

Policy Brief

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**Southern and Eastern Africa Consortium
for Monitoring Educational Quality**

Trends in Achievement Levels of Grade 6 Learners in Namibia

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Introduction

This policy brief provides information about levels and trends in the reading and mathematics achievements of Namibian Grade 6 learners. The results are drawn from two large-scale, cross-national research studies of the quality of education conducted by the fifteen school systems involved in the Southern and Eastern Africa Consortium for Monitoring Educational Quality (SACMEQ).

In 1995, the Namibian Ministry of Education participated in SACMEQ's foundation research programme, the SACMEQ I Project, so as to establish post-independence benchmarks for the conditions of schooling and the quality of education in primary schools.

The results from the initial research were very alarming in that they showed that the performance of Namibia's Grade 6 learners was lower than that of the six other countries that participated in the SACMEQ I Project. The results also revealed large inequalities in the educational achievement levels of learners across schools and regions.

The SACMEQ I Project's results raised many questions about certain aspects of the post-independence education reforms that had been introduced into Namibia's schools. The results of the SACMEQ I Project also gave rise to debates that prompted the Namibian Head of State to establish a Presidential Commission of Inquiry on Education, Culture, and Training, which confirmed the SACMEQ research findings about: (a) the generally poor quality of education, and (b) the inequalities in both resource inputs and learning outcomes (GRN, 1999).

Later research results from the SACMEQ II Project conducted in 2000 provided similar results to those of SACMEQ I. Consequently, the Ministry of Education decided to take several important decisions related to the management and operation of the primary school system.

Firstly, the evidence of consistently poor achievement levels among learners in the six northern regions (Caprivi, Kavango, Oshana, Oshana, and Oshana) was used to target extra training and extra resource inputs towards these regions during 2001-2006 through the Basic Education Support (BES) Projects (funded by USAID).

Secondly, a new Strategic Plan for the Ministry of Basic Education Sport and Culture (MBESC) was prepared in 2001 which set the important goal that "all learners should achieve basic competencies in the required subjects of the curriculum by 2005", and that "all schools should improve the teaching and learning of English, Mathematics, and Science by 2006" (MBESC, 2001).

Thirdly, the new MBESC's Strategic Plan was followed by an in-depth, sector-wide analysis of the entire education system (Marope, 2005), and subsequently by the launch of the Education and Training Sector Improvement Programme (ETSIP). The ETSIP initiative adopted learner achievement targets that were based on the goal of improving national mean scores on the SACMEQ reading and mathematics tests (Ministry of Education, 2007).

It was within the context of the above-mentioned policy and programming developments that Namibia embarked upon the SACMEQ III Project, which commenced in 2006.

The Ministry of Education wanted to examine whether:

(a) Namibia's Grade 6 learners were beginning to achieve more acceptable levels in reading and mathematics, and

(b) the general trend in the reading and mathematics achievements of Namibia's Grade 6 learners, between 2000 and 2007, indicated that Namibia's primary school system was either improving or becoming even worse, or remaining about the same.

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 learners acquired as they moved through the basic cycles of primary education. These indicators were considered important because: (a) they allowed senior decision-makers to assess the performance of school systems, and (b) they provided information that could be used for strategies aimed at improving the quality of education.

The SACMEQ Ministers interpreted 'literacy' as being the 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 learners 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 the tests for the assessment of learner 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 learner 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 and 4) from the delivery of instruction in the 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 Namibia 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 learners from both the SACMEQ II (2000) and III (2007) 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 learners at national and regional levels for both SACMEQ 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 Namibia and its regions have been reported in Table 1 for both SACMEQ II and SACMEQ III.

(b) Competency (or Skill) Levels - which were useful for presenting a descriptive account of: (i) the skills that learners acquired at eight levels of competence measured by the scaled scores, and (ii) the skills that must be acquired for learners to move from one level of competence to a higher level. The competency levels for reading and mathematics are described in Table 2(a) and Table 2(b), respectively. These tables show the percentages of Namibia's learners at each competency level for the SACMEQ II Project (2000) and the SACMEQ III Project (2007).

Results for Average Scaled Scores

The average reading and mathematics scores of Grade 6 learners across the 13 regions of Namibia were derived from SACMEQ reading and mathematics tests administered in Namibia to 5,048 Grade 6 learners from 270 schools for the SACMEQ II Project in 2000, and 6,398 Grade 6 learners in 267 schools for the SACMEQ III Project in 2007.

In order to examine the **levels of achievement**, the average scores were colour-coded to show their levels relative to the SACMEQ II Project's 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.

In order to show **trends in achievement**, colour-coded arrowheads were used to indicate changes in average scores between 2000 and 2007. A green arrowhead denoted an increase of ten points or more, a red

arrowhead denoted a decrease of ten points or more, and a grey arrowhead denoted change of less than 10 points above or below the SACMEQ mean of 500.

