

Policy Brief

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Southern and Eastern Africa Consortium
for Monitoring Educational Quality

Achievement Levels of Grade 6 Pupils in Zimbabwe

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Introduction

This Policy Brief provides information about levels and trends in the reading and mathematics achievement of Grade 6 pupils in Zimbabwe. The results are drawn from two of the three large-scale cross-national research studies of the quality of education that were conducted by the 15 school systems involved in the Southern and Eastern Africa Consortium for Monitoring Educational Quality (SACMEQ).

Zimbabwe participated in the first SACMEQ I Project during 1995-1998. Data for the SACMEQ I Project were collected from 2 697 Grade 6 pupils and 376 teachers in 150 schools in Zimbabwe. The data collected for the SACMEQ I Project included a pupils' assessment in reading comprehension. However, Zimbabwe did not participate in the SACMEQ II Project (2000-2004) due to logistical and financial constraints.

The SACMEQ III Project was conducted during 2007-2011. Data were collected from 3 021 pupils and 279 teachers from 155 schools. This data collection included an assessment of the achievement levels of Grade 6 pupils in both reading and mathematics. The pupil reading and mathematics mean scores for Zimbabwe as a whole, and for each of the 10 provinces of Zimbabwe have been presented in Table 1. The pupil achievement results have also been presented in two ways: (a) as mean scores for reading and mathematics for 2007 in Table 1, and (b) as percentages of pupils reaching various levels of competence in reading for the SACMEQ I (1995) and SACMEQ III (2007) Projects, in Table 2.

SACMEQ's Literacy and Numeracy Indicators

When the SACMEQ Consortium was launched in 1995, SACMEQ's Governing Board (the SACMEQ Assembly of Ministers) emphasized that the planning of improvements in the quality of education required better indicators of the "literacy" and "numeracy" skills that were being acquired by pupils as they moved through the basic cycles of primary education. These indicators were considered important because they allowed senior decision-makers to assess the performance of school systems, and to provide information that could be used for strategies aimed at improving the quality of education.

The SACMEQ Ministers interpreted the concept of "literacy" as meaning reading comprehension skills that were transmitted through school language and reading instruction programmes. They interpreted "numeracy" as meaning the numerical and mathematical reasoning skills that formed the core of school mathematics programmes. The SACMEQ Ministers wanted their school systems to be judged by the extent to which pupils acquired the knowledge and skills that they were expected to acquire – as specified in official school curricula, textbooks, and teachers' guides.

The SACMEQ Ministers decided that the design of tests for the assessment of pupil achievement in reading and mathematics in the SACMEQ research programme should focus on:

- (a) **Grade 6** - because (i) they wanted to monitor the "output" of their primary education systems before large numbers of the pupil cohort began to leave school, and (ii) they considered that assessments held at lower Grade levels would result in distorted results

due to the "turbulence" in learning environments that occurred in many schools during the changeover (at around Grades 3 to 4) from the delivery of instruction in local to the official or national languages; and

- (b) **The National Language of Instruction** - because they were concerned that the acquisition of reading and mathematics skills in the national language of instruction was necessary for a successful transition to secondary schooling.

The SACMEQ reading and mathematics tests were developed from a careful analysis of the official school curricula, school syllabi, and textbooks used in both Zimbabwe and other SACMEQ school systems. These tests made it possible to employ Modern Item Response Theory methods to undertake item analyses and test-scoring procedures. The test scores were transformed so that pupils from both the SACMEQ II and III Projects were placed on a single scale with the SACMEQ II scores anchored to a mean of 500 and a standard deviation of 100.

The SACMEQ reading and mathematics tests were scored in two different ways for different reporting purposes:

- (a) **Scaled Scores** – which were useful for reporting the average performance of pupils at national and regional levels for both SACMEQ II and III Projects. These scores were scaled so that meaningful comparisons could be made across countries for each project, and across projects for each country. The average scaled scores for Zimbabwe and its provinces have been reported in **Table 1** for the SACMEQ III Project for 2007 only, because Zimbabwe did not participate in the SACMEQ II Project.
- (b) **Competency (or Skill) Levels** – which were useful for presenting a descriptive account of (i) the skills that pupils had acquired at eight levels of competence measured by the scaled scores, and (ii) the skills that must be acquired for pupils to move from one level of competence to a higher level. The competency levels for reading have been described in **Table 2** which shows the percentages of Zimbabwe's pupils at each competency level

for the SACMEQ I (1995) and the SACMEQ III Projects (2007).

