

SACMEQ Educational Policy Research Series

The SACMEQ II Project in Mozambique:
A Study of the Conditions of Schooling
and the Quality of Education.

Mozambique
Working Report

by

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Foreword

The origins of the Southern and Eastern Africa Consortium for Monitoring Educational Quality (SACMEQ) date back to 1991, the year when several Ministries of Education in Eastern and Southern Africa started working closely with UNESCO's International Institute for Educational Planning (IIEP) on the implementation of integrated educational policy research and training programmes.

In 1995 these Ministries of Education formalized their collaboration by establishing a network that is widely known as SACMEQ. Fifteen Ministries are now members of SACMEQ: Botswana, Kenya, Lesotho, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, Tanzania (Mainland), Tanzania (Zanzibar), Uganda, Zambia, and Zimbabwe.

SACMEQ is registered in Zimbabwe as an Independent Intergovernmental Non-profit Organization. Its Coordination Centre is located within UNESCO's Harare Cluster Office and is managed by a Director who works under the guidance of a six-member Managing Committee. SACMEQ's Assembly of Ministers meets every two years and provides overall policy guidance concerning SACMEQ's mission and programmes.

The focus of SACMEQ's capacity building programmes has been on building the capacity of Ministries of Education to monitor and evaluate the quality of their basic education systems. SACMEQ employs innovative training approaches that include a combination of face-to-face training, hands-on experience, computer laboratory sessions, and on-line support via the Internet. SACMEQ also encourages a unique form of collaboration among SACMEQ National Research Coordinators in the fifteen member countries as they share and exchange skills and successful experiences.

In September 2004 SACMEQ was awarded the Comenius Medal for its innovative approaches to delivering cross-national educational research and training programmes.

This report provides a description of the results of the SACMEQ II Project - SACMEQ's second major educational policy research project. The results of the SACMEQ I Project were reported in seven national reports for Kenya, Malawi, Mauritius, Namibia, Zambia, Zimbabwe, and Tanzania (Zanzibar).

The SACMEQ Data Archive was launched in June 2004. This valuable information resource contains data, data collection instruments, manuals, technical papers, and related publications from both SACMEQ projects. Copies of the archive may be obtained by completing the registration form on the SACMEQ Website (www.sacmeq.org).

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Contents

Chapter 1	The Setting of the Study	1
Chapter 2	The Conduct of the Study	11
Chapter 3	Pupils' Characteristics and their learning environment	27
Chapter 4	Teachers' Characteristics	59
Chapter 5	School Directors' Characteristics	89
Chapter 6	Equity in the Allocation of Human and Material Resources	103
Chapter 7	The Reading and Mathematics Achievement Levels	115
Chapter 8	Agenda for Action	137
References		150

Chapter 1

The Setting of the Study

Introduction

Background information on Mozambique and its educational system has been provided in this first chapter. First there is information about the general characteristics of the country, with a focus on its geographical features, administrative divisions, and population characteristics. This has been followed by a general overview of Mozambique's education system, namely, its key features, its historical development and the challenges it faces. In short, this is a framework for the interpretation of the data analyses presented later in the report.

Brief description of Mozambique

The Republic of Mozambique is situated in the south eastern part of Africa and covers an area of 799 380 square kilometres. According to the 1997 census, Mozambique has a population of 16 099 246 inhabitants. The country was a Portuguese colony from the fifteenth century until it attained political independence in 1975 after 10 years of a bitter armed struggle. Peace was interrupted once again during the early 1980s when the country experienced a civil war which caused the loss of many lives and left in its wake a trail of destruction. As a result, a lot of infrastructure had to be rebuilt. Peace finally returned to Mozambique in 1992 and since then, the country has undergone rapid socio-economic development.

The country is divided into 11 provinces namely Cabo Delgado, Niassa, Nampula, Tete, Zambézia, Manica, Sofala, Inhambane, Gaza, Maputo Province and Maputo City. These provinces have been shown in Figure 1.1.

The capital, Maputo City, comprises about 6.1 percent of the total population of Mozambique. According to the 1997 census 52.1 percent of the population were female. The population density was about 20.1 inhabitants per square kilometre. The gross illiteracy rate was 46.9 percent, and the overall illiteracy rate among the female population was 60.7 percent.

Mozambique is a multicultural and multilingual country with 18 main Bantu languages (Siteo and Ngunga, 2000) and many dialects. It is predominantly a rural country, with about 71.4 percent of the Mozambican population living in many small settlements located in areas that

Mozambique Chap1

are difficult to access due to a poor transport and communication network. The official language is Portuguese and this is the only language of instruction. However, this language is spoken by only about 30 percent of the population, mainly those who are resident in urban areas. The Ministry of Education's (MINED) plan was to introduce the mother tongue as the medium of instruction as from 2004. Initially, it will be introduced in Grades 1 and 2 in some schools located in linguistically homogeneous zones.



Figure 1.1: Political map of Mozambique

According to the Ministry of Education, in 2000 the gross school enrolment ratio by level was as follows:

Lower Primary school (Grade 1 to 5)	88.4 percent
Upper Primary school (Grade 6 & 7)	8.1 percent
Junior Secondary (Grade 8 to 10)	3.0 percent
Senior Secondary (Grade 11 & 12)	0.4 percent

According to the Ministry of Education statistics, in 2000 the drop out rate at the primary school level was about 7.1 percent. The drop out rate for upper primary level (Grades 6 and 7) was about 5.1 percent and the pass rate was 59.7 percent.

Mozambique's school system

The National System of Education (SNE) was introduced in 1983. It is the first system designed by Mozambicans themselves after independence. Before 1975, Mozambique's education system consisted of missionary schools, public schools and private schools. The missionary schools catered for the "natives", mainly in the rural areas. The public schools catered for the Portuguese and the "assimilados". These were located mainly in the urban areas. The private schools (mostly church owned) were mainly for the well off Portuguese and "assimilados". One of the characteristics of the pre-independence education system was that it was very selective and this has been retained by the post-independence education system. According to Martins (1992), out of every 1,000 pupils enrolled in the first grade, only 77 successfully completed lower primary school, (namely, Grade 1 to 5).

The SNE comprises five sub-systems, namely General Education, Adult Education, Technical/Vocational Education, Teacher Training and Higher Education. The education system is organised into three levels, namely, primary, secondary and higher education.

Pre-primary education

Pre-school education is provided in the crèches and kindergartens, usually under the Ministry of Health or private institutions. This education is not compulsory and is beyond the means of the majority of Mozambican citizens. As a result, only a small percentage of the target age group participates in formal pre-school education.

General education

General education is the backbone of the National System of Education, and has the following levels:

Level 1 - General primary education

In Mozambique primary education is free and compulsory. It is subdivided into two levels, namely, the lower primary which consists of five years of schooling (Grades 1 to 5) and upper primary which comprises two years (Grades 6 and 7). The official age of entry into school is 6 years. Usually, primary schools operate in two shifts. Because of the shortage of school places at this level, some primary schools operate three shifts. After seven years of primary education the pupils have a choice of enrolling for general secondary education, lower

Mozambique Chap1

primary teacher training colleges, basic technical and vocational schools or secondary education for adults.

Level 2 - General secondary education

General secondary education is divided into two stages. The first stage, junior secondary, comprises three years (Grades 8 to 10). The second stage, senior secondary (also known as pre-university) comprises two years (Grades 11 and 12). Both levels of education are offered on the same premises.

Level 3 - Higher education

Public and private universities, higher institutes, and schools of higher education and academies provide higher education to those who have completed Grade 12. As a result of the stiff competition for limited places at this level, all pupils have to sit for an entry examination.

Teacher education

Teacher education is provided by the lower primary school teacher training colleges and primary school teacher training institutes and higher education institutions. To qualify for entry into lower primary school teacher training colleges, one has to hold a primary school certificate, and the teachers trained in these colleges teach in lower primary schools. The entry qualification for primary school teacher training institutes is Grade 10. The teachers trained in these institutes can teach in both lower and upper primary schools. The teachers for both lower and higher secondary education are trained in universities.

Technical and vocational training

Technical and vocational training institutions equip students with skills that are required by the industry and other sectors of the country's economy, and largely prepare the workforce needed for the social and economic development of the country.

The administration of school education

In Mozambique, the Ministry of Education headquarters assumes overall responsibility for the administration of all education institutions in the country. The Minister of Education, the Vice-Minister and the Permanent Secretary, sit at the apex of the Ministry.

The Ministry comprises 10 national directorates namely,

- The National Directorate for Finance and Administration,
- The National Directorate for Basic Education,
- The National Directorate for Technical and Vocational Education,
- The National Directorate for Secondary Education,
- The National Directorate for Adult Education,
- The National Directorate for Human Resources Development,
- The National Directorate for Teacher Training,
- The National Directorate for Pedagogic Support Resources,
- The Inspectorate, and
- The National Directorate for Planning.

There is a Provincial Directorate of Education for each of the 11 provinces, and this directorate falls under the command of a Provincial Director. Below the Provincial Directorate there is the District Directorate headed by a District Director. There are 146 districts in Mozambique. Below the District Directorate there is the school which is headed by a School Director.

Curriculum development for general education (primary, secondary and pre-university) and teacher training (basic and intermediate) is carried out by the National Institute for Educational Development (INDE).

In 2000, the Ministry of Education initiated the process of decentralising curriculum development and monitoring. This system allows 20 percent of the national curriculum for basic education to be the “local curriculum”, implying that this portion of the curriculum was to be developed locally. This is one of the major innovations of the “Basic Education Curriculum Transformation in Mozambique” It is expected that the “local curriculum” will provide for the specific learning needs of the learners.

Financing of education

One of the fundamental challenges facing the Mozambique's education system is the cost of expanding access and improving quality. According to MINED (2003), between 1999 and 2001, the real education expenditure increased by 15 percent. The Government has made it clear that it takes its commitment to expand education opportunities seriously by increasing the share of public expenditure from 18 to 20 percent in the same period. In 2001 Mozambique spent the equivalent of 3.4 percent of its GDP on education. This is low in comparison to the average of other developing countries that spend about 3.9 percent of their GDP on education. The recurrent unit cost per Mozambican primary school pupil in 2001 was US\$28 whereas the average recurrent unit cost for Sub-Saharan Africa was US\$143.

Education has been the single largest category of recurrent investment expenditure, after road construction and maintenance. Considering that increasing the salaries of civil servants, including teachers, is one of the Government's short-term priorities, the share of public resources devoted to education is set to increase significantly because the majority of public sector workers are teachers. Nevertheless, maintaining all the current expenditure levels is beyond the means of the Ministry of Education and a large proportion of the annual budget is consequently paid for with funds from abroad.

The Government has a number of external partners, and the most important ones include Swedish International Development Authority (SIDA), Canadian International Development Agency (CIDA), Danish International Development Agency (DANIDA), The Netherlands and The World Bank. All these have expressed their willingness to shift their assistance towards program support for the implementation of the Strategic Plan of Education.

In order to ensure the highest possible level of co-operation among external donors to education, every year the Ministry of Education convenes a meeting with representatives of the major financial and technical agencies involved in the sector. By so doing, the Ministry of Education is able to provide leadership and facilitate coordination among donors in the implementation of the Ministry's strategy.

Educational policy and policy reforms since 1995

Within the context of its overall development strategy, the government adopted in 1995 the *National Education Policy*, which established the policy framework for the National Education System. The *National Education Policy* identified the government's main goals with regard to the education system as a whole, and defines specific policies for every sub-sector within the system.

While acknowledging that the various educational needs have remained unfulfilled in the country, the government nevertheless also recognises that the scarcity of financial and human resources would not allow all of the needs to be addressed at once. The *National Education Policy* therefore identified basic education (Grades 1 to 7) and adult literacy as “the topmost priority of the government”.

In its *Strategic Plan for Education*, the Ministry of Education has stressed the priorities identified in the *National Education Policy*, among them increasing Mozambicans' access to the basic education. The *Strategic Plan for Education* defined the Ministry's fundamental objectives for basic education, and identified the means by which the Ministry together with its partners intended to move to accomplish them.

The *Strategic Plan for Education* was rooted in a vision of an education system that was responsive to the needs and expectations of Mozambican citizens, and that was more closely aligned with the needs and requirements of the country's economy.

The three main objectives of the education system, proposed by the *Strategic Plan for Education* were:

- a) To increase access and educational opportunities at all levels of the education system, for all Mozambicans;
- b) To maintain and improve the quality of education; and
- c) To develop an institutional and financial framework that would sustain Mozambican schools and pupils in future.

The central objective of the *Strategic Plan for Education* was the universalisation of access to primary education for all Mozambican children. Additional objectives included improvements in the quality of basic education and in the establishment of a sustainable, flexible, and

decentralised system in which responsibility would be widely shared with those who work at lower levels of the system and those whom it serves.

In order to effect improvement in the quality of education, the Ministry of Education has, since 1997, undertaken a process of curriculum transformation for basic education. The target year for the introduction of the new curriculum was 2004. Procedures for curriculum reforms in the secondary, technical and vocational and teacher training were also underway.

Another relevant change for improving quality has been the changes in the textbook production with the development of the *National Book Policy*, which involved the private sector in the process. This policy was expected not only to enhance the provision of books, but also to ensure that the books were more responsive to the needs and circumstances of Mozambique.

The main policy concerns of the Ministry of Education

There are three fundamental problems in the Mozambican education system, and these affect all levels of the system and virtually all institutions at each level. The first concern is limited access to education, the second is poor quality, and the third is the cost of expanding access and improving quality. Each one of these is dealt with in greater detail below.

Limited access

Universal access to primary education was achieved shortly after independence but it dropped significantly in the subsequent years due to the economic crisis and civil unrest experienced by the country. The gross enrolment rate in lower primary increased from 59% in 1988 to 92.1 percent in 2000. According to MINED (2000) in 2000 there were as many as 7 072 schools for lower primary, but only 522 schools for upper primary. Consequently only a small proportion of children was able to complete the full primary education cycle.

Opportunities are even more restricted in secondary and tertiary institutions and in technical and professional schools especially for girls and young women. In 2000 there were about 78 335 pupils enrolled in lower secondary (Grade 8 to 10) and only 3 316 in upper secondary (Grade 11 to 12). About 47 percent of pupils at this level were girls (MINED, 2000).

Quality of education

The quality of education provided in schools is perceived to be poor. At the lower primary level, the average pupil/teacher ratio was 65:1 in the year 2000. Most primary school pupils attend school on a double shift basis. The common basic learning materials are scarce or absent in many schools. The quality of educational facilities is often poor.

A large proportion of teachers at all levels is under-qualified for the posts they hold. Nearly a quarter of all teachers at lower primary level are untrained and the majority received only seven years of academic preparation and three years of professional training.

The structure and content of the primary and secondary curriculum is increasingly inappropriate for the economic and social changes that have taken place. The curriculum is rigid and prescriptive in orientation, allowing a few opportunities for local adaptation. There is a general perception that much of what is taught in primary schools is of doubtful relevance and practical utility. These are the main reasons why the Ministry of Education decided to initiate, in 1997, the Transformation of the Curriculum for Basic Education as a first step towards the improvement of the quality of education.

Costs of sustaining reforms

The third problem is that the cost of sustaining expansion and improving quality within the present budget of the Ministry of Education considered which is considered to be largely inadequate. Maintaining the current system, with all of its problems, is beyond the means of the Ministry, and a significant share of the annual budget is consequently met with funds provided by external partners.

SACMEQ and its importance and benefits in educational policy research and training

The importance and benefits of SACMEQ to Mozambique can be seen in two different perspectives.

Within the national system of education

SACMEQ II is one of the few known research projects that carried out a cross-national study using a truly representative sample. Generally, the studies carried out in the field of education in Mozambique are restricted in scope and do not employ truly representative national samples in their design.

Consequently, SACMEQ II promised to provide not only a great training opportunity for local team members on how to conduct a large-scale research project, but also provided valid and reliable data on which important decisions could be based. On the other hand, SACMEQ II promised to provide relevant, high quality data about the academic profile of teachers, the level of performance in the areas assessed, school management and other aspects that are relevant for policy making.

Within the educational context of the region

Mozambique as a Portuguese speaking country has a unique history, tradition and system of education that is different from that of the other participating countries. The data collected through SACMEQ II can be considered to be of extreme importance for Mozambique's education system, since it can provide the country with important data to promote a reflection on its primary education sector, identify the position of Mozambique's education system within the region, and work towards its improvement.

One limitation of this study is that the school children in Mozambique are not used to multiple-choice questions. In Mozambique the assessment is based on tests using short answers, and this could have affected pupils' achievement results.

Conclusion

This chapter provided a general background on Mozambique and its education system. A fuller understanding of the country context, the structure of the education system, the educational reforms that have taken place and the outstanding challenges should help the reader contextualise better the results to be presented in subsequent chapters. The importance of Mozambique's participation in SACMEQ II was highlighted, and the benefits will certainly be worth its participation.

Chapter 2

The Conduct of the Study¹

Introduction

In this chapter several crucial issues about the conduct of the study have been described. These are the planning of the study, instrument construction, sampling, data collection, data entry, cleaning and merging, data analysis and the writing up of the results.

Planning of the study

The very first step was to identify the major policy concerns that were of interest to the ministries of education in the fourteen countries actively participating in SACMEQ II. These policy concerns and the specific research questions emanating from them had to be identified before the study could begin. In each of the countries the SACMEQ National Research Coordinators (NRCs) were responsible for discussing with the senior members in their ministries of education about the high-priority policy concerns associated with their education systems. The responses were then analysed in order to identify groups of 'General Policy Concerns'. In all, there were twenty general policy concerns which can be summarised under five themes:

- Pupils' characteristics and their learning environments.
- Teachers' characteristics and their views about teaching, classroom resources, professional support, and job satisfaction.
- School Head's characteristics and their views about educational infrastructure, the organization and operation of schools, and problems with pupils and staff.
- Equity in the allocation of human and material resources among regions and among schools within regions.
- The reading and mathematics achievement levels of pupils and their teachers.

Each of the general policy concerns have been presented in Appendix 2.1. For each of the twenty general policy concerns specific research questions were developed. For each specific research question a dummy table (blank table) was developed. In Chapters 3-7 in

this report the results have been presented in a series of tables. The blank versions of these tables were the dummy tables. The main reasons for producing the dummy tables were that this process forced the NRCs to (a) check that the data collection instruments covered all information needs, (b) ensure close linkages between the specific research questions and the questions on the data collection instruments, (c) reach agreement on the selection of variables and the types of data analyses to be applied, and (c) design and justify the data tabulation templates to be used in reporting the data analyses. It is important to note that this meant that the study was based solely on what the participating ministries had deemed to be important general policy concerns. In all, there were 20 general policy concerns that encompassed 75 specific research questions that resulted in around 150 dummy tables.

Instrument construction

Each of the 150 dummy tables included the names of variables to be used as well as the form in which they would be analyzed. These variables were listed. Most of them could be regarded as variables for which information would be required from pupils, teachers, or school heads using questionnaires. A few of the variables required information to be collected from pupils and teachers using tests.

Questionnaire construction

The variables in the dummy tables were listed and for each variable a decision had to be made about the number of questions that would be required to construct each variable. In some cases (e.g. pupil gender) only one question was needed. For another variable (e.g. school enrolment) two questions had to be added together (boys' enrolment and girls' enrolment). In yet other cases, several variables had to be formed into a construct (e.g. 'possessions in the home', 'quality of home' and 'parental education' to form a construct known as 'home background'). Since many of the variables were to be used for examining change over time, then it was important to use, as far as possible, the same questions as had been used in SACMEQ I.

Questions were developed for each variable or each sub-part of a variable required. These were then trialled in the pilot study and, where necessary, revised.

¹ A very detailed account of the conduct of the SACMEQ II study has been presented as Chapter 2 on

Test construction

Tests had to be constructed in reading and mathematics both for pupils and for teachers. The two sets of tests (for pupils and teachers) had to be calibrated so as to be on the same scale. For the pupil tests there was also the wish to be able to compare reading scores with the International Association for the Evaluation of Educational Achievement (IEA) Reading Literacy study and mathematics scores with the IEA's Third International Mathematics and Science Study (TIMSS). Hence there had to be common items with these tests from the other studies. Most importantly, however, the structure of the pupil tests was congruent with the content (domains) and behaviours (skills) derived from detailed analyses of the curricula, syllabi, exams, and textbooks used in the SACMEQ countries. The selection of teacher test items had to cover the full range of pupil item difficulties – but did not contain too many easy pupil test items. In addition, in order not to antagonize teachers with an extended testing session, the teacher tests had a much smaller number of test items than the pupil tests.

The reading tests

“Reading literacy” was defined as “the ability to understand and use those written language forms required by society and/or valued by the individual.” This was the definition that had been used in SACMEQ I and also in the IEA Reading Literacy Study. The reading domains that were agreed were:

Narrative prose: Continuous texts in which the writer aims to tell a story – whether this be fact or fiction.

Expository prose: Continuous text in which the writer aims to describe, explain, or otherwise convey factual information or opinion to the reader.

Documents: Structured information organized by the writer in a manner that requires the reader to search, locate, and process selected facts, rather than to read every word of a continuous text.

At the same time a hierarchy of skills was proposed (a dimension of increasing competence) that could be applied to both of the SACMEQ studies. A blueprint of the test in terms of items and domains by hierarchy has been presented in Appendix 2.2. In the final version of the SACMEQ II reading test there was a total of 83 test items, with (a) 32, 26, and 25 items allocated to the narrative, expository, and documents domains, respectively; and (b) 6, 22, 26, 18, and 11 items set at skill levels 1 to 5, respectively.

Mathematics test

For mathematics a similar exercise was undertaken except this time there had been no SACMEQ I test in mathematics. The resultant domains were:

Number: Operations and number line, square roots, rounding and place value, significant figures, fractions, percentages, and ratios.

Measurement: Measurements related to distance, length, area, capacity, money, and time.

Space-Data: Geometric shapes, charts (bar, pie, and line), and tables of data.

The proposed blueprint with levels and items had been presented in Appendix 2.3.

In the final version of the SACMEQ II pupil mathematics test there was a total of 63 test items, with 27, 18, and 18 items allocated to the number, measurement, and space-data domains, respectively, and 6, 20, 17, 12, and 8 items set at skill levels 1 to 5, respectively.

Immediately after the test blueprints had been developed the NRCs worked in teams to either select or write all of the required test items for the SACMEQ II tests. As items were prepared they were classified according to the cells in the test blueprints. For each cell *twice* as many items as required were prepared so that the rejection of poor items after the trial testing did not result in a shortage of items in some cells. Most test items were in multiple-choice format with four options per item. The item pools were then sent to all countries for review by panels of curriculum specialists. This resulted in editorial changes

to the items and recommendations for additional items by the panel members who made sure that the items met the requirements of the respective national curricula.

The main challenge in the construction of the reading and mathematics tests for teachers was to “fine-tune” the difficulty range of test items so that it would suit the higher levels of competence that were expected of teachers. At the same time it was important to ensure that there was sufficient “item overlap” with the pupil tests to permit the performance of teachers and pupils to be measured on the same scale.

In the reading test for teachers, several passages were selected because of the more subtle nature of the messages that they conveyed, and the less-visible underlying assumptions of the writers. For example, one passage on the topic of “smoking” required the teachers to identify the unstated values and beliefs of the writer. Another passage on the topic of “effective thinking” required the teachers to identify assumptions made by the writer about the readers and their knowledge of the topic. These kinds of skills were far beyond the competencies that had been identified from the analyses of Grade 6 curricula.

The “extra” reading and mathematics items for teachers were expected to assess the higher competence levels of teachers – but not to be so difficult that the teachers would be daunted by the challenge. In addition, the selection of easier test items that “overlapped” with the pupil tests had to be made with extreme care because the teachers may have felt insulted if these items were ridiculously easy or if they were concerned with issues that would only interest young children.

In the teacher reading test the extended levels of competence mainly focused on expository texts – rather than on documents or narratives. It was felt that the use of narratives and documents at this level would have required very complex and long texts that would have generally extended the time required to complete the test.

In the teacher mathematics test the extended levels of competence mainly emphasized problem solving strategies that required the extraction of information from verbal, graphic, or tabular presentations. For these items, the teachers were expected follow three steps: to identify the nature of the problem, to transform the problem into mathematical language, and to solve the problem. In some cases this required the rearrangement of

information, and in others it meant translating the problem into one or more equations and then solving the equations.

The tests (and questionnaires) were piloted in all countries. In Mozambique the pilot study was conducted in 30 schools selected from Cabo Delgado, Tete, Inhambane and Cidade de Maputo provinces, comprising 600 pupils. The pilot study took place in August 1999. The pilot study also provided an opportunity for the training of the first 10 data collection team leaders, who took part in the main study at the end of September 2000. The data were returned to a central data processing centre at IIEP in Paris.

Three kinds of scores

It was decided to derive and use three kinds of scores from the tests. These have been described below.

The calculation of scale scores (Rasch)

The data from the trial-testing phase were subjected to Rasch and classical item analyses in order to detect items that did not “fit” the relevant scales, or that were “behaving differently” across subgroups of respondents defined by gender and country. The poor quality test items were rejected – keeping in mind the need to prepare a “balanced” test across skill levels and domains. The Rasch and classical item analyses were also undertaken a second time after the main testing.

In the case of the measurement of reading performance, there were three groups of respondents: the SACMEQ I pupils, the SACMEQ II pupils, and the SACMEQ II teachers. Each group completed a reading test that was “different but overlapped”. That is, each group completed a reading test that contained some unique test items and some items that also appeared on one or both of the other two tests. In the case of numeracy measurement, the tests were also “different but overlapped”, however there were only two groups of respondents: the SACMEQ II pupils and SACMEQ II teachers.

Although data were gathered at different time points for the SACMEQ I (1995-1997) and SACMEQ II (2000-2002) projects, it is possible to think of the reading and mathematics tests used in the projects as two “artificial” or “composite” tests of 148 different reading

items and 91 mathematics items, respectively. This conceptualisation of the tests implies that the three sets of reading test respondents and the two sets of mathematics test respondents can each represent a single group of respondents for the purposes of undertaking “concurrent” scaling of the tests using the Rasch Model.

For the 148-item “composite” reading test there were 36 items that came only from the SACMEQ I pupil reading test, 52 test items that came only from the SACMEQ II pupil reading test, and 26 items that came only from the SACMEQ II teacher reading test. An additional 34 items were located in more than one test, with 9 of these items being located in all three tests, and 3 sets of items associated with pairs of tests. For the 91-item “composite” mathematics test described in Figure 2.11 there were 50 items that came only from the SACMEQ II pupil mathematics test, and 28 items that came only from the SACMEQ II teacher mathematics test. An additional 13 items were located in both tests.

Both the reading and mathematics data matrices were analysed using computer software that applied the Rasch Model of measurement (Andrich and Luo, 2000). The first step was to calibrate the test items by calculating the Rasch difficulty values for each item within the 148-item reading test and the 91-item mathematics test. The results of the calibration were then used to calculate reading and mathematics scores for all pupils and teachers in all countries.

The final test was deemed to be valid. In each of the SACMEQ countries the Ministry specialists were asked to identify those items that were in the curriculum. These items were named ‘essential’ items and formed a subset of all the items in the test. The correlation between the ‘essential’ items and all items was 0.99. Indeed, in order to ensure that it was fair to compare all countries on the total test score the correlations between the ‘essential’ items and all items were calculated in every country and in all cases the results was between 0.98 and 1.00. This is proof that the tests were valid for Mozambique and also for other countries.

For both reading and mathematics, the mean for all SACMEQ countries was set at 500 and the standard deviation at 100. For Mozambique, the mean pupil score for reading was

517. The mean teacher reading score for all SACMEQ countries was 733, while the mean for Mozambican teachers was 715. This meant that in reading, the Mozambican learners scored above the SACMEQ mean while the teachers scored below the SACMEQ mean. More details on pupil and teacher achievement in reading and mathematics have been presented in Chapter 7.

The identification of ‘derived’ skill competence levels

For each set of tests (pupil and teacher for reading and pupil and teacher for mathematics) the items were first arranged in order of difficulty, and then examined item-by-item in order to describe the specific skills required to provide correct responses. When items had been linked to specific skills, they were placed into groups or clusters of test items such 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.

The three tasks of defining specific skills for each test item, identifying groups of items with similar difficulties, and then naming the “theme” (or competency level) linked to each group were extremely difficult because it required the NRCs to first reach agreement on how the respondents arrived at correct solutions, and to then name the competency required. This required the NRCs to use their practical knowledge of the ways in which pupils solve problems, and then to portray this with a meaningful description of the thought processes that had been applied. The skills audit for the reading and mathematics tests resulted in the identification of eight levels of competence for each test. This was more than had been proposed in the test blueprints. For both tests there was a strong correspondence between the descriptions of the five blueprint levels and most of the derived levels arising from the skills audit – which suggested that the three “extra” levels were defining more detail on the same reading and mathematics scales.

The skill levels *with examples of items* characterising each level have been presented in detail in Appendix 2.4.

An abbreviated version has been presented in Table 2.1. It will be seen that the levels are hierarchical. It is then possible to calculate the percentage of pupils reaching any one level. These have been presented in Chapter 7 in this report. These can be regarded as being more meaningful than other scores because the competency levels indicate exactly what pupils can and cannot do.

