being tested is unable to recognize a single word in the text.
- **Pre-reading:** The person being tested is able to recognize a small number of words but is not able to read the story well enough to achieve any level of comprehension of content.
- **Early reading:** The person being tested can read slowly and hesitantly through most or all of a text or story but has limited comprehension of the content after reading (a typical “reading rate” of 5 to 20 words per minute).
- **Fluent reading:** The person being tested can read through the story at a steady rate with only occasional pauses or errors and understands most of what was read (typically 50 or more words per minute of reading speed although in this data, reading rates which resulted in full comprehension were often less than 50 words per minute.)

The graph clearly indicates that more than 90 percent of children in Classes 1 and 2 (currently in classes 2 and 3) are still at the non-reading level—they did not recognize a single word in the stories presented to them to read. Among Class 3 children (currently in Class 4), the level of non-readership drops to 80 percent. Of the 846 students tested in the 3 classes, only 3 were judged to be fluent readers. This finding is unexpectedly low. In Western countries ALL children are expected to be fluent readers by the end of Class 1. In most non-Western countries many children are expected to be in the early reading and fluent reading categories by the end of Class 3. Results from the country of Eritrea—one of the poorest

countries in the world—have been included as a point of comparison (the green bars). Even in Bamenda, most children are expected to be at either the early reading or fluent reading level by the end of Class 1.

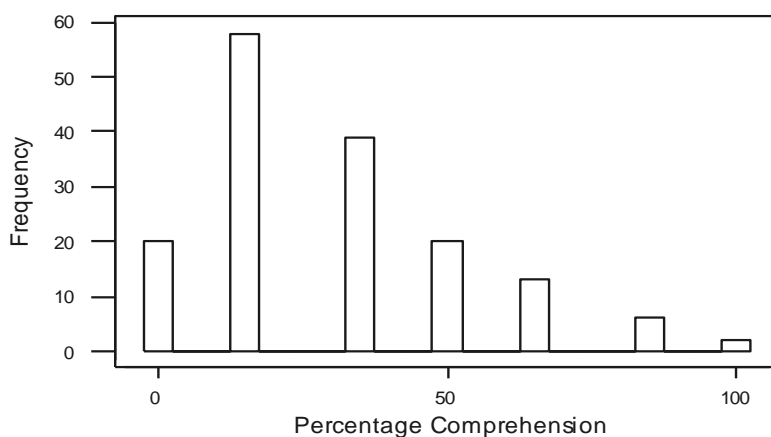
After completing the reading assessments for Classes 1-3, we decided to extend the assessments to Classes 4-6 in an effort to determine just when it is that children learn to read in the Kom area and at what level. Those results are shown in the following figure.



Children in Class 4 are scattered across the skill spectrum from non-readers (33%) to fluent readers (12%). The contrast between Class 3 and Class 4 is quite strong. Classes 5 and 6 are very similar (Class 6 students are currently repeating Class 6). It is interesting to note that students in these two classes show a profile fairly similar to that of Class 3 children in Eritrea. The implication is that children here in Cameroon are 2/3 years behind those in Eritrea in reading achievement.

The performance reported in the figure above is based on the reading of a Class 1 text. The following figure reports comprehension results for Classes 5 and 6 combined when reading a text taken from the early part of the Class 6 textbook.

Comprehension of Class 5 and 6 Students on a Class 6 Text



Fifty percent of students scored below 20 percent comprehension of a Class 6 level text. Only 5 percent (8 out of 158) students demonstrated above 75 percent. The data indicated clearly that students in Classes 5 and 6 are not able to comprehend text material at this level. In fact, the results look very similar to a random guessing model with a 27 percent chance of being correct on each item. Since the test text was in English (the language of instruction) and all students are non-native speakers of English, it must be assumed that this low performance is due both to weak reading skills AND an inadequate mastery of English. What is indisputable, however, is that students at this level are not able to read and understand the content of their textbooks (should they have one).