(a) Achievement Levels

It can be seen from Table 1 that for Namibia as a whole, the mean score for reading increased by 48 points, from 449 points in 2000 to 497 points in 2007. For mathematics, there was an increase of 42 points in the national mean score from 431 points in 2000 to 473 points in 2007.

From the green figures in Table 1, it can be seen that three regions (Erongo, Karas, and Khomas) showed high levels of reading achievement, because they were substantially above the SACMEQ average for both 2000 and 2007. For mathematics, only the Khomas region registered scores that were more than 10 points above the SACMEQ average for both the SACMEQ II and SACMEQ III Projects. Several regions showed improvements by registering green figures in 2007, even though their scores were not green in 2000. For example, Otjozondjupa in reading, and Erongo and Karas in mathematics.

The red figures in Table 1 indicated that five regions (Caprivi, Kavango, Ohangwena, Omusati, and Oshikoto) showed much lower levels of achievement relative to the SACMEQ average for both reading and mathematics in both 2000 and 2007.

There were several regions that had ‘mixed’ performance levels. For example, Omaheke, Otjozondjupa, and Oshana performed poorly in reading and mathematics during 2000, but performed well by registering score increases of between 30 to 75 points in these subjects in 2007.

(b) Achievement Trends

The green arrowheads in Table 1 show that almost every region registered substantial improvements in average scores between 2000 and 2007 for both reading and mathematics, even though many of the regions performed below the SACMEQ overall average.

The average increase in learner performance of more than 30 to 50 points for both reading and mathematics (especially in Caprivi, Kavango, Kunene, Ohangwena, Omusati, Oshana, and Oshikoto) was a commendable achievement for Namibia’s education system.

It should be noted that there had been a decline in the average reading performance of Grade 6 learners between the SACMEQ I (1995) and SACMEQ II

(2000) Projects for Namibia as a whole, and for all regions except Hardap (Makuwa, 2004). Therefore, the improvements registered between 2000 and 2007 for most regions showed a very good trajectory.

Results for Competence Levels

Another way of presenting the SACMEQ results is by calculating the percentages of learners who reached each level of competence on a hierarchical scale of competence levels as explained below.

The reading and mathematics test items were arranged firstly 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).

The results of the skills audit have been presented in Tables 2(a) and 2(b). 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 and mathematics 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 for reading and mathematics, and were designed to reflect ascending levels of understanding of subject-specific competencies.

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

For reading, there were increases in the percentages of learners who were performing at Levels 4 to 8, as indicated by the plus (+) symbols in front of the figures in the final column of Table 2(a).

This meant that the percentages of learners performing at the higher levels of reading competence were increasing, which was very pleasing. There was a corresponding decline in the percentages of learners performing at the lower levels of competence

(Levels 1-3), as indicated by the minus (-) symbol in front of the figures.

For mathematics, (see Table 2(b)) the percentage of learners performing at Level 3 (Basic Numeracy) increased by +19 percent, and the percentage of learners performing at Level 4 (Beginning Numeracy) increased by +8 percent. The percentages of learners performing at Levels 1 and 2 decreased by -15 percent each.

These results for mathematics were also very pleasing, because a large percentage of learners had been removed from the lower competence levels in mathematics.

Summary of Results

The results discussed in this policy brief have shown that there were improvements in the performance of Namibian Grade 6 learners in both reading and mathematics between 2000 and 2007 in most regions, although there were still some regions in 2007 that were performing below the SACMEQ mean score of 500.

In addition, the results show that in both 2000 and 2007 there were very wide differences in learner achievement across the 13 regions of Namibia.

The general improvement in learner achievement levels in Namibia between 2000 and 2007 in the six northern regions can probably be partially attributed to a combination of several interventions taken by educational authorities during the period 1997-2007.

For example, the School Improvement Programme executed through the BES Project may have played a major role in improving performance in the six northern regions. The BES Project covered about 75 percent (AED News, 2007) of the primary schools in the six regions and involved around 3,910 teachers and 3,695 parents (LeCzel, 2004).

The BES Project mobilised collective effort for improving the quality of education through the active participation of parents, learners, teachers, advisory teachers, resource teachers, school inspectors, regional education officers, regional directors, staff from the National Institute for Educational Development (NIED), the Monitoring and Evaluation Unit in the Directorate of Planning and Development (PAD), the Directorate of Educational Programmes Implementation (EPI), and senior officers in the Ministry of Basic Education and Culture (LeCzel, 2004).

Research-Based Conclusions and Suggestions

The following conclusions are drawn from the results discussed in this policy brief concerning: (a) achievement levels of Grade 6 learners as measured by scaled test scores, and (b) achievement trends of Grade 6 learners as measured by their location in one of the 8 competency levels.

1. Achievement Levels: In 2007 the average reading performance of Grade 6 learners in Namibia (497) was close to the SACMEQ overall average (512). Whereas the average mathematics performance of Namibia's Grade 6 learners in 2007 (473) was a considerable distance below the SACMEQ overall average (510).