Table 2.1: The final skill levels for the SACMEQ reading and mathematics tests

Level	Reading	Mathematics
1	Pre-reading: Matches words and pictures involving concrete concepts and everyday objects. Follows short simple written instructions	Pre-numeracy: Applies single step addition or subtraction operations. Recognises simple shapes Matches numbers and pictures. Counts in whole numbers.
2	Emergent reading: Matches words and pictures involving prepositions and abstract concepts; uses cuing systems (by sounding out, using simple sentence structure, and familiar words) to interpret phrases by reading on.	Emergent numeracy: Applies a two-step addition or subtraction operation involving carrying, checking (through very basic estimation), or conversion of pictures to numbers. Estimates the length of familiar objects. Recognises common two-dimensional shapes.
3	Basic reading: Interprets meaning (by matching words and phrases, completing a sentence, or matching adjacent words) in a short and simple text by reading on or reading back.	Basic numeracy: Translates verbal information presented in a sentence, simple graph or table, using one arithmetic operation in several repeated steps. Translates graphical information into fractions. Interprets place value of whole numbers up to thousands. Interprets simple common everyday units of measurement.
4	Reading for meaning: Reads on or reads back in order to link and interpret information located in various parts of the text.	Beginning numeracy: Translates verbal or graphic information into simple arithmetic problems. Uses multiple different arithmetic operations (in the correct order) on whole numbers, fractions, and/or decimals.
5	Interpretive reading: reads on and reads back in order to combine and interpret information from various parts of the text in association with external information (based on recalled factual knowledge) that 'completes' and contextualizes meaning.	Competent numeracy: Translates verbal, graphic, or tabular information into an arithmetic form in order to solve a given problem. Solves multiple-operation problems (using the correct order of arithmetic operations) involving everyday units of measurement and/or whole and mixed numbers. Converts basic measurement units from one level of measurement to another (for example, metres to centimetres)
6	Inferential reading: Reads on and reads back through longer texts (narrative, document, or expository) in order to combine information from various parts of the text so as to infer the writer's purpose.	Mathematically skilled: Solves multiple-operation problems (using the correct order of arithmetic operations) involving fractions, ratios, and decimals. Translates verbal and graphic representation information into symbolic, algebraic, and equation form in order to solve a given mathematical problem. Checks and estimates answers using external knowledge (not provided within the problem).
7	Analytical reading: Locates information in longer texts (narrative, document, or expository) by reading on and reading backing order to combine information from various parts of the text so as to infer the writer's personal beliefs (value systems, prejudices, and/or biases).	Problem solving: Extracts and converts (for example, with respect to measurement units) information from tables, charts, visual and symbolic presentations in order to identify, and then solve multi-step problems.
8	Critical reading: Locates information in longer texts (narrative, document, and expository) by reading on and reading back in order to combine information from various parts of the text so as to infer and evaluate what the writer has assumed about the topic and the characteristics of the reader – such as age, knowledge, and personal beliefs (values systems, prejudices, and/or biases)	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 the problem.

The specification of minimum and desirable levels of reading

In SACMEQ I each of the Ministries of Education established expert national committees that included inspectors, teacher leaders, and teachers. The committees were asked to identify the reading performances that they would expect from a pupil who (a) would *barely survive* during the next year of schooling (the “Minimum” level), and (b) was *guaranteed to succeed* during the next year of schooling (the “Desirable” level). It was the average cut-off levels were established in SACMEQ I that were used in SACMEQ II. This was only for reading because this was the only subject matter tested in the SACMEQ I Project. It was thought that this would be one further indicator of importance for policy-makers.

Sampling

The “best” sample design for a particular project is one that provides levels of sampling accuracy that are acceptable in terms of the main aims of the project, while simultaneously limiting cost, logistic, and procedural demands to manageable levels. The major constraints that were established prior to the preparation of the sample designs for the SACMEQ II Project have been listed below.

Target Population: The target population definitions should focus on Grade 6 pupils attending registered mainstream government or non-government schools. In addition, the defined target population should be constructed by excluding no more than 5 percent of pupils from the desired target population.

Bias Control: The sampling should conform to the accepted rules of scientific probability sampling. That is, the members of the defined target population should have a known and non-zero probability of selection into the sample so that any potential for bias in sample estimates due to variations from “epsem sampling” (equal probability of selection method) could be addressed through the use of appropriate sampling weights.

Sampling Errors: The sample estimates for the main criterion variables should conform to the sampling accuracy requirements that the standard error of sampling for the pupil tests

should be of a magnitude that is equal to, or smaller than, what would be achieved by

The Specification of the Target Population

employing a simple random sample of 400 pupils.

Response Rates: Each SACMEQ country should aim to achieve an overall response rate for pupils of 80 percent. This figure was based on the wish to achieve or exceed a response rate of 90 percent for schools and a response rate of 90 percent for pupils within schools.

Administrative and Financial Costs: The number of schools selected in each country should recognize limitations in the administrative and financial resources available for data collection.

Other Constraints: The number of pupils selected to participate in the data collection in each selected school should be set at a level that will maximize validity of the within-school data collection for the pupil reading and mathematics tests.

For Mozambique, the *desired* target population was all pupils enrolled in Grade 6 in the ninth month of the school year (i.e., in September 2000). The net enrolment ratio in Mozambique in 2000 was 54.7. However, in Mozambique it was decided to exclude certain pupils. These were pupils in schools having fewer than 20 Grade 6 pupils in them, and pupils in special schools. In all 106 pupils from 9 schools were excluded but this only amounted to 0.1 percent of all pupils. In Mozambique there were 509 schools having 112,279 pupils. After excluding the 0.1 percent of pupils the defined population from which a sample had to be drawn consisted of 112,173 pupils from 500 schools.

The number of school required in the sample is in part a function of the intra-class correlation (ρ) which is an indicator of the proportion of variation (in achievement in this case) among schools of total variation. The following is the formula often used for estimating the value of ρ in situations where two-stage cluster sampling is employed using (approximately) equal sized clusters).

$$\text{estimated } \rho = (b \cdot s(a)^2 - s^2) / (b - 1)s^2$$

Mozambique Chap2

where $s(a)^2$ is the variance of cluster means, s^2 is the variance of the element values, and b is the cluster size. A rho of 0.40 was used, this meant drawing a sample of at least 172 but additional schools were selected with the aim of achieving reasonably stable sample estimates within Regions therefore for Mozambique 179 schools were planned.

In Table 2.2 the numbers of schools and pupils in the planned and achieved samples have been presented. The sample was stratified into provinces and the number of schools required for each region can be seen. The total number of schools was 179.

In all 89 percent of the planned number of pupils were in the final sample and 98 percent of the schools. The reason for the shortfall in learner numbers was absenteeism by some learners in some of the schools on the day of data collection. The reason for shortfall in school numbers was that some schools had been integrated into others and some were in inaccessible areas. However, sampling weights were used to correct for disproportionality among strata in the calculation of all statistics.

It will be recalled that the major aim of the sampling was to have the equivalent of a simple random sample of 400 pupils. Mozambique, this was 800 for reading achievement and 740 for mathematics. Hence the sample was a very good one for Mozambique.

Table 2.2. Number of schools and pupils in the planned and achieved samples

Provinces	Planned		Achieved		Percent achieved	
	Schools	Pupils	Schools	Pupils	Schools	Pupils
Cabo Delgado (1)	10	200	10	182	100%	91%
Cabo Delgado (2)	4	80	4	75	100%	94%
Gaza	15	300	15	296	100%	99%
Inhambane	15	300	14	255	93%	85%
Maputo Cidade (1)	14	280	14	248	100%	89%
Maputo Cidade (2)	6	120	6	100	100%	83%
Manica (1)	11	220	11	194	100%	88%
Manica (2)	4	80	4	78	100%	98%
Maputo Província (1)	13	260	13	247	100%	95%
Maputo Província (2)	2	40	2	34	100%	85%
Nampula (1)	16	320	16	282	100%	88%
Nampula (2)	4	80	4	72	100%	90%
Niassa (1)	12	240	12	190	100%	79%
Niassa (2)	3	60	3	45	100%	75%
Sofala (1)	13	260	13	236	100%	91%
Sofala (2)	2	40	2	39	100%	98%
Tete (1)	12	240	12	215	100%	90%
Tete (2)	3	60	3	56	100%	93%
Zambézia (1)	18	360	16	294	89%	82%
Zambézia (2)	2	40	2	39	100%	98%
Mozambique	179	3580	176	3177	98%	89%

Throughout the report wherever a percentage or mean has been presented the accompanying sampling error has been presented. This has been explained at the beginning of Chapter 3.

The main data collection

The main data collection took place between 28 August and 01 September 2000. Data collection manuals had been written indicating what the data collectors had to do from when they entered a school to when they returned the package of instruments to the regional office.

A team of 24 data collection team leaders were centrally trained in Maputo in August 2000 to ensure uniformity in data collection through out the country. The training was repeated in the provinces for more familiarity with the data collection manual and for the benefit of the assistant data collectors. The schools were notified about the data collection several weeks in advance. When the data collectors arrived at the school, they had to

meet with the school head to verify the details of the school and what was required. They had to ensure a testing room with 20 well-placed sitting and writing places was available. They then had to further ensure that the class registers were available and that the selected the learners were present.

Data were collected on two consecutive days. On the first day, data collectors administered the learner questionnaire and reading test in addition to the school head questionnaire as well as the teacher questionnaire and teacher test. Upon leaving the school, data collectors had to check all the information collected, before returning to the school the following day for the administration of the learner mathematics test.

Data entry and data cleaning

A ten person-team (university students, teachers and data centres keyboard operators) was recruited and trained in the use of WINDEM, a special data entry package used by SACMEQ to enter all data. The data entry took about 2 months.

At the end of this procedure the data files were sent by email to the unit ‘Monitoring Educational Quality’ at the IIEP in Paris. Many consistency checks were made for many variables as well as for the identification codes used. The IIEP team had many queries. The first data files were sent to Paris in February 2001 and after nine to-ings and fro-ings the files were finally declared to be clean on 27 January 2003.

Merging, weighting, and the statistical analyses

The merging process required the construction of a single data file for each school system in which pupils were the units of analysis. This was achieved by “disaggregating” the teacher and school head data over the pupil data. That is, each record of the final data file for a country consisted of the following four components: (a) the questionnaire and test data for an individual pupil, (b) the questionnaire and test data for his/her mathematics and reading teacher, (c) the questionnaire data for his/her school head, and (d) school and pupil “tracking forms” that were required for data cleaning purposes.

The merged file enabled linkages to be made among pupils, teachers, and school heads at the “between-pupil” level of analysis. To illustrate, with the merged file it

was possible to examine questions of the following kind: “What are the average reading and mathematics test scores (based on information taken from the pupil tests) for groups of pupils who attend urban or rural schools (based on information taken from the school head questionnaire), and who are taught by male or female teachers (based on information taken from the teacher questionnaire)?”

The calculation of sampling weights could only be conducted after all files had been cleaned and merged. Sampling weights were used to adjust for missing data and for variations in probabilities of selection that arose from the application of stratified multi-stage sample designs. There were also certain country-specific aspects of the sampling procedures, and these had to be reflected in the calculation of sampling weights.

Two forms of sampling weights were prepared for the SACMEQ II Project. The first sampling weight (RF2) was the inverse of the probability of selecting a pupil into the sample. These “raising factors” were equal to the number of pupils in the defined target population that were “represented by a single pupil” in the sample. The second sampling weight (pweight2) was obtained by multiplying the raising factors by a constant so that the sum of the sampling weights was equal to the achieved sample size.

The Rasch scaling could only be conducted after all countries data files had been cleaned. Some countries took a long time over this and it was only in May, 2003 that the final country was ready and the scaling and scoring could begin. This is not an easy process and took some time. Once this had been completed then all of the calculation required for the dummy tables could be undertaken. This was done by the Paris ‘Monitoring Educational Quality’ team and sent out to countries. This report was then written.

Conclusion

Information on the procedures adopted for this study have been described in this chapter. These steps include the planning activities undertaken by all the fifteen SACMEQ Ministries at regional level, as well as the other activities undertaken in the collection of data in Mozambique, among them the development of data collection

instruments, the construction of reading and mathematics teacher and pupil tests, the selection of the sample of schools and of pupils and teachers within schools, the logistical aspects of actual data collection and the entry, cleaning and interpretation of data. At every stage, care was taken to ensure that the data collected met very high standards of quality, and that the interpretation of the data yielded meaningful information for use by the Ministry of Education. The main findings emerging from the data are the focus of the next seven chapters.

Chapter 3

Pupils Characteristics and their Learning Environments

Introduction

In this chapter information on some of the characteristics of pupils and their homes has been presented. The information has been presented for three reasons. The first is that this information provides a ‘context’ for the subsequent analyses to be made in this report. The second is that since, over time, the levels and distributions of the data describing the pupil characteristics and learning environments may change, the data can be used to compare the types of pupils in Grade 6 at different time periods. The third reason is that home background is an important variable in all analyses of educational data. From the home context variables a socio-economic scale will be constructed and it is important for the reader to know exactly which variables are included in this scale. It is common sense that schools that have an intake of pupils from ‘better’ home backgrounds should achieve better than schools that have an intake of pupils from less well-off home backgrounds. Indeed, the research literature abounds with such examples. It is schools that have high scores but have an intake of low socio-economic-status children that are remarkable. Many of the school and teacher variables that appear in later chapters in this report will be examined for their effect on pupil achievement. It will be important to examine their relationship with achievement but also their effect once the socio-economic status (SES) of pupils has been taken into account.

A note on the interpretation of the data analyses

Before presenting the results, two points should be stressed. The first is that the variables presented in this chapter represent a small subset of the larger number of variables for which data were collected. The Ministry will make a separate publication containing descriptive statistics for all variables in the study available to interested readers.

The second point is that it is very important to interpret each statistic in association with its sampling error. It will be recalled from Chapter 2 that the sample was drawn in order to yield standard errors of sampling for pupils in Grade 6 in Mozambique,

such that a sample estimate of a population percentage would have a standard error of ± 2.5 percent. For this level of sampling accuracy we can be sure 19 times out of 20 that the population value of a percentage lies within ± 5 percent of the estimate derived from the sample. The sampling errors for means are also given in the tables and the same principle applies for limits of two standard errors of sampling.

Where a percentage or a mean is presented for a sub-group of pupils (such as regions) then the standard error will be greater than that for the sample as a whole. This occurs, in part, because the sample sizes for sub-groups are smaller than the total sample sizes. Had smaller standard errors for sub-groups been required, this would have increased the size of the total sample and also of the budget required to undertake much larger field data collections and data analyses.

To illustrate this, consider the first column of entries in Table 3.1. The average age of pupils in months at the time of data collection has been presented separately for each zone and for Mozambique overall. The standard error (SE) of each average has also been presented. For the first zone, Cabo Delgado in the North of the country, the average pupil age was 199.7 months at the time of the data collection, and the standard error for this estimate was 2.43 months. That is, there were 19 chances in 20 that the average age of the population of Standard 6 pupils in the Cabo Delgado was $199.7 \pm 2(2.43)$. In other words it can be said that we can be 95 percent confident that the population value for Cabo Delgado was between 194.84 months and 204.56 months.

It is important to note that the value of the standard error for each estimate changed from region to region. The variation was caused by two main factors: differences in the distribution of pupils among schools within regions and the structure of the sample design within each region. The smallest standard error of 0.7 months occurred for the sample estimate of average age for the whole population of Grade 6 pupils in Mozambique. This result was to be expected because the overall sample estimate was based on a much larger sample of schools and pupils than the corresponding estimate for any single region.

In interpreting the values in Table 3.1 and other tables throughout this report, it is important to remember that the percentages and means have been presented in terms of pupils. That is, pupils were the units of analysis - even though some variables in this report referred to teachers or schools. Where a percentage for a variable that describes teachers has been presented, this percentage should be interpreted as 'the stated percentage of pupils who were in schools with teachers having the particular characteristic'. Similarly, a percentage for a variable that describes schools should be interpreted as 'the stated percentage of pupils who were in schools with the particular characteristic'.

Specific policy questions related to educational inputs

As a starting point, in order to guide the data analyses, the very broad educational policy question posed in the title to this chapter was divided into two specific questions. These two questions were used to develop a more structured response to the educational policy issues surrounding the main question.

1. What was the age distribution of Grade 6 pupils? Do the distributions require corrective action?
2. What were the home circumstances of Grade 6 pupils?
3. How much did parents help children with their schoolwork?
4. What was the location of the school and the school facilities?

What was the age distribution and sex of Grade 6 pupils?

In Table 3.1, the age in months of the pupils as well as the percentage of Standard 6 who are girls have been given.

Table 3.1. Means, percentages, and sampling errors for the pupil age, sex, and home-related characteristics (SACMEQ II)

Region	Age (months)		Sex (female)		Books at home (number)		Possessions at home (index)		Meals (index)		Parent education (index)	
	Mean	SE	%	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE
Cabo Delgado	199.8	2.56	26.8	3.48	25.3	8.03	2.7	0.28	10.8	0.15	2.8	0.12
Gaza	177.5	2.04	49.2	3.22	29.6	14.38	3.6	0.33	10.8	0.18	3.0	0.13
Inhambane	176.0	1.79	43.7	4.38	19.0	7.01	3.5	0.33	10.9	0.16	2.7	0.09
Maputo Cidade	170.9	1.46	48.8	2.93	29.8	4.22	5.1	0.16	10.3	0.17	3.3	0.06
Manica	177.7	1.75	33.5	3.74	12.2	1.99	4.2	0.29	11.2	0.10	2.8	0.12
Maputo Provincia	172.3	2.45	54.1	3.43	29.3	6.80	5.4	0.30	10.8	0.17	3.2	0.11
Nampula	180.1	1.26	29.5	2.98	19.9	4.06	3.2	0.22	10.9	0.11	2.8	0.13
Niassa	183.1	2.80	31.9	3.99	22.8	4.58	3.7	0.24	11.0	0.16	2.9	0.13
Sofala	171.9	2.15	34.5	4.15	38.1	6.76	4.1	0.32	10.0	0.22	3.0	0.11
Tete	174.6	2.02	38.3	3.90	18.8	3.99	3.6	0.29	10.2	0.18	2.7	0.15
Zambézia	180.0	2.34	32.0	3.52	22.1	4.82	3.1	0.30	10.2	0.21	2.7	0.11
<i>Mozambique</i>	176.7	0.63	40.3	1.16	24.9	2.13	4.0	0.08	10.6	0.06	3.0	0.03

The analysis of data summarized in Table 3.1 shows that the mean age for all of the Mozambican Grade 6 pupils in 2000 was 176.7 months (14.7 years old). If all pupils had entered school at the official age of entry and there had been no grade repetition, then the expected age would have been 132 months (11 years old). Pupils enter school in January if they have turned 6 years by 31 December of the previous year. The figure of 132 months was derived by adding 6 years of study to 5.5 years (the average age of entry). Thus, the pupils in the sample were around 4 years older than was expected. There were big variations among the regions. For example, Cabo Delgado had the oldest pupils (almost 16.7 years old) and Maputo City the youngest (14.2 years old). The high numbers of over-age pupils were due to a combination of factors such as the high levels of grade repetition and late entry into the first grade.

A lot of effort to reduce repetition and dropout has been made. Among the measures that the Ministry of Education is carrying out to improve the efficiency of the education system in Mozambique are the introduction of a new curriculum (set for 2004) and the revitalization of “ZIPs” or Cluster of Schools (planned to start in 2002).

There was a major imbalance in gender distribution at national level and across regions. The percentage of girls in Grade 6 for Mozambique was just over 40 percent and Cabo Delgado had the lowest percentage of girls in the country (26.8) while Maputo Province had the highest percentage (54.1%). These figures were more or less the same as the results obtained from the annual school census.

One of the reasons for this imbalance may be that there were fewer upper primary schools than lower primary schools; therefore pupils graduating from lower primary schools had to go to other areas to continue with their education. Usually, parents are reluctant to send their girl children to hostels since the conditions in most hostels are unfavourable. In general, hostel buildings are in bad condition and frequently have poor sanitation, are overcrowded, have poor diet and are poorly supervised

Some policy initiatives have been introduced in order to reduce the gender imbalance among the regions. For instance, the Ministry of Education is providing girls with scholarships. The Ministry of Education is also upgrading the lower primary schools

(Grades 1 to 5) to complete primary schools (Grades 1 to 7). This will ensure that pupils do not need to leave their village to towns in order to attend upper primary school. However, there is a need to speed up the implementation of these policies.

Policy suggestion 3.1. The Ministry of Education should speed up the upgrading of lower primary schools to complete primary schools that teach from Grade 1 to 7.

Policy suggestion 3.2. The Ministry of Education should undertake a study into the causes of female under-representation in education, especially from upper primary school upwards, and put in place corrective measures that will see more girls accessing and participating in education.

What were the home circumstances of Grade 6 pupils?

The home can be considered to be made up of various components. One component concerns the wealth of the home in monetary terms. It is impossible to ask children what their parents earn. Thus proxy or indirect methods of assessing the wealth of a home must be used. One aspect is the goods they possess at home (home possessions). A second component is the intellectual milieu as characterized by the education of the parents and the books they have at home. Both of these can be of use to the child's learning.

The data summarized in Table 3.1 shows that the average Grade 6 pupil had 24.9 books at home. The figures for the provinces range from a low of 12.2 books for Manica to the highest of 38.1 books for Sofala. Given that it is important for pupils to be able to read at home if they are to perform well in reading tests (Elley, 1992), it is disappointing to learn that there were so few books at home in Mozambique. If there are few books in the home, then the Ministry may wish to overcome this deficit by ensuring that children can take library books home from school to read, and the Ministry can also provide mobile libraries that visit villages at least once every two weeks.

The other data summarized in Table 3.1 is the number of possessions that the pupils stated was in their homes. A question was asked on the pupil questionnaire about thirteen possessions they might possess in the home. These were: daily newspaper, weekly or monthly magazine, radio, TV set, video cassette recorder (VCR), cassette

player, telephone, car, motorcycle, bicycle, piped water, electricity (mains, generator, solar) and a table to write on. The number of possession owned in the home was summed for each pupil. The lowest score possible was zero and the highest 13.0. The average number of possessions was 4 items, that is, less than one third. The highest was Maputo Province with 5.4 possessions, and the lowest was Cabo Delgado with 2.7 possessions.

A further question concerning the nutrition of the pupils in terms of having three meals a day, even if the nutritional value of each meal was not known, was included. The question asked about a morning meal, a midday meal and an evening meal, and sought to establish how many times a week they ate each of the meals. A score of 3 meant that they did not eat at all while a score of 12 indicated that they ate every meal each day. The average Grade 6 pupil in Mozambique had sufficient meals per week (average = 10.6 meals). Although the average for Sofala was the lowest for all provinces (10.0 meals), it was still quite high in absolute terms.

The final data summarized in Table 3.1 concerned the parental education of the Grade 6 pupils. Separate questions were asked of the mother's and father's educational level. The results were summed up and divided by 2. A score of '0' indicated that neither parent had received any school education and a score of 6 indicated that both parents had completed senior secondary and had had some tertiary education. The average was 3.0 years for Mozambique and the variation among the regions was small. The highest was 3.3 (Maputo City) and the lowest 2.7 (Inhambane, Tete, and Zambézia.)

Table 3.2 Place where pupils stay during the school week (SACMEQ II)

Region	Place where pupils stay during the school week							
	Parent/Guardian		Relatives/Family		Hostel/Board		Self/Children	
	%	SE	%	SE	%	SE	%	SE
Cabo Delgado	48.0	7.33	10.6	1.72	38.3	8.54	3.1	1.09
Gaza	86.6	3.31	7.3	2.26	3.4	1.63	2.8	1.07
Inhambane	81.6	4.74	10.6	3.24	4.6	2.72	3.3	1.86
Maputo Cidade	90.4	2.10	7.5	2.15	0.9	0.60	1.1	0.64
Manica	72.5	2.22	19.4	2.49	3.0	2.04	5.1	1.94
Maputo Provincia	91.0	1.41	6.8	1.56	0.0	0.00	2.1	0.91
Nampula	69.1	3.44	16.9	2.93	10.7	3.76	3.3	0.89
Niassa	68.9	6.95	10.7	2.37	16.4	6.22	4.0	2.06
Sofala	85.8	2.34	8.3	1.92	1.9	1.02	4.0	1.11
Tete	67.5	6.02	15.6	3.15	11.1	4.61	5.9	2.04
Zambézia	75.1	3.44	16.2	1.98	4.6	1.52	4.1	1.53
Mozambique	79.5	1.14	11.4	0.82	5.9	0.82	3.1	0.39

The places where pupil stayed during the school week have been presented in Table 3.2. Nationally, 79.5 percent of pupils lived with their parents or guardians, 11.4 percent lived with relatives while attending school and almost 5.9 percent were in a hostel. Very few pupils (3.1%) lived by themselves. Cabo Delgado was the region with the highest percentage of pupils living in hostel/board. This could be explained, on one hand, by the fact that during the liberation war this province had liberated zones where “pilot centres” were created. These centres were later turned into hostels. On the other hand, in year 2000 this province had few complete primary schools, teaching Grades 1 to 7, and as a result pupils had to live in hostels located near the upper primary schools.

One of the ways of measuring the quality of pupils’ home is to assess the materials that make up the floor, walls and roof of the houses where they lived. Information on the condition of the floors, walls and roofs where Grade 6 learners stayed has been

summarized in Tables 3.3, 3.4 and 3.4, respectively, per province and for Mozambique as a whole.

Table 3.3. Percentages and sampling errors for structure of floors in pupils' homes (SACMEQ II)

Region	Not sealed		Wood		Cement		Carpet/Tiles	
	%	SE	%	SE	%	SE	%	SE
Cabo Delgado	48.7	6.43	5.0	1.39	45.5	6.64	0.9	0.55
Gaza	25.7	3.08	8.3	3.39	61.7	4.73	4.3	1.66
Inhambane	42.0	6.13	2.8	0.98	53.9	6.22	1.4	1.10
Maputo Cidade	17.8	3.92	6.3	1.29	67.0	4.33	8.9	1.62
Manica	44.9	4.99	6.1	1.49	46.5	5.08	2.5	1.18
Maputo Provincia	13.8	2.61	3.5	0.91	71.4	4.74	11.4	3.11
Nampula	50.8	5.99	3.9	0.99	39.0	5.49	6.3	2.21
Niassa	50.6	4.85	7.3	2.63	41.0	5.30	1.0	0.54
Sofala	35.6	6.49	11.2	2.50	48.2	6.03	5.0	1.76
Tete	50.4	5.14	6.2	1.73	39.6	5.46	3.8	1.36
Zambézia	65.0	6.28	3.2	1.27	30.0	5.07	1.8	0.81
<i>Mozambique</i>	37.6	1.60	5.6	0.55	51.7	1.65	5.1	0.57

Table 3.4. Percentages and sampling errors for structure of walls in pupils' homes (SACMEQ II)

Region	Not sealed		Stones		Sheets/Wood		Cut stone/Bricks	
	%	SE	%	SE	%	SE	%	SE
Cabo Delgado	33.0	5.32	15.5	3.43	14.2	2.86	37.3	5.11
Gaza	27.3	4.01	20.1	3.42	28.3	4.34	24.3	3.58
Inhambane	60.6	5.21	6.7	2.14	12.9	2.05	19.8	4.38
Maputo Cidade	6.6	2.53	9.0	1.91	15.1	2.66	69.4	3.02
Manica	20.2	3.91	37.7	3.00	5.3	1.47	36.8	3.31
Maputo Provincia	8.7	2.65	9.2	1.88	12.5	3.13	69.6	4.16
Nampula	31.7	2.53	32.0	4.65	9.9	1.66	26.4	3.81
Niassa	30.8	3.92	35.8	4.64	16.2	3.11	17.3	3.27
Sofala	26.2	5.48	17.5	2.98	20.6	2.78	35.6	5.92
Tete	30.3	4.52	33.9	3.82	11.3	2.37	24.5	4.62
Zambézia	37.7	5.64	36.6	6.20	8.2	2.52	17.5	4.69
<i>Mozambique</i>	26.6	1.26	21.2	1.19	14.1	0.88	38.2	1.36

Table 3.5. Percentages and sampling errors for structure of roof in pupils' homes (SACMEQ II)

Region	Not sealed		Metal/Asbestos		Cement concrete		Tiles	
	%	SE	%	SE	%	SE	%	SE
Cabo Delgado	42.8	7.55	42.6	7.70	9.2	2.56	5.4	1.72
Gaza	20.1	3.70	65.0	3.67	9.7	1.65	5.2	2.14
Inhambane	39.6	4.43	49.2	2.97	6.6	2.30	4.6	1.92
Maputo Cidade	3.7	0.94	67.8	3.65	25.4	3.80	3.1	0.76
Manica	45.8	5.56	49.0	4.99	4.3	1.96	0.9	0.53
Maputo Provincia	4.0	1.22	63.4	5.36	17.1	3.28	15.4	3.74
Nampula	62.3	4.90	23.9	4.17	3.0	0.99	10.8	3.39
Niassa	61.6	6.33	27.7	4.70	6.8	2.12	3.9	1.62
Sofala	29.5	5.92	51.9	4.37	16.0	3.75	2.7	1.23
Tete	49.7	6.27	39.4	4.09	8.5	2.10	2.4	1.62
Zambézia	69.0	6.74	26.2	5.70	1.8	0.92	3.0	0.98
Mozambique	35.0	1.50	48.4	1.45	11.4	1.01	5.2	0.63

Around 57 percent of pupils came from homes with floors that were tiled or cemented, 59.4 percent from homes with walls made of bricks or stones, and 59.8 percent from homes with roofs made of cement/concrete or metal/asbestos.

An index for the general quality of the Grade 6 learner's home was constructed from the sum of the indices for (a) lighting, (b) condition of floors, (c) condition of walls and (d) condition of roofs. For each of the aspects (a) to (d) the minimum value of the index was 1 for absolutely basic or poor condition, and the maximum was 4 if the condition was perfect. Therefore, the minimum value of the index for general quality was 4 if all the aspects were absolutely basic or poor and the maximum was 16 if all the aspects were perfect.