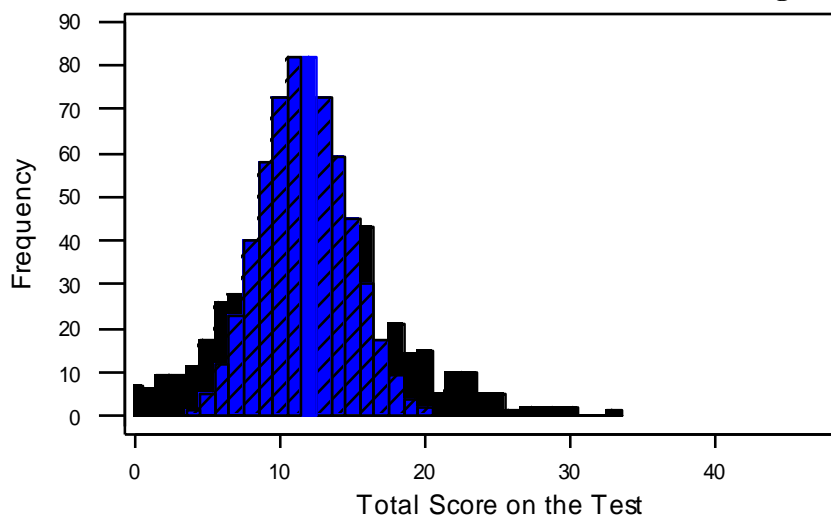
Results of the standardized assessments

Report on the Class 4 Assessment of Reading and Math Skills

Early in the research study, an assessment of English and math knowledge was carried out among all Class 4 students in the Njinikom subdivision. This assessment had two purposes: (1) as a general assessment of how these children were going in these two core subjects and (2) as a baseline of comparison for future work and research in the Kom educational system.

The test used for this assessment contained 20 items on English (grammar and comprehension) and 20 items on maths (numbers, math concepts, and computation). The content of the test was reviewed by a panel of 10 Class 3 and Class 4 teachers from the subdivision. The teachers indicated they felt the content had all been taught in either Class 3 (last year) or Class 4 this year. At the same time, they warned that the test would be somewhat difficult because children were not familiar with the format of the test (multiple choice on all items). As a result, we expected the mean performance to be in the range of 50 percent.

Figure 2. Distribution of Scores on the Class 4 Common Test of English and Math Skills



Given the way the test was designed and scored, a score of 50 percent would have been 23.5 points. The actual average score on the test was 12.26 or slightly over 26 percent. Since this was a four-item multiple choice test, an average score for all test takers (615 children) of 26 percent suggests that most test takers were unable to answer the questions knowledgeably so they simply guessed at the answers. Figure 2 shows the actual distribution of scores on the test (the black background) with likely scores (in blue) IF children simply guessed without any knowledge. The black scores to the right of the blue scores represent those children who appeared to answer questions based on learning rather than simple guessing. A total of 92 children (15 percent of the total) performed at a level implying that they had learned something

of what had been taught. The remaining 85 percent of test takers (523 out of 615) appeared not to have mastered any of the content of the test.

This result is closely related to that of the reading assessment. If children in Class 4 are not able to read, they would not be able to take this test and do well. In other words, this test is a simple confirmation of the reading assessment study.

Report on the 2006 FSLE and Mock FSLE in the Njinikom Subdivision

The inspectorate in Njinikom made available the results of the 2006 mock FSLE taken by Class 7 students in May. This data was computerized and analyzed looking for any evidence of the impact of having begun one's education in mother tongue versus in English. According to the best information available, 283 of the test takers began their schooling in a mother tongue medium school while 204 of the test takers began their education in an English medium school. The analysis produced the following findings:

At the level of individual students we found the following:

- The top 12 performers were all from mother tongue schools (4 different schools);
- 32 of the top 33 performers were from mother tongue schools;
- Of the 55 students who scored above 50 percent on the test, 49 were from mother tongue schools;
- The mean score of test takers from mother tongue schools was 24 points higher than the mean score of students from English-medium schools.

At the level of schools, we found the following:

- Among the schools, 9 are or were mother tongue schools when these test takers were in junior primary and 10 are or were English-medium schools at that time.
- The average mother tongue school outperformed the average English-medium school by 29 points.
- The five (5) top schools were mother tongue schools and 7 of the top 9 were mother tongue schools. Conversely, the bottom three schools were English medium and 8 of the bottom 10 schools were English medium.
- The difference in schools is not confined to private versus government schools. Among government schools, the best mother tongue school outscored the best English-medium school by more than 65 points.

