

SACMEQ Educational Policy Research Series

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

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South Africa  
Working Report

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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](http://www.sacmeq.org)).

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## **Chapter 1**

### **The Setting of the Study**

#### **Introduction**

Education is a dynamic and multi-faceted social enterprise. Its quality is determined by a critical mix of indicators that include, among others, the socio-economic factors, school system, legislative and administrative mechanisms, financing, the curriculum and educator development. The setting and context in which education takes place in South Africa have been presented in this chapter. A brief description of the nation has been presented and this is followed by an account of how the school system has been organized and administered. Some of the strategies employed by the government to finance education have been outlined with special focus on how issues of redressing imbalances caused by the pre-1994 Apartheid regime have been managed. As the central component of education, curriculum development has also been discussed to illustrate the radical transformation that the country has set itself to pursue. This has been followed by a brief presentation of similar moves in the areas of educator development, education policy reviews and the main policy concerns of the government. In particular, a point is made for the country's concern to provide quality education to all its citizens, hence the valued participation in SACMEQ.

#### **South Africa as a nation**

South Africa occupies the southern-most tip of the African continent. The South African nation is a nation in transition. After many decades of institutionalized racial discrimination, colonial and apartheid rule, South Africa became a constitutional democracy in April 1994. The immediate challenge of the fledgling democracy was to dismantle the divisive apartheid structures in all spheres of life and to usher in a new order of a unified nation with a shared vision.

The cornerstone of the country's democracy is a constitution, passed by Act 108 of 1996 which upholds the inviolability of human rights for all. The constitution affords everyone

the right “... to a basic education, including adult basic education...”. To give effect to the tenets of the constitution, the post-apartheid government passed laws and promulgated policies that seek to transform the lives of the citizens in general and to wipe out all vestiges of racism, sexism and other forms of discrimination. In particular, access to education of a high quality and equitable distribution of human as well as material resources have been identified as key transformational goals.

A census conducted in 1996 revealed that there were 40,58 million people in South Africa comprised as 77 percent black, 11 percent white, 9 percent coloured and 3 percent Indian/Asian. Approximately 54 percent of the population lived in urban areas. In a move to promote multilingualism, the government adopted eleven major languages in the country as “official languages” to be used in State and other official communications. The most common first home language was isiZulu, which was spoken by 23 percent of the people, followed by isiXhosa spoken by 18 percent. About 14 percent of the people spoke Afrikaans as a first home language while 9 percent had their first home language as English. The other official languages are Setswana, Sesotho, Sepedi, siSwati, isiNdebele, Xitsonga and Tshivenda.

According to the 1996 census, 6 percent of South Africans had post-school qualifications and 24 percent of the counted people aged 20 years or more had only completed primary education. A considerable 19 percent of people in this age category had never attended school. With regard to income distribution, the census found that, at the upper end of the scale, 25 percent of those who were employed earned R2 500 per month while the other 25 percent at the lower end earned R300 or less per month. In general white men were found to be earning the highest, followed by white females and then black males and females.

### **The structure of the school system**

The South African Schools Act (SASA) (1996) makes provision for two types of schools in the system – public and independent schools. Both types of schools follow the same curriculum and adhere to minimum standards set by the Department of Education.

Whilst public schools are funded by the State, independent schools provide their own funding although their access to State subsidies is not precluded.

The public school structure is organized according to a broad National Qualifications Framework (NQF) that was adopted by Act of parliament in 1999. The key objective of the NQF was to create a seamless and integrated education system which would encompass learning outcomes from formal, informal and vocational sectors including the early childhood development (ECD), general education and training (GET), further education and training (FET) and higher education (HE). The framework brings together education and training, skills development and the needs of a critical democracy, social and economic development. The unifying factor for all educational offerings is a single set of “critical and developmental outcomes” which learners need to attain, regardless of whether they follow a formal or informal learning pathway.

Through recognition of prior learning (RPL), credits obtained from one sector can be carried over to another and this enables learners to progress through the system by following different paths. For example, learners can switch from the ABET informal path to any of the formal sector phases (Foundation, Intermediate and Senior Phase), and vice versa, and still progress to FET provided they accumulate the required number of credits.

The South African school structure has been summarized in Figure 1.1 according to the NQF. There are three broad bands in the system – GET, FET and HE. Alongside the GET are informal providers for ABET at four levels. FET is offered by formal schools as well as private providers and non-governmental organizations (NGO’s).

**Figure 1.1 A summary of the South African school structure according to NQF levels**

<b>NQF Level</b>	<b>Bands</b>	<b>Types of Qualifications and Certificates</b>	
8	Higher Education	Doctorates, Further Research Degrees	
7		Higher Degrees, Professional Qualifications	
6		First Degrees, Higher Diplomas	
5		Diplomas, Occupational Certificates	
4	Further Education and Training	School/College/Training Certificates/Mix of units from private providers	
3		School/College/Training Certificates/Mix of units from private providers	
2		School/College/Training Certificates/Mix of units from private providers	
1	General Education and Training	Senior Phase (Grades 7, 8 & 9)	ABET Level 4
			ABET Level 3
		Intermediate Phase (Grades 4, 5 & 6)	ABET Level 2
		Foundation Phase (Grades 1, 2 & 3)	ABET Level 1
		Pre-School/ECD	

**The administration of school education**

The first phase of South Africa's transformation in the mid to late 1990s saw the demise of 19 racially and ethnically divided departments of education and the replacement of these with one Ministry of Education consisting of the national and nine provincial departments of education. Chiefly, the national department develops policies while provincial departments are charged with the responsibility to implement the policies at the school level.

The administrative tier between the province and the school is the district or region in some instances. Being at the point where the education system interfaces directly with learning sites, districts are ideally positioned to provide administrative and professional support to schools. In recognition of the critical role that districts must play in effective administration of the school system, the Ministry initiated the District Development



Project (DDP) to develop new organization models to improve administrative and professional services at district level.

The pre-1994 administration of schools at district level was marked by an inspection system whose approach was predominantly policing and dictatorial control and seldom went beyond checking mechanistic compliance. The advent of democracy saw a major shift towards a developmental and supportive interaction between district officials, school principals, educators, and School Management Teams.

### **Financing of education**

On the average, education absorbs more than 21 percent of the South African national budget and 6 percent of the Gross Domestic Product (GDP). About 90 percent of the education budget goes to personnel costs and 20 percent to non-personnel expenditure. In 1999 the Education Sector Medium-term Expenditure Framework Review Team recommended that the ratio be reduced to 80 : 20 in order to free some funds for non-personnel spending.

The national budget for education is divided among the nine (9) provinces on the basis of an equitable share formula (ESF). ESF is a pro-poor sliding scale mechanism, which ensures that inter-provincial equity is achieved. The poorest provinces receive the largest portion of the national revenue allocated to education. The index of poverty used incorporates, among others, provincial variables such as the size of the school-age population, the number of learners actually enrolled in public ordinary schools, the distribution of capital needs in education and hospital facilities, the size of the rural population in each province, and the size of the population targeted for social security.

Provincial education departments (PED's) make allocations for recurrent costs to schools on a variable per learner basis that favours the poorer segments of the population. Two sets of equally weighted factors used to rank schools for equitable allocation purposes are: (a) the condition of the physical facilities and crowding at the school, and (b) the relative poverty of the community around the school. Accordingly, the most needy and

largest schools receive priority in funding. The governance of schools, which includes the management of recurrent expenditures, is a competence of school's governing bodies (SGB's). Depending on the adequacy of a school's allocation from the State according to identified needs, the SGB may, in consultation with the parents of the registered learners, propose ways and means to raise supplementary funds. An option to supplement the school's income is for parents to pay school fees, provided parents who are not able to pay may be exempted from such payments.

### **Curriculum development**

The curriculum has been designed to reflect the values (democracy and citizenship) and standards espoused by the country. After 1994 South Africa introduced and adopted an outcomes-based approach to education. The curriculum was introduced at the Foundation Phase in 1998 and would be implemented at all the levels of the school system in 2005; hence it is referred to as Curriculum 2005, or sometimes as C2005.

Outcomes-based education (OBE) elevates the outcomes of the education system over the inputs. There are critical and developmental outcomes. The critical outcomes emphasise, among others, development of effective communication skills, creative thinking and problem-solving, responsible use of science and technology processes and products, ability to work with others in teams, ability to organize and evaluate information, and recognizing the inter-relatedness of social and other systems. The developmental outcomes, on the other hand, contribute towards personal development of each learner and towards social and economic development in South Africa. Each learner is expected to develop entrepreneurial skills, reflect on various strategies of learning, be culturally and aesthetically sensitive, and to explore education and career opportunities.

### **Educator training**

#### **(a) Pre-service training**

Prior to 1994 the training of educators in South Africa happened along the same ethnic and racial lines into which the education system was divided. Each of the then 19

departments of education trained their educators, mostly in educator training colleges for blacks and mainly in universities for the whites. There were huge disparities in terms of criteria for the selection of prospective trainees, the quality and duration of training and the allocation of trainees to schools. Consequently, there was an excess of educators in some subjects and acute shortages in subjects like mathematics, science, and technology.

After 1994 the new government undertook to rationalize educator education and make it more equitable, cost-effective, relevant, and of a high quality. Consequently, most of the educator training colleges, which existed before 1994, were phased out and educator training was left to higher education institutions like universities and technikons.

Post-matric candidates who meet university or technikon requirements and want to train as educators may apply and be admitted. The duration of training is four (4) years for a post-graduate qualification. Upon completion of the training the onus is on the graduates to find vacant posts for themselves.

**(b) In-service training**

There were two main reasons for an intensive focus on in-service training of educators in the post-1994 era. Firstly, the country introduced a new curriculum that was outcomes-based. This was a major paradigm shift, which necessitated re-orientation and re-training of educators on a large scale. Secondly, there was need to build capacity and improve the quality of teaching in key subjects like mathematics, science and technology.

**(c) Recent educational policy reviews and policy reforms**

Policy informs practice and vice versa. The implementation of Curriculum 2005 raised some unanticipated concerns about: the readiness of educators to mediate the new curriculum, the demands that training for the new curriculum would place on the system, the level and distribution of resources required to meet the challenges of the new approach and a host of other factors. In response to these challenges, the Minister appointed a Committee to review the curriculum. In its report in 2000, the Review Committee recommended that the curriculum framework be revised and streamlined in

such a way that it could be implemented and understood by all the educators. In particular, the Committee recommended that the design features of the curriculum be kept simple but meaningful. The revised curriculum has three key design features, namely, critical and developmental outcomes, learning outcomes, and assessment standards.

Subsequent to the release of the report of the Review Committee in May 2000, the Minister established a project committee to lead the process of developing the Revised National Curriculum Statement (RNCS). The RNCS maintains the fundamental values and principles of Curriculum 2005 and OBE but is clearer and simpler around critical issues such as assessment and the knowledge to be taught. It adopts a more gradual and carefully planned approach to implementation. It provides a framework for the development of learning support materials and gives clearer guidelines for improved orientation and professional development of educators, principals and district officials.

The RNCS will be phased in starting with grades R (reception year) to 3 in 2004, grades 4 to 6 in 2005, Grade 7 in 2006, Grade 8 in 2007, and Grade 9 in 2008.

### **The main policy concerns of the Ministry of Education**

The underlying policy elements, and therefore areas of sustained concern, for education in South Africa are contained in the first Education White Paper (1995), namely, access, success, quality, equity, and redress. The main policy concerns of the Ministry are aptly captured in the Vision Statement of the Department of Education which states:

*Our vision is of a South Africa in which all our people have access to lifelong education and training opportunities, which in turn contribute towards improving the quality of life and building a peaceful, prosperous and democratic society.*

In pursuit of this vision and on the basis of the policy elements for education, the Ministry in 2000 set a Programme of Action called *Tirisano* (meaning working together). Not only does this programme call all South Africans into action for effective delivery,

but it identifies the priorities in the implementation of policies. The nine priorities of *Tirisano* are to:

- 1 deal urgently and purposefully with HIV/AIDS by utilizing the education and training system
- 2 ensure the successful running of provincial systems through successful co-operative governance
- 3 triumph over illiteracy among adults and youths over the next five years
- 4 develop schools as centres of community life
- 5 end conditions of physical degradation in South African schools
- 6 develop the professional abilities of the teaching force
- 7 ensure the success of active learning through outcomes-based education
- 8 create a vibrant FET system, which will equip youths and adults to face social goals
- 9 build a rational and seamless HE system that will embrace the intellectual and professional challenges facing South Africa in the 21<sup>st</sup> century.