The means for the general quality of the learners' homes have been summarized in Table 3.6 for each province and for Mozambique overall.

Table 3.6. Means and sampling errors for the general quality of pupils' homes (SACMEQ II)

Region	General quality of pupil's homes (Index)	
	Mean	SE
Cabo Delgado	8.3	0.26
Gaza	9.6	0.32
Inhambane	8.1	0.46
Maputo Cidade	11.7	0.23
Manica	8.6	0.33
Maputo Provincia	11.8	0.24
Nampula	8.3	0.38
Niassa	8.2	0.28
Sofala	9.3	0.47
Tete	8.4	0.44
Zambézia	7.4	0.45
<i>Mozambique</i>	9.4	0.12

The average index for the quality of pupils' homes in Mozambique was 9.4. The range among regions was from 7.4 for Zambézia to 11.7 for Maputo City. This result reflects the imbalance in income distribution in Mozambique. This lack of balance in income distribution is reflected in the human development index (HDI) for Mozambique, where the index for Maputo City in 2000 was 0.51 while the one for Zambézia was 0.18, UNDP (2001)

One other aspect of interest is the extent to which the pupils spoke Portuguese at home rather than the local language. The percentages of pupils who spoke Portuguese 'sometimes', 'often' and 'all of the time' have been presented in Table 3.7. It can be seen that 94.5 percent of pupils spoke Portuguese at home at least sometimes. In other words, there were only five percent of pupils who never spoke Portuguese at home.

Table 3.7. Percentages, mean, and sampling errors for the pupil language, days absent, and repetition

Region	Speak English		Days absent		Repetition	
	%	SE	Mean	SE	%	SE
Cabo Delgado	93.9	1.85	3.0	0.22	65.3	2.73
Gaza	93.8	1.85	2.5	0.35	83.1	2.55
Inhambane	94.9	1.77	1.5	0.27	83.6	3.25
Maputo Cidade	97.5	1.10	2.8	0.26	85.3	2.34
Manica	97.4	1.75	2.9	0.28	78.9	2.72
Maputo Provincia	98.4	0.62	2.5	0.26	83.9	2.81
Nampula	93.3	2.01	3.4	0.38	70.9	3.17
Niassa	83.9	2.92	4.0	0.27	68.8	3.47
Sofala	93.6	1.64	2.8	0.27	69.3	4.33
Tete	90.4	2.04	2.6	0.30	67.6	4.46
Zambézia	92.7	1.40	3.0	0.26	79.2	2.72
<i>Mozambique</i>	94.5	0.50	2.7	0.10	78.2	0.98

Absenteeism can sometimes be a problem. The analysis of the data summarized in Table 3.3 indicates that in Mozambique, Grade 6 pupils were absent for 2.7 days during the month preceding the testing. If this figure was consistent throughout the school year, then this would add up to a large number of days. Taking into consideration the growing seriousness of the HIV pandemic affecting Mozambique and other countries in the region, one can expect the absenteeism to increase with time. This, however, cannot be confirmed by the current study. A question was asked about the reasons for absenteeism, and it was found out that most absenteeism was associated with illness and, occasionally, with family reasons. It was never associated with pupils having to work or with having to pay fees.

Policy suggestion 3.3. The Directorate of Basic Education should commission a study to identify those pupils whose attendance is erratic on account of the fact that they either are orphans or have to take care of sick parents. This could be part of a broader study into the impact of HIV/AIDS on children's education.

Nearly 78.2 percent of pupils had repeated a grade at least once. The repetition rate is very high in Mozambique. According to the statistics produced by the Ministry of

Education, the primary school completion rate is about 25 percent, which is quite high.

One of the reasons for the high repetition rate may be because there is a strong perception among the teachers that the larger the percentage of pupils who fail in their class the higher the standard of education that they are providing. Fighting against this belief has been one of the most important activities among the education stakeholders. In the new curriculum, there is strong advocacy for formative evaluation and the concept of automatic promotion. There is a need for advocacy on continuous assessment, in order to change the strong belief in terminal assessment

Policy suggestion 3.5. The directorate of Basic Education should develop activities in the Clusters of Schools (ZIPs) for advocacy of formative evaluation in the classroom.

How many pupils were in school in towns or cities and what was the average distance to facilities?

Normally, pupils living in urban areas achieve better scores than pupils living in rural areas. Mozambique is a huge country with a poor transport and communication network, especially in rural areas. More than 60% of the population living in rural areas has very limited access to basic services and infrastructure such as piped water, electricity and good roads.

A question was asked to the school director about whether his or her school was located in an isolated area, a village, a small town or a city. The first two categories were put together and called 'rural' and the last two categories were also put together into one category and called 'urban'. The percentage of pupils in schools located in 'urban' areas was calculated and the results have been reported in Table 3.8. At the same time, there was a further question asking the school director how many kilometers it was from the school to a health clinic, a tarmac road, a public library, a bookshop and a secondary school. These distances were averaged for each school. The average distances to some of the facilities have also been presented in Table 3.8.

Table 3.8. School location (SACMEQ II)

Region	Urban		Distance (km)	
	%	SE	Mean	SE
Cabo Delgado	46.7	12.46	25.8	7.83
Gaza	71.1	12.61	9.5	4.21
Inhambane	63.1	14.83	8.3	3.77
Maputo Cidade	100.0	0.00	2.3	0.41
Manica	80.0	13.79	12.6	3.70
Maputo Provincia	72.7	12.18	5.9	1.22
Nampula	64.2	10.91	27.5	7.16
Niassa	58.4	11.05	18.3	7.46
Sofala	86.2	9.26	11.1	3.63
Tete	58.6	11.44	23.4	9.42
Zambézia	73.9	10.59	19.5	7.52
<i>Mozambique</i>	74.5	3.27	13.2	1.59

The analysis of the data summarized in Table 3.8 shows that 74.5 percent of the Grade 6 pupils were in urban schools in 2000. Most of Grade 6 and 7 schools were located in urban areas. It also reflects the distribution of pupils by level of education, with 88,9 percent of all pupils enrolled in Grade 1 to 5, but only 8,12 percent enrolled in Grade 6 and 7. The percentage of students in lower secondary was 3.1 percent whereas in the upper secondary it was 0.4 percent. This confirms the observation that the schools from Grade 6 onwards were mostly located in urban areas.

There is an ongoing programme by the Ministry of Education to expand access to the full cycle of basic education, that is, Grades 1 to 7. This is a gradual process, which goes hand in hand with economic development, and rural areas are the prime targets of this programme.

Looking at the distance that a Grade 6 pupil has to walk, namely, 13.2 kms, one can see how big the access problem in Mozambique is. The variation among the regions is very big. In Maputo City and Maputo province the Grade 6 pupil travels at most five

kilometres while in Nampula he or she needs to travel 27.5km. There is a huge imbalance among the regions in terms of school distribution. It looks like the further north you go the longer the distance the Grade 6 pupil has to travel.

It is important to realize that the SE of these statistics is very big, which makes the estimates of location and distance somewhat unstable.

Policy suggestion 3.6. There is a need to increase access to basic education services through an accelerated school construction program, particularly in provinces like Cabo Delgado, Niassa, Nampula, Tete and Zambézia.

How well were the schools resourced?

In SACMEQ I, it was found that the amount of school resources was very different in the schools in the various countries. Furthermore, this amount was highly related to performance in reading. Information has been presented in Table 3.9 for four categories of general school facilities: school buildings, school grounds, general services, and equipment. These data have been presented for SACMEQ II.

Table 3.9 Percentages and sampling errors for schools with general facilities

Facility	Percentage with facility	
	%	SE
<i>School buildings</i>		
School library	27.2	3.13
School hall	8.7	2.12
Staff room	54.6	3.91
School director's office	81.8	3.24
Store room	47.1	3.95
Cafeteria	48.0	3.02
<i>School grounds</i>		
Sports area/ playground	62.9	3.77
School garden	35.9	3.71
<i>General services</i>		
Piped water/ well or borehole	59.0	3.42
Electricity	58.5	3.33
Telephone	44.7	2.97
<i>Equipment</i>		
First-aid kit	8.7	1.79
Fax machine	2.4	1.05
Typewriter	80.3	2.89
Duplicator	34.0	3.11
Radio	11.0	2.02
Tape recorder	2.6	0.75
Overhead projector	1.6	0.33
Television set	2.6	1.02
Video-cassette recorder	1.4	1.01
Photocopier	4.4	1.57
Computer	10.6	2.18

In most schools, there was a lack of general facilities. For instance in more than 40 percent of schools there was no piped water, electricity and telephone. In 73 percent of the schools there was no school library. It is clear that, given the current economic development status of the country, it is difficult to provide the schools with all of the general facilities described. However, it would be important to select some of the basic items the Ministry of Education can supply. For instance, facilities such as piped water, electricity, and school library should be regarded as basic facilities that each school must have. Other facilities that should be regarded as essential, such as the first

aid kit and school garden, also reflect very low levels of provision. This should be a matter of concern to the Ministry.

Policy suggestion 3.7. The Construction Department together with the Directorate of Basic Education should develop a set of minimum facilities that each school should have and communicate this information to every school in order to facilitate prioritisation.

How often was homework given and corrected?

Homework is important if pupils are to have sufficient practice of what they learn, and if they are to extend their knowledge. Walberg (1994) has shown that those pupils receiving more homework achieve more than those pupils who do not receive homework. Furthermore, when the homework is marked by the teacher and worked through with the pupils either collectively or individually, then those pupils achieved more than those who did homework but did not have it marked by the teachers and worked through with them. Pupils were therefore asked to provide information on the frequency with which they received homework, whether the homework was corrected by the teacher, and the extent to which parents or others in the home ensured that homework was done.

Table 3.10 (a). Percentages and sampling errors for the frequency of homework given most days (SACMEQ II)

Region	Reading homework		Mathematics homework	
	%	SE	%	SE
Cabo Delgado	34.5	3.48	61.6	4.94
Gaza	33.5	3.85	63.0	4.11
Inhambane	33.9	4.59	60.9	5.56
Maputo Cidade	25.2	2.63	65.9	4.06
Manica	22.8	3.10	43.5	5.65
Maputo Provincia	25.6	3.37	69.5	4.52
Nampula	26.6	4.27	50.4	3.78
Niassa	22.4	4.10	51.6	5.42
Sofala	40.1	3.17	64.9	4.04
Tete	31.6	3.88	55.3	6.78
Zambézia	16.0	2.11	50.5	4.20
<i>Mozambique</i>	27.6	1.12	58.9	1.49

The information presented in the first column of Table 3.10 (a) concerns the extent to which homework was given most days. It can be seen that in reading, only 27.6 percent of pupils had been given homework most of the days, while in mathematics 58.9 percent had been given homework most of the days. The variation among the provinces was not so big. Taking into consideration the importance of homework in the pupil achievement and the low levels of frequency with which it is given to pupils, it seems that we are facing a big problem with homework, especially in reading.

Information on how frequently the pupil reported that teachers corrected their homework has been presented in Tables 3.10 (b) and (c). It can be seen that, in reading, 37.8 percent of pupils said that the homework was ‘always or mostly corrected’, and 50.1 percent said ‘sometimes corrected’. Whereas, in mathematics 38.8 percent said ‘sometimes corrected’ and 57.3 percent said the homework was ‘always or mostly corrected’.

Table 3.10(b). Percentages and sampling errors for the frequency of reading homework being corrected by teacher (SACMEQ II)

Region	No homework given		Never corrected		Sometimes corrected		Mostly/always corrected	
	%	SE	%	SE	%	SE	%	SE
Cabo Delgado	1.7	0.77	5.4	1.62	41.9	4.49	51.0	4.80
Gaza	3.5	1.25	2.8	1.32	56.7	4.00	37.0	4.37
Inhambane	4.6	1.42	7.6	2.46	47.0	3.66	40.8	4.10
Maputo Cidade	9.6	1.69	8.3	1.93	50.7	3.10	31.4	2.88
Manica	5.6	1.21	7.4	3.14	47.7	4.46	39.3	5.68
Maputo Provincia	14.7	2.48	8.0	1.84	44.5	3.39	32.8	3.41
Nampula	4.4	1.13	3.2	0.96	55.3	4.29	37.1	4.59
Niassa	2.1	1.53	7.5	1.80	56.8	3.79	33.6	4.36
Sofala	1.5	0.74	3.5	1.25	51.0	3.61	44.0	3.55
Tete	2.8	1.24	9.3	2.16	46.9	3.87	41.0	4.50
Zambézia	3.5	0.93	8.2	1.51	47.8	3.21	40.4	3.33
Mozambique	5.7	0.51	6.6	0.61	50.1	1.19	37.6	1.27

Table 3.10(c). Percentages and sampling errors for the frequency of mathematics homework being corrected by teacher (SACMEQ II)

Region	No homework given		Never corrected		Sometimes corrected		Mostly/always corrected	
	%	SE	%	SE	%	SE	%	SE
Cabo Delgado	0.5	0.48	4.9	1.82	35.8	4.57	58.8	5.77
Gaza	0.4	0.39	3.8	1.15	44.1	3.67	51.7	3.75
Inhambane	0.4	0.42	6.4	1.89	37.1	7.31	56.2	6.80
Maputo Cidade	0.2	0.22	3.2	1.42	39.1	3.36	57.5	3.39
Manica	0.0	0.00	2.4	0.89	36.8	7.73	60.8	8.14
Maputo Provincia	0.5	0.54	4.1	1.13	41.8	5.12	53.6	5.70
Nampula	0.8	0.54	5.0	1.25	41.2	3.32	53.0	3.62
Niassa	0.3	0.27	4.2	1.47	37.3	4.12	58.2	3.93
Sofala	0.0	0.00	1.0	0.77	47.5	3.55	51.5	3.52
Tete	0.0	0.00	4.0	1.59	31.2	3.28	64.8	3.57
Zambézia	0.0	0.00	1.5	0.67	31.0	3.37	67.5	3.47
<i>Mozambique</i>	0.3	0.11	3.6	0.44	38.8	1.42	57.3	1.45

Policy suggestion 3.8. There is an urgent need for the Directorate of Basic Education to take some steps to address the problem of pupils not receiving homework from their teachers. Different options could be explored, one of which could be that of making sure that in the “ZIPs” there is a general policy of advocacy about the importance of the homework and the correction of such homework. Given the importance of homework, it would be desirable to examine why much less homework was given in reading than in mathematics.

How much did parents help children with their schoolwork?

In most schools, teachers require to take some school work home. This provides parents with an opportunity to directly support to their children’s learning. However, in some cases parents do not provide the assistance required. Where assistance is provided, pupils tend to learn better, and the reverse is true. Pupils were therefore asked to indicate whether their parents, or someone else at their home, provides assistance with their school work, and the results have been presented in Table 3.11.

Table 3.11(a). Home assistance with school related work (SACMEQ II)

Home assistance 'most of the time' with school work						
Region	Ensure homework done		Help with the homework		Look at school work done	
	%	SE	%	SE	%	SE
Cabo Delgado	57.3	5.02	36.5	3.69	51.0	4.05
Gaza	58.1	3.31	29.2	4.26	51.8	3.91
Inhambane	54.9	6.04	27.9	4.97	33.5	5.65
Maputo Cidade	57.4	3.47	28.5	3.05	33.6	2.91
Manica	36.3	3.61	23.3	3.49	39.7	4.60
Maputo Provincia	53.7	5.29	28.7	4.80	41.6	3.34
Nampula	38.7	3.18	22.5	2.15	44.2	3.19
Niassa	56.2	4.07	32.4	3.81	39.7	3.99
Sofala	55.6	3.68	32.1	3.20	45.9	2.77
Tete	39.6	6.41	25.8	3.98	36.3	2.84
Zambézia	39.0	3.22	19.6	2.69	43.6	2.65
<i>Mozambique</i>	50.0	1.36	27.0	1.16	40.8	1.14

Table 3.11(b). Home assistance with reading work (SACMEQ II)

Home assistance 'most of the time' with school work				
Region	Ask to read		Questions on school reading work	
	%	SE	%	SE
Cabo Delgado	28.8	4.47	35.8	4.69
Gaza	20.3	2.94	21.9	3.18
Inhambane	16.7	1.92	18.5	3.90
Maputo Cidade	16.5	2.26	10.5	1.91
Manica	23.5	3.33	20.1	2.84
Maputo Provincia	16.1	2.93	21.6	3.36
Nampula	21.2	2.10	21.2	3.26
Niassa	30.9	4.61	34.1	3.79
Sofala	21.8	3.02	21.6	2.47
Tete	23.9	2.81	24.3	2.73
Zambézia	12.6	2.16	18.3	1.84
<i>Mozambique</i>	19.4	0.84	19.8	0.95

Table 3.11(c). Home assistance with mathematics work (SACMEQ II)

Region	Home assistance 'most of the time' with school work			
	Do mathematical calculations		Questions on school Mathematics work	
	%	SE	%	SE
Cabo Delgado	29.4	3.66	39.3	3.64
Gaza	23.7	2.79	30.8	3.27
Inhambane	20.6	2.53	28.2	3.32
Maputo Cidade	17.1	2.38	23.4	1.92
Manica	16.5	2.54	22.3	2.88
Maputo Provincia	18.5	2.25	21.4	3.31
Nampula	21.6	2.40	29.7	2.80
Niassa	26.2	3.68	34.4	4.77
Sofala	21.3	2.88	33.4	3.15
Tete	24.6	3.79	32.9	3.69
Zambézia	19.2	2.32	27.4	2.73
<i>Mozambique</i>	20.6	0.86	28.0	0.93

From the results of the analysis summarized in Tables 3.11(a), 3.11(b) and 3.11 (c) it can be seen that parents gave very little help to the pupils with their homework. Only about 50 percent of the pupils had someone who ensured that they (pupils) did their homework, but a smaller percentage (40.8%) had someone looking at the homework done, and an even smaller percentage (27%) had someone who actually helped the pupils to do the homework. The problem was more serious with reading than it was with mathematics, but was more or less equally prevalent in all provinces..

What percentage of pupils had their own textbooks for reading and mathematics?

Although in some countries it is possible for pupils to learn when they have to share a textbook, it is desirable that every child should have a textbook. The data of pupils who had a textbook to themselves have been presented in Table 3.12.

Table 3.12. Percentages and sampling errors for pupils having own reading and mathematics textbooks (SACMEQ II)

Region	Own reading textbook		Own mathematics textbook	
	%	SE	%	SE
Cabo Delgado	44.6	6.35	45.5	6.80
Gaza	44.0	8.62	47.6	8.77
Inhambane	40.8	8.28	58.2	9.34
Maputo Cidade	57.9	4.70	63.4	4.85
Manica	68.3	5.18	73.2	4.87
Maputo Provincia	48.9	7.19	48.7	7.11
Nampula	44.1	6.28	50.8	6.40
Niassa	39.1	7.53	41.4	6.79
Sofala	57.8	3.49	66.1	3.87
Tete	73.0	6.70	74.1	6.43
Zambézia	62.8	4.28	62.7	4.39
Mozambique	53.2	1.99	58.3	2.03

The results of the analysis summarized in Table 3.12 show that only around 53 percent of Grade 6 pupils had their own reading textbook, and only 58.3 percent of pupil had own mathematics textbook. There was considerable variation among the provinces. Tete, had the best supply, with 73 percent and 74 percent of all Grade 6 pupils having a reading textbook and a mathematics textbook respectively to themselves, while Niassa, with 39 percent, had the lowest percentage of Grade 6 pupils having their own a reading textbook. The regional variation in the provision of mathematics textbooks followed the same pattern as that for reading textbooks.

The Ministry of Education's policy on book delivery is based on the principle that each school lends to the pupil the books for all the subjects, and at the end of the school year the books are returned.

There is need for further studies to understand the problem of the shortage of textbooks. However, one of the possible reasons might be related to the fact that the rate of textbook replacement each year is comparatively low, especially of the textbooks that are destroyed by the pupils due to the lack of a proper system of textbook maintenance.

Policy suggestion 3.9. The Ministry should take steps to ensure that every pupil has his or her own textbook for each subject. There is a need to teach pupils how to take proper care of textbooks.

To what extent was there a shortage of materials for the pupils?

Questions were asked about basic classroom materials such as exercise books, notebooks, and pencils as well as about erasers, pens, and rulers. The data for these materials have been presented in Tables 3.13a and 3.13b.

Table 3.13(a). Percentages and sampling errors for *shortages* of basic classroom materials: Exercise books, notebook, and pencil. (SACMEQ II)

Region	Exercise books		Notebook		Pencil	
	%	SE	%	SE	%	SE
Cabo Delgado	8.5	3.65	66.0	4.73	31.0	3.32
Gaza	9.7	2.54	73.9	3.17	23.8	3.53
Inhambane	11.2	2.67	58.3	3.69	12.6	3.57
Maputo Cidade	1.3	0.54	80.5	3.32	16.1	5.32
Manica	12.6	2.39	46.6	5.86	15.0	2.45
Maputo Provincia	12.3	2.71	73.0	3.24	14.0	3.38
Nampula	3.7	1.14	57.3	6.54	21.7	5.40
Niassa	7.9	2.04	61.6	4.71	31.0	4.21
Sofala	0.5	0.34	54.7	3.89	3.3	1.26
Tete	2.7	1.15	52.6	4.12	17.3	3.66
Zambézia	2.0	1.02	63.6	4.35	28.0	5.29
Mozambique	5.7	0.52	65.1	1.50	18.6	1.49

Table 3.13(b). Percentages and sampling errors for *shortages* of basic classroom materials: Eraser, pen, and ruler. (SACMEQ II)

Region	Eraser		Pen		Ruler	
	%	SE	%	SE	%	SE
Cabo Delgado	53.7	3.25	11.1	2.15	38.8	4.97
Gaza	50.0	3.81	17.4	3.44	33.5	3.96
Inhambane	40.0	6.51	12.4	2.02	20.2	3.48
Maputo Cidade	34.8	4.73	7.2	1.60	30.1	4.09
Manica	45.1	4.14	2.8	0.84	20.5	3.76
Maputo Provincia	39.9	5.78	10.2	2.97	25.5	3.10
Nampula	52.4	5.62	6.7	1.46	34.1	5.19
Niassa	70.9	4.05	12.9	3.48	53.9	3.64
Sofala	22.3	3.24	3.0	1.20	13.5	2.91
Tete	37.3	2.98	11.0	3.75	25.9	2.82
Zambézia	62.2	5.07	6.3	1.54	49.7	4.46
Mozambique	44.6	1.57	8.8	0.68	31.0	1.35

It is important to note that the figures in Tables 3.13(a) and 3.13(b) are the percentages of pupils who not have the items mentioned. The results of the analysis summarized in Tables 3.13(a) and 3.13(b) show that there was a general lack of

basic materials for the Grade 6 pupils. It is important to alert the Ministry to the reality of the poor material conditions in classrooms. The support of parents should be enlisted in order to improve the provision of various learning materials in schools, but it should also be noted that this lack of basic materials might also be a reflection of the parent's economic conditions.

Was there sufficient classroom equipment in the classrooms?

Information was sought from the teacher about the availability in their classrooms of a usable writing board, chalk, a wall chart of any kind, a cupboard, one or more bookshelves, a classroom library or book corner, a teacher table and a teacher chair. The information has been presented in Table 3.14.

Table 3.14. Percentages and sampling errors for availability of classroom resources for the teachers (SACMEQ II)

Resource	Availability of classroom resources			
	Reading teacher		Mathematics teacher	
	%	SE	%	SE
A usable writing board	98.0	0.79	96.5	1.70
Chalk	95.7	1.55	94.2	1.89
A wall chart of any kind	17.8	2.63	18.5	2.60
A cupboard	18.2	2.63	19.2	2.54
One or more bookshelves	8.9	2.29	6.8	1.47
A classroom library or book corner	24.6	3.09	24.6	2.87
A teacher table	70.7	3.26	69.9	3.45
A teacher chair	70.7	3.19	69.3	3.43

Classroom items play an important role in education quality. The classroom resources can influence pupils' achievement in mathematics and reading. The results of the analysis summarized in Table 3.14 show what the status of Grade 6 classroom resources in Mozambique was. There was a general lack of important materials, apart from chalk and writing board. Less than 20 percent of classrooms had a wall chart of some kind. Less than 25 percent had a classroom library or book corner. This situation deserves some attention.

An index for classroom resources, for each school, was constructed by summing up the items in Table 3.14, totaling 8 items. The average figures for this index across the regions have been presented in Table 3.15

Table 3.15. Means and sampling errors for the classroom resources index (SACMEQ II)

Region	Classroom resources index			
	Reading teacher		Mathematics teacher	
	Mean	SE	Mean	SE
Cabo Delgado	4.4	0.62	4.3	0.25
Gaza	4.0	0.33	4.2	0.29
Inhambane	3.6	0.23	3.3	0.70
Maputo Cidade	3.9	0.21	3.8	0.23
Manica	4.3	0.34	4.6	0.33
Maputo Provincia	4.3	0.19	4.5	0.28
Nampula	3.7	0.34	3.7	0.32
Niassa	4.2	0.26	4.7	0.46
Sofala	4.6	0.19	4.4	0.28
Tete	3.9	0.27	4.2	0.31
Zambézia	4.2	0.19	3.5	0.28
<i>Mozambique</i>	4.0	0.09	4.0	0.11

The results of the analysis summarized in Table 3.15 show that the average pupil had four out of the eight items, and there was little variation among the regions. By any standards, this level of provision is less than adequate, and requires attention.

Policy suggestion 3.10. The Ministry of Education should establish a short-term and medium-term policy for improving the availability classroom resources. For instance, items like wall charts should be a short-term measure, while items like classroom books and the bookshelves on which to keep them should be more of a medium-term measure.

Were there are sufficient sitting and writing places for the pupils?

Pupils learn most effectively when they have a proper place (in the form of a chair, bench or stool) to sit on and a desk or table to write on. Information was therefore collected on the number of sitting places and writing places, and the results have been presented in Table 3.16.

Table 3.16. Percentages and sampling errors for pupils having sitting and writing places (SACMEQ II)

Region	% Having sitting place		% Having writing place	
	%	SE	%	SE
Cabo Delgado	46.5	11.46	39.3	10.35
Gaza	49.9	11.31	46.1	10.70
Inhambane	34.5	11.64	33.8	11.60
Maputo Cidade	94.8	3.36	89.0	3.63
Manica	97.9	0.88	91.6	2.16
Maputo Provincia	95.6	3.28	89.6	3.64
Nampula	34.2	9.55	32.1	9.13
Niassa	84.4	7.87	72.3	8.22
Sofala	90.0	5.18	76.4	6.55
Tete	97.6	0.95	85.8	3.72
Zambézia	65.9	9.73	62.1	9.89
<i>Mozambique</i>	71.5	2.66	65.8	2.64

The results of the analysis summarized in Table 3.16 showed that, for the country as a whole, there was around 30 percent of Grade 6 pupils without sitting places and around 35 percent without writing places. The variation among the regions was quite large. In Manica only 2 percent of the Grade 6 pupils had no place to sit, while in Nampula 66 percent of Grade 6 pupils were without a place to sit. There is need to address this imbalance.

The problem is worse when it comes to the provision of writing places, but it follows the same general pattern across regions as for sitting places. Manica is the region where more 90 percent of Grade 6 pupils have places to write, while in Nampula only 32 percent of pupils had writing places.

Policy suggestion 3.11. The Finance Directorate should set up a task force to make a thorough analysis of the provision of sitting and writing places and identify the reasons for the marked imbalance in the allocation of sitting and writing places among the regions. The Ministry should thereafter develop a medium- to long-term programme that will see those regions with more than 25 percent of pupils without sitting and writing places being provided with the materials.

How good were the school buildings and toilet facilities?

In some countries the maintenance of the school buildings can be a problem. In some cases there was only a temporary structure. School directors were asked if, in their

view, their school buildings needed to be completely rebuilt, needed major repairs, needed a lot of minor repairs, needed only a few minor repairs or if the building was in a good condition. The percentages of pupils in schools in the first two categories (needing a complete rebuilding or major repairs) were calculated and the results have been presented in Table 3.17.

Table 3.17. General conditions of buildings and toilet facilities (SACMEQ II)

Region	Need repair		Toilet provision	
	%	SE	Mean	SE
Cabo Delgado	38.6	12.71	56.9	7.83
Gaza	55.7	13.52	143.2	24.48
Inhambane	54.5	15.34	83.6	15.31
Maputo Cidade	22.1	9.03	142.0	28.68
Manica	69.6	8.65	70.6	13.90
Maputo Provincia	36.2	12.42	161.6	40.82
Nampula	66.4	8.96	133.0	22.76
Niassa	56.6	11.06	80.7	8.61
Sofala	33.4	9.05	154.3	21.55
Tete	19.5	8.83	111.7	36.38
Zambézia	41.1	11.36	123.2	17.95
Mozambique	43.4	3.74	123.9	8.29

In Mozambique as a whole, 43.4 percent of pupils were in schools needing complete rebuilding or major repairs. There was some variation between the regions. For instance in Tete 19.5 percent of Grade 6 pupils were in schools needing major repairs or needed to be completely rebuilt while in Manica the corresponding figure was 69 percent. This must be of concern to the authorities and steps should be taken to plan for these repairs to be carried out. The plan should take in consideration the need to give priority to the provinces like Gaza, Inhambane, Manica, Nampula and Niassa where the problem was most serious.