Results for Average Scaled Scores

The average reading and mathematics scores of Grade 6 pupils across the 10 provinces of Zimbabwe were derived from SACMEQ reading and mathematics tests that were administered in Zimbabwe to 3 021 Grade 6 pupils from 155 schools for the SACMEQ III Project in in 2007.

In order to examine **levels of achievement**, the average scores were colour-coded to show their levels relative to the SACMEQ II Project overall mean of 500. Green figures indicated ten points or more above the SACMEQ average, red figures indicated ten points or more below the SACMEQ average, and black figures indicated within ten points of the SACMEQ average.

(a) Achievement Levels

From the green figures in **Table 1**, it can be seen that pupils in Bulawayo, Harare, Midlands and Masvingo performed well in both reading and mathematics because their mean scores were substantially higher than the SACMEQ II mean of 500. In contrast, pupils in Mashonaland East, Manicaland, Matabeleland North and Matabeleland South provinces registered mean scores that were below the SACMEQ mean of 500 for both reading and mathematics.

It is worth noting there were wide differences in pupil achievement across provinces. For example, pupil reading achievement ranged from a low of 464 score points in Mashonaland East and Matabeleland South provinces to a high of nearly 600 score points in Harare province. Similarly, pupil mathematics achievement ranged from a low of 474 in Matabeleland South province to a high of 585 in Harare province.

Results for Competence Levels

Another way in which the SACMEQ results can be presented is by calculating the percentages of pupils who had reached each level of competence on a hierarchical scale of competence levels as explained below.

The reading and mathematics test items were first arranged in order of difficulty, and then examined item-by-item to describe the specific skills required in order to provide correct responses. Items were then placed in groups so that the items in each group had similar difficulty values and shared a common theme with respect to the underpinning competencies required to provide correct responses.

This “skills audit” for the reading and mathematics tests resulted in the identification of eight hierarchical levels of competence for each test (Level 1 being the lowest, and Level 8 being the highest). Zimbabwe could not compare the skills audit for mathematics, as the SACMEQ I Project only measured reading scores.

The results of the skills audit have been presented in **Table 2**. A description or summary name was linked with each of the levels – in order to summarize the competencies associated with each group of test items. The first three competence levels in reading employed the same prefixes (Pre, Emergent, and Basic) in order to reflect the mechanical nature of the most elementary competencies. From the fourth level upwards, the prefixes of the summary names were different because they were designed to reflect deeper levels of understanding of subject specific competencies.

The eight competence levels provided a more concrete analysis of what pupils could actually do. They also suggested instructional strategies relevant to pupils who were learning at each level of competence.

From Table 2 it can be seen that there were more pupils performing at the most elementary reading competencies (Levels 1 and 2). A decrease in pupils performing at Levels 4 and 5 was also observed. Furthermore, an increase in the percentage of the pupils reflecting a deeper level of understanding and subject specific competencies (Levels 7 and 8) could also be observed through an increment of nearly 5 and 2 percent respectively.

In other words, in 2007 over 37 percent of the Grade 6 pupils performed at basic levels (1-3), 47 percent performed at middle levels (4-6), and 16 percent performed at the highest levels of reading competence (7-8).

The desirable situation would be to observe a decline in the percentages of pupils performing at the lower or mechanical elementary levels and observe an increase in the percentages of pupils reaching higher levels of reading competence.

Summary of Results

The results discussed in this Policy Brief show that there were variations in pupil mean scores among the provinces in Zimbabwe for both reading and mathematics.

Four provinces (Bulawayo, Harare, Midlands and Masvingo) had mean scores that were substantially higher than the SACMEQ mean for both reading and mathematics. However, the difference in reading mean scores ranged from 516 points in Masvingo to 599 points in Harare, and for mathematics the range was from 532 points in Masvingo to 585 points in Harare.

Five provinces (Mashonaland Central, Mashonaland East, Manicaland, Matabeleland North, and Matabeleland South) registered mean reading scores that were substantially below the SACMEQ II average of 500. For mathematics, four provinces (Mashonaland East, Manicaland, Matabeleland North, and Matabeleland South) achieved scores below the SACMEQ average.

It is important to note that according to educational experts, a difference in mean scores of around 50 score points represents an equivalent of one year difference in schooling. Therefore, the big differences in pupil mean score for both reading and mathematics should be a cause for concern.