The main policy concerns of the country can, therefore, be summarized as threefold. Firstly, the Ministry is committed to redressing the inequities of the past and providing a transformed inclusive education system. Secondly, there is concern that poverty and disease, particularly HIV/AIDS, may slow down the transformation process, hence the urgency to address the two issues through education and training. Thirdly, the Ministry has to ensure that the country has sufficient and appropriately skilled human resources to take it into the 21<sup>st</sup> century.

### **The value of South Africa's participation in SACMEQ**

Following two major world conferences in Jomtien (1990) and Dakar (2000), respectively, there were concerted efforts among the countries of the world to work towards the Education For All (EFA) goals. The Dakar declaration emphasized that, to achieve EFA by 2015 would require, in addition to increased participation in education, a general increase in the quality of education so that all learners could achieve improved

and measurable outcomes. Most of the decisions taken in both conferences were in line with the transformation goals that the new South African government set for itself after 1994.

A notable initiative after the Dakar conference was the establishment of the Southern African Consortium for Monitoring Educational Quality (SACMEQ), which involves fifteen Ministries of Education in Eastern and Southern Africa. SACMEQ's mission is to assist educational planners and researchers to undertake studies of the quality of their education systems by working in a cooperative manner that encourages them to share their experiences and to learn from each other. As a member of SACMEQ, South Africa upholds the values and shares the goals of the Consortium. As a democracy in its infancy, hardly a year old, South Africa could not participate in SACMEQ I in 1995. However, when the opportunity presented itself in 2000, South Africa seized it and participated in SACMEQ II.

### **The structure and contents of this report**

Chapter 1 mapped the setting for this study. The conduct of the study, which includes an account of SACMEQ's general approach to educational policy research, an explanation of how the instruments were constructed and the sampling process are the subject of Chapter 2. In Chapter 3 the sample learners' characteristics and their learning environments have been described. Chapter 4 contains educators' characteristics and their viewpoints on teaching, classroom resources, professional support and job satisfaction. School principals' characteristics and their viewpoints on educational infrastructure, the organization and operation of schools and problems with learners and staff have been reported in Chapter 5. Issues of equity in the allocation of human and material resources among and within provinces as well as among schools have been covered in Chapter 6. Chapter 7 is an account of the Reading and Mathematics achievement levels of learners and their educators. The conclusion and the agenda for action have been presented in Chapter 8.

## Chapter 2

### The Conduct of the SACMEQ II Project

Adapted from Kenneth N. Ross, Mioko Saito, Stephanie Dolata, Miyako Ikeda, Linda Zuze, Saul Murimba, T. Neville Postlethwaite, and Patrick Griffin

#### **Introduction**

There has been a worldwide growth of interest in the application of large-scale scientific survey research techniques to the study of issues related to improving the quality of education. Many developed countries are now applying these techniques to undertake systematic studies of the conditions of schooling and of student achievement levels. In developing countries there have been increased efforts to provide training for educational planners in the technical skills that are required to conduct these kinds of policy research studies.

In 1991 the International Institute for Educational Planning (IIEP) and a number of Ministries of Education in Southern and Eastern Africa began to work together in order to address training and research needs in this area. The focus for this work was on establishing long-term strategies for building the capacity of educational planners to monitor and evaluate the quality of their basic education systems.

In 1993 a proposal was prepared by a group of educational planners (Moyo et al., 1993) that aimed to extend the reach and formal status of this work by creating an association known as the Southern Africa Consortium for Monitoring Educational Quality (SACMEQ). The proposal received a positive reaction from Ministries of Education, and in 1995 SACMEQ was officially launched with the generous assistance of the Governments of Italy and the Netherlands. Fifteen Ministries of Education are now members of SACMEQ: Botswana, Kenya, Lesotho, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, Tanzania (Mainland), Tanzania (Zanzibar), Uganda, Zambia, and Zimbabwe. The IIEP was invited to become a member of the consortium in 1997.

SACMEQ's main mission is to undertake integrated research and training activities that will: (a) expand opportunities for educational planners to gain the technical skills required to monitor and evaluate the general conditions of schooling and the quality of basic education, and (b) generate information that can be used by decision-makers to plan improvements in their education systems.

The SACMEQ consortium has enabled educational researchers and planners to develop important technical skills related to the design and implementation of large-scale data collections, and to the application of a wide variety of computer-based techniques for the preparation, management, analysis, and reporting of educational planning data. SACMEQ's research programme has resulted in the preparation of research reports that have contributed towards the conduct of informed debates concerned with: equity in the allocation of human and material resources among regions and schools, and literacy and numeracy levels for important sub-groups of pupils defined by gender, socio-economic background, and geographic location.

The first two educational policy research projects undertaken by SACMEQ (widely known as "SACMEQ I" and "SACMEQ II") were designed to provide detailed information that could be used to guide planning decisions aimed at improving the quality of education in primary school systems. During 1995-1998 seven Ministries of Education participated in the SACMEQ I Project and the results of this research were reported in a series of national policy reports (Kulpoo, 1998; Machingaidze et al, 1998; Milner et al, 2001; Nassor and Ali Mohammed, 1998; Nkamba and Kanyika, 1998; Nzomo et al, 2001; Voigts, 1998). Technical information about the sampling, instrument construction, and field work for the SACMEQ I Project may be found in these reports.

The SACMEQ II Project commenced in 1998 and has involved 15 Ministries of Education. Moving from the SACMEQ I Project (covering around 1100 schools and 20,000 pupils) to the SACMEQ II Project (covering around 2500 schools and 45,000 pupils) resulted in a major increase in the scale and complexity of SACMEQ's research and training programmes.



The main purpose of this chapter is to provide a detailed account of the key technical procedures that were involved in the design and implementation of the SACMEQ II Project.

**The chapter has been presented in three parts.**

Part A: “The Fourteen Main Phases of the SACMEQ II Project”

This part of the chapter has listed the fourteen main phases of the SACMEQ II Project. These commenced with pre-planning and initial planning, and then moved through instrument construction, trial testing, sampling, main data collection, data preparation, data merging and scoring, data analyses, and concluded with the writing of national policy reports.

Part B: “Sample Design Procedures for the SACMEQ Project”

This part of the chapter has provided a detailed explanation of the procedures involved in the selection of samples of schools and pupils for the SACMEQ II Project. The sampling procedures were evaluated through an examination of response rates and the calculation of design effects, effective sample sizes, and standard errors of sampling.

Part C: “The Construction of Tests for the SACMEQ II Project”

This part of the chapter has presented the main steps that were involved in test construction for the SACMEQ II Project, and then has examined the advanced scaling procedures that were used to score the tests and to describe pupil and teacher literacy levels according to increasing “levels of competence”. Eight levels of competence were developed for the literacy and numeracy measures, and these represented a departure from “traditional approaches” (based on means and mastery percentages) to describing and comparing the educational performance of groups.

## **Part A: The Fourteen Main Phases of the SACMEQ II Project**

### **Phase 1: “Pre-Planning” for the SACMEQ II Project**

One of the distinguishing features of the SACMEQ Projects has been that their research results have been widely used for policy and planning purposes. This successful outcome has occurred because SACMEQ research reports were designed from the very beginning to address the high-priority policy concerns of decision-makers in Ministries of Education. This was achieved via a three-step “pre-planning” process (described below for the SACMEQ II Project) that was completed before work commenced on the overall design and implementation of the research.

**Step 1:** The SACMEQ II Project commenced by engaging senior decision-makers in Ministries of Education (for example, Ministers, Permanent Secretaries, Heads of Divisions, and Regional Directors) in discussions about high-priority policy concerns associated with their education systems. The SACMEQ National Research Coordinators (NRCs) structured these discussions by asking the decision-makers to identify the main areas where the Ministry needed to review, refine, change, monitor, and/or develop policies that had relevance for the general conditions of schooling and the quality of education. The decision-makers’ responses were then analyzed in order to identify groups of ‘**General Policy Concerns**’ that were subsequently used as a foundation for guiding the research design.

For example, decision-makers in most SACMEQ countries were concerned about policy issues linked with: (a) equity in the gender balance and home background profiles of Grade 6 pupils, and (b) the magnitude of the age range of Grade 6 pupils and its implications for teaching and learning. The NRCs summarized these and similar concerns in the form of a single question: “What are the personal characteristics (for example, age and gender) and home background characteristics (for example, books at home and parent education) of Grade 6 pupils that might have implications for monitoring equity, and/or that might impact upon teaching and learning?” This question represented the first General Policy Concern developed by the NRCs for the SACMEQ II Project.

A total of 20 General Policy Concerns were prepared for the SACMEQ II Project. These have been summarised in Figure 2.1 under five “themes” concerned with: pupils’ characteristics and learning environments, teachers’ characteristics and viewpoints, school heads’ characteristics and viewpoints, equity in the allocation of human and material resources, and the reading and mathematics achievement levels of pupils.

**Step 2:** The NRCs linked each of the 20 SACMEQ II General Policy Concerns to a set of “**Specific Research Questions**” that provided precise guidance concerning the information that was required in order to respond to the General Policy Concerns. That is, the Specific Research Questions (see Appendix A for full details) were used to decide exactly what should be included in, or excluded from, the data collection instruments.

**Theme A: Pupils' Characteristics and Their Learning Environments**

**General Policy Concern 1:** What were the personal characteristics (for example, age and gender) and home background characteristics (for example, parent education, regularity of meals, home language, etc.) of Grade 6 pupils that might have implications for monitoring equity, and/or that might impact upon teaching and learning?

**General Policy Concern 2:** What were the school context factors experienced by Grade 6 pupils (such as location, absenteeism (regularity and reasons), grade repetition, and homework (frequency, amount, correction, and family involvement)) that might impact upon teaching/learning and the general functioning of schools?

**General Policy Concern 3:** Did Grade 6 pupils have sufficient access to classroom materials (for example, textbooks, readers, and stationery) in order to participate fully in their lessons?

**General Policy Concern 4:** Did Grade 6 pupils have access to library books within their schools, and (if they did have access) was the use of these books being maximized by allowing pupils to take them home to read?

**General Policy Concern 5:** Has the practice of Grade 6 pupils receiving extra lessons in school subjects outside school hours become widespread, and have these been paid lessons?

**Theme B: Teachers' Characteristics and their Viewpoints on Teaching, Classroom Resources, Professional Support, and Job Satisfaction**

**General Policy Concern 6:** What were the personal characteristics of Grade 6 teachers (for example, age, gender, and socio-economic level), and what was the condition of their housing?

**General Policy Concern 7:** What were the professional characteristics of Grade 6 teachers (in terms of academic, professional, and in-service training), and did they consider in-service training to be effective in improving their teaching?

**General Policy Concern 8:** How did Grade 6 teachers allocate their time among responsibilities concerned with teaching, preparing lessons, and marking?

**General Policy Concern 9:** What were Grade 6 teachers' viewpoints on (a) pupil activities within the classroom (for example, reading aloud, pronouncing, etc.), (b) teaching goals (for example, making learning enjoyable, word attack skills, etc.), (c) teaching approaches/strategies (for example, questioning, whole class teaching, etc.), (d) assessment procedures, and (e) meeting and communicating with parents?

**Figure 2.1:** SACMEQ II: General Policy Concerns of Ministry Decision-Makers

**General Policy Concern 10:** What was the availability of classroom furniture (for example, sitting/writing places, teacher table, teacher chair, and bookshelves) and classroom equipment (for example, chalkboard, dictionary, maps, book corner, and teacher guides) in Grade 6 classrooms?

**General Policy Concern 11:** What professional support (in terms of education resource centres, inspections, advisory visits, and school head inputs) was given to Grade 6 teachers?