Policy suggestion 3.12. The Ministry of Education should put in place a schools reconstruction or refurbishment programme that targets the regions that are most affected. In addition to this, it should also ensure that school directors receive basic training in preventive maintenance, probably as part of their INSET programme.

In several African countries the provision and quality of toilets can be a problem. In some cases there are insufficient toilets. In other cases they are not cleaned regularly, and can be unhygienic. In some cases when girls begin to mature they are forced to be absent from school for three or four days per month because of the absence of the

necessary sanitation facilities. Over a whole school year this can be the equivalent of more than a month's schooling. Questions were therefore asked about the repair status of toilets and also about the provision of toilets. School directors were asked about the number of toilets they had. This number was divided into the number of pupils attending the school in the largest shift. This provided a rough index of the number of pupils per toilet and the results have been presented in Table 3.17.

The mean was 123.9 pupils per toilet. With such a large number of pupils per toilet, it is not only that there was excessive pressure on the existing toilets, but also that such pressure necessitated constant maintenance of the facilities which, because of the pressure, would be difficult to keep clean.

Policy suggestion 3.13. The Ministry of Education should define the ideal ratio student/toilet to ensure that in school construction plans there is provision for enough toilet buildings. Those schools that fail to meet the stipulated minimum level of provision should be given a time frame within which to put up additional toilets.

To what extent did pupils have extra tuition and how was it paid for?

In many countries, large numbers of pupils take part in addition learning sessions that are organized by the teachers who regularly teach them, or by other teachers hired to provide this service. Such sessions, known as extra tuition or private tuition, is ordinarily provided outside the normal school hours, be it inside the school or outside it. While the teacher may provide such lessons free of charge, in most cases parents are required to pay for them. There are many reasons for pupils' participation in extra tuition, but in most cases the overriding aim is to enhance their chances of success in school. This is most common in situations where places at the next level are restricted, requiring selection on the basis of performance. In other cases, good performance may also be required in order to gain access to schools that are considered to be particularly good. Pupils were asked to indicate whether they participated in extra tuition and whether they paid for it. The information concerning the extent to which pupils had extra tuition has been presented in Table 3.18(a).

Table 3.18(a). Percentages and sampling errors for the extra tuition taken by pupils outside school hours

Region	Extra tuition on any subject	
	%	SE
Cabo Delgado	90.1	3.88
Gaza	68.4	5.84
Inhambane	68.6	8.22
Maputo Cidade	53.2	5.65
Manica	78.6	3.39
Maputo Provincia	61.6	7.77
Nampula	67.9	6.42
Niassa	79.9	4.03
Sofala	77.0	3.25
Tete	74.7	6.43
Zambézia	57.9	7.30
<i>Mozambique</i>	66.5	2.10

Although 66 percent of pupils in Grade 6 had answered that they did have an extra tuition in a given subject, there is no tradition of extra tuition in Mozambique schools. Only in urban areas can some signs be seen of systematic extra tuition, some of which was paid for. The most common way of unpaid extra tuition comes from relatives, that is, an elder brother, or sisters and other relatives tend to help pupil in homework and other kind of school activity. That is why in Table 3.18(b) we find that only 26.9 percent paid for the extra tuition.

Table 3.18(b). Percentages and sampling errors for the payment of extra tuition taken by pupils outside school hours

Region	There is payment		There is no payment		Don't know	
	%	SE	%	SE	%	SE
Cabo Delgado	13.9	2.54	73.1	2.41	13.0	1.98
Gaza	28.6	4.06	55.5	4.94	15.9	3.64
Inhambane	23.3	6.08	54.0	5.05	22.7	5.81
Maputo Cidade	35.9	3.99	57.5	4.00	6.7	1.57
Manica	14.2	2.90	61.7	4.17	24.0	3.82
Maputo Provincia	25.1	5.09	63.4	4.95	11.5	2.46
Nampula	18.1	2.95	67.6	4.73	14.3	3.47
Niassa	34.3	4.16	55.7	4.27	10.0	2.34
Sofala	39.5	4.65	49.5	3.95	11.1	2.67
Tete	28.5	4.14	55.2	3.08	16.3	3.26
Zambézia	27.2	4.19	61.3	3.04	11.6	3.04
<i>Mozambique</i>	26.9	1.29	59.2	1.36	13.9	1.02

Conclusion

The main findings presented in this chapter constitute useful baseline information about learners and their school and home environments. The Grade 6 pupil, on average, was four years older than he/she should be. One of the reasons for this was the grade repetition rate, which was very high (79.9%). The other reason might be late enrolment, especially in the rural areas. The new curriculum that was set to be introduced in 2004 should partially address this issue by introducing automatic transition from one grade to another within a cycle. The new curriculum will also emphasize continuous assessment.

There was a big gender imbalance in pupils' participation rates in Mozambique, especially from upper primary school upwards. The policy of upgrading lower primary schools to complete primary schools teaching from Grade 1 to 7 should contribute significantly to the reduction of this imbalance because girls will have access to upper primary education near their homes. The policy of providing scholarships for girls will also contribute in this regard. There is a need to monitor these policies to make sure that they are effectively being implemented and that the most disadvantaged provinces are targeted.

The number of books available in the pupils' homes was very limited (24.9). The percentage of schools with no libraries (73%) was also very high. The Ministry may wish to establish school libraries and book corners and allow pupils to take books home. Such measures would in some way compensate for the shortage of reading materials in pupils' homes.

Absenteeism is also a major problem and, although no data was collected to confirm this, it may be linked to the HIV/AIDS pandemic. The Ministry may wish to commission a study to look into this issue.

The average distance the pupils had to travel from home to school was 13.2 km, which is excessive for the average child. The policy of upgrading the lower primary schools to complete primary schools should contribute to the reduction of these walking distances. Furthermore, generally pupils do not get much support from parents in their schoolwork. The Ministry may wish to use the school councils to promote more parental involvement in pupil's schoolwork.

Less than 60 percent of pupils had textbooks of their own. The Ministry of Education every year purchases books according to the projected number of pupils. The Ministry should commission a study that will clarify where the bottlenecks in the provision of adequate textbooks lie and suggest practical ways of ensuring that all pupils have textbooks.

Many schools lacked basic school materials. On average; schools had four out of eight items. About one third of pupils did not have a sitting or writing place. The Ministry of Education should include the provision of basic school materials and classroom furniture in the list of priorities.

About 40 percent of the schools needed rebuilding or major repairs and, on average, there were 123 pupils per toilet. The Ministry may wish to consider the need to seek funds for school rebuilding and repair and to build more toilets in schools. The Ministry should also establish a sustainable way of ensuring that school directors are equipped with skills and have funds for the maintenance of the facilities they have.

Chapter 4

Teacher's Characteristics and their Viewpoints on Teaching, Classroom Resources, Professional Support and Job Satisfaction

Introduction

In a sense, this chapter is a continuation of the previous chapter. Chapter 3 was concerned with the characteristics of Grade 6 pupils and the homes from which they came. This chapter is concerned with some of the characteristics of Grade 6 teachers. The reasons for presenting these data are exactly the same as in the previous chapter; namely, to present the context variables for interpreting the achievement data later and also to have such information available to see how such inputs to Grade 6 classes change over time.

In Mozambique, teachers at the Grade 6 level are subject specialist teachers. That is, each teacher teaches one to two subjects in different classes. In this study the two aspects of pupil achievement that were measured were reading comprehension and mathematics.

The major questions that have been posed for this chapter are:

1. What were the ages, gender, and possessions in the home of Grade 6 pupils' teachers?
2. What was the teaching experience and training of the Grade 6 teachers?
3. How many in-service courses did Grade 6 teachers attend? Were they deemed to be effective?
4. Were the living conditions of the teachers acceptable?
5. What were the main sources of teacher job satisfaction?
6. To what extent did teachers find inspectors and educational advisors useful?
7. Which were the activities, goals, and approaches regarded as important by teachers when teaching reading? How often were reading tests given?

8. Which were the activities, goals, and approaches regarded as important by teachers when teaching mathematics? How often were mathematics tests given?
9. To what extent did schools have special school activities associated with reading?

What were the ages, gender, and possessions in the home of Grade 6 pupils' teachers?

Several important characteristics of teachers were also measured. These concerned the age of teachers, sex of teachers, academic qualifications, professional qualifications, years of teaching experience, and the number of in-service courses attended. A sub-sample of three Grade 6 teachers was taken in each school. In nearly all schools there were only three classes in Grade 6 thus ensuring that all of the teachers actually teaching Grade 6 were in the sample.

(a) Age of teachers

The age of teachers teaching the average Grade 6 pupil have been presented in Table 4.1. The average pupil in Mozambique had a middle-aged teacher of reading who was 32.8 years and in the provinces the age ranged from 28.2 years in Niassa to 35.7 years in Cabo Delgado. The average value for mathematics teachers at national level was 31.3 years, and in the provinces the average ranged from 28.8 years in Gaza to 32.4 in Manica.

Table 4.1. Means, percentages, and sampling errors for age, gender, and socio-economic background of reading and mathematics teachers

Province	Reading teacher						Mathematics teacher					
	Age		Gender		Possession at home (index)		Age		Gender		Possession at home (index)	
	Mean	SE	%	SE	Mean	SE	Mean	SE	%	SE	Mean	SE
Cabo Delgado	35.7	1.05	9.4	9.46	3.0	0.42	32.3	1.02	0.0	0.00	3.2	0.24
Gaza	33.1	1.84	44.5	13.45	3.9	0.65	28.8	1.90	32.1	12.36	3.2	0.30
Inhambane	29.2	2.18	27.8	11.03	3.2	0.56	30.0	2.22	23.5	10.71	4.6	0.42
Maputo Cidade	33.8	0.99	46.1	8.85	4.1	0.32	33.1	0.78	45.7	9.02	4.6	0.54
Manica	35.2	2.22	23.8	9.58	4.7	0.49	32.4	1.61	15.9	6.95	4.3	0.41
Maputo Provincia	31.5	1.17	20.8	8.38	5.3	0.50	30.5	1.24	42.6	11.01	4.1	0.51
Nampula	34.4	1.92	15.7	5.23	3.7	0.31	31.0	1.33	8.7	3.68	2.7	0.32
Niassa	28.2	0.87	9.2	6.25	3.4	0.30	29.9	0.53	0.0	0.00	3.3	0.35
Sofala	35.3	1.49	50.1	8.90	4.4	0.39	33.1	0.87	39.4	7.73	5.1	0.41
Tete	32.1	1.57	34.4	11.07	4.1	0.36	31.5	1.58	21.6	8.59	3.4	0.41
Zambézia	32.0	1.31	14.7	8.36	3.9	0.29	30.1	0.94	12.6	5.42	3.5	0.33
Mozambique	32.8	0.51	29.7	2.99	4.0	0.14	31.2	0.43	26.1	2.76	3.9	0.15

(b) Sex of teachers

Overall, only 29.7 percent of grade 6 pupils had reading teachers who were female. There was a large variation among provinces ranging from 50.1 percent female teachers in Sofala to 9.2 in Niassa. In mathematics only 26.1 percent of pupils had mathematics teachers who were female. There were large variations among provinces ranging from 45.7 percent female teachers in Maputo City (MC) down to virtually no mathematics teachers in Niassa and Cabo Delgado.

From other data at the Ministry of Education it could be seen that the gender imbalance in junior secondary school (the source of recruitment for teachers) in northern provinces was very big compared to the southern and central provinces. This largely explains the lower percentages of female teachers in these provinces. The overall government policy has been to recruit more female teachers, but in Niassa and Cabo Delgado there is a lot more to be done. The strategic plan of the Ministry of

Education includes policies that aim to address this imbalance in the next 5 years. For instance there are tentative plans to offer scholarships to girls.

Policy suggestion 4.1. The Ministry of Education must accelerate its implementation of the strategic plan that seeks to address the gender imbalances in the teaching force.

Possessions in the home

The same questions were asked of teachers about the possessions as were asked of pupils (see Chapter 3). The average number of possessions for the reading teacher was four on a scale where the maximum was 13, and for the mathematic teacher it was 3.9. As can be seen from the figures in the Table 4.1, the average values were very low indeed. This can be explained by the fact that teachers have very low salaries, which is one of the reasons why the teaching profession was not attractive. The highest number of possessions for reading teachers was in Maputo Province (5.3) and the lowest in Cabo Delgado (3.0). The highest number of possessions for mathematics teachers was in Sofala (5.1) and the lowest in Nampula (2.7).

What was the teaching experience and training of the Grade 6 teachers?

Teachers were asked about the number of years of teaching experience they had and also about the type of teacher training and education they had received. The results have been shown in Table 4.2.

Table 4.2. Means and sampling errors for experience and training of reading and mathematics teachers (SACMEQ II)

Province	Reading teacher				Mathematics teacher			
	Experience		Training		Experience		Training	
	(years)		(years)		(years)		(years)	
	Mean	SE	Mean	SE	Mean	SE	Mean	SE
Cabo Delgado	12.1	1.42	1.6	0.23	8.8	1.51	1.7	0.26
Gaza	10.2	2.16	0.8	0.22	7.1	1.46	1.7	0.29
Inhambane	7.7	2.03	1.5	0.37	7.8	2.11	1.2	0.34
Maputo Cidade	11.4	1.09	2.4	0.25	11.9	1.06	2.5	0.12
Manica	11.6	1.50	2.0	0.32	9.8	1.20	2.2	0.25
Maputo Provincia	7.4	1.16	1.5	0.31	7.7	1.19	1.9	0.30
Nampula	8.6	1.54	1.9	0.28	8.6	1.37	2.1	0.24
Niassa	5.5	0.96	1.1	0.18	6.6	0.76	1.7	0.20
Sofala	14.3	1.77	2.6	0.13	11.1	1.04	2.5	0.09
Tete	9.5	1.85	1.6	0.29	10.1	1.65	1.8	0.27
Zambézia	9.3	1.80	1.3	0.28	7.0	0.73	0.9	0.25
Mozambique	9.9	0.52	1.8	0.09	9.1	0.43	1.9	0.07

The average Grade 6 pupil had a teacher who had between 9 to 10 years of experience. Sofala province had reading teachers with the most experience, the length of such experience averaging 14.3 years. Niassa had reading teachers with the least experience of 5.5 years. For mathematics, teachers in Maputo City had the most experience (11.9 years) and those in Niassa had the least (6.6 years).

A question was asked about the number of years of teacher training that the teachers had had. The values from this question were recoded as follows:

No teacher training	0.0
Less than one year	0.5
One year	1.0
Two years	2.0
Three years	3.0
More than three years	4.0

The average pupil had a teacher with 1.8 to 1.9 years of training. The teacher training course lasts 3 years and hence the figure of 1.8 for reading and 1.9 for mathematics

means that there were many untrained teachers. A quick analysis of the data collected reveals that, in 2000, 22.5 percent of all Mozambican teachers had not received any teacher training.

A question was also asked about the academic education the teachers had received. The results have been presented in Table 4.3 (a).

Table 4.3(a). Academic education of reading teachers (SACMEQ II)

Province	Primary		Junior secondary		Senior secondary		A-level		Tertiary	
	%	SE	%	SE	%	SE	%	SE	%	SE
Cabo Delgado	1.9	0.75	11.2	5.67	83.9	6.33	2.9	2.94	0.0	0.00
Gaza	2.7	2.75	33.4	11.38	63.9	11.35	0.0	0.00	0.0	0.00
Inhambane	8.0	5.50	15.3	7.64	76.7	10.11	0.0	0.00	0.0	0.00
Maputo										
Cidade	4.4	4.35	1.7	1.66	75.9	9.18	18.1	5.60	0.0	0.00
Manica	0.0	0.00	38.1	12.47	61.9	12.47	0.0	0.00	0.0	0.00
Maputo										
Provincia	3.3	3.33	10.2	7.98	77.2	9.06	9.2	4.65	0.0	0.00
Nampula	2.7	2.66	7.4	2.04	77.8	7.44	9.4	6.44	2.7	2.68
Niassa	0.0	0.00	16.2	5.94	83.8	5.94	0.0	0.00	0.0	0.00
Sofala	0.0	0.00	19.8	7.42	80.2	7.42	0.0	0.00	0.0	0.00
Tete	0.0	0.00	14.5	5.30	85.5	5.30	0.0	0.00	0.0	0.00
Zambézia	11.5	8.17	40.8	9.37	47.7	9.70	0.0	0.00	0.0	0.00
Mozambique	4.0	1.48	17.2	2.20	72.7	3.06	5.8	1.51	0.3	0.32

To become a Grade 6 and 7 school teacher, a teacher of reading must have completed at least the junior secondary school, which is 10 years of schooling. Many go on to take the senior secondary school, which constitutes another two years of schooling. From Table 4.3(a) it can be seen that 72.7 percent of pupils were taught by teachers who had completed senior secondary school. Only 0.3 percent had undertaken tertiary education. About four percent of teachers still had primary education level only. Zambézia and Inhambane provinces had the highest percentage of pupils with reading teachers who had only primary education, 11.5 and 8 percent respectively.

From Table 4.3 (b) it can be seen that the academic education of mathematics teachers of Grade 6 pupil followed the almost the pattern as the academic education of reading teachers.

Table 4.3(b). Academic education of mathematics teachers (SACMEQ II)

Province	Primary		Junior secondary		Senior secondary		A-level		Tertiary	
	%	SE	%	SE	%	SE	%	SE	%	SE
Cabo Delgado	8.9	8.94	13.8	8.22	77.2	11.22	0.0	0.00	0.0	0.00
Gaza	6.7	6.68	28.8	9.93	64.5	10.77	0.0	0.00	0.0	0.00
Inhambane	8.7	6.19	42.6	15.44	48.7	14.56	0.0	0.00	0.0	0.00
Maputo										
Cidade	0.0	0.00	4.1	4.09	95.9	4.09	0.0	0.00	0.0	0.00
Manica	0.0	0.00	28.3	10.23	71.7	10.23	0.0	0.00	0.0	0.00
Maputo										
Provincia	0.0	0.00	18.7	8.45	81.3	8.45	0.0	0.00	0.0	0.00
Nampula	0.0	0.00	8.2	4.61	81.8	7.65	10.0	6.86	0.0	0.00
Niassa	0.0	0.00	35.0	10.00	65.0	10.00	0.0	0.00	0.0	0.00
Sofala	2.0	2.02	7.6	4.98	89.7	5.03	0.7	0.72	0.0	0.00
Tete	12.1	5.92	10.2	4.40	77.7	8.80	0.0	0.00	0.0	0.00
Zambézia	0.0	0.00	23.1	8.41	76.9	8.41	0.0	0.00	0.0	0.00
Mozambique	2.7	1.00	17.9	2.59	78.1	2.73	1.3	0.84	0.0	0.00

The majority of pupils (78.1%) had mathematics teachers who had completed senior secondary education. Overall in the country, only 2.7% of the pupils had mathematics teachers with primary education only. Tete (12.1%), Cabo Delgado (8.9%), Inhambane (8.7%) and Gaza (6.7%) had the highest percentage of pupils with mathematics teachers who had only primary education.

How many in-service courses did Grade 6 teachers attend?

Teachers can only maintain high levels of performance in their work if their pedagogical skills are continuously upgraded. One systematic way of ensuring that teachers receive additional pedagogical skills is through in-service training. Teachers were therefore asked to report the number of in-service courses they had attended in the past three years. From Table 4.4 it can be seen that the average Grade 6 pupil had a reading teacher who had attended 0.5 courses and a mathematics teacher who had attended 0.8 courses over the last three years. This translated to less than one course of training in three years, which is very low. From these low figures it can be inferred that many teachers had very few opportunities to attend in service courses.

It is difficult to improve education quality in the classroom without a coherent and comprehensive strategy on teacher in-service training. The government has been

reviewing its in-service policies, as part of on going formulation of teacher education strategy. The implementation of the strategy will be the base for improvement of in-service teacher training.

Teachers were also asked for how many days they had attended the courses and the results have been presented in Table 4.4.

Table 4.4. Means and sampling errors for teacher in-service courses and days attended in the last three years (SACMEQ II)

Province	Reading teacher				Mathematics teacher			
	In-services courses		Days		In-services courses		Days	
	Mean	SE	Mean	SE	Mean	SE	Mean	SE
Cabo Delgado	0.7	0.21	24.1	15.89	0.8	0.14	20.4	8.08
Gaza	0.3	0.15	20.8	16.85	0.5	0.23	8.0	3.90
Inhambane	0.5	0.17	7.6	2.65	1.0	0.25	29.2	16.18
Maputo Cidade	0.3	0.06	5.1	2.19	0.5	0.13	7.8	3.32
Manica	0.5	0.20	13.8	3.63	0.3	0.19	3.9	2.24
Maputo Provincia	0.4	0.15	13.2	5.72	0.3	0.10	9.2	2.39
Nampula	1.0	0.29	20.0	8.34	1.2	0.37	14.2	6.22
Niassa	1.0	0.22	20.4	4.94	1.2	0.61	25.0	11.72
Sofala	0.9	0.17	51.0	11.20	1.1	0.34	46.3	14.25
Tete	0.6	0.19	15.1	4.55	1.3	0.49	26.9	12.70
Zambézia	0.3	0.11	19.8	8.78	0.7	0.27	9.2	4.64
<i>Mozambique</i>	0.5	0.05	16.8	2.45	0.8	0.09	15.9	2.42

It can be seen that the average teacher had attended in-service training that last 16 days over a period of three years, giving an average of five days per year.

Were the living conditions of the teachers acceptable?

One of the major concerns that affect ministries of education is the provision of a conducive working environment for teachers. One important aspect of such an environment is the provision of adequate teacher housing of acceptable quality. Teachers were therefore asked to rate their living conditions. The percentages of pupils with teachers who answered that the conditions were generally good or that only minor repairs were required have been presented in Table 4.5.

Table 4.5. Percentages and sampling errors for teacher housing in acceptable conditions (SACMEQ II)

Province	Teacher housing in acceptable conditions			
	Reading teacher		Mathematics teacher	
	%	SE	%	SE
Cabo Delgado	16.3	8.85	13.1	9.11
Gaza	49.7	11.79	19.4	9.82
Inhambane	22.4	8.95	28.8	14.41
Maputo Cidade	22.6	6.76	23.4	7.07
Manica	31.7	10.19	33.3	10.91
Maputo Provincia	14.2	7.97	17.9	6.55
Nampula	11.5	6.04	15.3	7.26
Niassa	22.4	7.37	20.7	9.90
Sofala	41.5	8.62	48.1	8.55
Tete	14.2	6.80	6.4	2.22
Zambézia	16.8	7.37	28.6	9.52
<i>Mozambique</i>	23.4	2.64	23.5	2.89

Grade 6 pupils had around 23 percent of reading and mathematics teachers who indicated that their living conditions were acceptable. This meant that around three quarters of the teachers were not satisfied with their living conditions. This situation has a potentially negative impact upon the quality of education because teachers who have to put up with poor living conditions may not devote their full energy to teaching while in schools. Hence the quality of education will be at risk, and there is need to address this problem.

There were cases where teachers in the same province differed significantly in terms of acceptability of their living conditions. For example, in Gaza 49.7 percent of reading teachers considered their living conditions to be acceptable whereas the corresponding figure for mathematics teachers was only 19.4 percent. The same was the case with Tete where the corresponding figures were 14.2 percent for reading teachers against 6.4 percent of mathematics teachers respectively. It is difficult to explain these differences apart from the fact that they may simply reflect differences in judgment.

Looking at the variation among the provinces, it was quite interesting to see that in Sofala more than 40 percent of the reading and mathematics teachers felt that they

were living in acceptable conditions. There is a need to check the situation in this region. It is probable that non-governmental organizations are helping teachers in this province.

Policy suggestion 4.2. The Human Resource Directorate should commission a study to identify sustainable ways of helping teachers to buy or build houses with acceptable condition where the school cannot provide houses of acceptable quality. It might be important to look at the good experience of Sofala Province and see if it can be replicated in other provinces.

What were the main sources of teacher job satisfaction?

The motivation of teachers is a critical issue in the improvement the quality of education. In the SACMEQ countries there has been considerable interest in this issue, especially with respect to those factors that contribute most to job satisfaction. It is widely believed that satisfied teachers will tend to work harder for the benefit of the pupils and are less likely to leave the teaching profession.

Teachers in this study were asked to respond to 15 possible reasons for satisfaction with their jobs. These reasons have been grouped under five headings in Table 4.6 living conditions, school facilities/equipment, relationships with others, career advancement, and the educational outcomes of pupils. In Table 4.6 the percentages of pupils having teachers who said that the source of satisfaction, given, was 'very important' have been presented.

Table 4.6. Percentages and sampling errors for teacher ratings of reasons for job satisfaction being the ‘most important’ (SACMEQ II)

Reason given	Reading teacher		Mathematics teacher	
	%	SE	%	SE
Travel distance to school	6.3	1.47	7.8	1.56
Location of school	4.9	0.65	2.4	0.74
Quality of the school buildings	2.5	1.00	1.2	0.17
Availability of teacher housing	13.8	2.44	9.8	1.49
Quality of teacher housing	2.8	1.49	1.2	0.62
Availability of classroom furniture	3.8	1.14	2.5	1.12
Quality of classroom furniture	0.3	0.10	1.6	0.75
Level of teacher salary	39.4	3.19	45.4	3.17
Timely payment of salaries	4.5	1.59	4.1	1.35
Seeing pupils learn	10.2	1.90	12.0	2.45
Availability of classroom supplies	5.0	1.52	2.6	0.94
Quality of school management and administration	0.6	0.34	1.3	1.17
Amicable working relationships	1.5	0.87	0.6	0.48
Good relationships with the community	0.3	0.33	0.0	0.00
Expanded opportunities for promotion	1.3	0.59	0.2	0.17
Opportunities for professional development	2.9	0.98	7.1	1.94

From that table above it can be seen that, for both teachers of reading and mathematics, the main source of job satisfaction was the level of teacher salary. The percentage of mathematics and reading teachers who regarded the level of salary, as the main source of job satisfaction was 39.4 and 45.4 respectively. The second most important source of job satisfaction for reading teachers was the availability of teachers housing, while for mathematics teachers seeing pupil learning was also an important source of job satisfaction. These results are consistent with the observations made earlier regarding the few possessions teachers had (reflecting their low income) and the generally low quality of teacher housing.

How much time did teachers spend preparing and marking lessons?

Conscientious teachers spend a lot of time preparing lessons each week and marking pupils’ written work. In particular, a beginning teacher has to spend a lot more time preparing lessons. All teachers have to revise their lesson plans each term. All teachers have to correct homework all of the time. A question was asked about how many hours, on average, a teacher spent on lesson preparation and marking homework or classwork in a typical school week. The data have been presented in Table 4.7.

Table 4.7. Means and sampling errors for the teacher time spent on lesson preparation (SACMEQ II).

Province	Time spent on lesson preparation and marking homework			
	Reading lesson (hours)		Mathematics lesson (hours)	
	Mean	SE	Mean	SE
Cabo Delgado	8.6	1.10	10.3	1.77
Gaza	5.7	1.88	5.5	0.79
Inhambane	5.4	1.15	6.9	1.53
Maputo Cidade	6.4	1.11	4.8	0.47
Manica	7.8	1.51	7.9	1.18
Maputo Provincia	5.4	0.70	3.9	0.28
Nampula	6.4	1.00	6.6	0.84
Niassa	9.3	2.84	6.2	0.94
Sofala	10.9	1.80	8.7	1.42
Tete	7.4	1.30	8.1	1.57
Zambézia	6.1	0.75	6.4	1.94
<i>Mozambique</i>	6.8	0.41	6.4	0.36

Teachers of Grade 6 pupils spent an average of 6.8 and 6.4 hours per week preparing lessons and marking homework for reading and mathematics respectively. The provinces where more time was spent preparing lessons and marking homework were Sofala (10.9 hours for reading) and Cabo Delgado (10.3 hours for mathematics). The province that spent the least time was Maputo Province (5.4 hours for reading and 5.9 hours for mathematics). The reason for this is not clear, and so there is need to find out why Grade 6 teachers in Maputo Province spent little time on lesson preparation and marking.

The teaching load, established by the Government, for a teacher is 24 hours per week. In order to have an idea of the level of teacher utilization, teachers were asked to indicate the average number of lessons they taught each week, and the results have been presented in Table 4.8.

Table 4.8. Means and sampling errors for the periods and time spent on teaching per week

Province	Reading teacher				Mathematics teacher			
	Periods		Hours		Periods		Hours	
	per week		per week		per week		per week	
	Mean	SE	Mean	SE	Mean	SE	Mean	SE
Cabo Delgado	23.2	1.93	17.3	1.31	20.2	1.38	15.1	1.03
Gaza	24.4	2.22	18.3	1.67	22.0	2.21	16.5	1.66
Inhambane	23.4	2.11	17.5	1.54	25.5	3.09	19.1	2.32
Maputo Cidade	24.3	0.97	18.1	0.69	23.1	0.66	17.2	0.49
Manica	26.6	1.86	19.9	1.40	24.3	2.03	18.2	1.51
Maputo Provincia	27.2	1.36	21.8	1.56	22.4	1.72	17.3	0.99
Nampula	22.8	1.33	17.1	1.00	22.0	0.54	16.5	0.40
Niassa	16.9	0.97	12.7	0.73	16.2	1.20	12.2	0.88
Sofala	21.0	1.29	15.7	0.96	21.8	1.63	16.3	1.22
Tete	25.6	2.34	19.2	1.76	25.7	2.22	19.3	1.67
Zambézia	25.9	1.30	19.4	0.98	28.7	2.50	21.4	1.82
<i>Mozambique</i>	24.1	0.49	18.2	0.37	23.4	0.56	17.6	0.41

The average time that a teacher actually taught per week was 24 hours in 2000. This meant that a teacher's week was more or less 31 hours including lesson preparation and marking. However, there were wide variations among regions. The teaching load for teachers in Niassa was 16.9 lessons for reading and 16.2 lessons for mathematics, both of which were way below the Ministry's requirement of 24 lessons per week.. On the other hand, provinces like Manica (with 26.6 lessons for reading), Maputo (27.2 lessons for reading), Tete (25.6 lessons for reading and 25.7 lessons for mathematics), Zambézia (25.9 lessons for reading and 28.7 lessons for mathematics) were above the established norm.