The results discussed in this Policy Brief have shown that there were significant differences in the pupil mean scores among the provinces. Four out of ten provinces showed mean scores which were between sixteen and ninety nine points above

the SACMEQ II mean score for reading and mathematics. However, the majority of the provinces showed mean scores which were below the SACMEQ II mean score for both reading and mathematics.

In addition, there was a deterioration in the percentages of the pupils performing at the middle levels related to reading for meaning and interpretative reading (levels 4 and 5), and an increase in the percentage of pupils achieving only the basic levels of reading skills (Levels 1-3).

However, some improvement in the percentages of the pupils reaching deeper levels of understanding such as analytical and critical reading (levels 7 and 8) could be observed.

Research-Based Conclusions

The following conclusions have been based on the results discussed in this Policy Brief concerning: (a) achievement levels for Grade 6 pupils – as measured by scaled test scores.

1. Levels of Achievement:

In 2007, the average reading performance of Grade 6 pupils in Zimbabwe (508) was just around the SACMEQ II mean score of 500, although the average scores in four provinces (Bulawayo, Harare, Midlands and Masvingo) were substantially higher than the SACMEQ II mean. In mathematics, the average score (520) was higher than the SACMEQ mean.

Education authorities at the headquarters of the Ministry of Education, Sport, Arts and Culture should discuss the SACMEQ III results with schools, teachers, and communities in the provinces (Mashonaland Central, Mashonaland East, Manicaland, Matabeleland North, and Matabeleland South) that are not performing well, with a view to improving the quality of learning outcomes in these provinces.

2 Trends in Reading Achievement

The results concerning the various levels of competence in reading indicated that there was a reduction in percentages of the pupils performing at the middle levels related to reading for meaning and interpretation (Levels 4 and 5) and an increase in pupils performing at the basic levels (1-3). There was, however, some improvement in the percentages of pupils reaching higher levels of competence, such as analytical and critical reading (Levels 7 and 8).

The Ministry of Education should scale up the reading culture in schools through the provision of reading materials in order to improve the reading levels of all pupils.

A Concluding Comment

The task of improving the quality of education for a whole system of education must be seen as a long-term challenge. There are very few examples in the world where “quick fix” responses have resulted in system-wide positive improvements in the quality of education delivered across a nation.

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A copy of this Policy Brief can be downloaded from the SACMEQ Website: www.sacmeq.org

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Table 1: Pupil Reading and Mathematics Mean Scores across provinces in Zimbabwe

Pupil mean scores 2007		
	Reading	Mathematics
Bulawayo	590	577
Harare	599	585
Mashonaland Central	481	500
Mashonaland East	464	486
Mashonaland West	497	510
Midlands	533	551
Manicaland	466	488
Matabeleland North	477	486
Matabeleland South	464	474
Masvingo	516	532
ZIMBABWE	508	520
SACMEQ III	512	510

Values in **Green** = 10 points or more above SACMEQ II mean of 500

Values in **Black** = less than 10 points above or below SACMEQ II mean of 500

Values in **Red** = 10 points or more below SACMEQ II mean of 500

Note: Zimbabwe did not participate in the SACMEQ II Project in 2000.

Table 2: Percentages of Pupils Reaching Various Levels of Competence in Reading

Reading Skill Levels			1995	2007	Change
Level	Description	Skill/Competence	%	%	%
1	Pre-reading	Matches words and pictures involving concrete concepts and everyday objects.	2.3	6.0	+3.7
2	Emergent Reading	Matches words and pictures involving prepositions and abstract concepts.	6.8	12.5	+5.7
3	Basic Reading	Interprets meaning (by matching words and phrases, completing sentences).	19.1	18.7	-0.4
4	Reading for Meaning	Reads to link and interpret information located in various parts of the text.	30.4	20.7	-9.7
5	Interpretive Reading	Interprets information from various parts of the text in association with external information.	21.3	15.0	-6.3
6	Inferential Reading	Reads to combine information from various parts of the text so as to infer the writer's purpose.	10.7	11.0	+0.3
7	Analytical Reading	Locates information in longer texts (narrative, document or expository) in order to combine information from various parts of the text so as to infer the writer's personal beliefs (value systems, prejudices and biases).	6.9	11.7	+4.8
8	Critical Reading	Reads from various parts of the text so as to infer and evaluate what the writer has assumed about both the topic and the characteristics of the reader	2.4	4.5	+2.1