**General Policy Concern 12:** What factors had most impact upon teacher job satisfaction?

**Theme C: School Heads' Characteristics and their Viewpoints  
on Educational Infrastructure, the Organization and Operation of Schools,  
and Problems with Pupils and Staff**

**General Policy Concern 13:** What were the personal characteristics of school heads (for example, age and gender)?

**General Policy Concern 14:** What were the professional characteristics of school heads (in terms of academic, professional, experience, and specialized training)?

**General Policy Concern 15:** What were the school heads' viewpoints on general school infrastructure (for example, electrical and other equipment, water, and basic sanitation) and the condition of school buildings?

**General Policy Concern 16:** What were the school heads' viewpoints on (a) daily activities (for example, teaching, school-community relations, and monitoring pupil progress), (b) organizational policies (for example school magazine, open days, and formal debates), (c) inspections, (d) community input, (e) problems with pupils and staff (for example, pupil lateness, teacher absenteeism, and lost days of school)?

**Theme D: Equity in the Allocation of Human and Material Resources  
Among Regions and Among Schools Within Regions**

**General Policy Concern 17:** Have human resources (for example, qualified and experienced teachers and school heads) been allocated in an equitable fashion among regions and among schools within regions?

**Figure 2.1 (cont.):** SACMEQ II: General Policy Concerns of Ministry Decision-Makers

**General Policy Concern 18:** Have material resources (for example, classroom teaching materials and school facilities) been allocated in an equitable fashion among regions and among schools within regions?

**Theme E: The Reading and Mathematics Achievement Levels  
of Pupils and Their Teachers**

**General Policy Concern 19:** What were the levels (according to descriptive levels of competence) and variations (among schools and regions) in the achievement levels of Grade 6 pupils and their teachers in reading and mathematics – for my country and for all other SACMEQ countries?

**General Policy Concern 20:** What were the reading and mathematics achievement levels of important sub-groups of Grade 6 pupils and their teachers (for example, pupils and teachers of different genders, socio-economic levels, and locations)?

**Figure 2.1 (cont.):** SACMEQ II: General Policy Concerns of Ministry Decision-Makers

For example, three of the Specific Research Questions linked to the first General Policy Concern were: “What is the age distribution of pupils?” “What is the gender distribution of pupils” and “What is the level of parents’ education?” These questions implied that the pupil questionnaire should collect information about pupil age, gender, and the educational level of pupils’ parents.

**Step 3:** The NRCs used the SACMEQ II Specific Research Questions to design “**Dummy Tables**” – which were blank (or empty) data tabulation templates that employed the variables and information layouts that would be used in the final SACMEQ II national policy reports.

The main advantages of producing 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.

In Figure 2.2 an example of moving through the above three steps has been presented – starting with the first General Policy Concern developed for the SACMEQ II Project, then moving to a set of Specific Research Questions, and finally arriving at a suitable Dummy Table. The table shown in Figure 2.2 only covers information related to the six Specific Research Questions that have been presented in bold type. A different table was developed for the other six Specific Research Questions.

**General Policy Concern 1**

**What were the personal characteristics (for example, age and gender) and home background characteristics (for example, parent education, regularity of meals, home language, etc.) of Grade 6 pupils that might have implications for monitoring equity, and/or that might impact upon teaching and learning?**



**Specific Research Questions**

**What was the age distribution of pupils?**

**What was the gender distribution of pupils?**

**How regularly did pupils eat meals?**

**How far did pupils travel to school?**

**What percentage of pupils spoke the language of the test at home?**

**What was the level of the parents' education?**

**What support did pupils get at home regarding homework and interest in schoolwork?**

**Did teachers ask parents to sign that homework assignments have been completed?**

**Where did pupils live during school days, i.e., when school is on?**

**How many books were there in pupils' homes?**

**What access to reading materials and electronic media did pupils have in their homes?**

**What was the socio-economic status of pupils' parents?**



**First Dummy Table for General Policy Concern 1**

**Dummy Table :**      Grade 6 Pupil Age, Gender, and Home Background Characteristics

<b>Region</b>	<b>Age (months)</b>		<b>Gender (pupils)</b>		<b>Books at Home (books)</b>		<b>Possessions at Home (index)</b>		<b>Meals (index)</b>		<b>Parent Education (index)</b>	
	Mean	SE	%	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE
Region 1												
Region 2												
Region 3												
Region 4												
Region 5												
Region 6												
Region 7												
Region 8												
<b>Nation</b>												

Variable Names for SACMEQ I = XPAGEMON, XPSEX, XPBOOKSH, XPTOTP, XPREGME, XPFAMOED.  
Variable Names for SACMEQ II = ZPAGEMON, ZPSEX, ZPBOOKSH, ZPTOTP, ZPREGME, ZPFAMOED.

**Figure 2.2:**      **An Example of Transforming a General Policy Question into Twelve Specific Research Questions and One (of Two) Dummy Tables**



The upper section of the Dummy Table in Figure 2.2 was used to name the variables (for example Age, Gender, Books at Home, etc.) and also to provide guidance as to whether the variables were to be based on a single question in the data collection instruments (which was the case for the first three variables), or whether the variables were to be derived from two or more questions to form an “index” (which was the case for the second three variables). In this example, the information in the Dummy Table has been broken down by administrative regions (provinces in the case of South Africa) - which was a popular approach because most SACMEQ school systems operated on the basis of some form of regional administration.

Each variable in the table was linked with “statistics” and “units”. For example, the Age variable was expressed as a mean and the units were months, the Gender variable was expressed as a percentage and the units were pupils, and Books in the Home was expressed as a mean and the units were books. The statistics for the final three variables were “indices” and therefore the units depended on the procedures used in their construction. Some indices, such as “Possessions at Home”, were based on a simple count generated from a checklist of possessions, and therefore this index referred to the counted number of possessions. However, other indices (in other tables) were constructed using principal components analysis, and this resulted in “standardized” units of measurement.

The computer-stored names of each variable were listed in the base of each Dummy Table. It was important to include these so that the person responsible for data processing knew exactly which variables to use in the analyses. In the Dummy Table presented in Figure 2.2 the computer-stored variable names have been given for both SACMEQ Projects – indicating that this table needed to be completed twice for the countries that participated in both projects.

In Appendix A the SACMEQ II General Policy Concerns have been listed in association with Specific Research Questions. This list has also included the sequence numbers of the Dummy Tables prepared using either SACMEQ I or SACMEQ II data, and the relevant question numbers in the data collection instruments that were used to collect the required information. The 20 General Policy Concerns were

associated with 75 Specific Research Questions, and these were linked to around 150 Dummy Tables.

For example, the first Specific Research Question for the first General Policy Concern was: “What was the age distribution of pupils? From the first page of Appendix A it may be seen that this information was to be entered into Dummy Tables 3.1(a) and 3.1(b) for the SACMEQ I and SACMEQ II Projects, respectively. The source question for this information was the second question on the pupil questionnaires for both the SACMEQ I Project (SI: P2) and the SACMEQ II Project (SII: P2).

### **Phase 2: Moving From Pre-Planning to Instrument Construction**

A meeting of National Research Coordinators (NRCs) was held in Durban, South Africa during April 1998 in order to use the Dummy Tables produced during the “Pre-Planning” phase of the SACMEQ II Project to guide the construction of data collection instruments. Three experienced South African teachers also attended the meeting in order to participate in sessions concerned with an analysis of the structure, sequence, and content of curricula across countries. The first major decision taken at the meeting was that the data collection for the SACMEQ II Project should be expanded beyond the SACMEQ I Project to include an assessment of both reading and mathematics performance levels for both pupils and teachers.

The meeting operated as two parallel working groups that focussed on test and questionnaire construction. The test construction group completed a comprehensive analysis of the official curricula, school syllabi, textbooks, and examinations that were used in SACMEQ countries. This analysis was used to construct test blueprints as frameworks for writing a large pool of test items for pupils and teachers in both reading and mathematics. The questionnaire group concentrated on using the Dummy Tables to guide the construction of questionnaires for pupils, teachers, and school heads.

By the end of the meeting the following data collection instruments had been drafted: Pupil Reading and Mathematics Tests, Pupil Questionnaire, Teacher Reading and Mathematics Tests, Teacher Questionnaire, and School Head Questionnaire. In addition draft manuals had been prepared for the NRCs and data collectors.

During the meeting the NRCs were invited to make a presentation to a UNESCO meeting of African Ministers of Education that was being held in Durban at the same time. They also attended a special meeting for SACMEQ Ministers of Education in order to discuss the policy impact of SACMEQ research, and to launch the first five SACMEQ I national reports. These events enabled Ministers to gain a much clearer picture of how the SACMEQ research programme could be used for the preparation of policies aimed at improving the quality of education.

After the Durban meeting, work proceeded at the IIEP and within the SACMEQ countries to finalize the overall SACMEQ II Project research design and to complete “try-out” versions of data collection instruments and manuals. These materials were circulated among the NRCs via the Internet and, on the basis of further NRC inputs, edited and then re-circulated for further comment and improvement.

### **Phase 3: “Small-Scale Trial Testing” of Instruments and Manuals**

When the first drafts of the SACMEQ II data collection instruments and manuals had been completed it was agreed to hold a combined planning and training meeting for NRCs and their Deputies in Harare, Zimbabwe during February 1999.

The main purpose of the meeting was to undertake a small-scale “try-out” of the draft data collection materials. To achieve this, a field test was conducted in 10 schools located in a variety of social and geographic situations within a 50 km radius of Harare. The data gathered during this exercise were entered into computers by the NRCs, and then analysed to provide information about the quality of the data collection instruments and the field procedures. On the basis of these analyses further improvements were made to the tests, questionnaires, and manuals.

An important benefit of the “try-out” exercise was that the NRCs were required to act as both data collectors and data entry staff. This gave them first hand experience of the complexities of these two tasks, and also provided them with a sound foundation for training their own research teams for the trial testing and the main data collection.

In the period March to May 1999, the data collection materials tested at the Harare meeting were shared and edited via the Internet. IIEP staff coordinated this "virtual workgroup" approach and arranged inputs from external consultants.

#### **Phase 4: “Large-Scale Trial Testing” of Instruments and Manuals**

The “large-scale trial test” versions of the SACMEQ II data collection instruments were distributed in electronic format via the Internet in June 1999. Paper copies were also distributed to several countries because some NRCs had experienced difficulties with downloading documents in a manner that preserved the integrity of graphical figures and special fonts contained within the tests and questionnaires.

Each NRC was provided with specialized software that could be used to transform the trial test data into computer-readable files.

The trial testing of the data collection instruments and manuals took place during August-September 1999. More than 400 schools and 8000 pupils were involved in the data collection. During September 1999 these data were entered into computers under the supervision of NRCs and then transmitted via the Internet to the IIEP where they were checked and merged into a single database. At the IIEP a number of validity checks were undertaken on the data, and any errors and/or omissions that emerged were corrected and/or clarified by email communication with the NRCs.

#### **Phase 5: Finalization of Instruments and Manuals for the Main Data Collection**

A meeting of SACMEQ II NRCs and their Deputies was held at the IIEP in October 1999 in order to analyze the trial test data. This meeting was held at the same time as the biennial meeting of the SACMEQ Assembly of Ministers, and the NRCs took advantage of this coincidence by presenting a "Policy Forum" for the Ministers.

The meeting concentrated on analyzing the trial test data that had been collected on reading and mathematics performance from pupils and their teachers. The aim was to select the best possible sets of test items for the main data collection by reducing the two forms of the trial tests for pupils and teachers to single forms.

At the close of the meeting another "virtual workgroup" was established in order to use the Internet during the period October 1999 to May 2000 to finalize the preparation of tests, questionnaires, and manuals. The IIEP agreed to prepare final forms of the data collection instruments and to distribute these in "camera-ready" electronic and paper formats that would be suitable for immediate printing.