Which were the activities, goals, and approaches regarded as important by teachers when teaching reading? How often were reading tests given?

When teaching a subject, teachers usually prepare a set of activities for pupils to do. These activities are meant to improve the children's reading. The teachers were asked to state whether they thought that the activities were 'not very important', 'important' or 'most important'. The percentages of pupils with teachers who rated the activities as 'most important' have been presented in Table 4.9(a) (i).

Table 4.9(a) (i). Percentages and sampling errors for the activities of teaching reading (SACMEQ II)

Activity	Activity rated as 'most important'	
	%	SE
Listening to reading	1.2	0.44
Silent reading	1.8	0.63
Learning new vocabulary	11.3	2.25
Sounding words	4.4	1.03
Reading for comprehension	67.6	3.33
Taking books home to read	9.2	1.97
Reading materials in home	2.2	0.84
Reading aloud in class	2.3	1.02

The activity that was regarded as 'most important' for teaching reading was 'reading for comprehension'. It was surprising that 'taking books home to read' and 'reading materials at home' were not rated as more important since these are well-known predictors of comprehension in reading.

When teaching reading, teachers pursue a variety of goals, and emphasize some over others depending on the importance they attached to these goals. Seven goals for teaching were given and teachers were requested to give each one of them a rating of 'not very important', 'important' or 'most important'. The results have been presented in Table 4.9(a) (ii).

Table 4.9(a) (ii). Percentages and sampling errors for the goals of teaching reading (SACMEQ II)

Goal	Goal rated as 'most important'	
	%	SE
Making reading enjoyable	2.8	0.99
Extending vocabulary	6.8	1.45
Improving word attack skills	14.9	2.50
Improving reading comprehension	55.7	3.24
Developing a lasting interest	9.6	1.59
Opening up career opportunities	2.4	0.88
Developing of life skills	7.8	2.04

There were three goals regarded as more or less equally important by the teachers, and these were 'improving reading comprehension', and 'improving word attack skills' 'developing a lasting interest in reading'. Some educationists consider goals

such as extending vocabulary and developing a lasting interest in reading (and thus instilling a reading culture in individuals) as very important. It is important, therefore to ensure that teachers emphasise the correct goals when teaching reading.

In teaching reading there are some strategies or approaches for teaching reading that are more effective than others, and that are therefore used more frequently than others. Six different often-used strategies were listed. The percentages of pupils having teachers who said they used these strategies ‘often’ have been presented in Table 4.9(a)(iii) below.

Table 4.9(a) (iii). Percentages and sampling errors for the strategies of teaching reading (SACMEQ II)

Approach	Percentage indicating ‘often used’	
	%	SE
Introducing passage before reading	29.6	2.87
Asking questions to test comprehension	92.3	1.76
Asking questions to deepen understanding	98.1	0.82
Using materials made by teacher	38.1	3.03
Reading aloud to the class	95.5	1.23
Giving positive feedback	84.6	2.40

The most popular strategy was to ask questions to test the pupils’ understanding. But the strategies of ‘reading aloud to the class’, ‘asking questions to deepen understanding’ and ‘giving positive feedback’ were also used often. The teachers do not yet seem to have adopted the habit of making their own materials to use with the class, with only 38.1 percent indicating that they used material they themselves made ‘often’. In some countries it is pupils who have teachers who make their own materials who also have high reading comprehension achievement. Introducing a passage before reading was also not used often (with only 29.6 % indicating that they used it ‘often’). The answers to the strategies stated were all associated with effective learning.

Policy suggestion 4.3. The Ministry of Education must put together a team of experts who will closely examine the curriculum goals of teaching reading and make sure that in-service training programmes orient teachers in such a way that they emphasise the correct activities and goals, and adopt the right strategies or approaches when teaching reading.

It can be argued that it is very important to have constant feedback from pupils on how they are faring with what they are learning. One way of doing this is through tests. Teachers were asked how often they gave pupils reading tests, and the results have been given in Table 4.9(a) (iv).

Table 4.9(a) (iv). Percentages and sampling errors for the frequency of reading tests

Province	Frequency of reading tests					
	Less often		2/3 per month		1 + per week	
	%	SE	%	SE	%	SE
Cabo Delgado	14.1	8.99	41.8	11.74	44.1	11.73
Gaza	16.9	8.70	48.9	11.90	34.2	11.59
Inhambane	50.8	11.31	35.2	10.93	14.0	7.90
Maputo Cidade	49.4	8.85	37.6	7.95	13.0	4.13
Manica	20.8	8.11	42.4	11.86	36.8	10.90
Maputo Provincia	36.3	10.07	55.1	10.38	8.6	5.51
Nampula	57.2	9.94	35.4	8.16	7.4	3.78
Niassa	33.7	9.60	37.0	9.93	29.3	6.62
Sofala	16.1	7.36	43.5	8.25	40.4	8.22
Tete	18.5	8.76	26.6	9.51	54.9	11.29
Zambézia	40.4	10.79	47.2	9.94	12.4	6.00
Mozambique	37.3	3.19	40.9	3.12	21.8	2.23

It can be seen that in 2000 there were 40.9 percent of pupils who had teachers who gave them two or three times per month; 37.3 percent were given tests less often. Only 21.8 percent gave one or more per week. It would seem worthwhile examining what actually happens to those pupils whose teachers give tests less frequently and, if necessary, taking remedial action. It is suggested that the Ministry mount a small study to examine this matter.

Policy suggestion 4.4. It is suggested that the Ministry of Education commission a small study to examine the feedback practices in the classrooms of those pupils who are given tests less frequently than two or three times per month. The recommendations on the ideal number of tests that a teacher should give to pupils must be thereafter be implemented.

Which were the activities, goals, and approaches regarded as important by teachers when teaching mathematics? How often were mathematics tests given?

Similar questions to those asked about teaching reading were asked about mathematics teaching, and the results have been presented in Table 4.9(b) (i) to (iv).

Table 4.9(b) (i). Percentages and sampling errors for the activities of teaching mathematics (SACMEQ II)

Activity	Activity rated as 'most important'	
	%	SE
Working in pairs or groups	21.6	2.78
Working alone	32.1	2.98
Preparing projects to be shown to the class	15.4	2.52
Using practical equipment	5.1	1.43
Homework assignments	15.0	2.40
Studying and interpreting graphs	0.4	0.34
Reciting tables, formulae, etc.	0.6	0.26
Quizzes, tests, examinations, etc..	9.7	1.80

The activity rated 'most important' by the largest percentage of teachers (32%) was that of encouraging pupils to work alone. Some 21.6 percent of pupils had teachers who endorsed 'small group work or having pupils work in pairs' as 'most important'. Activities such as 'preparing projects to be shown to the class' and 'homework assignments' were endorsed by 15 percent each. The other activities received the rating 'most important' from very small percentages of teachers.

Table 4.9(b) (ii). Percentages and sampling errors for the goals of teaching mathematics (SACMEQ II)

Goal	Goal rated as 'most important'	
	%	SE
Basic numeracy skills	3.2	0.90
Problem solving	51.7	3.17
Different ways of thinking	23.6	2.86
Confidence in solving problems	6.9	1.80
Satisfaction from doing Mathematics	5.5	1.65
Opening up career opportunities	5.1	1.81
Developing of life skills	3.9	1.26

For 51.7 percent of pupils, ‘problem solving’ was the most important goal in teaching mathematics for their teachers. ‘Different ways of thinking’ was rated ‘most important’ by the teachers of 23.6 percent of pupils. The impression gained from the predominantly low percentages of teachers who rated most goals as ‘most important’ is that mathematics teachers went through the motions of teaching without being explicitly aware of the goals they are pursuing. It might be worthwhile having the teacher training college and the curriculum development personnel examine what the goals are and how explicitly the teachers are pursuing them in their teaching.

Table 4.9(b)(iii). Percentages and sampling errors for the strategies of teaching mathematics (SACMEQ II)

Approach	Percentage indicating ‘often used’	
	%	SE
Using everyday problems	49.9	3.08
Teaching the whole class as a group	78.1	2.89
Teaching in a small group	9.6	1.77
Teaching individually	20.2	2.84
Teaching through question and answer technique	57.2	3.43
Giving positive feedback	94.2	1.47
Relating to everyday life situations	55.0	3.22
Basic skills training	84.1	2.37
Explaining mathematical processes	79.6	2.88
Using available local materials	53.5	3.37

With the exception of ‘teaching in a small group’ and ‘teaching individually’, all of the strategies were endorsed as being often used by a very large proportion of teachers. The multiplicity of strategies should be regarded as a good thing. Again the issue of teaching in small groups and individuals should be taken up with the curriculum and teacher training college personnel.

The matter of feedback was also taken up for mathematics and the results have been presented in Table 4.9 (b) (iv).

Table 4.9(b) (iv). Percentages and sampling errors for frequency of mathematics tests (SACMEQ II)

Province	Frequency of mathematics tests					
	<i>Less often</i>		2/3 per month		1 + per week	
	%	SE	%	SE	%	SE
Cabo Delgado	68.6	11.41	25.8	11.56	5.6	0.33
Gaza	91.6	5.18	8.4	5.18	0.0	0.00
Inhambane	82.4	11.09	17.6	11.09	0.0	0.00
Maputo Cidade	97.3	1.38	2.7	1.38	0.0	0.00
Manica	69.1	11.49	30.9	11.49	0.0	0.00
Maputo Provincia	90.3	4.34	9.7	4.34	0.0	0.00
Nampula	78.7	8.69	21.3	8.69	0.0	0.00
Niassa	69.5	7.27	30.5	7.27	0.0	0.00
Sofala	92.5	3.61	5.0	3.00	2.5	2.49
Tete	84.0	7.22	15.0	7.01	1.0	1.05
Zambézia	97.8	0.56	2.2	0.56	0.0	0.00
Mozambique	87.2	1.97	12.3	1.96	0.5	0.19

About 87 percent of pupils received tests less often than 2 to 3 times per month, and this is very unsatisfactory. With tests given so infrequently, it is unlikely that teachers obtain regular feedback from the pupils. This should be a matter of great concern, and the Ministry must attend to urgently. The issues of the large class size and teachers' work overload may well be presented by the teachers as the reason for not testing pupil often.

Policy suggestion 4.5. The Ministry of Education's Research Unit must conduct a study to establish (a) the norms regarding the frequency of testing; and (b) the reasons why such a large percentage of teachers does not give pupils written tests frequently. Thereafter, mechanisms must be developed to ensure that teachers test pupils frequently and regularly.

How frequently did teachers meet parents?

Postlethwaite & Ross (1992) have shown that in many countries, the more the school director and teachers had contact with parents, the more effective the school was in promoting pupils' reading achievement. Frequent and regular meetings between school staff and parents provide opportunities for important mutual consultations on how best to support pupil learning, and this has a positive impact on achievement. Hence a question was asked about the frequency of teachers meeting parents in a year. The results have been presented in Table 4.10.

Table 4.10. Percentages and sampling errors for the frequency of teacher meetings with parents frequently (SACMEQ II)

Percentages of teacher meetings with parents frequently				
Province	Reading teacher		Mathematics teacher	
	%	SE	%	SE
Cabo Delgado	79.5	9.98	55.6	12.44
Gaza	79.2	11.08	91.5	8.56
Inhambane	72.2	12.73	82.6	13.41
Maputo Cidade	94.2	3.88	100.0	0.00
Manica	98.6	0.50	88.9	7.14
Maputo Provincia	73.7	8.65	79.9	7.93
Nampula	89.5	4.85	96.5	3.54
Niassa	85.7	6.80	75.8	9.32
Sofala	88.7	6.67	97.2	2.79
Tete	96.1	3.88	86.7	5.47
Zambézia	98.0	2.05	89.3	7.45
<i>Mozambique</i>	87.7	2.22	89.6	2.09

Close to 88 percent of Grade 6 pupils had teachers who met frequently with their parents, and this is really impressive. The school directors should continue encourage all teachers to uphold the practice of meeting with all parents frequently.

Was there sufficient classroom equipment in the classrooms?

Classroom items play an important role in promoting education quality. The availability of sufficient supplies of classroom resources can significantly influence pupils' achievement in mathematics and reading. Teachers were therefore asked to indicate whether they had each of the selected set of items in their classrooms, The set of items included a usable writing board, chalk, a wall chart of any kind, a cupboard, one or more bookshelves, a classroom library or book corner, a teacher table and a teacher chair. Their responses have been summarized in Table 6.1.

Table 4.11. Percentages and sampling errors for availability of classroom resources for the teachers (SACMEQ II)

Resource	Availability of classroom resources			
	Reading teacher		Mathematics teacher	
	%	SE	%	SE
A usable writing board	98.0	0.79	96.5	1.70
Chalk	95.7	1.55	94.2	1.89
A wall chart of any kind	17.8	2.63	18.5	2.60
A cupboard	18.2	2.63	19.2	2.54
One or more bookshelves	8.9	2.29	6.8	1.47
A classroom library or book corner	24.6	3.09	24.6	2.87
A teacher table	70.7	3.26	69.9	3.45
A teacher chair	70.7	3.19	69.3	3.43

The results in Table 4.11 show that, apart from chalk and writing board, Grade 6 classrooms in Mozambique generally lacked many important resources. As much as 30 percent of pupils were in classrooms that had no teacher's chair and table. Less than 20 percent of classrooms had a wall chart of some kind and an even smaller percentage (8.9%) had bookshelves. Less than 25 percent had a classroom library or book corner. This situation certainly requires some attention.

If the equipment items in Table 4.11 are summed then it is possible to have an equipment supply index for each school. The average figures for this index across the zones have been presented in Table 4.12.

Table 4.12. Means and sampling errors for the classroom resources index (SACMEQ II)

Province	Classroom resources index			
	Reading teacher		Mathematics teacher	
	Mean	SE	Mean	SE
Cabo Delgado	4.4	0.62	4.3	0.25
Gaza	4.0	0.33	4.2	0.29
Inhambane	3.6	0.23	3.3	0.70
Maputo Cidade	3.9	0.21	3.8	0.23
Manica	4.3	0.34	4.6	0.33
Maputo Provincia	4.3	0.19	4.5	0.28
Nampula	3.7	0.34	3.7	0.32
Niassa	4.2	0.26	4.7	0.46
Sofala	4.6	0.19	4.4	0.28
Tete	3.9	0.27	4.2	0.31
Zambézia	4.2	0.19	3.5	0.28
<i>Mozambique</i>	4.0	0.09	4.0	0.11

The results of the analysis summarized in Table 4.12 show that the average pupil was in a classroom that had four out of the eight items listed. There was little variation among the provinces. There is need to establish a short term and medium term policy for improving the availability classroom resources. For instance items like wall charts should be a short-term measure, while items like bookshelves, should be more close to the medium term measures.

Policy suggestion 4.6. The Ministry should make the effort to supply all classrooms in primary schools with essential resources, and the focus must be on wall charts, classroom libraries or book corners and the accompanying bookshelves, storage cupboards as well as teachers' tables and chairs.

Were there are sufficient sitting and writing places for the pupils?

Table 4.13. Percentages and sampling errors for pupils having sitting and writing places (SACMEQ II)

Province	% Having sitting place		% Having writing place	
	%	SE	%	SE
Cabo Delgado	46.5	11.46	39.3	10.35
Gaza	49.9	11.31	46.1	10.70
Inhambane	34.5	11.64	33.8	11.60
Maputo Cidade	94.8	3.36	89.0	3.63
Manica	97.9	0.88	91.6	2.16
Maputo Provincia	95.6	3.28	89.6	3.64
Nampula	34.2	9.55	32.1	9.13
Niassa	84.4	7.87	72.3	8.22
Sofala	90.0	5.18	76.4	6.55
Tete	97.6	0.95	85.8	3.72
Zambézia	65.9	9.73	62.1	9.89
Mozambique	71.5	2.66	65.8	2.64

Information was collected on the number of sitting places and writing places in the classrooms, and the results have been presented in Table 4.13. These results were also presented in Table 3.16 in the previous chapter. Overall, there were around 30 percent of Grade 6 pupils without sitting places and around 35 percent without writing places. The variation among the provinces was quite large. In Manica only two percent of the Grade 6 pupils did not have places to sit, while in Nampula 66 percent of Grade 6 pupils were without places to sit. There is a need to address this imbalance. The Ministry should formulate a policy in such way that those provinces with more than 25 percent of pupils without a place to sit should look for resources to furnish the classrooms with chairs.

The problem was worse concerning writing places, but provincial disparities follow the same general pattern across provinces as for sitting places. Manica was the region where more 90 percent of Grade 6 pupils had places to write, while in Nampula only 34 percent of pupil had places to write.

Policy suggestion 4.7: The Finance Directorate should set up a task force to analyze the reasons behind such imbalance in resource allocations for sitting and writing places among the provinces

Availability of education resource centre

Resource centres can be regarded as an important input for teachers to prepare their lessons. In a country like Mozambique with a lack of libraries, the resource centres could play an important role in providing teachers with basic resources for the teacher to prepare the lessons and to improve their knowledge as well as teaching skills. Teachers were therefore asked to indicate whether (a) there was a resource centre available for them; (b) whether they have ever visited the resource centre; and, (c) whether they have actually used the resource centre. In Table 8.6 data related to the availability of education resource centres for teachers as well as the percentage of teachers visiting and using them have been presented.

Table 4.14. Percentages and sampling errors for the availability of education resource centres for teachers (SACMEQ II)

Province	Reading teacher						Mathematics teacher					
	None available		Have not visited		Have used		None available		Have not visited		Have used	
	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE
Cabo Delgado	49.2	12.76	46.5	12.14	4.2	4.25	40.3	12.99	58.4	12.75	1.3	1.31
Gaza	10.9	7.62	55.3	12.80	33.8	12.10	10.9	7.62	59.2	13.38	29.9	12.60
Inhambane	17.5	9.26	67.3	12.90	15.2	10.40	15.8	9.62	68.5	13.51	15.6	10.76
Maputo Cidade	26.1	3.42	64.6	6.62	9.3	4.66	25.6	3.72	68.4	6.02	6.1	4.48
Manica	17.8	9.64	67.2	11.15	14.9	6.40	18.5	9.67	76.7	9.73	4.8	1.25
Maputo Provincia	6.3	6.34	88.6	7.78	5.1	5.08	8.8	6.63	85.2	9.14	5.9	4.75
Nampula	34.2	10.60	39.9	10.69	25.9	9.15	34.2	10.60	42.4	11.22	23.4	9.28
Niassa	37.8	10.44	35.9	8.74	26.3	10.21	38.4	10.35	30.1	8.45	31.5	10.00
Sofala	24.8	7.25	58.6	8.63	16.6	7.05	24.8	7.25	54.3	8.37	20.9	5.59
Tete	35.1	10.89	46.4	11.31	18.6	10.13	35.1	10.89	40.5	9.76	24.4	10.48
Zambézia	36.9	11.36	52.9	11.87	10.2	7.15	36.9	11.35	48.2	11.95	15.0	8.31
Mozambique	25.7	2.68	58.4	3.28	15.9	2.54	25.4	2.71	59.3	3.29	15.3	2.56

An impressive 75 percent of the teachers did have a resource centre for reading and mathematics available to them. However in both subject areas more than 56 percent of the teachers had not visited them. Furthermore, for both subjects less than 16 percent of the teachers had used the resource centres. It did not appear as though there was any relationship between the availability of a resource centre and using it. For instance, Maputo Province was the province with 94 percent of teacher with resource centres for reading available to them, but only 5.1 percent of the teachers had used the centres. There is a need for further studies to find out the reasons why teachers did not use the resource centres.

Policy suggestion 4.8. There is a need to bring to the awareness of teachers the availability of resource centres and, where these were available, to mobilise teachers to that they use them to improve teaching. The ZIPs can play a role in sensitizing the teachers about the importance of using the resource centre.

Policy suggestion 4.9. INDE should introduce the activities ‘materials design’ and ‘using resource centres’ in the in teacher training curriculum in order to maximise the benefits from the resource centres.

Did teachers receive advice from the school directors?

If teachers are left teaching in their own classrooms and if they do not get feedback on how they are doing except when an inspector visits their classroom, they can feel very lonely and unsupported. Most teachers welcome constructive comment from the school director and other colleagues. But this assumes that other colleagues and the director can see the teacher teach. Teachers were asked how frequently they received advice from the school director and those saying ‘sometimes’ or ‘often’ were grouped together. The results have been presented in Table 4.15.

Table 4.15. Percentages and sampling errors for the frequency of advice to teacher from school director (SACMEQ II)

Province	Percentage of teachers receiving advice 'sometimes' or 'often'			
	Reading teacher		Mathematics teacher	
	%	SE	%	SE
Cabo Delgado	100.0	0.00	100.0	0.00
Gaza	95.4	4.66	93.4	6.62
Inhambane	100.0	0.00	100.0	0.00
Maputo Cidade	96.5	0.27	99.0	0.39
Manica	100.0	0.00	100.0	0.00
Maputo Provincia	100.0	0.00	88.3	8.46
Nampula	89.2	5.04	90.3	4.04
Niassa	97.5	2.51	100.0	0.00
Sofala	96.9	3.10	97.6	1.37
Tete	87.5	6.99	100.0	0.00
Zambézia	81.5	7.15	80.9	5.88
Mozambique	94.3	1.24	94.6	1.27

The results summarized in Table 4.15 show that most teachers (94.3%) received advice from school directors. It would be desirable if the content of the management course that the school directors attend were to emphasize this aspect of school director behaviour so that there are no directors who do not advise their teachers.

Source of teacher's job satisfaction

Teacher satisfaction is an important factor that can affect classroom performance. A highly motivated teacher is more likely to be more dedicated to duty and to be more committed to his or her job than a frustrated teacher. The sources of motivation are numerous, but in any particular situation, some sources are more important than others. Teachers were therefore asked to indicate, from a list of possible sources provided, the ones they regarded as being most important. Some of the sources listed were living conditions, school facilities, relationships with others, career advancement and educational outcomes of pupils. The results have been presented in Table 4.16.

Table 4.16. Percentages and sampling errors for sources of teacher job satisfaction (SACMEQ II)

Source of satisfaction	Percentage of teachers indicating reason as 'very important'			
	Reading teacher		Mathematics teacher	
	%	SE	%	SE
<i>Living conditions</i>				
Travel distance to school	65.1	3.16	72.9	3.17
Availability of teacher Housing	78.3	2.58	76.1	2.96
Quality of teacher housing	62.6	3.01	58.2	3.50
<i>School facilities/equipment</i>				
Quality of school buildings	64.9	3.21	56.0	3.37
Quality of classroom furniture	61.8	3.27	57.9	3.26
<i>Relationships with others</i>				
Quality of school manpower and administration	75.4	2.96	75.1	3.08
Amicable relations with staff	91.0	1.88	82.6	2.53
Good relation with community	86.3	2.46	82.5	2.76
<i>Career advancement</i>				
Expanded opportunities for promotion	82.4	2.25	75.5	2.88
Opportunities for professional development	90.2	1.82	84.2	2.95
Level of teacher salary	89.7	1.88	86.6	2.40
<i>Educational outcomes of pupils</i>				
Seeing pupils learn	97.2	1.18	95.8	1.23

From Table 4.16 it can be observed that more than 95 percent of the teachers regarded educational outcomes of pupils as a source of job satisfaction. This reflects the concern they had with the main goal of their work. However there were other issues which were also of concern to large percentages of teachers, among them amicable relations with staff (91%), level of their salary (89.7%), opportunities for promotion (82.4%), and good relations with the community (86.3%). As can be expected, the availability of teacher housing also emerged as a factor that affected their motivation (78.3%).

Taking into consideration the fact that in Mozambique there are few opportunities for professional development, it is important that this issue be looked into. The Directorate of Teacher's Education together with the Directorate of Human Resources should look for ways of addressing the problem.

Policy suggestion 4.7. There is need of expanding teachers' career advancement opportunities in the context of a sound National Qualification Framework (NQF). The directorate of teacher education should accelerate the ongoing process of designing the NQF within the broader strategy for teacher education.

For teachers of both reading and mathematics, the following reasons for job satisfaction were considered very important: seeing pupils learn, level of teacher salary, opportunities for professional development, opportunities for promotion, good relation with community and amicable staff. Seeing pupils learn scored the highest percentage.

Policy suggestion 4.8. The Human Resources Directorate and the Directorate of Basic Education should set up a task force that will look into practical measures to be implemented in order to gradually meet teachers expectations on issues considered very important for job satisfaction like. The issues the task force should focus on are salary levels, opportunities for professional development, opportunities for promotion and progression, and availability of teacher housing

Conclusion

The main findings presented and discussed in this chapter constitute useful baseline information about learners and their school and home environments. Overall, only 29.7 percent of Grade 6 pupils had reading teachers who were female. There were large variations among provinces, ranging from 50.1 percent female teachers in Sofala to 9.2 in Niassa. There was need both to ensure the recruitment of more female teachers into the education system so that there is a gender balance, and to strive for greater equity in the allocation of the available stock of female teachers.

The average pupil had a teacher with 1.8 to 1.9 years of training. The teacher training course last for 3 years and hence the figure of 1.8 for reading and 1.9 for mathematics means that there were many untrained teachers. The average grade 6 pupil had a reading teacher who had attended 0.5 in-service training courses and a mathematics teacher who had attended 0.8 in-service training courses over the last three years. By any standards, these percentages are low, and there was need to invest more effort in in-service training of teachers.

It can be seen that Grade 6 pupils had only around 23 percent of reading and mathematics teachers who declared their living conditions to be acceptable. This meant that around three quarters of the teachers were dissatisfied with their living conditions. The Human Resources Directorate should commission a study to identify sustainable system of helping teachers to purchase houses or, where none were available, to build their own. Simultaneously, schools must make an effort to provide their teachers with good accommodation. It might be good to learn from the experience of Sofala which seems to have made good strides in this regard, the objective being to replicate its experiences in other provinces. The Ministry should also explore the possibility of offering other benefits to teachers. Some of these could be reduced enrollment fees for their children, free further education, and free medical care.

It can be seen that in 2000, 40.9 percent of pupils had teachers who gave them tests two or three times per month, and 37.3 percent were given tests even less often than this. Only 21.8 percent of the pupils received one or more tests per week. This is clearly unsatisfactory, and measures have to be taken to ensure that teachers get more frequent and regular feedback from pupils through frequent testing.

Close to 75 percent of the teachers did have available resource centres for reading and mathematics. However, for both subject areas more than 56 percent of the teachers had not visited them. It is important to cultivate the culture of using the resource centres for teachers' professional growth and for better classroom performance. This can be done by mobilising teachers to use the resource centre through the "ZIPs" (cluster of schools).

Chapter 5

School Directors' Characteristics and their Views about Educational Infrastructure, the Organization and Operation of Schools, and Problems with Pupils and Staff

Introduction

In this chapter the focus is on providing a description of the school directors and the schools that the Grade 6 pupils attended. As was the case in Chapters 3 and 4, in this chapter background information on the school directors and the schools they managed has been provided. Such information is useful in order to facilitate a more accurate and meaningful interpretation of the achievement data to be presented later in the report. The information also allows the planners to see how major variables related to school directors and schools have changed over time.

The major questions to be answered in this chapter are:

1. What were the personal characteristics of school directors?
2. What were the professional characteristics of school directors?
3. What were the school directors' viewpoints on general school infrastructure and the condition of school buildings?
4. What were the school directors' viewpoints on (a) daily activities (b) organizational policies (c) inspections (d) community input (e) problems with pupils and staff?

What were the personal characteristics of school directors, that is, age and gender of school directors?

It is generally acknowledged that the school director is the most important single individual who acts as the driving force behind a school. It is sometimes argued that if a good director is appointed, then he or she attracts good staff and within four years the school becomes a good school. Conversely, if a poor director is appointed then within four years it is possible to detect deterioration in the academic and social life of the school. A good school director can also have a positive influence on a host of other factors, both within the school and in its external environment, that affect

overall school performance. What then were the characteristics of primary school directors in the year 2000?

In Table 5.1 information has been presented on the age and gender of the school directors.

Table 5.1. Means, percentages, and sampling errors for school director age and gender (SACMEQ II)

<i>Province</i>	Age (years)		Gender (female)	
	Mean	SE	%	SE
Cabo Delgado	37.6	0.81	11.7	8.08
Gaza	37.4	1.65	14.0	9.59
Inhambane	42.1	2.60	33.3	14.70
Maputo Cidade	42.3	1.98	32.8	10.90
Manica	37.9	1.73	0.0	0.00
Maputo Província	36.4	1.24	35.6	12.47
Nampula	37.6	0.67	3.8	0.17
Niassa	36.9	0.93	0.0	0.00
Sofala	35.3	0.80	6.5	6.51
Tete	39.0	1.48	0.0	0.00
Zambézia	36.9	0.85	0.0	0.00
<i>Mozambique</i>	38.6	0.50	15.4	2.87

It is important to remember that the statistics presented in the tables have been reported in terms of pupils. The age of the school directors ranged from 35.3 years (Sofala Province) to 42.3 years (Maputo City), and the mean was 38.6 years. That is to say that the average learner in Sofala province had a school director aged 35.3 years, in Maputo City 42.3 years and in the country as a whole 38.6 years. There was not much variation among the provinces.