Education authorities should share this information with the Curriculum and the In-Service Teacher Education Divisions at NIED so as to seek ways of improving the quality of reading and mathematics instruction in Namibian primary schools.

2. Achievement Trends: Between 2000 and 2007 almost all Namibian regions experienced improvements in the average reading and mathematics performances of Grade 6 learners. The only exceptions were the Hardap and Khomas regions, which both lost ground, especially Hardap, in the area of mathematics.

The Ministry of Education should congratulate the teaching force, teacher training institutions, and regional education authorities for these improvements, and urge all involved in the Ministry of Education to ensure that everything possible is done to ensure a continuation of these positive trends.

3. Successful Programmes: There were a number of important education programmes and initiatives launched and implemented in the period 2000-2007. Any one of these or all of them taken together may have formed the springboard that launched improvements in the average reading and mathematics learning outcomes.

The Ministry of Education may wish to launch an evaluation programme to assess which of these supplementary inputs to the learning environment were likely to have had the most impact on generating the observed improved learning outcomes. This information is required so that

lessons can be learned from the most effective initiatives.

Concluding Comments

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

For this reason, Namibia has done its very best to take a long-term view of the development and renovation of its education system, which has required many dedicated people working systematically and patiently for two decades on revising and implementing new curricula, making a national change in the official language of instruction, expanding and improving teacher education programmes, and correcting major historical imbalances in the provision of essential resource inputs to schooling.

The results reported in this policy brief suggest that since 2000 these efforts have started to pay dividends. The SACMEQ research results for Namibia in 1995 and 2000 showed that pupil achievement levels were persistently low at both national and regional levels. However, the 2007 SACMEQ research results for Namibia indicated substantial improvements.

While Namibia is still slightly below the overall SACMEQ average in both reading and mathematics, the excellent improvements between 2000 and 2007 are encouraging, especially since the magnitude of Namibia's improvements was the highest for all the SACMEQ countries (Makuwa, 2010).

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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: Levels and Trends in Learner Achievement Across Regions in Namibia

	Learner reading score			Learner mathematics score		
	2000	2007		2000	2007	
Caprivi	417	488	▲	405	460	▲
Erongo	528	580	▲	494	525	▲
Hardap	519	509	►	499	485	▼
Karas	510	548	▲	483	511	▲
Kavango	432	482	▲	419	456	▲
Khomas	567	575	►	531	525	►
Kunene	448	502	▲	445	479	▲
Ohangwena	417	464	▲	399	450	▲
Omaheke	434	495	▲	426	470	▲
Omusati	424	462	▲	410	453	▲
Oshikoto	428	471	▲	420	459	▲
Otjozondjupa	469	527	▲	459	491	▲
Oshana	430	501	▲	402	477	▲
NAMIBIA	449	497	▲	431	473	▲
SACMEQ	500.0	512	▲	500.0	510	▲

Source: SACMEQ.

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

Notes about trend:

▲ Increased by 10 points or more

► Minimal change (less than ±10)

▼ Decreased by 10 points or more

Table 2(a): Percentages of Learners Reaching Various Levels of Competence in Reading

Reading Skill Levels			2000	2007	Change
Level	Description	Skill/Competence	%	%	%
1	Pre-reading	Matches words and pictures involving concrete concepts and everyday objects.	13	3	-10
2	Emergent Reading	Matches words and pictures involving prepositions and abstract concepts.	31	11	-20
3	Basic Reading	Interprets meaning (by matching words and phrases, completing sentences).	27	25	-2
4	Reading for Meaning	Reads to link and interpret information located in various parts of the text.	14	26	+12
5	Interpretive Reading	Interprets information from various parts of the text in association with external information.	6	16	+10
6	Inferential Reading	Reads to combine information from various parts of the text so as to infer the writer's purpose.	4	10	+6
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).	4	7	+3
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	3	+1

Table 2(b): Percentages of Learners Reaching Various Levels of Competence in Mathematics

Mathematics Skill Levels			2000	2007	Change
Level	Description	Skill/Competency	%	%	%
1	Pre-Numeracy	Applies single step addition and subtraction.	20	5	-15
2	Emergent Numeracy	Applies a two-step addition and subtraction involving carrying.	57	42	-15
3	Basic Numeracy	Translates verbal information into arithmetic operations.	15	34	+19
4	Beginning Numeracy	Translates verbal or graphic information into simple arithmetic problems.	4	12	+8
5	Competent Numeracy	Translates verbal, graphic, or tabular information into an arithmetic form in order to solve a given problem.	2	3	+1
6	Mathematically Skilled	Solves multiple-operation problems (using the correct order) involving fractions, ratios, and decimals.	2	2	0
7	Concrete Problem Solving	Extracts and converts information from tables, charts and other symbolic presentations in order to identify, and then solve multi-step problems	1	0	-1
8	Abstract Problem Solving	Identifies the nature of an unstated mathematical problem embedded within verbal or graphic information and then translate this into symbolic, algebraic or equation form in order to solve a problem.	0	0	0

Source: SACMEQ.