The preparation of the final forms of the data collection instruments and manuals proved to be a massive task because of the different notations used in different countries. For example, changes were made in order to address the use of: (a) a comma or a full stop for decimals, (b) a comma, a full stop, or a space for "separating" digits in numbers greater than or equal to 1000, (c) different currency units, (d) different nomenclature for grade levels, (e) different methods for expressing dates, and (f) 12 hour or 24 hour clocks for time. Since no two countries used exactly the same conventions for items (a) to (f), it was necessary to prepare a unique set of data collection instruments and manuals for each country.

A few SACMEQ countries translated the tests, questionnaires, and manuals into non-English local languages. In South Africa the instruments were administered in English.

### **Phase 6: Sample Design, Sample Selection, and Sample Evaluation**

The sample designs used in the SACMEQ II Project were selected so as to meet the standards set down by the International Association for the Evaluation of Educational Achievement. These standards required that sample estimates of important pupil population parameters should have sampling accuracy that was at least equivalent to a simple random sample of 400 pupils (thereby guaranteeing 95 percent confidence limits for sample means of plus or minus one tenth of a pupil standard deviation unit). Detailed descriptions of the sample design, sample selection, and sample evaluation procedures have been presented in Part B of this chapter.

### **Phase 7: Preparations for Computer-Based Entry of Data**

After the completion of the SACMEQ II data collection instruments and manuals, work commenced on the preparation of data entry structure files for the full data collection. These computer files provided a complete specification of the nature of the

data that were to be entered into computers. Separate structure files were prepared for each country as follows: four tests (pupil and teacher reading and mathematics tests), three questionnaires (pupil, teacher, and school head), and two “tracking forms” (used to gather supplementary data about sample schools and sample pupils).

The SACMEQ II structure files were tested extensively throughout August-September 2000 so as to make sure that they contained the correct specifications for linking each variable with specific questionnaire and test items. This process included the specification of valid ranges for each variable so that “wild-codes” (that is, variable values that fall outside realistic ranges) could be intercepted as part of the on-going process of data entry.

Separate sets of structure files had to be prepared for each country – even though the same data collection instruments were employed in all countries. This occurred because each country had its own specific valid code ranges, and because some teacher information used for the identification of subject specialities and classes was country-specific.

The validated structure files and copies of the WINDEM data entry and data cleaning software were sent to NRCs during September 2000. These materials were accompanied by instructions on how to load the software and how to access the structure files. Where problems were encountered, the IIEP provided tutorial support via the Internet. By early October 2000 the NRCs had installed and tested all of these materials.

When the WINDEM software and associated structure files were fully operational, each NRC selected and trained a data entry team. This training was provided “on the job” whereby the data enterers were given completed data collection instruments to enter into computers. After the data enterers had completed data entry for the first 100 pupils their work was checked and discussed during a group meeting so as to clarify all instructions and to ensure that everybody was working carefully and accurately. At regular intervals, similar pauses were made in the data entry work in order to monitor progress and to ensure that standards of work were kept at the highest possible level.

If a data enterer submitted poor quality work then that person was given extra training or, in occasional cases, was removed from the data entry team.

### **Phase 8: Preparations for the Main Data Collection**

For the main SACMEQ II data collections each NRC was required to organize at least three days of intensive training for the data collectors. This was conducted for most SACMEQ countries in the period July-September 2000 – just prior to the commencement of the main data collection.

Between 15 and 50 data collectors were trained in most countries. On the first day of training the NRC presented a “simulated” data collection exercise in which he/she acted as a data collector and the trainees took the roles of pupils, teachers, and school heads. The second day involved an intensive study of the Manual for Data Collectors. This document set down, in sequential order, all of the actions to be taken by the data collector from the time of receiving packages of data collection instruments from the Ministry of Education to the time when the data collector had completed the data collection and was preparing all materials for return. The third day involved a second “simulated” data collection whereby the trainees supervised a full-fledged data collection in several schools that were not involved in the main data collection. The experiences gathered during these exercises were shared and discussed during a later meeting so that all data collectors understood the procedures to be completed within schools.

A special effort was made to ensure that the data collections were conducted according to explicit and fully-scripted steps so that the same verbal instructions were used (for pupils, teachers, and school heads) by the data collectors in all sample schools in all countries for each aspect of the data collection. This was a very important feature of the study because the validity of cross-national comparisons arising from the data analyses depended, in large part, on achieving carefully structured and standardized data collection environments.

Two other important matters related to preparing for the main data collection were to obtain formal permission to visit sample schools, and to manage the printing and packaging of a complete set of data collection instruments for each sample school.

The arrangement of permission to visit sample schools was a straightforward procedure because all Ministers had previously approved the implementation of the SACMEQ II Project.

When all instruments were printed, the NRCs conducted a “hand check” of all materials so as to verify that there were no missing pages or misprints or omissions. All work related to the printing and packaging of the data collection instruments was undertaken under strict security arrangements – so that there was no possibility of a “leakage” of information about the content of the pupil and teacher reading and mathematics tests.

The final task for this phase was to have NRCs establish expert committees with the mission of selecting subsets of “essential” pupil reading and mathematics test items that were central to the core curriculum in their country. These subsets of “essential” test items were designated for use at a later stage when the scoring of pupils would be undertaken on both the total test and the essential items (after they had been scaled appropriately using Rasch procedures). This task was completed before the main data collection because there was a need for decisions concerning the selection of essential items to be taken without being influenced by a knowledge of pupil performance on these items. The selection of “essential” reading and mathematics test items for the SACMEQ II Project has been summarized in Appendix B and Appendix C, respectively.

### **Phase 9: Implementation of the Main Data Collection**

The main SACMEQ II data collection occurred for 12 of the 15 SACMEQ Ministries of Education in the period September to December 2000. South African data was collected in September 2000 in all the 169 sample schools that were involved.

Two days of data collection were required for each sample school. On the first day pupils were given the pupil questionnaire and the pupil reading test, and on the second day they were given the mathematics test. These arrangements made it possible for the data collectors to check all completed questionnaires (pupil, teacher, and school head) during the evening of the first day and then, if necessary, obtain any missing or incomplete information on the second day. In some countries teachers were asked to



complete questionnaires and reading and mathematics tests. In South Africa teachers did not complete the tests.

The manual used by the data collectors contained detailed instructions concerning the random selection of 20 sample pupils and up to 6 sample teachers within schools. The data collectors were given intensive prior training in the strict application of these procedures. It was necessary to do this because the validity of the whole SACMEQ II data collection could have been seriously damaged if “outside influences” had been applied to selecting respondents. A further measure that was applied in order to avoid the inclusion of unknown biases into the data collection was to absolutely forbid the replacement of absent pupils.

The data collectors were provided with a 40-point checklist in order to ensure that they completed all important tasks that were required before, during, and after their visits to schools. Each task was cross-referenced to specific pages of instructions in the data collectors’ manual.

### **Phase 10: Data Checking, Data Entry, and Data Cleaning**

#### **(a) Data Checking and Data Entry**

Data preparation commenced soon after the main data collection was completed. The NRCs had to organize the safe return of all materials to the Ministry of Education where the data collection instruments could be checked, entered into computers, and then “cleaned” to remove errors prior to data analysis. The data-checking involved the “hand editing” of data collection instruments by a team of trained staff. They were required to check that: (i) all questionnaires, tests, and forms had arrived back from the sample schools, (ii) the identification numbers on all instruments were complete and accurate, and (iii) certain logical linkages between questions made sense (for example, the two questions to school heads concerning “Do you have a school library?” and “How many books do you have in your school library?”).

The next step was the entry of data into computers using the WINDEM software. A team of 5-10 staff normally undertook this work. In some cases the data were “double entered” in order to monitor accuracy.

The numbers of keystrokes required to enter one copy of each data collection instrument were as follows: pupil questionnaire: 150; pupil reading test: 85; pupil mathematics test: 65; teacher questionnaire: 587; teacher reading test: 51; teacher mathematics test: 43; school head questionnaire: 319; school form: 58; and pupil name form: 51.

This information can be re-expressed to give the total number of keystrokes for the whole body of data for one country by multiplying the above figures by the number of instruments in the final data collection. In the case of South Africa the total number of keystrokes was as follows: pupil questionnaire: 472 450; pupil reading test: 269 855; pupil mathematics test: 205 595; teacher questionnaire: 198 406; school head questionnaire: 62 361; school form: 9 802; and pupil name form: 161 313. That is, a total of 907 332 keystrokes were required to enter all of the data for South Africa.

An experienced keyboard operator can work at a rate of 25 keystrokes per minute (working from multi-paged questionnaires and stopping occasionally to clarify individual questionnaire entries with the supervisor). Assuming that this kind of work rate could be sustained for, say, around a maximum of six hours per day, then the whole data entry operation for South Africa was estimated to amount to around 101 person days of data entry work for South Africa.

There was a great deal of variation in the delivery dates of the initial versions of the computer-stored SACMEQ II data files at the IIEP. This occurred because of different testing dates and also because of different amounts of time required to complete entry of data into computers. The number of cycles and the amount of time required for the completion of the South African SACMEQ II data cleaning has been presented in Table 2.1.

**Table 2.1: Number of Cycles and Amount of Time Required for the Completion of SACMEQ II Data Cleaning.**

	<u>Date When Data Arrived</u>	<u>Date When Cleaning Finished</u>	<u>Number of Cleaning Cycles</u>	<u>Number of Months</u>
South Africa	9-Mar-01	26-Aug-02	22	18

**(b) Data Cleaning**

The NRCs received written instructions and follow-up support from IIEP staff in the basic steps of data cleaning using the WINDEM software. This permitted the NRCs to (i) identify major errors in the sequence of identification numbers, (ii) cross-check identification numbers across files (for example, to ensure that all pupils were linked with their own reading and mathematics teachers), (iii) ensure that all schools listed on the original sampling frame also had valid data collection instruments and vice-versa, (iv) check for “wild codes” that occurred when some variables had values that fell outside pre-specified reasonable limits, and (v) validate that variables used as linkage devices in later file merges were available and accurate.

A second phase of data preparation directed efforts towards the identification and correction of “wild codes” (which refer to data values that fall outside credible limits), and “inconsistencies” (which refer to different responses to the same, or related, questions). There were also some errors in the identification codes for teachers that needed to be corrected before data could be merged.

During 2002 a supplementary training programme was prepared and delivered to all countries via the Internet. This training led each SACMEQ Research Team step-by-step through the required data cleaning procedures – with the NRCs supervising “hands-on” data cleaning activities and IIEP staff occasionally using advanced software systems to validate the quality of the work involved in each data-cleaning step.

This resulted in a “cyclical” process whereby data files were cleaned by the NRC and then emailed to the IIEP for checking and then emailed back to the NRC for further cleaning. The figures presented in the final two columns of Table 2.1 show the number of cleaning “cycles” (that is the number of times that SACMEQ II data were

sent from a country to the IIEP for detailed checking and then returned to the country for further cleaning) and the total amount of time in months required to complete the data cleaning for each country. As has been reflected in Table 2.1, data cleaning in South Africa took 18 months. This was an excessively long period which could be explained by the fact that instruments were not properly completed. Thorough training of data collectors will help reduce this period in future studies.

### **Phase 11: Merging and Weighting**

As each NRC finalized the cleaning of the SACMEQ II data for his/her country, the data from all sources within a country were merged and weighted.

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. A detailed account of weighting procedures can be found in Ross et al (2003).

### **Phase 12: “Scoring” Literacy and Numeracy Levels**

A particularly innovative aspect of the SACMEQ II Project was its approach to presenting the literacy and numeracy performance of pupils in a manner that provided descriptive accounts of increasing levels of competence. This was made possible through the use of the Rasch scaling procedures - which permitted, for each test, the performance of pupils to be aligned along a single dimension that could be broken into groups or levels – each being named according to the skills required to successfully complete the items within each group. This method of defining reading and mathematics performance moved far beyond the traditional approach of assigning scores based on the number of correct test items.

The traditional approach to describing test performance is of limited use concerning the identification of specific strategies that can be understood by teachers who would like to plan either remediation programmes or performance improvement for their pupils. In contrast, the levels of competence approach provides meaningful descriptive information about the tasks that pupils can currently manage, and the knowledge and skills that pupils require if they are to move to higher levels of competence.