The mean percentage of pupils with school directors who were female was 15.4 percent. This figure is really low and there was large variation among provinces. Provinces like Manica, Tete, Zambézia and Niassa had no female directors at all,

whereas the province with the highest proportion of female school directors was Maputo Province with 35.6 percent.

In terms of equity, the Ministry may wish to consider taking specific measures firstly to address the wide gender imbalance, and secondly to ensure that the female school directors already in the system are distributed more equitably among the different provinces. With the increase of female teachers entering the profession it may well be possible to redress the balance gradually in all regions.

Policy suggestion 5.1. The Ministry of Education, through the provincial directorates of education, should formulate a policy that will gradually see more females get promoted to the position of school directors, and then ensure that these, as well as those who are already in the system, are distributed more equitably among the different provinces. Furthermore, the Ministry should develop a plan through which newly appointed school directors can get support, for example, in the form of management skills training.

What were the teaching experience, teacher training and management training of school directors?

It can be argued that school directors with more experience as teachers will be more versed in the ways of schools and therefore will be able to run their schools in a better way than those with less experience. It can further be argued that school directors who have received special management training should run their schools better than those who have not had such training. In Table 5.2 the means and standard errors for the years of teaching experience and the years of teacher training have been presented as well as the percentage of directors who had attended management courses.

Table 5.2. Means and sampling errors for the teaching experience and training of the school directors (SACMEQ II)

<i>Province</i>	Experience (years)		Teacher training (years)		Specialised training (weeks)	
	Mean	SE	Mean	SE	Mean	SE
Cabo Delgado	15.8	1.17	2.8	0.14	6.2	0.00
Gaza	17.4	1.41	2.5	0.31	9.4	1.39
Inhambane	21.7	2.40	1.9	0.38	2.1	0.53
Maputo Cidade	21.3	2.14	2.7	0.31	7.7	0.88
Manica	16.1	1.96	3.0	0.19	5.5	2.42
Maputo Província	15.3	1.05	2.7	0.21	6.5	2.71
Nampula	17.2	0.88	2.7	0.14	2.8	0.08
Niassa	14.7	1.10	2.9	0.11	2.1	0.58
Sofala	15.9	0.92	3.2	0.17	1.4	0.16
Tete	19.1	1.81	2.7	0.23	12.0	0.00
Zambézia	16.5	1.07	2.0	0.23	12.0	0.00
<i>Mozambique</i>	18.0	0.53	2.6	0.09	6.2	0.63

It can be seen that in 2000 the average pupil in Mozambique had a school director with 18 years of teaching experience, two and half years of training as teachers and 6.2 weeks of training in management. It must be noted that, on the whole, school directors had received sufficient teacher training (with an average of 2.6 years). They also had received specialized training in management over a considerably long period (6.2 weeks). However, there was large variation among the provinces in terms of training in management. School directors in Sofala, Niassa and Inhambane had only two weeks of training while those in Tete and Zambézia had 12 weeks.

It is important to take note of the fact that, in Mozambique, some of the training is provided by NGOs working in partnership with the education sector in the provinces. This imbalance may therefore partly be a reflection of the priorities of each of these NGOs. It is necessary to strengthen the capacity of MINED in coordinating the NGOs activities in such way that, at provincial level, they work with the Provincial Directorate of Education staff in implementing the MINED programmes. Such an

arrangement would ensure greater equity in the provision of management training. It would be ideal, though, to make sure that by the time they get deployed to schools, school directors are already equipped with basic school management skills.

Policy suggestion 5.2. INDE should consider including principles of school management in the training curriculum for teachers.

Policy suggestion 5.3. The Teacher Training Directorate should define the policy for school directors' development and the Provincial Directorate of Education should ensure the implementation of this policy.

How good were the school buildings and toilet facilities?

In some countries the maintenance of the school buildings can be a problem. School directors were therefore asked if, in their view, their school buildings needed to be completely rebuilt, needed major repairs, needed a lot of minor repairs, only a few minor repairs, or if the building was in a good condition. The percentages of pupils in schools in the first two categories (needing a complete rebuilding and major repairs) were calculated and the results have been presented in Table 5.3.

Table 5.3. General conditions of buildings and toilet facilities (SACMEQ II)

Province	Need repair		Toilet provision	
	%	SE	Mean	SE
Cabo Delgado	38.6	12.71	56.9	7.83
Gaza	55.7	13.52	143.2	24.48
Inhambane	54.5	15.34	83.6	15.31
Maputo Cidade	22.1	9.03	142.0	28.68
Manica	69.6	8.65	70.6	13.90
Maputo Provincia	36.2	12.42	161.6	40.82
Nampula	66.4	8.96	133.0	22.76
Niassa	56.6	11.06	80.7	8.61
Sofala	33.4	9.05	154.3	21.55
Tete	19.5	8.83	111.7	36.38
Zambezia	41.1	11.36	123.2	17.95
Mozambique	43.4	3.74	123.9	8.29

In Mozambique as a whole, 43.4 percent of Grade 6 pupils were in schools needing complete rebuilding or major repairs. There was considerable variation among the regions. For instance, in Tete there were 19.5 percent of Grade 6 schools needing complete rebuilding or major repairs while in Manica 69 percent of them fell in this category. This must be of concern to the authorities and steps should be taken to plan

for these repairs to be carried out over a number of years. The plan should take in consideration the need to give priority to the provinces like Manica, Nampula and Niassa where the problem is most serious.

Policy suggestion 5.4. The Ministry of Education should develop a plan for rebuilding those schools where buildings have deteriorated beyond repair, and for carrying out major repairs on those that need such repairs. Where resources for these tasks are scarce, the Ministry of Education should consider establishing ways of making parents contribute towards the costs of school repairs and maintenance.

In several African countries the provision and quality of toilets can also be a problem. In some cases there are insufficient toilets. In other cases the toilets are not cleaned regularly and can therefore be unhygienic. In some cases when girls begin to mature they are absent from school for three or four days per month and, over a whole school year this can be the equivalent of more than a month's schooling. Questions were asked about the repair status of toilets and also about their level of provision. In order to assess the level of provision, school directors were asked about the number of toilets they had. This number was then divided into the number of pupils attending the school in the largest shift. This provided a rough index of the number of pupils per toilet and the results have been presented in Table 5.3.

The analysis of the data reflects that the mean was 123.9 pupils per toilet. With such a big number of pupils per toilet, it is clear that there is excessive pressure on the existing toilets. A lot more effort is required to ensure that they are clean and that they are in a good condition.

Policy suggestion 5.5. The Ministry of Education should establish the norms in the provision of toilet facilities and then develop a plan for the provision of additional toilets in schools where such provisions fall below the norm. Such a programme could be undertaken with the support of parents and school communities.

What were the school directors' viewpoints on: daily activities, organizational policies, inspections, community input and problems with pupil and staff?

- a) **What level of importance did school directors attach to activities such as community contacts, monitoring pupil progress, administrative tasks, etc?**

The school director's management and administrative responsibilities are many and varied. These responsibilities involve activities that are carried out within the school and outside it. As can be expected, different school directors attach importance to different activities. The school directors were asked how important they regarded activities such as: contact with the community; monitoring pupil progress; administrative tasks; discussing educational objectives with teaching staff and professional development of teachers and other school directors. The school directors' responses have been presented in Table 5.4.

Table 5.4. The importance of various school director tasks (SACMEQ II)

Task	Percentage rating as 'very important'	
	%	SE
Contact with community	84.1	2.51
Monitoring pupils progress	87.5	2.68
Administrative tasks	92.0	2.77
Discuss educational objectives with the teaching staff	94.2	1.62
Professional development (Teachers)	89.0	2.40
Professional development (School directors)	69.2	3.85

The data presented in Table 5.4 shows the percentage of school directors who regarded those activities as 'very important'. It can be seen that most of these activities were regarded as very important by more than 80 percent of the school directors. The only task where the percentage was lower than 80 percent was "professional development of school directors" (69.2%). It is pleasing to note that school directors appreciate the importance of various administrative tasks.

b) What was the incidence of school activities such as a school magazine, public speaking day, open days, etc?

In each school there were activities over and above teaching that promoted pupils learning. In the field of reading, for example, there were selected activities that, from other research, were known to help the children to read more. In a study by Elley (1992), it was found that, other things being equal, the reading performance of pupils in schools where the pupils produced a school magazine or journal or had a debating society, was higher than that for pupils in schools without such activities. Equally, it was felt that where there were frequent meetings between parents and teachers in whatever form the learner performance would be enhanced. The SACMEQ NRCs decided on a list of such activities that were of importance in reading. The percentages of pupils in schools where these various activities occurred have been given in Table 5.5.

Table 5.5. Percentages and sampling errors for the school activities (SACMEQ II)

Activity	Percentage of school activities	
	%	SE
School Magazine	27.7	3.39
Public Speaking Day	10.8	2.39
Open-Door Policy	81.4	2.95
Formal Debates or Debating Contests	82.3	2.87

The analysis of the data presented in Table 5.5 shows that the open-door policy and debates were the most common activities. Activities such as public speaking days and the production of school magazines scored very low percentage of 10.8 percent and (27.7 percent respectively, yet research has shown that they are associated with higher reading performance.

c) How much did school directors teach?

It can be argued that a school director should always teach several hours each week in different grades because in this way he or she ‘really gets to know what is going on in

the school' and does not have to rely solely on what the teachers tell him or her. The average number of minutes of teaching by directors has been presented in Table 5.6.

Table 5.6. Means and sampling errors for amount of school director teaching per week (SACMEQ II)

Province	School director teaching minutes per week	
	Mean	SE
Cabo Delgado	571.0	44.74
Gaza	604.9	128.75
Inhambane	192.6	69.50
Maputo Cidade	24.6	16.42
Manica	603.7	107.09
Maputo Província	370.3	99.29
Nampula	347.1	64.09
Niassa	244.4	31.80
Sofala	335.8	72.22
Tete	325.0	151.08
Zambézia	621.1	132.60
<i>Mozambique</i>	350.4	28.47

The average pupil was in a school where the school director taught about 6 hours per week, which is quite a substantial amount of time. It would be interesting to know from a small intensive study if the directors did in fact profit from teaching regularly for the general benefit of the school. It can also be noted that the variation among provinces is very big, ranging from 24.6 minutes per week in Maputo to 621 minutes in Zambézia. The reason for this disparity is that schools in some provinces such as Maputo are big, and therefore the school directors were 'non-teaching' because they concentrated more on supervision and administration while in other provinces the schools were generally smaller, and the school director frequently had a class of his or her own.

d) What were the purposes and frequency of school inspections?

In every education system, there is need for periodic school inspections or supervision by officers at the district or provincial level. Such visits could serve a variety of purposes, depending on the needs of teachers, school directors or the inspectors themselves. School directors were therefore asked indicate the number of school inspection visits, by purpose, which they had received over the past three years. The information has been presented in Table 5.7.

Table 5.7. Means and sampling errors of the frequency of school inspection over 3 years (SACMEQ II)

Province	Numbers of inspections over 3 years	
	Mean	SE
Cabo Delgado	7.0	0.42
Gaza	6.2	1.08
Inhambane	5.1	0.72
Maputo Cidade	6.7	0.74
Manica	6.8	0.81
Maputo Provincia	5.7	0.52
Nampula	5.0	0.37
Niassa	6.3	0.70
Sofala	7.0	0.60
Tete	6.2	0.57
Zambezia	4.7	0.68
Mozambique	5.9	0.23

The results of the analysis summarized in Table 5.7 show that the average number of inspection visits to schools for each province in the three years preceding the survey was generally low. The average number of inspections for the whole country was 5.9, and this ranged from a low figure of 4.7 in Zambézia to 7.0 in Cabo Delgado and Sofala.

There is no clear policy on how many inspection and supervision visits each school should have per year. Generally, the Ministry would plan two to three visits per year and so would the province and the district. These visits are not enough to cover all

schools. It is common knowledge that in Mozambique there is a general lack of the means to travel to schools, and this is one of the factors that limit the number of visits.

It is also important to know the purposes of the visits made by inspectors to schools. School directors were asked to indicate the purpose of the inspection visits made. The percentages of the different inspection purposes have been presented in Table 5.8.

Table 5.8. Percentages and sampling errors for school inspections (SACMEQ II)

Purpose of inspection	Inspection took place in past 3 years	
	%	SE
Full inspection	58.7	3.76
Routine inspection	48.6	3.87
Inspect teachers – <u>not</u> for promotion	25.3	3.52
Inspect teachers – <u>for</u> promotion	4.3	1.28
Assist teachers	43.2	3.92
Advise the school director	58.6	3.88
Address crisis/problem	28.5	3.75
Courtesy call	55.2	3.67

The major purpose of inspection visits was “full inspection” (58.7%) which was followed in rank order by “advise the school director” (58.6%), “courtesy call” (55.2%), “routine inspection” (48.6%) and then by “assist teachers” (43.2%). “Inspect teacher - not for promotion” (25.3%) and “inspection for promotion” (4.3%) were significantly less frequent. The high percentages recorded under “courtesy call” (55.2%), imply that, on a considerable number of occasions, the inspectors visited the school, chatted with the director and did not necessarily visit a classroom.

Policy suggestion 5.6. Ministry’s Inspectorate Division should review the current role of inspectors and the purposes of school visits through an analysis of inspection reports produced by district and provincial officers, and on the basis of their findings provide guidelines which will ensure proper prioritization of these officers’ roles and purposes of their visits to schools.

e) **What were the major pupil and teacher behavioural problems?**

There are few schools that do not have some problem or other with their pupils and/or teachers. In 2000, questions were asked about many types of behavioural problems that were sometimes encountered in schools. School directors were asked how frequently the problem occurred. The results have been presented in Table 5.9. The percentages are the percentages of pupils in schools where the director said that the problem never occurred.

Table 5.9. Pupil behavioural problems (SACMEQ II)

Frequency of pupil behavioural problem	Indicating 'never' occurs	
	%	SE
Arriving late at school	1.0	0.97
Skipping classes	23.2	3.75
Dropping out of school	1.4	0.76
Classroom disturbance	51.8	3.95
Cheating	9.8	2.45
Use of abusive language	44.1	3.88
Vandalism	69.8	3.70
Theft	50.5	3.89
Intimidation of pupils	37.2	3.87
Intimidation of teachers/staff	74.9	3.48
Physical injury to staff	93.9	1.79
Sexual harassment of pupils	77.9	3.21
Sexual harassment of teachers	88.5	2.54
Drug abuse	86.6	2.64
Alcohol abuse	83.4	2.72
Fights	29.2	3.60
Health problems	6.0	2.59

The inverse of 'never occurred' is that it occurred sometimes or often. The analysis of the data in Table 5.9 shows that, according to the school directors, the major problems experienced were: arriving late, dropping out of school, health problems, cheating, skipping classes, and fights.

Good directors may have overemphasized the problems but there were sufficient pupils in schools where the above-mentioned problems occurred to suggest that the

Ministry commission a small study to determine the exact nature of these problems and to suggest steps that can be taken to minimize their occurrence in schools.

Policy suggestion 5.7. Ministry should commission a small study to determine the exact nature of the following problems among pupils: arriving late; dropping out of school; health problems; cheating; fights and intimidation of pupils, and suggest measures that should be taken to minimise them.

Similarly, school directors were also asked about behavioural problems associated with teachers. The results have been presented in Table 5.10.

Table 5.10. Teacher behavioural problems (SACMEQ II)

Frequency of teacher behavioural problem	Indicating 'never' occurs	
	%	SE
Arriving late at school	1.9	1.08
Absenteeism	25.9	3.15
Skipping classes	66.5	3.62
Intimidation or bullying of pupils	87.9	3.08
Sexual harassment of teachers	96.5	1.35
Sexual harassment of pupils	89.5	2.66
Use of abusive language	74.7	3.22
Drug abuse	95.5	1.81
Alcohol abuse	34.3	3.72
Health problems	10.8	3.07

The major problems with teacher behaviour identified by school directors were: arriving late at school; health problems; absenteeism and alcohol abuse. Some of these problems can be tackled at "ZIP" level. Strict rules concerning arriving late at school and alcohol abuse should be applied in schools. The health problems and absenteeism could possibly be aggravated by the HIV/AIDS pandemic, but at present there are insufficient data available to confirm this.

Policy suggestion 5.8. The Ministry should conduct a study in order to establish the nature and causes of the following behavioural problems associated with teachers: arriving late for school; health problems; absenteeism and alcohol abuse. This study should recommend ways of addressing them.

Policy suggestion 5.9. The Ministry should carry out a study that focuses on the impact HIV and AIDS were having on the functioning of schools and put in place interventions to mitigate its impacts on teachers and pupils. Such a study should take into account the findings of previous studies already done on HIV and AIDS, but focus on issues of educational quality.

Conclusions

Generally, gender imbalances were more pronounced among the school directors than they were among the teachers. There was a large variation in these imbalances among provinces, with some provinces having no female school directors at all. This situation needs to be addressed through a mix of strategies.

The school directors had reasonably long experience and were appropriately qualified. The professional training of the directors was almost identical to that of teachers. School directors had also received, on average, some six weeks' training in school management over the three years prior to this study.

Information provided by school directors suggests that a substantial proportion of school buildings was in need of repairs, and the average number of pupils per toilet was unacceptably high. The need for constant maintenance is consequently very high, and it would be desirable for the authorities to examine the situation in all schools and take measures to improve the situation.

There were some behavioural problems, which would affect the learning environment of the school. The whole problem of learner and teacher behaviour seems to be widespread enough to suggest that it needs to be tackled on a wider scale.

Chapter 6

Equity in the Allocation of Human and Material Resources among Provinces and among Schools within Provinces

Introduction

Redressing inequalities in the education system is part of the government's broader campaign of poverty alleviation and of building a broad human resource base. Therefore one of the primary concerns of the Ministry of Education in Mozambique is to ensure that every child is given an equal opportunity to learn and to achieve. The Education Strategic Plan points out a number of policy measures that have been implemented to address the regional imbalances in terms of the allocation of human and material resources.

The aim of this chapter is to determine the extent to which the allocation of resources to all schools in the different provinces has been equitable. When describing differences in resource allocation it is important to know whether the variation in resource inputs is more pronounced among provinces or whether it is larger among schools within provinces. This will make it easier to locate the level at which decisions must be taken in order to address imbalances in terms of resources distribution.

The questions that have been posed are:

1. Have human resources (for example qualified and experienced teachers and school directors) been allocated in an equitable fashion among provinces and among schools within the provinces?
2. Have material resources (for example, classroom teaching material and school facilities) been allocated in an equitable fashion among provinces and schools within regions?

Description of the two statistical measures of equity

Two statistical techniques have been used to explore variations in human and material resources in the education system in Mozambique. One technique uses the ratio of standard deviations to compare the variation of resources among schools in a province with the variation among schools at the national level. The second technique uses a

coefficient of intraclass correlation called rho (ρ) to determine the percentage of variation in resource distribution - among schools in a province - that can be attributed to variation among the provinces. The rest of the variation (100 percent minus the calculated value of rho) could be attributed to allocation variations among schools within the provinces. Knowing the location of variations (inequities) in the distribution of resources will be useful in identifying the level at which decisions should be taken to rectify the situation.

(a) Resource allocation variations among schools within provinces

A quantified measure (percentage) of a resource variation among schools within a province compared to the variation among schools at the national level was calculated as follows:

$$\text{Variation} = \frac{\text{Standard deviation of a resource index in a province}}{\text{Standard deviation of the resource index in the nation}} \times 100$$

The standard deviation of a resource index in a province measures the variation of a particular resource among the schools in the province whilst the standard deviation of the resource index in the nation measures the variation of the resource among the schools at the national level. The ratio of the two standard deviations, expressed as a percentage, provides a measure of equity in the province compared to the national picture.

Ideally, the value of the standard deviation should be zero where there is no variation in the resource index. However, because of chance factors, the value can be small or close enough to zero where there is no significant variation and very large if there is significant variation in the distribution of the resource under consideration. In general, the magnitude of the standard deviation is proportional to the amount of variation. The numerical value (percentage) of variation that can be calculated using the above formula can either be equal to, less than or greater than 100 percent.

If the standard deviation of a resource index in a province is equal to the standard deviation of the resource index in the nation, the numerical value of the variation for the province will be $1 \times 100 = 100$ percent. A value of 100 percent in this case means that the variation in the distribution of the resource among schools within the province

is the same as the variation in the distribution of the same resource among all schools at the national level.

If, however, the standard deviation of a resource index in a province is smaller than the standard deviation of the resource index in the nation, the numerical value of the variation for the province will be less than 100 percent. A value less than 100 percent in this case means that the variation in the distribution of the resource among schools within the province is less than the variation at the national level. That is, there is a more equitable distribution of the resource among schools within the province than there is at the national level.

If, on the other hand, the standard deviation of a resource index in a province is greater than the standard deviation of the resource index in the nation, the numerical value of the variation for the province will be greater than 100 percent. A value greater than 100 percent in this case means that the variation in the distribution of the resource among schools within the province is greater than the variation at the national level. That is, there is a more equitable distribution of the resource at the national level than there is among schools within the province.

(b) Resource allocation variations among provinces

For a given resource distributed among schools, the coefficient of intra-class correlation (ρ) quantifies the amount of variation that can be attributed to variation among the provinces. The value of the coefficient (ρ) varies between zero and one. Expressed as a percentage - by multiplying the coefficient by 100 - ρ varies between zero percent and 100 percent. In this case, a ρ numerical value of zero percent in the variation means that none of the variation (of the resource) among the schools can be attributed to variation among the provinces, or the province has an advantage over others concerning the allocation of the particular resource. A ρ numerical value of 100 percent in the variation means that all the variation in the allocation of particular resource among schools can be attributed to variation among the provinces.

It is important to note that the two statistical techniques described above are concerned with comparisons in the distribution rather than absolute levels of resources in Mozambique or in the provinces.

Have human resources been allocated in an equitable fashion among the provinces and among schools within provinces?

Were qualified and experienced Grade 6 teachers and directors distributed equitably: among provinces and among schools within provinces?

Percentages that indicate the variation of human resources among schools within provinces and compared to variations among schools at the national level have been given under the number that denote provinces in the middle columns of Table 6.1. The figures in the last column of Table 6.1 are percentages that indicate variations in the allocation of human resources among schools that can be ascribed to variations among the provinces.

Table 6.1. Equity of human resource allocation as assessed by (a) variation among schools within regions, and (b) variation among regions (SACMEQ II)

Human resources	Variation among schools within regions											Variation among provinces (rho x 100)
	1	2	3	4	5	6	7	8	9	10	11	
Reading teacher professional qualification.	87.4	74.4	113.6	68.7	99.8	99.0	96.8	81.2	52.5	109.2	108.6	16.7
Reading teacher experience	101.3	103.4	113.0	81.4	93.7	80.0	100.3	82.0	118.1	113.1	111.4	0.0
Maths teacher professional qualification	87.8	102.2	105.3	61.8	84.6	104.7	95.0	84.2	49.1	113.2	90.7	20.0
Maths teacher experience	101.9	94.7	114.8	88.2	113.2	109.0	108.7	90.2	93.8	112.7	60.9	1.6
School director professional qualification.	76.4	105.2	124.1	127.3	62.7	82.1	78.0	72.0	79.2	103.8	117.3	6.2
School director experience	105.6	86.2	110.2	132.0	97.2	63.8	74.6	81.2	62.8	128.9	90.9	7.5
Inspectors/advisors visits for reading teachers	82.8	75.1	80.1	75.1	122.6	96.1	89.0	87.2	111.0	83.1	145.1	4.7
Inspectors/advisors visits for mathematics teacher	113.5	97.1	143.0	91.0	132.4	103.0	59.1	81.4	98.6	78.7	74.4	4.8
Pupil/teacher ratio	47.4	283.3	84.4	40.5	41.4	47.3	35.1	44.0	45.2	27.1	58.8	7.5

1=Cabo Delgado; 2=Gaza; 3=Inhambane; 4=Maputo Cidade; 5=Manica; 6=Maputo Provincia; 7=Nampula; 8=Niassa; 9=Sofala
10=Tete; 11=Zambézia.

Variation in human resource allocation among schools within provinces

From Table 6.1 it can be seen that the variation in human resource allocation varied among the schools within provinces, and the percentage by which the variation exceeded the national variation. For purposes of this study, only those figures that exceed the threshold of 120 percent should be regarded as large enough to warrant attention.

For the category of professionally qualified Grade 6 reading teachers, Inhambane province exceeded the national variation by 13.6 percent and Tete exceeded it by 9.2 percent. None of the figures, however, exceeded the 20 percent threshold.

For reading teachers' experience, the national variation was exceeded by Sofala (by 18 percent), Inhambane (13 percent), and Zambézia (11%). Once again, none of the figures was greater than the 20 percent threshold.

With regards variation in mathematics teacher professional qualification, Tete exceeded the national variation by 13 percent.

For the mathematics teacher experience, Inhambane exceeded the national variation by 14 percent and Manica and Tete exceeded by 13 percent each.

For the school director professional qualification the provinces in which the variation among the schools within the province is greater than the national variation were Maputo City (27%) and Inhambane (24%). For the school director experience, Maputo City (32%), Tete (28%) and Inhambane (10%) had the greatest variation among the schools within the province. Most of the figures exceeded the 120 percent threshold, and there is need for the provincial authorities for Inhambane, Maputo City, and Tete to take measures to reduce the variation in director professional qualification and director experience. It might be necessary to carry out a study to find out why there was such a big variation in the allocation of these resources. The reason may lie in the lack of effective human resource management, or inadequate policies to ensure equitable resource management at provincial level.

The number of provinces with relatively large inequalities in the distribution of inspector/advisor visits to schools was the same for mathematics and reading. For reading, Manica (22.6%), Sofala (11%) and Zambézia (45%) were the provinces where the variation of visits was greater than that for the national level. For mathematics Cabo Delgado (13.5%), Inhambane (43%) and Manica (3%) were the provinces in which the variation of inspector/advisor visits was greater than the national level. Only in Manica, Inhambane and Zambézia is action required.

Regarding pupil/teacher ratio, Gaza clearly seems to be a problematic province, with variation exceeding the national level by an incredible 183.3 percent. No other province had a figure that exceeded 100 percent. In fact, figures for pupil/teacher ratio are the lowest ever recorded, with eight of them falling below 50 percent, and the one for Tete standing at 27.1 percent. There is need to find out why this situation prevails, and corrective measures are urgently required.

Policy suggestion 6.1. The provincial directorate of education in Gaza province should set up a team to find out why the pupil/teacher ratio within the province is so uneven. Similarly, the provincial directorate of education Inhambane and Sofala should set up a team to find out why there is such a big imbalance in the distribution of reading teachers' professional qualifications, reading teachers' experience and mathematics teachers' experience within the province.

Variation in human resource allocation among the provinces

The percentages of variation in human resources among schools that can be attributed to the variation among provinces (inter-provincial inequities) have been summarized in the last column of Table 6.1. Resources with significant percentage variation (exceeding 10%) that could be attributed to differences among province were mathematics teachers professional qualification (20%) and reading teachers professional qualification (16.7%). The Ministry of Education's policy is to ensure equitable distribution of human resources, and the results seem to show that the situation is generally under control. There is, therefore, need to strengthen that policy at both the formulation and implementation level.

Policy suggestion 6.2. The Ministry of Education must revisit policies regarding the allocation of qualified teachers to provinces in order to ensure that they support the implementation of a mix of strategies that will see the gradual reduction of inequities among provinces.

Were general school infrastructure, classroom equipment, and classroom teaching materials distributed equitably among regions and among schools within regions?

In some, countries, differences among children's opportunity to learn may be a result of inequitable allocation of material resources to schools within provinces, or to the different provinces. It is therefore important to examine the distribution of a selected set of key material resources to provinces and schools, and identify whether action to reduce these variations occur should be taken at the provincial level or at the national level. The results concerning equity in the allocation of material resources as assessed by the variation among schools within provinces, and by the variation among provinces, have been presented in Table 6.2.

Table 6.2. Equity of material resource allocation as assessed by (a) variation among schools within regions, and (b) variation among regions (SACMEQ II)

Material resources	Variation among schools within regions											Variation among regions
	1	2	3	4	5	6	7	8	9	10	11	(rho x 100)
Classroom furniture index by reading teacher	136.7	112.7	85.4	74.1	86.2	102.1	127.8	101.9	77.8	100.5	54.1	1.8
Classroom furniture index by mathematics teacher	70.8	105.7	111.7	78.6	63.8	80.3	122.1	116.4	102.4	82.9	104.5	5.8
Toilets per pupil	27.6	72.4	36.6	126.6	35.6	157.9	98.7	44.3	80.9	146.8	94.8	4.4
Classroom library by reading teacher	112.0	108.3	112.5	57.7	107.3	95.6	105.2	108.2	111.6	96.9	90.1	0.0
Classroom library by mathematics teacher	117.3	106.4	118.3	44.4	115.4	77.9	113.4	117.0	101.8	101.9	0.0	7.8
Classroom space per pupil	46.7	287.1	17.0	19.0	110.2	7.7	41.6	16.7	12.0	124.9	12.1	0.0
Reading teacher housing quality	87.1	129.4	96.0	79.1	106.7	88.7	81.7	102.5	126.4	94.2	100.5	2.0
Mathematics teacher housing quality	83.9	109.0	118.8	101.6	110.2	93.2	91.3	107.3	114.9	55.9	107.5	0.0
School resources index	91.7	75.4	79.8	67.7	99.1	98.3	81.5	81.2	132.5	69.6	82.1	24.1

1=Cabo Delgado; 2=Gaza; 3=Inhambane; 4=Maputo Cidade; 5=Manica; 6=Maputo Provincia; 7=Nampula; 8=Niassa; 9=Sofala
10=Tete; 11=Zambézia.