Using the actual FSLE from 2006, we found a similar pattern though slightly less marked (455 test takers; 189 from English-medium schools and 266 from Kom-medium schools);

At the level of individual students we found that:

- The top 6 students were from mother tongue schools;
- 28 of the top 29 performers were from mother tongue schools;
- 44 of the top 50 and 76 of the top 100 were from mother tongue schools;
- Among those scoring above 50 percent on the FSLE, 130 were from mother tongue schools while 54 were from English-medium schools.
- The average score of test takers from mother tongue schools was 22.1 points higher than the average score of students from English-medium schools;

At the level of individual schools we found that;

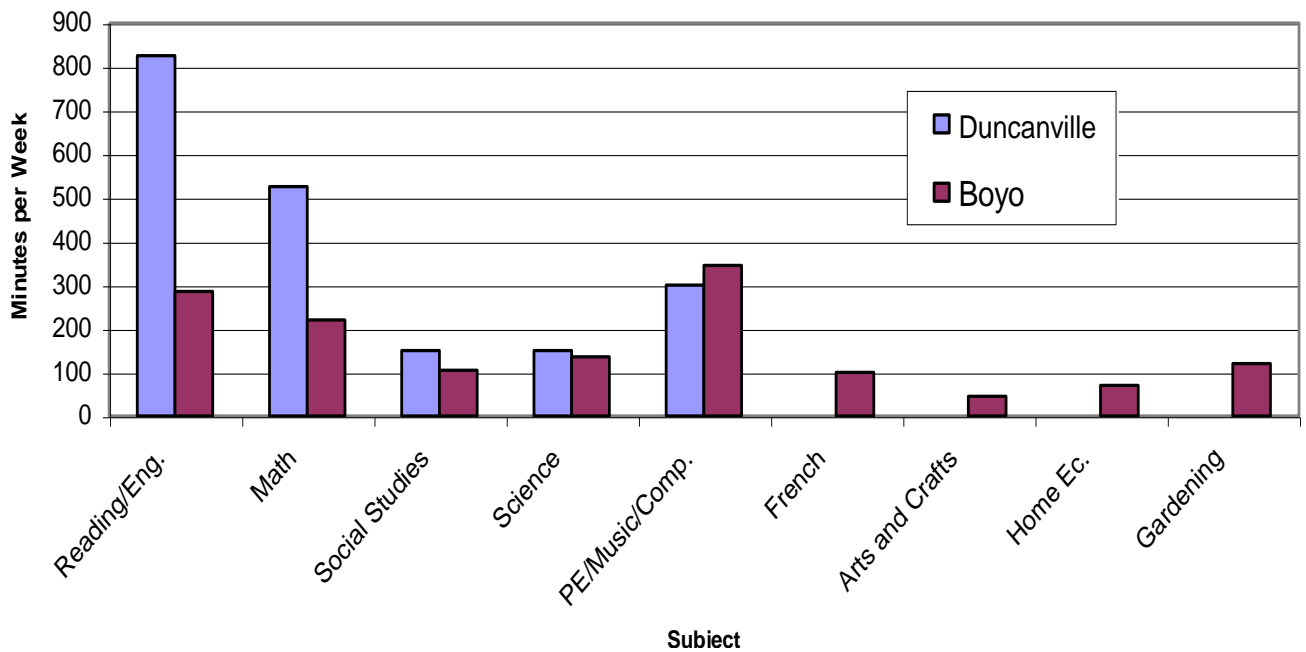
- The top two schools were mother tongue schools;
- 6 of the top 7 schools were mother tongue schools;
- 5 of the lowest 6 performing schools were English medium;
- Mother tongue schools outperformed English-medium schools by 23.3 points.

Given the unexpectedly large magnitude of this difference in performance, we are going to be examining test results from earlier years in an effort to discover whether this result was limited to just one year or represents a more systematic difference in performance between the two categories of schools.

The Issue of Time on Task

Given the poor performance in reading and the comments I’ve heard from many sources about the “new approach”, I decided to do a quick comparison of how time is allocated in the early classes here versus early classes in the school district in which I live in the US (considered an average or below average district by educators in my state). The comparison is pictured in Figure 3 on the next page.

Figure 3. Comparison of time on task between schools in Boyo Division and a typical school district in the US



The main disparity is time given in the US school to reading and to math. In the case of reading, the difference is 825 minutes per week there versus 285 minutes here (and the children there are already speakers of English). The difference in time given to math is a little less dramatic though still large—525 minutes in the US versus 215 minutes in the Kom area. In the US, reading and math are considered so foundational that little time is given to other subjects until these have been acceptably mastered. Given this extreme difference in time on task, it is probably not coincidental that these are two areas of especially weak performance in the schools in the Kom area. No doubt there are other contributing factors as well, but these stand out in a comparison of how instructional time is allocated between schools here and there.

(Note: For economy of space some subjects in the timetable have been combined. For example, the subjects Civics and Human Rights were combined into Social Studies.)