Four main steps were used in the SACMEQ II Project to define levels of competence. First, Rasch Item Response Theory was used to establish the difficulty value for each test item. Second, the NRCs subjected each test item to an intensive “skills audit” (in order to identify the required problem-solving mechanisms for each item “through a Grade 6 pupil’s eyes”). Third, the items were clustered into eight groups or “levels” that had similar difficulties and that required similar skills. Finally, the NRCs wrote

descriptive accounts of the competencies associated with each cluster of test items by using terminology that was familiar to ordinary classroom teachers. These four steps have been described in detail in Part C of this chapter.

The work undertaken to define the descriptive levels of competence was commenced at a meeting of NRCs and their Deputies in the Seychelles during June 2001. This work continued via the Internet and was eventually finalized at another follow-up meeting of the same participants that was held in Mauritius during December 2002. The major delay in finalizing this aspect of the work was due to the problem that the scaling of test scores using the Rasch technique required all countries to have completed their data cleaning.

When all data were available, it was possible to transform the Rasch scores to an international mean and standard deviation of 500 and 100, respectively. These two figures were established by using a special sampling weight that treated the samples in each country as if they were the same size.

### **Phase 13: Analysing the Data**

The data analyses for the SACMEQ II Project were very clearly defined because they were focussed specifically on generating results that could be used to “fill in the blank entries” in the Dummy Tables described above. There were two main tasks in this area. First, the SPSS software system was used to construct new variables (often referred to as “indices”) or to recode existing variables. For example, an index of “socioeconomic level” was constructed by combining recoded variables that described the educational level of the pupils’ parents, the materials used in the construction of pupils’ homes, and the number of possessions in pupils’ homes. Second, the IIEP’s specialized data analysis software, IIEPJACK, was used to “fill” the Dummy Tables with appropriate statistics along with their correct measures of sampling error.

### **Phase 14: Writing the SACMEQ II Policy Reports**

The NRCs commenced the process of drafting their national educational policy reports during early 2003. Two workshops (in Mauritius in December 2002 and in Paris during September 2003) were organized to support the NRCs in this work.

These workshops permitted the NRCs to work together and exchange ideas concerning the policy implications of the research results.

Some sections of the national reports, like Chapter 2 on “The Conduct of the SACMEQ II Project”, were written as “group tasks” because they described aspects of the SACMEQ II Project research programme that were common across countries. However, the tasks of reporting and interpreting the research results were undertaken on a country-by-country basis.

The general structure of the national reports was common across all SACMEQ countries. The 5 “themes” listed in Figure 2.1 were used as chapter titles, the 20 “General Policy Concerns” listed in Figure 2.1 were used within the chapters as main headings, and the 75 “Specific Research Questions” listed in Appendix A were used as sub-headings.

Throughout each national report the NRCs introduced “policy suggestions” based on the research results. In the final chapter these policy suggestions were drawn together into an “agenda for action” that grouped the suggestions according to timeframe and estimated costs. These ranged from low cost and easy to implement actions (for example: monitoring the implementation by schools of the policy on repetition of grades) up to long-term expensive investments (for example: providing classrooms and reducing inequitable distribution of learner: teacher ratios).

### **Part B: Sample Design Procedures for the SACMEQ II Project**

This part of the chapter has described the sample design procedures that were employed for the SACMEQ II Project. First, a detailed description has been presented of the step-by-step procedures involved in the design of the samples, the selection of the samples, and the construction of sampling weights. Second, information has been presented on the “evaluation” of the SACMEQ II sampling procedures - in terms of the calculation of response rates, design effects, effective sample sizes, and standard errors of sampling.

### **Some Constraints on Sample Design**

Sample designs in the field of education are usually prepared amid a network of competing constraints. These designs need to adhere to established survey sampling theory and, at the same time, give due recognition to the financial, administrative, and socio-political settings in which they are to be applied. 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. Only government or public schools were targeted in South Africa. 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) may be addressed through the use of appropriate sampling weights (Kish, 1965).

**Sampling Errors:** The sample estimates for the main criterion variables should conform to the sampling accuracy requirements set down by the International Association for the Evaluation of Educational Achievement (Ross, 1991). That is, 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 employing a simple random sample of 400 pupils (Ross, 1985).

**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.

### **The Specification of the Target Population**

The target population for both the SACMEQ I and SACMEQ II Projects was focussed on the Grade 6 level for three main reasons.

First, Grade 6 identified a point near the end of primary schooling where school participation rates were reasonably high for most of the seven countries that participated in the SACMEQ I data collection during 1995-1997, and also reasonably high for most of the fourteen countries that participated in the SACMEQ II collection during 2000-2002. For this reason, Grade 6 represented a point that was suitable for making an assessment of the contribution of primary schooling towards the literacy and numeracy levels of a broad cross-section of society.

The Net and Gross Enrolment Ratios for the period 1995 to 2003 have been presented for South Africa in Table 2.2

**Table 2.2: Net Enrolment Ratios and Gross Enrolment Ratios for South Africa**

	1995		1996		1997		1998		1999		2000		2001		2002		2003	
S/Africa	NER	GER	NER	GER	NER	GER	NER	GER	NER	GER	NER	GER	NER	GER	NER	GER	NER	GER
	n/a	n/a	n/a	n/a	n/a	n/a	n/a	N/a	96	106	97	99	97	117	n/a	n/a	n/a	n/a

**Note:** The figures in the table were extracted by the SACMEQ National Research Coordinator (NRC) from official Ministry of Education reports. In other cases data were “not available” at the time (denoted as n/a).

Second, the NRCs considered that testing pupils at grade levels lower than Grade 6 was problematic – because in some SACMEQ countries the lower grades were too close to the transition point between the use of local and national languages by teachers in the classroom. This transition point generally occurred at around Grade 3 level – but in some rural areas of some countries it was thought to be as high as Grade 4 level.

Third, the NRCs were of the opinion that the collection of home background information from pupils at grade levels lower than Grade 6 was likely to lack validity for certain key “explanatory” variables. For example, the NRCs felt that children at lower grade levels did not know how many years of education that their parents had received, and they also had difficulty in accurately describing the socioeconomic environment of their own homes (for example, the number of books at home).

#### **(a) Desired Target Population**

The desired target population definition for the SACMEQ II Project was exactly the same (except for the year) as was employed for the SACMEQ I Project. This consistency was maintained in order to be able to make valid cross-national and cross-time estimates of “change” in the conditions of schooling and the quality of education.

The desired target population definition for the SACMEQ II Project was as follows.

*“All pupils at Grade 6 level in 2000 (at the first week of the eighth month of the school year) who were attending registered mainstream (primary) schools.”*

The desired target population definition for both SACMEQ Projects was based on a grade-based description (and not an age-based description) of pupils. This decision was taken because an age-based description (for example, a definition focussed on “12 year-old pupils”) may have required the collection of data across many grade levels due to the high incidence of “late starters” and grade repetition. The NRCs also decided that the calculation of “average” descriptions of the quality of education and the conditions of schooling across many grade levels would lack meaning when used for comparative purposes.

It is important to note that while the emphasis in the definition of the desired target population was placed on pupils, the two SACMEQ Projects were also concerned with reporting estimates that described schools and teachers. When the data files were prepared for analysis, the information collected about schools and teachers was disaggregated over pupils - so as to provide estimates of teacher and school characteristics “for the average pupil” – rather than estimates for teachers and schools as distinct target populations in themselves.

### **(b) Excluded and Defined Target Populations**

The use of the word “mainstream” in the definition of the desired target population automatically indicated that special schools for the handicapped should be excluded from the SACMEQ II data collection.

In addition, a decision was taken to exclude small schools – based on the definition of having less than either 15 or 20 pupils in the desired target population. Small schools were excluded because it was known that they represented a very small component of the total population of pupils, and were known to be mostly located in very isolated areas that were associated with high data collections costs. That is, it was understood that the allocation of these small schools to the excluded population had the potential to reduce data collection costs – without the risk of leading to major distortions in the study population.

South Africa applied the rules such that schools with fewer than 20 Grade 6 pupils and special schools were excluded.

The “defined target population” was constructed by removing the “excluded target population” from the “desired target population”. In Table 2.3 the numbers of schools and pupils in the desired, defined and excluded populations for South Africa have been presented.

The final column in Table 2.3 reflected the percentage of the South African pupils desired target population that had been excluded in order to form the defined target population. The percentage excluded was less than 5 percent - which satisfied the technical requirements that had been set down for the SACMEQ sampling procedures.

**Table 2.3:** Desired, Defined, and Excluded Populations for South Africa

	Desired		Defined		Excluded		
	Schools	Pupils	Schools	Pupils	Schools	Pupils	Pupils %
<b>South Africa</b>	17073	962350	11997	920020	5076	42330	4.4

The fairly large number of schools that were excluded (viz. 5076) was largely due to the fact that there were many farm and rural schools with less than 20 Grade 6 learners on the roll. So, although the number of excluded schools was high, the total number of Grade 6 learners in these schools comprised less than five percent of the defined population.

### **The Stratification Procedures**

The stratification procedures adopted for the study employed explicit and implicit strata. The explicit stratification variable, “Region (Province in the case of South Africa)”, was applied by separating each sampling frame into separate regional lists of schools prior to undertaking the sampling. The implicit stratification variable was “School Size” – as measured by the number of Grade 6 pupils.

The main reason for choosing Region as the explicit stratification variable was that the SACMEQ Ministries of Education wanted to have education administration

regions as “domains” for the study. That is, the Ministries wanted to have reasonably accurate sample estimates of population characteristics for each region.

There were two other reasons for selecting Region as the main stratification variable. First, this was expected to provide an increment in sampling precision due to known between-region differences in the educational achievement of pupils – especially between predominantly urban and predominantly rural regions. Second, this approach provided a broad geographical coverage for the sample – which was necessary in order to spread the fieldwork across each country in a manner that prevented the occurrence of excessive administrative demands in particular regions.

The use of School Size as an implicit stratification variable within regions also offered increased sampling precision because it provided a way of sorting the schools from “mostly rural” (small schools) to “mostly urban” (large schools). It was known that this kind of sorting was linked to the main criterion variables for the study – with urban schools likely to have higher resource levels and better pupil achievement scores than rural schools.

### **Sample Design Framework**

The SACMEQ II sample designs were prepared by using a specialized software system (SAMDEM) that enabled the high-speed generation of a range of sampling options which satisfied the statistical accuracy constraints set down for the project, and at the same time also addressed the logistical and financial realities of each country.

In order to establish the number of schools and pupils that were required to satisfy SACMEQ’s sampling accuracy standards, it was necessary to know the magnitude of (a) the minimum cluster size, and (b) the coefficient of intraclass correlation.

#### **(a) Minimum Cluster Size**

The value of the minimum cluster size referred to the smallest number of pupils within a school that would be included in the data collection. It was important that this was set at a level that permitted test administration within schools to be carried out in an environment that ensured that: (i) the test administrator was able to conduct the

testing according to the standardized procedures specified for the study, (ii) the sample members were comfortable and unlikely to be distracted, (iii) the sample members responded carefully and independently to the tests and questionnaires, and (iv) the testing did not place an excessive administrative burden on schools.

After a consideration of these four constraints the SACMEQ National Research Coordinators decided to limit the sample in each selected school to a simple random sample of 20 pupils.

### **(b) Coefficient of Intraclass Correlation**

The coefficient of intraclass correlation ( $\rho$ ) referred to a measure of the tendency of pupil characteristics to be more homogeneous within schools than would be the case if pupils were assigned to schools at random. The estimated size of  $\rho$  may be calculated from previous surveys that have employed similar target populations, similar sample designs, and similar criterion variables.

The values of  $\rho$  for educational achievement measures are usually higher for education systems where pupils are allocated differentially to schools on the basis of performance – either administratively through some form of “streaming”, or structurally through socio-economic differentiation among school catchment zones. In general terms, a relatively large value of  $\rho$  means that, for a fixed total number of sample members (pupils in this study), a larger number of primary sampling units (schools in this study) needs to be selected in order to obtain the same sampling precision as would be obtained for a relatively lower value of  $\rho$ . That is, higher values of  $\rho$  normally require larger numbers of schools to be selected into the sample.

