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What are the levels and trends in reading and mathematics achievement?

One of the most important and exciting features of the SACMEQ research programme has been that participating education systems have been able to make a scientific assessment of trends over time in the reading and mathematics achievement levels of Grade 6 pupils, and also to make valid comparisons of the performance of their own education systems with the performance of other similar education systems.

The reading and mathematics achievement levels of Grade 6 pupils from the 15 SACMEQ school systems have been presented in the table below for the SACMEQ Project II (2000) and the SACMEQ III Project (2007). These research results were derived from tests that were based on a careful analysis of official curricula, school syllabi, and textbooks used in SACMEQ school systems. These tests included "overlapping" test items which 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 and their teachers from both SACMEQ studies were placed on a single scale (for SACMEQ II Project pupils) with a mean score of 500 and a standard deviation of 100.

In the table below the average reading and mathematics scores for Grade 6 pupils in the 15 SACMEQ countries have been presented for SACMEQ II (2000) Project and the SACMEQ III Project (2007). In order to examine **levels of achievement** the average scores have been colour-coded to show their levels relative to the SACMEQ II Project overall pupil mean of 500. Green figures indicate 10 points or more above the SACMEQ average, red figures indicate 10 points or more below the SACMEQ average, and black figures indicate similar (within 10 points) to the SACMEQ average. In order to show **trends in achievement** a colour-coded arrowhead has been added in the table to show changes in average scores between 2000 and 2007: a green arrowhead denotes an increase in average achievement by 10 points or more, a red arrowhead denotes a decrease in average achievement by 10 points or more, and a grey arrowhead denotes a negligible change (either way) of less than 10 points.

Achievement levels: From the green figures in the table, it may be seen that six SACMEQ countries (Botswana, Kenya, Mauritius, Seychelles, Swaziland, and Tanzania) showed high levels of achievement because they were substantially above the SACMEQ average for both reading and mathematics in both 2000 and 2007. On the other hand, the red figures showed that three SACMEQ countries (Lesotho, Malawi, and Zambia) had much lower levels of achievement because they were substantially below the SACMEQ average for both reading and mathematics in both 2000 and 2007. The other six SACMEQ countries had "mixed performance levels". For example, Mozambique performed well in reading and mathematics during 2000 but poorly in these areas during 2007.

Achievement trends: From the arrowheads in the table it may be seen that five SACMEQ countries (Lesotho, Mauritius, Namibia, Swaziland, and Tanzania) registered substantial improvements between 2000 and 2007 for both reading and mathematics. Only one SACMEQ country (Mozambique) registered a substantial deterioration in achievement in both reading and mathematics. Mozambique's drastic decline of over 40 points in reading and mathematics was probably linked with rapid structural changes in the education system during this period that resulted in massive increases in Grade 6 enrolments without corresponding increases in human and material resources. This impact highlights the EFA challenge for all countries to strike a balance between increases in enrolment and improvements in the quality of education for all.

The largest increases in average scores for reading were in Zanzibar (56 points), Namibia (48 points), and Mauritius (37 points). For mathematics, four education systems (Lesotho, Mauritius, Namibia, and Tanzania) registered increases in average scores of around 30 to 40 points.

Levels and trends in pupil achievement for SACMEQ countries

	Pupil reading score			Pupil mathematics score		
	2000	2007		2000	2007	
Botswana	521.1	534.6	▲	512.9	520.5	▶
Kenya	546.5	543.1	▶	563.3	557.0	▶
Lesotho	451.2	467.9	▲	447.2	476.9	▲
Malawi	428.9	433.5	▶	432.9	447.0	▲
Mauritius	536.4	573.5	▲	584.6	623.3	▲
Mozambique	516.7	476.0	▼	530.0	483.8	▼
Namibia	448.8	496.9	▲	430.9	471.0	▲
Seychelles	582.0	575.1	▶	554.3	550.7	▶
South Africa	492.3	494.9	▶	486.1	494.8	▶
Swaziland	529.6	549.4	▲	516.5	540.8	▲
Tanzania	545.9	577.8	▲	522.4	552.7	▲
Uganda	482.4	478.7	▶	506.3	481.9	▼
Zambia	440.1	434.4	▶	435.2	435.2	▶
Zanzibar	478.2	533.9	▲	478.1	486.2	▶
Zimbabwe[1]	504.7	507.7	▶	××	519.8	××
SACMEQ	**500.0**	**511.8**	▲	**500.0**	**509.5**	▶

▲ Increased by 10 points or more ▶ Minimal change (less than ±10) ▼ Decreased by 10 points or more

[1]Zimbabwe did not participate in the SACMEQ II Project (2000) and the value given in grey (reading) is from the SACMEQ I Project (1995).

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