The FSLE and the “New Approach”

If the New Approach has had an impact on educational outcomes, the most readily accessible way to assess this impact would be in the results of the First School Leavers Exam. By comparing results on the FSLE before and after the implementation of the New Approach we should be able to get some hint as to how or whether the New Approach has benefited children.

In principle, the New Approach was implemented in 2001. Assuming this happened nationwide including in the Kom area (I have no information on how rapidly or effectively the New Approach was implemented in Kom.), we can readily determine how many years each recent cohort of students has participated in the New Approach. This is set forth in the following table.

Table 1. Number of years students in recent years have spent under the “New Approach.”

Year each cohort finished primary	Total years under the New Approach	Years in Junior Primary under the New Approach
2001	0	0
2002	1	0
2003	2	0
2004	3	0
2005	4	1
2006	5	2
2007	6	3

Children finishing their primary education this year (2006-2007) will be the first cohort to have had all of their primary education under the New Approach. In contrast cohorts which finished in the 2000-2001 had none of their education under this approach.

Results of scores on the FSLE for a number of years were analyzed looking for evidence of impact upon educational outcomes. The data compiled to date is shown in the following table.

Table 2. Performance of students in the Boyo Division on the FSLE.

Year	Average FSLE	SD	Passing Score	Differential	Pass Rate
1999	175.25	35.59	150	+25	79.7 %
2000	181.26	33.79	150	+31	83.7 %
2004	186.51	39.30	150	+36	82.0 %
2005	173.80	41.38	150	+23	72.6 %
2006	162.74	39.86	150	+12	60.6 %
2007 (est.)	166.00	40.00	175	-9	45 %

My best judgment is that we do not yet have enough data to come to any definitive conclusions. The addition of data from 1998 and the years 2001 to 2003 would complete the picture. My interpretation of the data which is available is as follows. It would seem that prior to 2001, performance varied up and down in a narrow range between 175 and 185. In 2005 performance edged below this range and in 2006 dropped significantly below this range to 162.74. This drop in performance is further confirmed by looking at the column labeled Pass Rate. In the year 2000 the overall pass rate for all test takers in Boyo Division was over 83 percent. By the year 2006, this had dropped to 60 percent.

There are only two plausible explanations for this result. One, the test has recently gotten significantly more difficult or two, education in the Kom area has gotten significantly less effective in the last five years. Performance on the FSLE began to decline measurably in 2005. This was the first year that children finishing primary had at least one year under the New Approach in junior primary. Children taking the FSLE in 2006 had two years in junior primary under the New Approach. Children taking the FSLE in 2007 will have had all of their junior primary education under the New Approach. The data on reading performance in junior primary provides some evidence that the New Approach has negatively affected primary education in Boyo.

In the last row of the figure is a projected mean score for 2007 for those in Boyo Division who will take the FSLE. The projected mean for 2007 is 166. While this looks higher than the average from 2006, it is actually lower because the test is being expanded to include a section on French raising the passing score to 175. In the column labeled Differential we note that this would mean that average performance in the Kom area would drop below passing.

The projected average score for 2007 is based on the following model:

- An estimated baseline score of 181 before 2005 when children began taking the test having had part of their education in junior primary under the New Approach.
- A mean loss of 8 points due to the fact that children are now taking the FSLE after six years of education rather than seven years of education. This loss is based on reading performance differentials between children in Grade 6 this year who were in Grade 5 last year versus those who were in Grade 6 last year.
- A mean gain of 20 points for performance on the French section to be added this year.
- A loss of 27 points due to the influence of the New Approach.

The net result is the loss of 15 points to the baseline score of 181 and a resulting mean score of 166. If this model comes close to matching or predicting the result of the FSLE in 2007, it will constitute strong evidence that the New Approach has had a decidedly negative impact on education in the Kom area. On the other hand, if the result of the FSLE in 2007 is significantly different from that predicted by the model, the model will be demonstrated to be invalid and the trends noted will have to be attributed to other factors or to random variation in the testing process.

Results of the classroom observation study

Previous studies by the World Bank reported inefficiencies of up to 30 percent in the use of instructional time in classrooms in developing countries. One has to be careful in generalizing such statistical assessments in as much as the underlying data are usually based on “snapshots” of actual classroom activity over a short period of time. One strategy for strengthening the reliability of such assessments is by doing similar studies in other areas—hence the study being reported here.

Apart from verifying (or not) other studies, a study of instructional efficiency in the classroom in a given educational region has internal justification in documenting levels of efficiency in that region. With such data, administrators can take steps to correct observed problems and deficiencies.