Following a consideration of the results of the SACMEQ I Project, it was decided to use  $\rho$  values in the range of 0.3 to 0.4 as an estimate of the value of the coefficient of intraclass correlation for most of the countries involved in the SACMEQ II Project. An exception to this was made for Namibia – where calculations based on SACMEQ I data indicated that a value of  $\rho = 0.6$  should be used.

Because South Africa did not participate in SACMEQ I nor did the country have similar previous studies, an estimate value of  $\rho=0.40$  was used but was later found to be grossly inaccurate. It was later found that a value of 0.70 should have been used. This is the value that should be used in future studies.

Overall the South African sample satisfied most of the SACMEQ requirements save sample size.

### **(c) Sample Design Tables**

In Appendix D, a set of Sample Design Tables has been presented for various values of the minimum cluster size and various values of the coefficient of intraclass correlation. The construction of the tables has been described by Ross (1987). It is important to remember that the tables refer specifically to two-stage sample designs that employ simple random sampling of equal-sized clusters. They provide a good starting point for estimating the number of schools and pupils/learners that are required in order to meet the sample design standards specified for many educational research studies.

### **Construction of Sampling Frames**

Work commenced on the construction of SACMEQ II sampling frames in January 2000. The defined target population definition was used to guide the construction of sampling frames from which the samples of schools were selected. The South African sampling frame was based on the most recent EMIS data that included information about: school identification numbers, enrolment for the target population of Grade 6 learners, and school location in the province.

### **The Selection of Schools**

The lottery method of “probability proportional to size” (PPS) selection was implemented in the SACMEQ II Project with the assistance of SAMDEM software (Sylla et al, 2003). The steps taken in selecting schools using this method have been described in Ross et al (2003). The PPS approach commences with the sampling of schools within strata (provinces in the case of South Africa) followed by the selection of a simple random sample of a fixed number of learners within the schools. The

approach provides control over the sample size and results in “equal probability of sampling method” (epsem) sampling of learners within strata.

A summary of the planned and achieved samples of schools and pupils in South Africa has been given in Table 2.4.

**Table 2.4: Planned and Achieved Samples for SACMEQ II in South Africa**

South Africa	SACMEQ II			
	Schools		Pupils	
	Planned	Achieved	Planned	Achieved
	185	169	3700	3163

Mention has already been made that the achieved sample fell below the required SACMEQ minimum because of cost and human resource constraints.

### **The selection of Pupils within Schools**

A critical component of the sample design for the SACMEQ II Project was concerned with the selection of pupils within selected schools. It was decided that these selections should be placed under the control of trained data collectors – after they were provided with materials that would ensure that a simple random sample of pupils was selected in each selected school. The data collectors were informed that it was not acceptable to permit school principals or classroom teachers to have any influence over the sampling procedures within schools. These groups of people may have had a vested interest in selecting particular kinds of pupils, and this may have resulted in major distortions of sample estimates (Brickell, 1974).

In the two SACMEQ Projects the data collectors initially explained to School Heads in selected schools that a “mechanical procedure” would be used to select the sample of 20 pupils. The data collectors then applied the following set of instructions in order to ensure that a simple random sample of pupils was selected.

*Step 1: Obtain Grade 6 register(s) of attendance.*

These registers were obtained for all Grade 6 pupils that attended normal (not “special”) classes.



*Step 2: Assign sequential numbers to all Grade 6 pupils.*

A sequential number was then placed beside the name of each Grade 6 pupil. For example: Consider a school with one session and a total of 48 pupils in Grade 6. Commence by placing the number “1” beside the first pupil on the Register; then place the number “2” beside the second pupil on the Register; ...etc. ...; finally, place the number “48” beside the last pupil on the Register.

*Step 3: Locate the appropriate set of selection numbers.*

In Appendix E sets of “selection numbers” have been listed for a variety of school sizes. (Note that only the sets relevant for school sizes in the range 21 to 245 have been presented.) For example, if a school had 48 pupils in Grade 6, then the appropriate set of selection numbers was listed under the “R48” heading. Similarly, if a school had 90 Grade 6 pupils then the appropriate set of selection numbers was listed under the “R90” heading.

*Step 4: Use the appropriate set of selection numbers.*

After locating the appropriate set of selection numbers, these were used to select the sample of 20 pupils. The first selection number was used to locate the Grade 6 pupil with the same sequential number on the Register(s). The second selection number was used to locate the Grade 6 pupil with the same sequential number on the Register(s). This process was repeated in order to select 20 pupils

For example: From Appendix E we see that in a school with a total of 50 pupils in Grade 6 the first pupil selected has sequential number “2”; the second pupil selected has sequential number “4”; ... etc. ...; the twentieth pupil selected has sequential number “50”.

## **Evaluation of the SACMEQ Sample Designs**

### **(a) Response Rates**

In Table 2.4 the size of the planned and achieved samples have been presented for South Africa in the SACMEQ II Project. The value of the achieved sample size as a percentage of the planned sample size represents the “response rate”. The response rate percentages for pupils and schools have been presented for South Africa in the SACMEQ II Project in Table 2.5. The technical requirement for the SACMEQ research programme was that all countries should seek to achieve overall response

rates of 90 percent for schools and 80 percent for pupils.

The SACMEQ II response rates for South Africa as presented in Table 2.7 showed that the country satisfied the required response rate for schools (91%) and pupils (85%).

**Table 2.5: Response Rates, Design Effects, Effective Sample Sizes for South Africa in SACMEQ II**

	Response Rate (%)		Design Effect		Effective Sample Size	
	Schools	Pupils	Reading	Math	Reading	Math
<b>South Africa</b>	91	85	17.1	13.6	185	230

The values of the “design effect” and the “effective sample size” have also been presented in Tables 2.5. To illustrate, consider the design effect and effective sample size values in Table 2.5 for the pupil average reading score for South Africa overall. The design effect for this variable was 17,12, which indicated that the variance of the sample estimate of the variance of pupil reading scores for South Africa was 17,12 times larger than would be expected for a simple random sample of the same size (3163 pupils). The effective sample size for this variable indicated that the complex sample of 3163 pupils had a sampling variance that was the same as would have been obtained by employing a simple random sample of 185 pupils.

### **Part C: The Construction of Tests for the SACMEQ II Project**

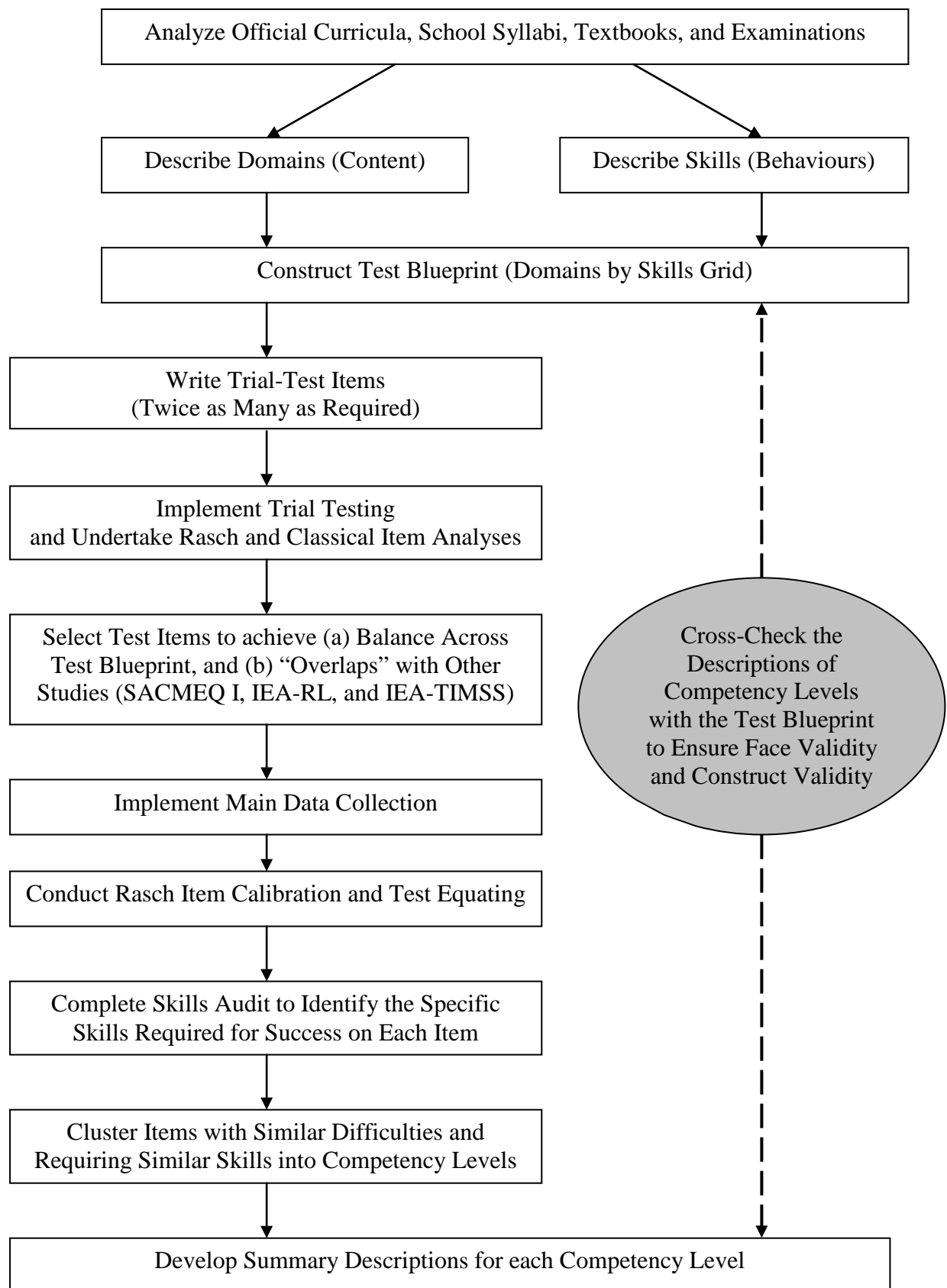
#### **The Main Steps in Test Construction**

Part C provides information about the construction of the SACMEQ II reading and mathematics tests for pupils and teachers, and the scaling procedures that were used to calibrate test items and to permit pupil and teacher performance to be described in terms of hierarchies of competencies.

The test construction for both SACMEQ I and SACMEQ II was undertaken carefully so as to ensure that 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 SACMEQ II tests for pupils and teachers included “overlapping” test items selected from five earlier studies: the Zimbabwe Indicators of the Quality of Education Study (Ross, 1995), the SACMEQ I and SACMEQ II Projects, the IEA’s Third International Mathematics and Science Study (TIMSS) (Mullis et al, 2001), and the IEA’s International Study of Reading Literacy (IRL) (Elley, 1992). These “overlaps”, when combined with Rasch item analysis and test scoring techniques, made it possible to make valid comparisons among the following groups of respondents: pupils with teachers in the SACMEQ II Project, pupils in the SACMEQ I Project with pupils in the SACMEQ II Project, and pupils in both SACMEQ Projects with pupils in the IEA’s TIMSS and IRL studies. In Appendix F and Appendix G the overlaps of test items across all of these studies have been presented in tabular form.

In Figure 2.3 the key steps involved in constructing the SACMEQ II tests have been presented in diagrammatic form. The main aim of this process was to ensure high levels of face validity and construct validity by achieving congruence between the test blueprint (prepared as a framework for test construction) and the descriptions of increasing levels of competence generated from a Rasch analysis of the item difficulty levels in combination with a skills audit of test items.



**Figure 2.3: Main Steps Involved in Test Construction for the SACMEQ II Project**

## **The Structure of the SACMEQ II Reading Tests**

### **(a) The Definition of “Reading Literacy”**

In the SACMEQ II Project “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 agreed definition that was used by the 35 countries that participated in the International Reading Literacy Study that was conducted by the International Association for the Evaluation of Educational Achievement (Elley, 1992). It was also the general definition accepted by the SACMEQ National Research Coordinators (NRCs) for the SACMEQ I Project. The NRCs found this definition to be general enough to accommodate the diversity of traditions and languages represented in the SACMEQ countries, and yet still sufficiently specific to provide guidance for test construction.