Variation in material resource allocation among schools within provinces

The highest variation in the distribution of classroom furniture for reading teachers was in Cabo Delgado with 36.7 percent above the variation at national level followed by Nampula (27%). Other significant variation in excess of 100 occurred in Gaza (12.7%).

With regard to the distribution of classroom furniture, for mathematics teachers the highest variation occurred in Nampula (with 22%) in excess of the variation at national level, followed by Niassa (16.4%).

Classroom furniture is a basic requirement that contributes to an environment that is conducive to teaching and learning. The apparent inequities in the provision of classroom furniture within provinces were a cause for concern. If we take 20% as the threshold value, then the only provinces where variation within the province is big enough to warrant action at the provincial level are Cabo Delgado and Mampula.

The importance of providing toilets in sufficient quantities has already been emphasized. The largest variation in the provision of toilets per pupil was found in Maputo City (26.6%), Maputo province (57.9%) and Tete (46.8%). These provinces need to put in place measures to reduce inequities in the provision of toilets among schools within the province.

The distribution of classroom libraries for reading teachers and for mathematics teachers appeared to be uneven in some of the provinces compared to nation-wide variance. In provinces such as Cabo Delgado, Inhambane, Gaza and Niassa the excess variation within the province as compared to nation-wide variation was between 12.5 percent and 8.3 percent for classroom libraries for reading teachers. With regard to classroom libraries for mathematics teachers, the picture is slightly worse. In all the provinces except for Zambézia and Maputo the excess variation within provinces was higher than the nation-wide variation. For both reading and mathematics classroom libraries, however, none of the figures exceeded 20 percent. Even so, it must be borne in mind that the classroom library is one of the basic resources required to create an environment that is conducive to teaching and learning. It is apparent that the imbalance in the distribution of classroom libraries

within the province may cause inequalities in learning opportunities, and ultimately for pupil achievement. There might need, therefore, to monitor variation levels that are close to 20 percent and make sure that they do not get worse.

With regards classroom space per pupil, Gaza was the problematic province. As was the case with the allocation of human resources, excess variation compared to the national one was 187 percent. There is need to conduct a study in order to establish the causes of this unacceptable situation. The other province where the variation exceeded the national variation by 20 percent or more, and therefore where action was required, was Tete (24.9%).

Teacher housing is a factor that affects the motivation and commitment of teachers. The provinces in which the distribution of reading teacher housing quality was most uneven are Gaza and Sofala with excess of variation compared to the nation variation of 29 and 26.4 percent respectively. For mathematics teachers', the biggest variance in housing quality was found to be in Inhambane, Sofala and Zambézia provinces, but none of the values exceeded 120 percent.

The largest variation in the school resources index were observed in Sofala only, where the variation exceeded 100 by 32 percent. It is only this province that needs to attend to the allocation of school resources among schools.

Policy suggestion 6.2. The Directorate of Administration and Finance should carry out studies to identify the reasons behind such massive inequities in the distribution of material resources in some provinces, and assist the relevant provinces to take corrective action with regard to the allocation of certain material resources.

Variation in material resource allocations among the provinces

Other variations in material allocation that could be attributed to variation among the provinces occurred for classroom furniture index for mathematics teacher (5.8%), classroom space per pupil (7.8%) and school resource index (24.1%).

With the exception of the school resource index, the percentages of the variations in the allocation of material resources that could be attributed to inequality of the provinces were generally low. This suggests that the process of redress should shift to focus on monitoring the implementation of the policies at the provincial and district levels.

Conclusion

The variation in human and material resource distribution was more pronounced among schools within the region than it was between the regions. Although the Ministry of Education might have in place policies designed to ensure equity in resource distribution, the existence of large inequities within some of the provinces suggests that the implementation of these policies has not yielded the results expected. There is a need to carry out studies in some of the provinces to identify the factors that have hampered the implementation of these policies, and thereafter address the problem. A province that requires particular attention is Gaza. The problem may be one of inadequate management capacity at the provincial level. The ongoing decentralization of policy decision and implementation to the province level has to be accompanied with concerted efforts at capacity building if the process is to succeed.

Chapter 7

The Reading and Mathematics Achievement Levels of Pupils and their Teachers

Introduction

In this chapter the achievement levels of pupils in reading and mathematics, and the achievement of their reading and mathematics teachers have been presented. An attempt has also been made to link the data on achievement to socio economic factors such as gender, socio-economic level and school location. Achievement levels of pupils and their teachers have been presented in three different ways. First, they have been presented in the classical form of mean scores, with the score of 500 representing the SACMEQ mean. Second, they have been presented as the proportion of pupils and teachers reaching the minimum and the desirable levels of mastery in reading and mathematics. Third, achievement levels have been presented as the percentage of pupils and teachers reaching each of the eight skills levels of competence in reading and mathematics. These levels of mastery and levels of competence were determined by Mozambique's reading and mathematics specialists before the tests were taken. Details regarding the interpretation of these levels of mastery as well as the levels of competence referred to in this chapter have already been presented in Chapter 2.

The major questions to be answered in this chapter are:

1. What were the levels and variations in the achievement levels of Grade 6 pupils and their teachers in reading and mathematics?
2. What were the reading and mathematics achievement levels of important sub groups of Grade 6 pupil and their teachers?

What were the mean scores for Grade 6 Pupils in reading and mathematics?

The means for reading and mathematics test scores of Grade 6 pupils have been presented in Table 7.1.

Table 7.1. Means and sampling errors for the reading and mathematics test scores of pupils with all items (SACMEQ II)

Province	Pupil performance on all items			
	Reading		Mathematics	
	Mean	SE	Mean	SE
Cabo Delgado	459.9	8.18	497.9	6.29
Gaza	504.0	12.02	525.7	7.66
Inhambane	507.8	7.40	540.9	11.85
Maputo Cidade	549.1	5.46	546.5	3.64
Manica	511.5	7.00	543.4	6.30
Maputo Província	529.6	7.66	534.7	7.05
Nampula	533.8	5.78	539.2	4.85
Niassa	453.8	6.12	488.2	3.95
Sofala	512.9	5.28	522.5	4.83
Tete	488.1	6.77	510.7	4.86
Zambézia	513.8	5.97	516.7	5.92
<i>Mozambique</i>	516.7	2.29	530.0	2.08

From the analysis of the data presented, it can be seen that the overall mean for Mozambique was 516.7 for reading and 530 for mathematics. The achievement of Mozambican Grade 6 pupils for both mathematics and reading was above the mean for all SACMEQ countries, which was 500. In fact, the reading score was slightly more than a quarter of a standard deviation above the SACMEQ mean. Similarly, the mathematics score was almost a third of a standard deviation above the SACMEQ mean.

The variation among the regions was considerable, both in reading and mathematics. Maputo City achieved the highest score with 549.1 for reading and 546.5 for mathematics while Niassa had the lowest score in both subjects, with 453.8 for reading and 488.2 for mathematics. The variation among the regions could be a result of a host of factors, and a deeper analysis would be required in order to identify these factors.

The means for reading and mathematics test scores for pupils by sub-groups have been presented in Table 7.2.

Table 7.2. Means and sampling errors for the reading and mathematics test scores of pupils by sub-groups (SACMEQ II)

Sub-groups	Pupil performance on all items			
	Reading		Mathematics	
	Mean	SE	Mean	SE
<i>Gender</i>				
Boys	518.4	2.59	537.0	2.09
Girls	514.1	2.60	519.5	2.80
<i>Socio-economic level</i>				
Low SES	510.5	2.77	527.5	2.25
High SES	523.0	2.68	532.6	2.66
<i>School location</i>				
Isolated/Rural	502.3	5.93	524.0	6.32
Small town	510.5	3.73	527.5	2.70
Large city	533.3	4.22	536.7	3.26
Mozambique	516.7	2.29	530.0	2.08

From Table 7.2 it would appear that boys' performance in reading (518.5) was better than girls' (514.1), but the difference was not significant. Similarly, boys (with a score of 537.0) outperformed girls (with a score of 513.5) in mathematics, and this difference in their performance was significant.

Pupils from the high socio-economic status (SES) group performed significantly better than those from the low SES group, both in reading and mathematics. Grade 6 pupils from high socio-economic level achieved scores of 523.0 in reading and 532.6 in mathematics compared to 510.5 in reading and 527.5 in mathematics achieved for pupils from low SES. While the difference in the reading score was significant, the one for mathematics was not.

The pattern that also emerged was that pupils from large cities outperformed those from small towns who in turn out performed those from rural areas, both in reading and mathematics. The difference was bigger in reading where their achievement scores were 533.3, 510.5 and 502.3 respectively. In mathematics the difference was slightly lower. Large city pupils' score was of 536.7, small town pupils had a score of, 527.5, while rural area pupils' score was 524.0. The difference between the reading and mathematics score of pupils from large cities and those from small towns was significant, but the difference between the scores for pupils from small towns and those from isolated/rural areas were not significant.

Teacher achievement scores have been presented in Table 7.3.

Table 7.3. Means and sampling errors for the reading and mathematics test scores of teachers (SACMEQ II)

Province	Teacher performance on all items			
	Reading		Mathematics	
	Mean	SE	Mean	SE
Cabo Delgado	687.5	19.56	750.8	12.15
Gaza	712.7	16.56	805.7	30.07
Inhambane	666.6	28.07	769.2	32.33
Maputo Cidade	737.8	11.31	817.6	17.16
Manica	713.0	16.80	776.7	16.93
Maputo Província	754.5	15.90	778.5	23.32
Nampula	740.2	12.87	837.1	29.96
Niasssa	716.2	10.20	769.7	15.56
Sofala	714.5	15.03	782.0	10.17
Tete	711.1	11.08	744.9	13.40
Zambézia	685.3	10.74	697.9	19.62
Mozambique	716.2	5.14	782.8	7.48

The average teacher score for reading was 716.2 and for mathematics it was 782.8. The reading and mathematics scores were about 2.16 and 2.83 standard deviations above the SACMEQ means respectively. There were some variations in teachers' performance in reading among the provinces. The variations ranged from 754.5 in Maputo Province to 666.3 in Inhambane Province. In mathematics the ranges were from a high performance mean of 837.1 in Nampula Province to a low of 697.9 in Zambézia Province.

Comparing the results summarized in Table 7.1 to Table 7.3 it can be noted that, on average, teachers achieved 199.5 points more than pupils in reading and 252.8 points more than pupils in mathematics. This, of course, was expected. When pupil achievement by province was compared to teacher achievement, it can also be noted that there was no apparent relationship between teacher achievement and pupil achievement. One explanation for this could be the fact the Grade 6 is the beginning of a new cycle in primary education (upper primary) and teachers teaching at this level are subject specialists as opposed to class teachers in the lower primary (Grades 1 to 5). In Mozambique, Grade 6 schoolteachers are usually more educated and better qualified than lower primary school teachers.

What were the overall percentages of pupils and their teachers across the various levels of mastery in reading?

Table 7.4. Percentages and sampling errors of pupils reaching minimum and desirable reading levels of mastery (SACMEQ II)

Province	Pupils reaching minimum level of mastery		Pupils reaching desirable level of mastery	
	percent	SE	percent	SE
Cabo Delgado	30.3	6.38	0.7	0.51
Gaza	52.9	7.47	5.2	2.85
Inhambane	61.7	6.28	2.3	0.90
Maputo Cidade	82.1	2.89	17.4	3.37
Manica	58.7	5.75	6.8	1.45
Maputo Província	68.0	5.07	10.3	2.15
Nampula	72.8	4.00	9.1	2.08
Niasssa	23.8	3.83	1.7	1.00
Sofala	57.4	3.98	6.8	2.14
Tete	41.6	5.86	1.9	0.87
Zambézia	59.4	5.33	4.0	1.44
Mozambique	62.0	1.63	7.8	0.81

In Mozambique 62.0 percent of Grade 6 pupils reached the minimum level of mastery in reading and only 7.8 percent reached the desirable levels. While over half of the pupils reached the minimum level, planners should be worried that more than a third

of the pupils failed to reach the minimum level of mastery. It is even more worrying that less than 10 percent of the pupils reached the desirable level of mastery in reading.

There was considerable variation of percentages reaching the minimum and desirable level among the provinces. The provinces with less than 50 percent of the pupils reaching the minimum level of mastery were Niassa, Cabo Delgado and Tete with 23.8, 30.3 and 41.6 percent respectively. Maputo City, Nampula Province and Maputo Province had the highest percentage of pupils who reached the minimum levels with 82.1, 72.8 and 68.0 percent respectively. The provinces with the lowest percentage of pupils reaching the desirable level of mastery were Cabo Delgado, Tete and Niassa with 0.7, 1.9 and 1.7 percent respectively. The provinces of Maputo City, Maputo Province and Nampula had the highest percentage of pupils who reached the desirable level of mastery, and these were 17.4, 10.3 and 9.1 percent respectively.

Policy Suggestion 7.2. The Inspectorate of the Ministry of Education should commission a study to find out why the pupils from Niassa and Cabo Delgado are performing so poorly in reading and mathematics.

In Table 7.5 the percentage of Grade 6 pupils reaching the minimum and desirable reading levels of mastery by subgroup have been presented.

Table 7.5. Percentages and sampling errors of pupils reaching minimum and desirable reading levels of mastery by sub-group (SACMEQ II)

Sub-groups	Pupils reaching minimum level of mastery		Pupils reaching desirable level of mastery	
	percent	SE	percent	SE
<i>Gender</i>				
Boys	62.6	1.77	9.1	1.01
Girls	61.0	2.07	6.0	0.91
<i>Socio-economic level</i>				

Low SES	57.8	2.16	5.2	0.77
High SES	66.3	1.80	10.6	1.31
<i>School location</i>				
Isolated/Rural	54.4	4.34	3.8	1.03
Small town	57.3	2.70	6.8	1.26
Large city	72.6	2.52	11.5	1.88
<i>Mozambique</i>	62.0	1.63	7.8	0.81

The results summarized in Table 7.5 show that the proportion of girls reaching the minimum level of mastery was slightly lower than that of boys (61.0% for girls and 62.6% for boys). The difference was insignificant. However, the difference became more pronounced at the desirable level of mastery where the proportion of girls reaching the desirable mastery level was 6.0 percent and that for boys was 9.1 percent. The difference between the two was significant.

The proportion of Grade 6 pupils in the low socio-economic status (SES) group reaching the minimum level of mastery (57.8%) was significantly lower than that of pupils from the higher socio-economic status (66.3%). There was an even bigger and significant difference in the proportion of pupils from the two SES groups reaching the desirable level of mastery (5.2% and 10.6% respectively).

With regard to the percentage of pupils reaching the minimum and desirable levels, there was a small and insignificant difference between Grade 6 pupils from the rural/isolated areas and those from small towns. The percentage of Grade 6 pupils in the rural area who reached the minimum level of mastery was 54.4 percent whereas that for pupils from small town was 57.3 percent. However, the difference between pupils from large towns and small towns was large and significant for both the minimum level (72.6% and 57.3% respectively) and the desirable level of mastery (11.5% and 6.8% respectively). As can be expected, the difference between rural/isolated areas and large towns is even greater. For example, the proportion of pupils reaching the desirable level in large cities was more than three times that of pupils in the rural/isolated areas.

These results appear to suggest that pupils from the low SES group and those from rural areas are disadvantaged and thus deliberate efforts by Ministry of Education are required to redress this situation.

The percentages of teachers reaching the minimum and desirable reading levels of mastery have been presented in Table 7.6.

Table 7.6. Percentages and sampling errors of teachers reaching minimum and desirable reading levels of mastery (SACMEQ II)

Province	Teachers reaching minimum level of mastery		Teachers reaching desirable level of mastery	
	%	SE	%	SE
Cabo Delgado	100.0	0.00	77.9	11.23
Gaza	100.0	0.00	95.7	4.34
Inhambane	90.3	9.72	75.8	10.90
Maputo Cidade	100.0	0.00	93.6	5.33
Manica	100.0	0.00	87.8	8.58
Maputo Província	100.0	0.00	100.0	0.00
Nampula	100.0	0.00	98.3	0.46
Niassa	100.0	0.00	100.0	0.00
Sofala	100.0	0.00	89.1	4.32
Tete	100.0	0.00	100.0	0.00
Zambézia	100.0	0.00	86.2	5.78
Mozambique	99.0	1.02	91.6	1.94

From Table 7.6 it can be seen that 99.0 percent of Grade 6 teachers reached the minimum level of mastery with 100 percent of teachers reaching the level in all provinces except Inhambane where the teachers reaching the level was 90.3 percent. Grade 6 teachers reaching the desirable level constituted 91.6 percent of the total. There were substantial variations among the provinces, with the lowest recorded in Inhambane (75.8%). It is, however, worth noting that the standard error for Inhambane was large, suggesting that the figure is not very stable. The second lowest was in Cabo Delgado (77.9%). Altogether, only three provinces had all (100 percent) of the teachers reaching the desirable level.

Policy Suggestion 7.3. The Inspectorate of the Ministry of Education should commission a study to find out why teachers from Inhambane, Cabo Delgado and Zambézia are underperforming in reading.

What were the overall percentages of pupils and their teachers across the various levels of competence in reading and mathematics?

Pupils reaching the different competence levels

The percentages of pupils reaching each of the eight reading competence levels have been presented in Table 7.7

Table 7.7. Percentages and sampling errors for literacy levels of pupils (SACMEQ II)

Percentage of pupils reaching the reading competence level																
Province	1		2		3		4		5		6		7		8	
	%	SE	%	SE												
Cabo Delgado	11.8	2.47	10.9	2.26	25.1	3.04	28.0	3.05	21.5	5.36	2.2	0.78	0.7	0.51	0.0	0.00
Gaza	3.0	2.16	5.6	1.60	15.8	2.86	31.2	4.19	27.3	5.03	13.5	4.81	3.6	2.19	0.0	0.00
Inhambane	3.3	1.17	3.4	1.78	10.4	2.13	33.4	4.19	34.8	4.65	14.0	3.33	0.7	0.47	0.0	0.00
Maputo Cidade	0.0	0.00	2.0	1.03	3.5	1.55	18.5	2.39	39.2	5.18	25.2	4.83	11.3	2.30	0.3	0.26
Manica	2.6	1.17	3.2	1.43	12.8	2.12	31.6	3.22	33.2	4.87	12.1	1.79	4.7	1.39	0.0	0.00
Maputo Província	2.5	1.06	2.9	1.16	8.1	2.15	26.0	2.36	29.9	2.71	23.2	2.87	6.7	1.82	0.7	0.67
Nampula	0.2	0.25	1.3	1.14	8.4	1.55	23.8	3.15	38.5	3.32	22.0	2.86	5.6	1.94	0.0	0.00
Niassa	12.9	2.80	12.2	2.55	25.9	2.81	29.7	3.16	15.6	3.14	2.9	1.37	0.8	0.43	0.0	0.00
Sofala	1.1	0.49	2.9	1.09	12.9	2.53	34.3	3.87	29.8	2.67	14.7	2.77	4.3	1.70	0.0	0.00
Tete	0.9	0.50	9.6	2.47	19.7	4.04	37.3	3.90	24.9	4.46	5.9	2.20	1.5	0.82	0.0	0.00
Zambézia	0.7	0.45	2.2	0.95	10.5	2.07	38.5	3.85	35.4	2.71	10.6	3.07	2.1	0.78	0.0	0.00
Mozambique	2.3	0.32	3.9	0.45	11.2	0.73	28.8	1.07	32.7	1.49	16.1	1.23	5.0	0.60	0.1	0.08

The consensus by SACMEQ members was to define a literate pupil as one who has reached level 3 of literacy competence. Overall in Mozambique 6.2 percent failed to reach this level of competence. In other words, this is the percentage of pupils who only reached levels 1 and 2 and this percentage is quite small. The majority of pupils (61.5%) fell in levels 4 and 5.

There were notable variations among the provinces. Cabo Delgado (22.7%) and Niassa (25.1%) had the highest percentage of pupils in levels 1 and 2 against the overall average of 6.2 percent. The provinces with the highest percentage of pupils who had not reached the level for them to be considered literate were Niassa (25.1%), Cabo Delgado (22.7) and Tete (10.5%). The provinces with the lowest percentage of pupils who failed to reach the level of basic literacy (level 3) were Maputo City (0.2%), Nampula Province (1.5%) and Zambézia (2.9%).

The percentages of pupils reaching each of the eight mathematics competence levels have been presented in Table 7.8.

Table 7.8. Percentages and sampling errors for numeracy levels of pupils (SACMEQ II)

Percentage of pupils reaching the mathematics competence level																
Province	1		2		3		4		5		6		7		8	
	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE
Cabo Delgado	0.7	0.53	29.3	4.20	45.8	3.92	20.0	3.92	3.7	1.58	0.5	0.48	0.0	0.0	0.0	0.0
Gaza	0.3	0.33	14.1	4.11	43.5	4.84	33.4	5.65	7.9	2.11	0.5	0.53	0.2	0.21	0.0	0.0
Inhambane	0.0	0.00	9.8	3.04	35.8	5.45	37.4	4.38	14.0	5.37	3.0	3.06	0.0	0.0	0.0	0.0
Maputo Cidade	0.0	0.00	3.9	1.08	37.7	3.98	41.1	3.42	15.7	1.91	1.6	0.69	0.0	0.0	0.0	0.0
Manica	0.6	0.42	10.0	2.49	34.3	3.23	34.8	2.92	17.0	2.42	3.0	1.40	0.3	0.34	0.0	0.0
Maputo Província	1.0	0.65	12.8	3.19	38.8	2.85	29.5	3.58	13.9	2.22	4.1	1.48	0.0	0.0	0.0	0.0
Nampula	0.0	0.00	7.8	1.81	40.5	3.66	36.4	3.42	14.2	2.22	1.1	0.54	0.0	0.0	0.0	0.0
Niassa	3.0	1.30	29.6	4.24	51.5	3.82	14.2	2.40	0.8	0.59	0.9	0.90	0.0	0.0	0.0	0.0
Sofala	0.6	0.38	15.5	2.68	42.1	3.47	31.2	3.46	9.0	2.24	1.6	1.00	0.0	0.0	0.0	0.0
Tete	0.7	0.46	17.6	2.48	52.6	3.56	22.8	3.54	5.3	1.73	0.6	0.46	0.3	0.30	0.0	0.0
Zambézia	0.3	0.32	18.1	3.37	48.7	3.64	23.3	3.43	8.4	2.23	1.2	0.70	0.0	0.0	0.0	0.0
Mozambique	0.4	0.11	12.6	0.86	41.7	1.35	32.1	1.27	11.4	0.86	1.7	0.40	0.1	0.04	0.0	0.0

Taking level 3 as the numerate level, it can be seen that overall in Mozambique 13 percent of Grade 6 pupils failed to reach the basic numeracy level, that is to say, they only reached levels 1 and 2. Most pupils, constituting 73.8 percent of the total, were located at levels 3 and 4.

The provinces that had the highest percentage of pupils who failed to reach the basic numeracy level were Niassa (32.6%); Cabo Delgado (30.0%); Zambézia (18.4%); Tete (18.3%) and Sofala (16.1%).

Policy suggestion 7.1. The Ministry of Education should commission a study to find out why pupils faired so poorly in reading and mathematics in Niassa and Cabo Delgado.

Teachers reaching reading the different competence levels

The percentages of teachers reaching each of the eight reading competence level have been presented in Table 7.9.

Table 7.9. Percentages and sampling errors for literacy levels of teachers (SACMEQ II)

Percentage of teachers reaching the reading competence level																
Province	1		2		3		4		5		6		7		8	
	%	SE	%	SE												
Cabo Delgado	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.8	8.93	13.1	8.64	27.5	7.84	48.5	11.44
Gaza	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.1	9.54	26.8	8.21	56.1	11.09
Inhambane	0.00	0.00	0.00	0.00	0.00	0.00	9.7	9.72	10.3	7.46	4.2	4.19	40.1	10.93	35.7	13.04
Maputo Cidade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.4	5.33	35.8	7.97	57.8	8.59
Manica	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.7	2.57	8.5	7.27	35.6	10.71	52.2	12.53
Maputo Província	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	28.3	9.70	71.7	9.70
Nampula	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.7	0.46	31.9	8.12	66.4	8.14
Niassa	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.4	1.03	51.9	8.46	43.7	8.47
Sofala	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.9	4.32	40.7	7.83	48.4	9.19
Tete	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	60.6	9.89	39.4	9.89
Zambézia	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	23.3	8.60	41.2	10.35	35.5	9.38
Mozambique	0.00	0.00	0.00	0.00	0.00	0.00	1.0	1.02	1.7	0.89	8.1	1.82	37.1	2.98	52.0	3.25

Some 89.1 percent of teachers who taught Grade 6 pupils had reached the two highest competence levels (Level 7 and 8), that is, teachers with full or almost full command of their subject matter. There was some variation among the provinces. Maputo Province, with 93.6 percent, had the highest percentage of teachers reaching the two highest competence levels. On the other extreme, Zambézia, with 76.7 percent, had the lowest percentage of teachers reaching the two highest competence levels.

Nationally, none of the teachers performed at levels 1, 2 and 3, and only 1 percent (all from Inhambane Province) performed at level 4.

With the correlation coefficient for teacher and pupil score standing at .10, it can be concluded that there is no correlation between teacher reading achievement and pupil reading achievement. This could probably be explained by the fact that, being the first year that these teachers are teaching these pupils, they have not had much impact on the pupils. It should also be noted that the general characteristics of Grade 6 teachers are different from those of Grade 5 teachers, with the former being generally better qualified than the latter.

Percentage of teachers reaching the numeracy level

The percentages of teachers reaching each of the eight mathematics competence levels have been presented in Table 7.10.

Table 7.10. Percentages and sampling errors for numeracy levels of teachers (SACMEQ II)

Percentage of teachers reaching the mathematics competence level

Province	1		2		3		4		5		6		7		8	
	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE
Cabo Delgado	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.0	1.51	23.1	11.52	59.3	11.58	10.6	4.68
Gaza	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.4	6.42	11.2	7.30	44.0	11.57	36.4	11.82
Inhambane	0.00	0.00	0.00	0.00	2.7	2.77	11.0	11.13	1.4	1.43	10.0	7.12	33.9	12.81	40.8	14.81
Maputo Cidade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.7	2.72	11.9	7.29	45.2	7.92	40.2	8.29
Manica	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.8	11.17	48.9	11.44	25.3	11.48
Maputo Província	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.7	1.29	20.2	8.84	41.3	12.22	28.8	10.79
Nampula	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.3	6.45	51.9	10.38	38.7	10.09
Niassa	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.4	0.44	17.7	8.10	52.3	9.29	29.6	10.79
Sofala	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.0	1.05	5.4	5.48	61.3	8.84	32.2	8.60
Tete	0.00	0.00	0.00	0.00	0.00	0.00	7.9	6.02	2.2	0.75	10.8	3.63	59.1	9.06	20.0	8.69
Zambézia	0.00	0.00	0.00	0.00	0.00	0.00	11.4	7.87	15.2	6.81	38.8	11.18	16.9	5.50	17.8	8.33
Mozambique	0.00	0.00	0.00	0.00	0.3	0.27	2.9	1.44	4.6	1.15	16.3	2.65	44.3	3.17	31.7	3.28

Less than one third of the teachers reached the highest level of competence, level 8, in mathematics, but most of the Grade 6 teachers (76%) reached the two highest levels of competency, namely, level 7 (44.3%) and level 8 (31.7%). The lowest competency level reached by teachers was level 3 where, nationally, 0.3 percent reached this level. Considering level 3 to be the numerate level for Grade 6 pupils, nationally all the Grade 6 teachers were numerate. Results for the Zambézia Province where only 34.5 percent of the teachers reached levels 7 and 8 (against the national average of 76%) should certainly be of great concern to the Ministry. It is disturbing, however, to see that less than a third of the teachers had fully mastered the subject they taught.

The percentages of pupils reaching reading competence, by sub-groups have been presented in Table 7.11.

Table 7.11. Percentages and sampling errors for literacy levels of pupils by sub-groups (SACMEQ II)

Sub-groups	Percentage of pupils reaching the reading competence level															
	1		2		3		4		5		6		7		8	
	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE
<i>Gender</i>																
Boys	2.4	0.36	3.6	0.53	11.7	0.94	27.6	1.31	32.3	1.53	16.4	1.28	5.8	0.85	0.2	0.13
Girls	2.0	0.52	4.3	0.67	10.5	0.92	30.6	1.57	33.2	2.18	15.7	1.69	3.7	0.74	0.0	0.00
<i>Socio-economic level</i>																
Low SES	2.6	0.44	3.9	0.53	12.6	0.95	31.1	1.49	32.0	1.79	14.7	1.53	2.9	0.60	0.2	0.15
High SES	1.9	0.36	4.0	0.60	9.8	1.04	26.4	1.51	33.3	1.77	17.5	1.43	7.1	0.98	0.0	0.00
<i>School location</i>																
Isolated/Rural	4.1	1.07	5.6	1.01	13.2	1.70	31.2	2.52	30.7	2.86	12.6	2.25	2.6	0.96	0.0	0.00
Small town	2.6	0.47	3.6	0.66	13.1	1.19	32.3	1.62	30.3	1.78	14.2	1.55	3.8	0.88	0.1	0.15
Large city	0.6	0.22	3.5	0.93	7.6	1.21	23.5	1.64	35.5	3.30	22.0	3.12	7.3	1.06	0.0	0.00
Mozambique	2.3	0.34	4.1	0.47	11.3	0.73	29.1	1.08	32.2	1.51	16.4	1.28	4.7	0.53	0.1	0.06

There was no significant variation in the percentage of boys and girls reaching reading competence levels 1 to 6. The percentage of girls reaching levels 2, 4 and 5 was higher than that of the boys, and the percentage of boys reaching levels 1, 3 and 6 was higher than that of girls. In levels 7 and 8 the boys tended to have a higher percentage than girls. However, there were more boys reaching level 7 (5.8%) and level 8 (0.2%) while only 3.7% of the girls reached level 7 and no girl reached level 8.