In this study, four different observers spent four days in 8 different schools documenting the use of instructional time by teachers in the Kom area. The result was a minute-by-minute record of what was going on in the classrooms of these schools over a total of 48 hours of school function. Observations were recorded on classroom atmosphere, teacher activity, student activity, and student focus.

Table 3. Allocation of the teachers' time during the classroom observation study.

Teacher activity	Units of time	Percent of total
Not present in classroom	3	.4
Looking for something	17	2.3
Working at desk	93	12.3
Lecturing/explaining	153	20.3
Doing Q & A	119	15.8
Giving a demonstration	32	4.2
Writing on the blackboard	78	10.3
Giving instructions	133	17.6
Giving feedback	29	3.8
Administering discipline	23	3.0
Answering questions	1	.1
Doing assessment	74	9.8

A few items merit additional comment. First, only once in 48 hours of observation was a teacher observed answering a question from a student. Even though teachers are encouraged to operate an interactive classroom, students ask few questions. This is partly cultural and partly an artifact of the lack of proficiency in English on the part of students in Grades 1 and 2.

Second, Table 3 suggests that a very large amount of time is spent in assessment activity. This datum needs clarification. On the one hand, the observations took place during a period in the semester when teachers tend to focus on assessment. On the other hand, a very inefficient strategy is used for assessment in the early grades in which all children come to school for the entire day but spend the day outside playing while being tested one on one by the teacher.

Table 4. What students do and how many of them are actually engaged on the task at hand.

Student activity	No. of blocks	Average 'on task' score
Listening to teacher	158	2.4 (80.0 percent of students on task)
Answering questions	117	3.4 (62.4 percent of students on task)
Copying from blackboard	71	3.3 (64.2 percent of students on task)
Doing seatwork	97	2.8 (72.9 percent of students on task)
Interacting with teacher	71	2.8 (72.9 percent of students on task)
Interacting with peers	25	3.2 (65.9 percent of students on task)
Working on a project	2	6.0 (16.7 percent of students on task)
Reading or writing	48	2.8 (72.9 percent of students on task)
Listening to a peer	6	3.3 (64.2 percent of students on task)
Group recitation	57	2.1 (85.2 percent of students on task)
Playing or talking	16	3.1 (67.7 percent of students on task)
Receiving discipline	0	0.0 (100.0 percent of students on task)
Undergoing assessment	69	6.0 (16.7 percent of students on task)
Performing (music, etc.)	3	3.0 (69.4 percent of students on task)

The most critical observation made about student engagement was the amount of (dis)engagement with the given activity. For most activities, the observed rate of being on task was in the general area of 65 to 70 percent. The overall rate of engagement for all students for the entire period is 67 percent.

Table 5 provides a summary estimate of overall instructional efficiency. The

Table 5. Analysis of how available instructional time is actually used.

School	Grade	Day	Actual in-class minutes	Available minutes	Percent utilization
GS Alim	1	Wednesday	232	245	94.7
GS Alim	1	Friday	160	245	65.3
GS Baingo	1	Friday	208	245	84.9
GS Baingo	2	Thursday	222	245	90.6
GS Fundong	1	Tuesday	267	245	109.0
GS Fundong	2	Thursday	264	245	107.8
GS Njinikejem	1	Wednesday	35	245	14.3
GS Njinikejem	1	Tuesday	174	245	71.0
CS Njinikom	1	Wednesday	179	245	73.1
CS Njinikom	1	Tuesday	0	245	0.0
CS Njinikom	2	Thursday	257	245	104.9
CS Njinikom	2	Tuesday	135	245	55.1
GS Bochain	1	Friday	232	245	94.7

According to the data, the following statements characterize utilization of instructional time in the classrooms in the Boyo Division (Grades 1 and 2).

- Total scheduled instructional minutes during the research period = 3185
- Total observed in-class minutes during the research period = 2365
- Approximate gross instructional efficiency = 74.3 percent
- When adjusted for direct lost time, instructional efficiency = 70.9 percent

Analysis of the data in the study produced an estimate of 70.9 percent efficiency in the use of instructional time in the classroom. Since the day is currently designed to provide 245 minutes per day of instructional time, this means that the amount of instructional time actually available has been reduced to 174 minutes or just under 3 hours. If we further adjust these data according to the on-task rate of 67.1 percent derived from Table 4, we would further reduce effective learning time to 117 minutes or 2 hours a day.

While judgments about rates of being on-task are necessarily subjective, it is hard to escape the observation that learning outcomes in the area as measured by the reading tests and the standardized tests administered are consistent with such data on instructional efficiency.