### **(b) The Three Reading Domains**

In both SACMEQ Projects there was an initial detailed curriculum analysis undertaken across all countries in order to define – after exhaustive discussion of the most important skills contained within the reading curricula at Grade 6 level - the reading skills that were considered by all countries to be the most important. The NRCs invested a great deal of time in this process because they wanted to enhance the validity of the tests by ensuring that they provided a balanced coverage of the main reading domains and the required reading skills. The NRCs decided to accept the three broad content domains for reading literacy (presented in Figure 2.4) that had been adopted for the International Reading Literacy Study, and also previously applied by the NRCs in the SACMEQ I Project.

**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.

**Figure 2.4:** **The Three Domains for the SACMEQ II Reading Test**

**(c) A “Proposed” Hierarchy of Reading Skills**

It was decided that the construction of the SACMEQ II test should draw upon advanced psychometric procedures that would enable the establishment of a meaningful dimension of increasing competence that could be applied to both the SACMEQ I and II reading tests. This outcome was highly desirable because it permitted valid comparisons to be made of the reading performance of countries across the two projects.

**Level 1:** Pupils at this level should be able to link words and pictures where the pictures depict common objects of a “concrete” nature.

**Level 2:** Pupils at this level should be able to link words to more abstract concepts such as propositions of place and direction, and, perhaps, ideas and concepts such as comparatives and superlatives (happiest, biggest, below, etc.)

**Level 3:** Pupils at this level should be able to link words (such as a phrase or short sentence) from one setting to words in another setting where there is a word match between the two settings.

**Level 4:** Pupils at this level should be able to deal with longer passages of text that contain a sequence of ideas and content, and that require understanding derived from an accumulation of information gathered by reading forward.

**Level 5:** Pupils at this level should be able to read forwards or backwards through a text in order to: confirm understanding, or link new information with a piece of information encountered previously, or link ideas from separate parts of a text, or demonstrate the capacity to infer an author’s intention.

**Figure 2.5: The “Proposed” Skill Levels for the SACMEQ II Reading Test**

The first step in achieving this result was to undertake an intensive examination of curricula in order to identify descriptive skill levels that would define a recognizable and meaningful dimension. This dimension, taken in combination with the three domains of reading, formed a framework (or blueprint) for the construction of suitable test items. Five reading skill levels were identified as shown in Figure 2.5. This step may be described as building a “proposed” hierarchy of reading skills.

#### **(d) Constructing the Test Blueprint by Combining Domains with Skill Levels**

The NRCs recognized that each of the skill levels specified in Figure 2.5 needed to be carefully interpreted within the context of the kind of text (or reading domain) that was being encountered by pupils. That is, for any single level, the description of the skills had to be refined in order to more closely reflect whether the reader was dealing with, for example, a fictional story (narrative), a factual account (expository), or a graph, chart, or diagram (document). The NRCs deliberated on this matter for some time and then proceeded to examine the intersections of the three reading domains (Figure 2.4) with the five skill levels (Figure 2.5) in order to form the test blueprint (Figure 2.6).

Skill Level	Reading Domain			
	Narrative	Expository	Documents	
<b>Level 1</b>	Word/picture association involving positional or directional prepositions requiring the linkage of a picture to a position or a direction in order to answer the question	Word/picture association involving positional or directional prepositions requiring the linkage of a picture to a position or a direction in order to answer the question	Word/picture association involving positional or directional prepositions requiring the linkage of a picture to a position or a direction in order to answer the question	
<b>Items</b>	2	2	2	6
<b>Level 2</b>	Recognising the meaning of a single word and being able to express it as a synonym in order to answer the question	Recognising the meaning of a single word and being able to express it as a synonym in order to answer the question	Linking simple piece of information to item or instruction	
<b>Items</b>	7	6	9	22
<b>Level 3</b>	Linking information portrayed in sequences of ideas and content, when reading forward	Linking information portrayed in sequences of ideas and content, when reading forward	Systematic search for information when reading forward	
<b>Items</b>	8	10	8	26
<b>Level 4</b>	Seeking and confirming information when reading backwards through text	Seeking and confirming information when reading backwards through text	Linking more than one piece of information in different parts of a document	
<b>Items</b>	9	5	4	18
<b>Level 5</b>	Linking ideas from different parts of text. Making inferences from text or beyond text, to infer author's values and beliefs	Linking ideas from different parts of text. Making inferences from text or beyond text.	Use of embedded lists and even subtle advertisements where the message is not explicitly stated	
<b>Items</b>	6	3	2	11
<b>Total Items</b>	32	26	25	83

The skill descriptions in each cell of the blueprint showed how reading behaviour increased in complexity through each of the five skill levels for each of the three domains. The numbers of items in the cells in Figure 2.6 were approximately in proportion to the time spent on parts of the reading curriculum in the SACMEQ countries, and they reflected the advice received from national curriculum experts.



**Figure 2.6: The Test Blueprint for the SACMEQ II Pupil Reading Test**

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.

**The Structure of the SACMEQ II Mathematics Tests**

**(a) The Definition of “Mathematics Literacy”**

In the SACMEQ II Project “mathematics literacy” was defined as “the capacity to understand and apply mathematical procedures and make related judgements as an individual and as a member of the wider society.”

This broad interpretation – with an emphasis on both understanding and decision-making – was prepared to ensure that the mathematics tests were not overly concentrated on mechanical rules and calculations. It was derived by the NRCs following an analysis of the mathematics content domains specified by the International Association for the Evaluation of Educational Achievement (IEA) (Mullis et al., 2001) and the Organization for Economic Cooperation and Development (OECD, 2000). These two frameworks were constructed with widespread participation and reviews by educators around the world – and took into consideration the intended (school system) curriculum, the implemented (school level) curriculum, and the attained curriculum. The IEA identified five mathematics domains: number, algebra (which at the primary school level was called “patterns, equations, and relationships”), measurement, geometry, and data. In contrast the OECD focussed on what their research teams referred to as the “big ideas” in primary school: “change and growth” and “space and shape”.

**(b) The Three Mathematics Domains**

Unlike the OECD study - which focussed on more generic skills, the SACMEQ II Project was concerned with skills related to the school curriculum. The SACMEQ NRCs therefore used the slightly more detailed IEA domains as a beginning point for an extensive investigation of curricula, textbooks, and examinations for Grade 6 pupils within SACMEQ school systems. On the basis of this work the IEA framework

was modified in order to bring it into alignment with what was actually being taught in SACMEQ classrooms in Southern and Eastern Africa. The first IEA domain, “number”, was retained. The second, “algebra”, was not seen as being relevant at the Grade 6 level in African schools, and was therefore removed. The third, “measurement”, was retained. The fourth, “geometry”, was re-expressed by the NRCs as “space” and then combined with the IEA’s fifth domain of “data” to form a domain of “space-data”.

The final domains selected by the NRCs for the SACMEQ II mathematics tests were focussed on the three areas listed in Figure 2.7.

**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.

**Figure 2.7: The Three Domains for the SACMEQ II Mathematics Test**

### **(c) A “Proposed” Hierarchy of Mathematics Skills**

A detailed investigation of the tasks given to pupils (problems, exercises, test questions, exam questions, etc.) across curricula for the 15 SACMEQ school systems enabled the NRCs to specify a set of descriptive skill levels that defined a recognizable and meaningful dimension of mathematics performance. A total of five mathematics skill levels were identified as shown in Figure 2.8. This step may be described as building a “proposed” hierarchy of mathematics skills.

**Level 1:** Pupils at this level should be able to identify simple shapes and link simple patterns and shapes to simple digits, to recognize units of measurement, to name basic shapes, and to undertake simple single operations using up to two-digit numbers.

**Level 2:** Pupils at this level should be able to recognize simple fractions in both numerical and graphical forms, to identify data presented in tables, to make basic calculations using simple measurement units, and to understand numeration with simple computations.

**Level 3:** Pupils at this level should be able to extend and complete number patterns, to translate shapes and patterns, and to convert measurement units when making simple single-step calculations.

**Level 4:** Pupils at this level should be able to combine operations in order to link information from tables and charts in performing calculations, to apply two or three-step number operations applied to measurement and conversion problems, and to identify and use appropriate information in the subsequent steps of a calculation.

**Level 5:** Pupils at this level should be able to make calculations and interpretations linking data from tables and graphs, and to make computations involving several steps and a mixture of operations using fractions, decimals, and whole numbers.

**Figure 2.8: The “Proposed” Skill Levels for the SACMEQ II Mathematics Test**

#### **(d) Constructing a Mathematics Test Blueprint by Combining Domains with Skill Levels**

The NRCs followed the approach used for the construction of the reading tests by combining the mathematics skill levels with mathematics domains to develop a test blueprint. For each skill level this provided a tighter definition of competencies by linking mathematical content to mathematical skills. The level of complexity and skill required also increased within each domain from level to level.

Following extensive discussions and consultations with mathematics education specialists, the NRCs produced Figure 2.9 – which linked domains with skills and gave guidance for the numbers of test items that were required. There were fewer test questions for the mathematics test because each item represented an individual separate task – whereas the reading test was actually based on single passages of text – each of which was attached to sets of items. 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.

Skill Level	Mathematics Domain			
	Number	Measurement	Space-Data	
<b>Level 1</b>	Recognize numbers. Link patterns to numbers.			
<b>Items</b>	6	0	0	6
<b>Level 2</b>	Apply single operations to two digit numbers or simple fractions. Recognize units of measurement. Apply basic calculations using simple measurement units. Link patterns and graphs to single digits. Recognize and name basic shapes.			
<b>Items</b>	8	8	4	20
<b>Level 3</b>	Extend and complete number patterns. Convert measurement units when undertaking one-step operations. Translate shapes and patterns. Identify data in tabular form.			
<b>Items</b>	6	4	7	17
<b>Level 4</b>	Combine arithmetic operations in order to link information from tables and charts when performing calculations. Apply two and three-step arithmetic operations to numbers. Use and convert measurement units. Combine arithmetic operations in order to link information from tables and charts.			
<b>Items</b>	4	4	4	12
<b>Level 5</b>	Combine operations in order to make calculations involving several steps and a mixture of operations using combinations of fractions, decimals, and whole numbers. Combine operations in order to make calculations involving several steps and a mixture of operations using a translation of units. Link data from tables and graphs in order to make calculations involving several steps and a mixture of operations.			
<b>Items</b>	3	2	3	8
<b>Total Items</b>	27	18	18	63

**Figure 2.9: The Test Blueprint for the SACMEQ II Pupil Mathematics Test**

### **Constructing “Overlapped Tests” to Use in Scaling**

When the NRCs had completed the reading and mathematics test blueprints, they 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 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.

Details of how the overlapping of test items was done and how the Rasch Model was used to match learner ability with item difficulty so as to arrive at levels of competency for both Reading and Mathematics can be found in Ross (2003) on the SACMEQ website.

### **Conclusion**

This aim of this Chapter was to describe the research procedures that were applied for the execution of the SACMEQ II Project. The Chapter was prepared in three parts that covered the fourteen main phases of the research, the sample design procedures, and the construction of the reading and mathematics tests for pupils and their teachers.

The first part of the Chapter described how the SACMEQ II Project commenced with an innovative “pre-planning” phase that underpinned the whole research design. During this phase key decision-makers in Ministries of Education were consulted concerning their “General Policy Concerns” – which were then collated across

countries, grouped into five themes, and used as a foundation for the whole of the data collection and the research reporting procedures.

One of the important messages that emerged from this part of the Chapter was that the speed at which a cross-national research project proceeds is strongly influenced by the speed with which the slowest country can complete all aspects of its data collection and data preparation.