The percentage of pupils reaching each of the levels 1 to 6 in reading under the low socio-economic subgroup was similarly not very different from that of the high socio-economic subgroup. In level 7 the situation changed dramatically, the percentage of pupils from the higher socio-economic subgroup being more than twice the percentage of those from the low socio-economic subgroup. The percentage of pupils from the low socio-economic subgroup that reached level 8 was 0.2 percent whereas no pupil from the high socio-economic subgroup reached this level.

When achievement levels were analysed by school location the pattern was similar to that for gender and socio-economic level in the sense that there was little variation in the levels 1 to 5. There was no significant variation between the percentage of pupils in the rural areas and small towns that reached levels 6 and 7. However, there was a big variation between these two subgroups and the pupils from big cities. The percentage of pupils from the large cities that reached level 6 was 22.0 percent against 14.2 for small towns and 12.6 for rural areas. The percentage of pupils from the large cities that reached level 7 was 7.3 percent against 3.8 percent for small towns and 2.6 percent for rural areas. This pattern is consistent with the results presented earlier on scores and levels of mastery.

The percentages of pupils for the different subgroups reaching each of the eight mathematics competence levels have been presented in Table 7.12.

Table 7.12. Percentages and sampling errors for numeracy levels of pupils by sub-groups (SACMEQ II)

Sub-groups	Percentage of pupils reaching the mathematics competence level															
	1		2		3		4		5		6		7		8	
	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE
<i>Gender</i>																
Boys	0.4	0.14	10.5	0.82	39.3	1.59	33.3	1.64	14.3	1.09	2.3	0.41	0.1	0.05	0.0	0.00
Girls	0.5	0.18	15.7	1.44	45.3	1.91	30.5	1.69	7.1	1.17	0.9	0.65	0.1	0.05	0.0	0.00
<i>Socio-economic level</i>																
Low SES	0.4	0.15	13.7	1.09	42.7	1.69	31.2	1.56	10.4	1.01	1.4	0.36	0.1	0.07	0.0	0.00
High SES	0.5	0.16	11.4	1.01	40.6	1.69	33.1	1.72	12.4	1.15	2.0	0.65	0.0	0.00	0.0	0.00
<i>School location</i>																
Isolated/rural	0.5	0.26	16.1	2.28	44.0	3.13	27.2	2.98	10.1	2.35	2.1	1.33	0.0	0.00	0.0	0.00
Small town	0.5	0.18	14.2	1.41	42.0	1.71	31.2	1.80	10.6	1.15	1.5	0.41	0.1	0.07	0.0	0.00
Large city	0.3	0.16	8.8	1.23	39.2	2.58	36.2	2.06	13.9	1.52	1.5	0.51	0.0	0.00	0.0	0.00
Mozambique	0.4	0.11	12.9	0.90	41.6	1.37	31.8	1.27	11.6	0.91	1.7	0.42	0.0	0.03	0.0	0.00

The percentages of girls reaching mathematics competence level 1 (0.5%), level 2 (15.7%) and level 3 (45.3%) were higher than the corresponding percentages for boys (0.4%, 10.5% and 39.3% respectively). This pattern changed in levels 4, 5 and 6 where boys' percentages were higher than those for girls. The variation in level 4 is not very wide; with girls' percentage being 30.5 against boys' percentage of 33.3. However, there was a very big difference between girls and boys in levels 5 and 6. The percentage of boys in level 5 was 14.3, and the percentage in level 6 was 2.3 while the corresponding percentages for girls were 7.1 and 0.9 respectively. There was no difference in levels 7 and 8. Overall, larger percentage of girls tended to be located in the three lowest levels of competence, and the reverse was true for boys.

An analysis of achievement levels by socio-economic level reveals that there was little variation among the subgroups. Pupils from the low socio-economic subgroup performed better in level 7 where 0.1 percent reached this level against 0.0 percent for the high socio-economic subgroup.

An analysis of pupils' achievement levels by school location revealed that there was a larger percentage of pupils from the rural areas in levels 1 to 3, followed by those from the small towns, and lastly by those from the large cities. This pattern was reversed in level 4 and 5 where the largest percentage was that of pupils from large cities followed by those from small towns then those from rural areas. The percentage of pupils who reached level 6 was highest for pupils from the rural areas (2.1%) whereas those from the small towns and large cities were equal (1.5%). Only a small fraction of pupils from the small towns reached level 7 (0.1%), and no pupil from rural areas or from large cities reached this level.

Conclusion

The results presented in this chapter show that Grade 6 pupils from Cabo Delgado and Niassa Provinces achieved comparatively low scores in both reading and mathematics. The reading scores for pupils from Tete Province were also quite low. The Inspectorate has to investigate the reasons for such underperformance.

It was also observed that the Grade 6 teachers from Cabo Delgado, Inhambane and Zambézia achieved low scores in reading. It is also suggested that the Inspectorate investigates the reasons for this low performance by teachers.

From the data presented in this chapter, the correlation between pupil achievement and teacher achievement was very weak. There could be two explanations for this. The first is that the system of education in Mozambique is very selective and only about 25 percent of pupils who enter Grade 1 reach Grade 6. What this implies is that only the best pupils find their way to this level of education. The other explanation could be the fact that the teachers who teach Grade 6 are not the same as the teachers who teach Grades 1 to 5. In Mozambique, the Grade 6 teacher tends to be better qualified, and is therefore presumably more competent, than the Grade 1 to 5 teacher. In this case, it is unlikely that there would be a correlation between pupils' achievement and teachers' achievement, given that the Grade 6 teacher is teaching that particular group of pupils for the first time.

The pattern that seems to emerge is that boys generally performed better than girls; pupils from the higher SES subgroup performed better than those from the lower SES subgroup; and pupils from large cities performed better than those from small towns who, in turn, performed better than those from rural areas. However, the difference was not significant in every case. INDE needs to continue monitoring this to make sure that the gap does not widen but, instead, is gradually narrowed down.

Chapter 8

Agenda for Action

Introduction

This is the first national report on the conditions of schooling and the quality of primary education in Mozambique. This chapter seeks to bring together all the research-based policy suggestions that have been made throughout this report. The analyses in the preceding chapters have been based on data emanating from a national survey carried out in a sample of 176 primary schools in Mozambique in the year 2000. The analyses provided detailed information on characteristics of Grade 6 pupils, their teachers and head teachers; the conditions of physical infrastructure and the learning environment of primary schools; equity in human and material resource distribution among provinces, and among schools within the provinces; the learning achievement levels of pupils and their teachers; and major variables affecting pupil learning achievement in Grade 6.

In this chapter all the research-based policy suggestions that have been made throughout the report have been reviewed and categorised into five main groups and then linked with time frames and costs. With regard to time frames, “short” implies that the policy recommendation can be implemented within 6 months to one year; “medium” means it can be implemented within one to two years; and “long” means it can be implemented in three to five years. “Low” costs are those that can be accommodated within the existing budget, and may simply require the redeployment of existing financial, human and physical resources or using them more efficiently; “moderate” costs are those that require a few additional funds to the Ministry; and “high” costs require major capital expenditure on physical infrastructure or human resources.

An attempt was also made to identify the office within the Ministry that would be responsible for leading the discussion and taking action on each suggestion. The intention was to present each policy suggestion to the relevant individual or section of the Ministry and then provoke discussion concerning the validity of the suggestion, modify the suggestion if necessary, and then integrate the revised suggestions into the Ministry’s

work plans. The policy suggestions were made bearing in mind the social, economic and political realities in the country. Most suggestions were prepared for “national” implementation because Mozambique’s system of planning is mostly centralised, and the Ministry’s work plans therefore operate at national level.

The feasibility of the policy suggestions will to a certain extent also hinge on the availability of resources and will, therefore, require a well-considered prioritization schedule.

Altogether, 35 policy suggestions were made in Chapters 3 to 7. All of these suggestions were classified into the five main groups described below. The policy suggestions were then listed in Table 8.1.

As has already been indicated, the policy suggestions that emerged from this analysis fall into five main groups as follows:

Group 1: Consultation with staff, community, and experts. This group contained four suggestions (3.4, 3.7, 3.8 and 4.6) that required a variety of consultations and discussion with a range of stakeholders to ensure for example that the textbooks are distributed timely and in enough quantities and to ensure that the ZIPs (Cluster of schools) are working effectively.

Group 2: Reviews of existing planning and policy procedure. This group contained eleven suggestions (3.6, 3.9, 3.12, 4.1, 4.7, 4.8, 5.1, 5.2, 5.5, 5.6 and 6.2) and these focussed on the need to revisit and reform existing regulations and practices; implement the existing regulations and formulate new policies. For example, re-examination of homework guidelines, and changes in staffing arrangements to achieve gender balance introducing new topics in teacher training courses, reviewing the role of school inspectors and define development policy for school directors.

Group 3: Data Collection for planning purposes. This group contained six suggestions (3.10, 4.2, 4.4, 4.9, 6.1 and 6.3) and these identified information gaps that could only be addressed with suitable supplementary data collections. For example find out why the pupil/teacher ratio within a province is so uneven.

Group 4: Education Policy research projects. This group contained nine suggestions (3.2, 3.3, 4.3, 4.5, 5.7, 5.8, 5.9, 7.1 and 7.2) that identified specific educational policy research projects. For example, carry out a study that focuses on the impact HIV and AIDS at the school level

Group 5: Investment in infrastructure, human and material resources. This group contained five suggestions (3.1, 3.5, 3.11, 5.2 and 5.4) which dealt with large scale provincial and national undertakings addressing educational inputs, process characteristics that would require substantial funding and a great deal of time to implement

Table 8.1. A summary of the policy suggestions in relation to relevant actors and related time frame and cost of implementation

POLICY SUGGESTIONS	RESPONSIBLE	TIME	COST
Group 1: Consultation with staff, community, and experts			
Policy suggestion 3.4. The directorate of Basic Education should develop activities in the Clusters of Schools (ZIPs) for advocacy of formative evaluation in the classroom.	National Directorate for Basic Education	Medium	Low
Policy suggestion 3.7. There is an urgent need for the Directorate of Basic Education to take some steps to address the problem of pupils not receiving homework from their teachers. Different options could be explored, one of which could be that of making sure that in the “ZIPs” there is a general policy of advocacy about the	National Directorate for Basic Education	Medium	Low

POLICY SUGGESTIONS	RESPONSIBLE	TIME	COST
importance of the homework and the correction of such homework. Given the importance of homework, it would be desirable to examine why much less homework was given in reading than in mathematics.			
Policy suggestion 3.8. The Ministry should take steps to ensure that every pupil has his or her own textbook for each subject. There is a need to teach pupils how to take proper care of textbooks	Directorate for Administration and Finance	Medium	Low
Policy suggestion 4.6. There is a need to bring to the awareness of teachers the availability of resource centres and, where these were available, to mobilise teachers to that they use them to improve teaching. The ZIPs (Cluster of Schools) can play a role in sensitizing the teachers about the importance of using the resource centre.	National Directorate for Teacher Training	Medium	Low
Group 2: Reviews of existing planning and policy procedures			
Policy suggestion 3.6. The Construction Department together with the Directorate of Basic Education should develop a set of minimum facilities that each school should have and communicate this information to every school in order to facilitate prioritisation.	Directorate of Planning	Medium	Low
Policy suggestion 3.9. The Ministry of Education should establish a short-term and medium-term policy for improving the availability classroom resources. For instance, items like wall charts should be a short-term measure, while items like classroom books and the bookshelves on which to keep them should be more of a medium-term measure.	Directorate of Planning	Short	Low
Policy suggestion 3.12.			

POLICY SUGGESTIONS	RESPONSIBLE	TIME	COST
The Ministry of Education should define the ideal ratio student/toilet to ensure that in school construction plans there is provision for enough toilet buildings. Those schools that fail to meet the stipulated minimum level of provision should be given a time frame within which to put up additional toilets.	Directorate of Planning	Short	Low
Policy suggestion 4.1. The Ministry of Education must accelerate its implementation of the strategic plan that seeks to address the gender imbalances in the teaching force.	Directorate of Planning	Medium	Low
Policy suggestion 4.7. INDE should introduce the activities 'materials design' and 'using resource centres' in the in teacher training curriculum in order to maximise the benefits from the resource centres.	National Institute for Educational Development	Long	Low
Policy suggestion 4.8. There is need of expanding teachers' career advancement opportunities in the context of a sound National Qualification Framework (NQF). The directorate of teacher education should accelerate the ongoing process of designing the NQF within the broader strategy for teacher education.	Directorate for Human Resources	Medium	Medium

POLICY SUGGESTIONS	RESPONSIBLE	TIME	COST
<p>Policy suggestion 5.1 The Ministry of Education, through the provincial directorates of education, should formulate a policy that will gradually see more females get promoted to the position of school directors, and then ensure that these, as well as those who are already in the system, are distributed more equitably across the different provinces. Furthermore, the Ministry should develop a plan through which newly appointed school directors can get support, for example, in the form of management skills training.</p>	Directorate for Human Resources	Medium	Medium
<p>Policy suggestion 5.3 The Teacher Training Directorate should define the policy for school directors' development and the Provincial Directorate of Education should ensure the implementation of this policy.</p>	National Directorate for Teacher Training	Medium	Medium
<p>Policy suggestion 5.5. The Ministry of Education should establish the norms in the provision of toilet facilities and then develop a plan for the provision of additional toilets in schools where such provisions fall below the norm. Such a programme could be undertaken with the support of parents and school communities.</p>	Directorate of Planning	Medium	Moderate
<p>Policy suggestion 5.6 Ministry's Inspectorate Division should review the current role of inspectors and the purposes of school visits through an analysis of inspection reports produced by district and provincial officers, and on the basis of their findings provide guidelines which will ensure proper prioritization of these officers' roles and purposes of their visits to schools.</p>	Inspectorate	Short	Low
<p>Policy suggestion 6.2. The Ministry of Education must</p>	Directorate of	Medium	Low

POLICY SUGGESTIONS	RESPONSIBLE	TIME	COST
revisit policies regarding the allocation of qualified teachers to provinces in order to ensure that they support the implementation of a mix of strategies that will see the gradual reduction of inequities among provinces.	Planning		
Group 3: Data collection for planning purposes			
Policy suggestion 3.10. The Finance Directorate should set up a task force to make a thorough analysis of the provision of sitting and writing places and identify the reasons for the marked imbalance in the allocation of sitting and writing places among the regions. The Ministry should thereafter develop a medium- to long-term programme that will see those regions with more than 25 percent of pupils without sitting and writing places place being provided with the materials.	Directorate for Administration and Finance	Medium	Low
Policy suggestion 4.2. The Human Resource Directorate should commission a study to identify sustainable ways of helping teachers to buy or build houses with acceptable condition where the school cannot provide houses of acceptable quality. It might be important to look at the good experience of Sofala Province and see if it can be replicated in other provinces.	Directorate for Human Resources	Medium	Medium
Policy suggestion 4.4. It is suggested that the Ministry of Education commission a small study to examine the feedback practices in the classrooms of those pupils who are given tests less frequently than two or three times per month. The recommendations on the ideal number of tests that a teacher should give to pupils must be thereafter be	National Institute for Educational Development	Medium	Medium

POLICY SUGGESTIONS	RESPONSIBLE	TIME	COST
implemented.			
<p>Policy suggestion 4.9. The Human Resources Directorate and the Directorate of Basic Education should set up a task force that will look into practical measures to be implemented in order to gradually meet teachers expectations on issues considered very important for job satisfaction like. The issues the task force should focus on are salary levels, opportunities for professional development, opportunities for promotion and progression, and availability of teacher housing</p>	Directorate for Human Resources	Medium	Medium
<p>Policy suggestion 6.1. The provincial directorate of education in Gaza province should set up a team to find out why the pupil/teacher ratio within the province is so uneven. Similarly, the provincial directorate of education Inhambane and Sofala should set up a team to find out why there is such a big imbalance in the distribution of reading teachers' professional qualifications, reading teachers' experience and mathematics teachers' experience within the province.</p>	Provincial Directorate of Education of: <ul style="list-style-type: none"> - Gaza - Inhambane - Sofala 	Medium	Medium
<p>Policy suggestion 6.3. The Directorate of Administration and Finance should carry out studies to identify the reasons behind such massive inequities in the distribution of material resources in some provinces, and assist the relevant provinces to take corrective action with regard to the allocation of certain material resources.</p>	Directorate for Administration and Finance	Short	Low
Group 4: Educational policy research programme			
<p>Policy suggestion 3.2. The Ministry of Education should</p>			

POLICY SUGGESTIONS	RESPONSIBLE	TIME	COST
undertake a study into the causes of female under-representation in education, especially from upper primary school upwards, and put in place corrective measures that will see more girls accessing and participating in education.	National Institute for Educational Development	Medium	Low
Policy suggestion 3.3. The Directorate of Basic Education should commission a study to identify those pupils whose attendance is erratic on account of the fact that they either are orphans or have to take care of sick parents. This could be part of a broader study into the impact of HIV/AIDS on children's education.	National Directorate for Basic Education	Medium	Medium
Policy suggestion 4.3. The Ministry of Education must put together a team of experts who will closely examine the curriculum goals of teaching reading and make sure that in-service training programmes orient teachers in such a way that they emphasize the correct activities and goals, and adopt the right strategies or approaches when teaching reading.	National Institute for Educational Development	Medium	Medium
Policy suggestion 4.5. The Ministry of Education's Research Unit must conduct a study to establish (a) the norms regarding the frequency of testing; and (b) the reasons why such a large percentage of teachers does not give pupils written tests frequently. Thereafter, mechanisms must be developed to ensure that teachers test pupils frequently and regularly.	National Institute for Educational Development	Long	High
Policy suggestion 5.7 The Ministry of Education should commission a small study to determine the exact nature of the following problems among pupils: arriving late; dropping out of school;	National Institute for Educational Development	Medium	Medium

POLICY SUGGESTIONS	RESPONSIBLE	TIME	COST
absenteeism and alcohol abuse; health problems; cheating; fights and intimidation of pupils, and suggest steps that can be taken to minimise them.			
Policy suggestion 5.8. The Ministry should conduct a study in order to establish the nature and causes of the following behavioural problems associated with teachers: arriving late for school; health problems; absenteeism and alcohol abuse. This study should recommend ways of addressing them.	National Institute for Educational Development	Medium	Medium
Policy suggestion 5.9 The Ministry of Education should carry out a study that focuses on the impact HIV and AIDS were having at the school level and put in place interventions to mitigate its impacts on teachers and pupils. Such a study should take into account the findings of previous studies already done on HIV and AIDS, but focus on issues of educational quality.	National Institute for Educational Development	Medium	Medium
Policy Suggestion 7.1. The Inspectorate of the Ministry of Education should commission a study to find out why the pupils from Niassa and Cabo Delgado are performing so poorly in reading and mathematics.	Inspectorate	Medium	Medium
Policy Suggestion 7.2. The Inspectorate of the Ministry of Education should commission a study to find out why teachers from Inhambane, Cabo Delgado and Zambézia are underperforming in reading.	Inspectorate	Medium	Medium
Group 5: Investment in infrastructure, human and material resources.			
Policy suggestion 3.1. The Ministry of Education should speed up the upgrading of lower primary schools to complete primary	Directorate of Planning	Long	High

POLICY SUGGESTIONS	RESPONSIBLE	TIME	COST
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Comments on the implementation of policy suggestions

schools that teach from Grade 1 to 7.			
<p>Policy suggestion 3.5. There is a need to increase access to basic education services through an accelerated school construction program, particularly in provinces like Cabo Delgado, Niassa, Nampula, Tete and Zambezia.</p>	Directorate of Planning	Long	High
<p>Policy suggestion 3.11. The Ministry of Education should put in place a schools reconstruction or refurbishment programme that targets the regions that are most affected. In addition to this, it should also ensure that school directors receive basic training in preventive maintenance, probably as part of their INSET programme.</p>	Directorate of Planning	Long	High
<p>Policy suggestion 5.2. INDE should consider including principles of school management in the training curriculum for teachers.</p>	National Institute for Educational Development	Medium	Low
<p>Policy suggestion 5.4. The Ministry of Education should develop a plan for rebuilding those schools where buildings have deteriorated beyond repair, and for carrying out major repairs on those that need such repairs. Where resources for these tasks are scarce, the Ministry of Education should consider establishing ways of making parents contribute towards the costs of school repairs and maintenance.</p>	Directorate of Planning	Long	High

Implementing the policy suggestions

The challenge of implementing all 35 policy suggestions that have been presented is obviously enormous. It is acknowledged that the Ministry might find it difficult to implement all the policy suggestions simultaneously. It is also possible that some of the

policy suggestions might already be part of Ministry's pre-existing action plan. Nevertheless, it will be important for the Ministry to put together a clear plan for the implementation of the policy suggestions so that maximum benefits can be derived from the investment into this research study.

In order to develop this implementation plan, the Ministry needs to prioritise the policy suggestions using a set of criteria. These criteria should not only consider cost and/or time frame, but should examine a broader range of issues such as the seriousness of certain problems observed or highlighted in this study and consequently the urgency of decisive action, the nature and magnitude of benefits that are likely to accrue from the implementation of suggested actions, the linkage between certain policy suggestions and the education system's fundamental goals, and other factors.

The Ministry also needs to develop a clear implementation strategy that takes into account the facilitating and constraining factors within Mozambique's context, and the linkages that exist between the policy suggestions made and other developments within the education sector and outside it.

It is also important for the Ministry to realize that the implementation of some of the policy suggestions will require inputs from a variety of stakeholders. These stakeholders could be other departments within the Ministry itself, other government ministries, other national or international institutions or agencies, the private sector, parents, donors, and others. The inputs from all these will require good co-ordination, and the department or unit responsible for such co-ordination should be identified by the Ministry.

Conclusion

The policy agenda presented and the additional comments made on the policy suggestions have been given in the full knowledge that Mozambique's Ministry of Education operates within a given context. The Ministry also has its own priorities, and

these have been set out in the Government's 5 Year Plan and the Education Sector Strategic Plan. The policy actions it adopts for implementation have to be related to other national development plans, goals and targets, the nation's financial, human and material resources and the regulations or formulae governing their allocation and utilisation, as well as the peculiar socio-cultural values that shape decisions. A good understanding of the complex relationships among the broad range of home- and school-related variables that affect the quality of the education offered is a must if "good" decisions are to be made.

With the HIV and AIDS epidemic becoming a growing threat to the gains made in education, there could be a shift of government focus, with more resources being devoted to this area. Similarly, there could be other emerging issues such as the growing importance of information communication technologies, decentralization and globalization that may attract government attention or necessitate a shift in focus. In order to sustain the gains made by the sector while at the same time addressing the outstanding challenges will require extreme care in the choice of actions, and it is in this regard that the decision makers will find this study useful.

References

- Andrich, D., and Luo, G. (2003). Getting started: RUMM 2010. Perth: The RUMM Laboratory.
- Brickell, J.L. (1974). Nominated samples from public schools and statistical bias. *American Educational Research Journal*, 11(4), 333-341.
- Chimombo, J., Dlamini, E., Kulpoo, D., Moyo, G., Murimba, S., Nassor, S. M., and Nkamba, M. (1994). A project plan for the Southern Africa Consortium for Monitoring Educational Quality. (Vols. I and II). Paris: International Institute for Educational Planning.
- Deming, W.E. (1960). *Sample design in business research*. New York: Wiley.
- Elley, W. (1992). *How in the world do students read?* The Hague: International Association for the Evaluation of Educational Achievement.
- Finifter, B.M. (1972). The generation of confidence: Evaluating research findings by random subsample replication. In H.L. Costner (Ed.), *Sociological Methodology*. San Francisco: Jossey-Bass.
- Frankel, M.R. (1971). *Inference from survey samples*. Ann Arbor, Michigan: Institute for Social Research.
- Kish, L. (1965). *Survey sampling*. New York: Wiley.
- Kish L. (1978). On the future of survey sampling. In N.K. Namboordi (Ed.), *Survey sampling and measurement*. New York: Academic Press.

Mozambique references

- Kulpoo, D. (1998). The quality of education: Some policy suggestions based on a survey of schools in Mauritius. Paris: International Institute for Educational Planning.
- Machingaidze, T., Pfukani, P., and Shumba, S. (1998). The quality of education: Some policy suggestions based on a survey of schools in Zimbabwe. Paris: International Institute for Educational Planning.
- McCarthy, P.J. (1966). Replication: An approach to the analysis of data from complex surveys. Washington: United States National Center for Health Statistics.
- Martins, Zeferino (1992) Aproveitamento Escolar no Sistema Nacional de Educação - Contribuições para um estudo das disparidades regionais e de sexo com referência ao EP1 Cadernos de Pesquisa nº 1 INDE Maputo - Moçambique.
- Milner, G., Chimombo, J., Banda, T., and Mchikoma, C. (2001). The quality of education: Some policy suggestions based on a survey of schools in Malawi. Paris: International Institute for Educational Planning.
- MINED Direcção de Planificação (2000) Estatística da Educação – Levantamento Escolar Maputo: - Ministério da Educação - Moçambique.
- MINED Direcção de Planificação (2000) Estatística da Educação – Aproveitamento Escolar Maputo: - Ministério da Educação - Moçambique.
- MINED Direcção de Planificação (2003) 1998 – 2002 Período das Estatísticas – Ministério da Educação – Moçambique.
- MINED (2007) Education for All Fast Track Initiative – Ministério da Educação – Moçambique
- Ministério do Plano e Finanças – Direcção Nacional de Estatística (1995) Moçambique: Panorama Demográfico e Sócio-Económico – Maputo

Mozambique references

- Moyo, G., Murimba, S., Nassor, S. M., Dlamini, E., Nkamba, M., and Chimombo, J. (1993). SADC proposal for monitoring progress toward attaining the goals of the EFA Jomtien Conference concerning the quality of education. Harare: Ministry of Education and Culture.
- Mullis, I. V. S., Martin, M. O., Smiith, T. A., Garden, R. A., Gregory, K. D., Gonzalez, E. J., Chrostowski, S. J., and O'Connor, K. M. (2001). TIMSS assessment frameworks and specifications 2003. Chestnut Hill, MA: Boston College.
- Nassor, S and Ali Mohammed, K. (1998). The quality of education: Some policy suggestions based on a survey of schools in Zanzibar. Paris: International Institute for Educational Planning.
- Nkamba, M. and Kanyika, J. (1998). The quality of education: Some policy suggestions based on a survey of schools in Zambia. Paris: International Institute for Educational Planning.
- Nzomo, J., Kariuki, M., and Guantai, L. (2001). The quality of education: Some policy suggestions based on a survey of schools in Kenya. Paris: International Institute for Educational Planning.
- Organization for Economic Cooperation and Development (OECD) (2000). Measuring student knowledge and skills: The PISA 2000 assessment of reading, mathematical, and scientific literacy. Paris: OECD.
- Passos, Ana (1995) Pre-conditions for learning to read and write – A Mozambican case- study
Institute of International Education, Stockholm University
- Postlethwaite, T. N. and Ross, K. N. (1992). Effective schools in reading. The Hague
The International Association for the Evaluation of Educational Achievement.

Mozambique references

- Ross, K.N. (1976). Searching for uncertainty: Sampling errors in educational survey research. Hawthorn, Victoria: Australian Council for Educational Research.
- Ross, K.N. (1978). Sample design for educational survey research. *Evaluation in Education*, 2, 105-195.
- Ross, K.N. (1985). Sampling . In T. Husen & T.N. Postlethwaite (Eds.), *The International Encyclopedia of Education* (pp. 4370-4381). New York: Pergamon.
- Ross, K.N. (1987). Sample design. *International Journal of Educational Research*, 11(1), pp. 57-75.
- Ross, K.N. (1991). Sampling manual for the IEA International Study of Reading Literacy. Hamburg: International Association for the Evaluation of Educational Achievement.
- Ross, K. N. (1995). From educational research to educational policy: An example from Zimbabwe. *International Journal of Educational Research* 23(4), pp. 301-403.
- Ross, K. N., Saito, M., Dolata, S., and Ikeda, M. (2004). *The SACMEQ Data Archive (Version 1.2)*. Paris: International Institute for Educational Planning.
- Sitoe B.& Ngunga A.(2000) - Relatório do II Seminário sobre a padronização da ortografia de Línguas Moçambicanas Nelimo Maputo: Centro de Estudos das Línguas Moçambicanas Universidade Eduardo Mondlane
- Sylla, K., Saito, M., Ross, K. (2003). *SAMDEM (Sample Design Manager Software)*. Paris: International Institute for Educational Planning.

Mozambique references

Tukey, J.W. (1958). Bias and confidence in not-quite large samples (Abstract). *Annals of Mathematical Statistics*, 29, 614.

Voigts, F. (1998). The quality of education: Some policy suggestions based on a survey of schools in Namibia. International Institute for Educational Planning (UNESCO): Paris.

Walberg, H.J. (1994) "Homework." In *International Encyclopedia of Education* (Second Edition), T. Husén and T. N. Postlethwaite, editors. Oxford, England: Pergamon.