The second part of the Chapter on sampling included an evaluation of the sampling procedures. The evaluation showed that South Africa did not satisfy some of the sampling accuracy requirements that had been set down for the SACMEQ II Project – by not achieving an equivalent sample size of 400 pupils. The accuracy of the sampling in South Africa fell far below the 400 target – achieving an equivalent sample size of only 230 . These results indicated that care should be exercised in interpreting the reading and mathematics achievement levels that were obtained for South Africa , and also that even more care should be taken when examining within-country provincial differences.

The third part of the Chapter provided a detailed description of how the SACMEQ II Project moved away from traditional approaches to the calculation of test scores (based on numbers of correct responses to test items) towards the use of Modern Item Response Theory to generate descriptions of “levels of increasing pupil competence”. This approach to describing pupil reading and mathematics achievement offered a mechanism for describing the performance of pupils in a manner that was more meaningful within a teaching and learning context.

## Chapter 3

### Characteristics of Learners and their Learning Environment

#### **Introduction**

In this chapter a description has been given of some of the characteristics of the sampled learners and their learning environment. Social, political and economic contexts in which schooling takes place are known to have considerable impact on learning. There is universal agreement that the kinds of skills, knowledge, values and attitudes that learners develop are influenced, to a large extent, by the kinds of interactions that take place between learner's personal characteristics and their social environment. A comprehensive description of learners' personal characteristics and a clearly mapped out account of the context in which learning and teaching take place will assist, first in a meaningful interpretation of the Grade 6 learners' scholastic achievements as presented in Chapter 7 and secondly, in planning appropriate and targeted intervention strategies.

The presentation has been organised to respond to five general policy concerns and related specific research questions that guided the manner in which the data on learners' personal characteristics and their learning environment was interrogated. The findings for South Africa overall and the individual provinces have been presented. Some explanatory observations and, where appropriate, policy suggestions were made in response to the findings.

#### **A note on the interpretation of the data analyses in this report**

The data in this report have been presented to provide baseline information on the "context" of teaching and learning at the Grade 6 level. The baseline information will be used to track trends in levels and distribution of data over time.

As it was explained in Chapter 2, the sample was drawn in order to yield standard errors of sampling for learners in Grade 6 in South Africa, such that a sample estimate of a population percentage would have a standard error (SE) of  $\pm 2,5$  percent. It is very important, therefore, that each statistic is interpreted in association with its sampling error. For this level of sampling accuracy we can be sure 19 times out of 20 that the population value of a percentage

lies within  $\pm 5$  percent ( $\pm 2 \times 2,5\% = \pm 5\%$ ) of the estimate derived from the sample. The sampling errors for means have been also given in the tables and the same principle applies.

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

### **General Policy Concern 1:**

#### **What were the personal characteristics and home background characteristics of Grade 6 learners that might have implications for monitoring equity, and/or that might impact upon teaching and learning?**

Studies conducted at different times in different education systems have shown that, besides personal characteristics, home background is one contextual factor that influences to a large extent learners' achievement in their schoolwork. Home background includes - but may not be limited to - measures such as the levels of material possessions at home, the education of parents and the nutrition that learners have to sustain their physical health. Whilst no claim of causal relationships between these measures and learner achievement in schoolwork is made, it is logical to expect that, for instance, learners from homes with a combination of higher levels of possessions and higher levels of parents' education would have greater opportunities and learning support than those from homes with lower levels of these measures. The following specific research questions pertaining to the personal characteristics and home background of learners that might impact upon equity in teaching and learning were explored.

#### **What was the age distribution of learners?**

The average age of the Grade 6 learners in months for South Africa overall and the provinces have been presented in the first column of Table 3.1.



**Table 3.1** Means, percentages and sampling errors for learner personal and home-related characteristics

Province	Age				Books		Possessions		Meals		Parent Education	
	(months)		(female)		at home		at home		(index)		(Index)	
	Mean	SE	%	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE
Eastern Cape	164,2	2,03	49,1	2,60	24,1	4,33	5,4	0,44	10,1	0,19	3,5	0,14
Free State	160,7	1,88	50,9	1,63	27,4	6,80	6,6	0,39	10,9	0,36	3,3	0,31
Gauteng	151,4	1,54	52,7	3,72	45,2	7,51	8,5	0,46	10,6	0,16	4,6	0,20
KwaZulu Natal	155,1	1,50	53,4	2,26	29,2	6,88	6,5	0,60	10,8	0,15	3,9	0,16
Mpumalanga	160,6	1,85	49,0	1,69	30,3	6,61	5,3	0,55	10,0	0,41	3,5	0,16
Northern Cape	159,7	2,76	45,8	3,66	12,0	2,92	6,7	0,35	10,8	0,27	3,6	0,18
Limpopo	161,3	1,61	56,4	3,33	37,8	6,45	5,2	0,51	10,2	0,32	3,5	0,14
North West	149,0	2,40	52,0	2,15	22,1	4,78	5,9	0,39	10,3	0,27	3,5	0,11
Western Cape	149,5	1,14	56,2	2,47	49,2	7,54	9,6	0,39	11,1	0,07	4,8	0,15
<b>South Africa</b>	<b>156,9</b>	<b>0,69</b>	<b>52,5</b>	<b>1,00</b>	<b>32,9</b>	<b>2,36</b>	<b>6,6</b>	<b>0,20</b>	<b>10,5</b>	<b>0,08</b>	<b>3,8</b>	<b>0,07</b>

At the national level, the average Grade 6 learner was 156,9 months old (13 years and one month), which was to be expected if learners had started school at the official age of 7 years or later and taking the repetition of a grade into account.

North West and Western Cape were two provinces where compliance with the age requirement for admission appeared to be reasonably consistent and the average Grade 6 learner's age was comparable to the expected value. Four provinces - Eastern Cape, Limpopo, Free State and Mpumalanga - in descending order, had particularly high learner average ages which, as would be expected, pushed the national average age well above the norm. A common feature among these provinces is that they have many schools in predominantly rural or farming communities.

The apparent presence of over-age learners in the predominantly rural provinces as indicated by mean ages higher than 156,9 months can be attributed to a number of factors. Firstly, in some instances, learners in rural schools travel significant distances to and from school. The tendency is for parents to delay sending children to school until they are old and strong enough to walk long distances. Although there have been phenomenal improvements in public transport across the country, many rural parents with low or no income might still not afford the cost. Secondly, repetition rates, as reflected in Table 3.2 and discussed later,

appeared to be unacceptably high and could account for over-age learners. With proper monitoring of the implementation of the policy on grade progression as stipulated in the South African Schools Act (1996), more learners will be able to progress with their age cohorts and over-age learners can be reduced significantly.

### **What was the gender distribution of learners?**

The percentages of female learners who participated in the study have been given for South Africa overall and the provinces in the second column of Table 3.1.

For South Africa overall, girls constituted 52,5 percent of the Grade 6 learners in the sample. For this percentage and the corresponding standard error (SE) of 1 as reflected in the last row of Table 3.1, it could be inferred with a 95 percent level of confidence that South African Grade 6 female learners in public schools were between 50,5 percent and 54,5 percent of the entire Grade 6 learner population of 2000. Northern Cape had the lowest percentage of girls in Grade 6 (45,8%) and was followed in this trend by Mpumalanga and Eastern Cape - each with about 49 percent girls. For the rest of the provinces the percentage of females distinctly exceeded that of males. Limpopo and Western Cape had significantly higher percentages of female than male Grade 6 learners.

According to Education Statistics in South Africa at a Glance in 2000 (2002), the Gender Parity Index (GPI) for South African public and independent primary schools (7-13 year olds) was 0,97 in 2000. This meant that, in proportion to the appropriate school-age population, there were 3 percent (0,03) fewer female than male learners at the primary sector of the formal school system. However, the findings in this survey (more female than male learners in Grade 6) suggest that for public schools alone different statistics could emerge.

The relatively lower overall participation of boys in education – and specifically in the majority of the provinces - can partly be ascribed to social responsibilities that are often assigned to male children in many South African communities. In subsistence farming communities in particular, boys are forced to leave school and tend livestock, which is often a major source of livelihood. However, in this survey the reported average levels of livestock per household, including households in typical rural provinces, tended to be uncharacteristically low. Further pointed investigations could be carried out to establish

whether the apparently low participation of boys in education in rural provinces can be associated with their simultaneous participation in farming activities.

In the three mainly rural provinces - Northern Cape, Eastern Cape and Mpumalanga - where there were significantly fewer girls than boys in the schools, the reason could be sought from the tendency of parents in some communities to assign more household chores and responsibilities to girls and thus keep them away from school. The practice of parents withdrawing their daughters from school and giving them in arranged marriages at a very tender age could also account for the low participation of girls. These possibilities need further investigation and alternatives must be found to enable all children of school-going age to participate in education, as the law requires it.

**Policy Suggestion 3.1**

The Heads of Education in each of Northern Cape, Eastern Cape and Mpumalanga should commission investigations to find out why the participation of female learners seems to be particularly lower in their respective provinces and, through their curriculum sections, assist schools to organize their learning programmes in interesting ways to encourage girls to participate in larger numbers and stay longer in school.

**What was the level of parents' education?**

The parents' level of education will determine to a large extent the quantity and quality of support that they can give to their children in Reading and Mathematics. The index for the level of education was calculated by assigning a score of 1 for a parent who "Did not go to school and had no adult education", 2 for some primary education, 3 for completed primary education, 4 for some secondary education, 5 for completed secondary education and 6 for completed post-secondary or university education. Where there were two parents the average level of parent education was calculated - so that the minimum average score was 1 and the maximum was 6.

The mean levels of education of the Grade 6 learners' parents have been presented in the last column of Table 3.1 for South Africa overall and the individual provinces.

At the national level the mean level of education was 3,8. This indicated that the average Grade 6 learner had parents who had completed primary school but may not have completed secondary education. Further analysis showed that this mean masked huge differences in levels of parent education. For instance, about eight (8) percent of the mothers and six (6)

percent of the fathers had no schooling at all. Further, about 21 percent of the mothers and 22 percent of the fathers had not completed primary education whilst 16 percent of the mothers as against 24 percent of the fathers had a post-secondary qualification.

Free State had the lowest mean level of education (3,3) attained by the parents of the Grade 6 learners. Western Cape had the highest mean level of education of parents (4,8) and was followed by Gauteng (4,6). In both of the latter provinces the average learner had parents who had completed some secondary school but did not necessarily complete Grade 12.

The reasons for the generally low levels of education of the parents can be sought in the political history of the country. The pre-1994 Apartheid government systematically provided such inadequate and low quality education inputs and ran such uninspiring programmes for black people that the majority either dropped out quite early or did not attend school at all. As a transformational and redress measure, the post-1994 democratic government has mounted intensive Adult Basic Education and Training (ABET) programmes that are targeting youth who are beyond school-going age as well as adults. The immediate benefits of these programmes are that more literate parents will provide more and better quality support to their children in their school work.

**Policy Suggestion 3.2**

The ABET Directorate at the national office, in cooperation with its provincial counterparts, should expand and intensify ABET outreach programmes and encourage the parents who do not have any schooling or have at least not completed primary schooling to participate in ABET programmes.

**How regularly did learners eat meals?**

Learners were asked to indicate how often they ate each of breakfast, lunch and supper in a typical school week. A score of 3 was assigned where a learner indicated they did not eat at all, 6 for one meal, 9 for two meals and 12 where they indicated that they ate all three main meals each day in a week. The mean meal indices for the Grade 6 learners have been presented in the second last column of Table 3.1 for the individual provinces and for South Africa overall.

It has been shown in Table 3.1 that the average number of meals at the national level was 10,5 which in practical terms translates into a minimum of two meals per school week for the majority and three meals for some learners. Provincial indices for meals ranged from 10 in

Mpumalanga to 11,1 in the Western Cape. This indicated that an average Grade 6 learner in South Africa ate between two and three meals per day in a school week. Approximately 10 percent of the learners had less than two meals per day in a typical school week.

The post-1994 South African government identified poverty as one debilitating social factor it needed to eliminate to ensure access to education by all children. A major short to medium term initiative to that end was the introduction of a nutrition programme to provide primary school children from poverty-stricken communities with one meal per school day.

**Policy Suggestion 3.3**

The Heads of Education in the provinces should accelerate the Education Department's plan to extend the existing Primary School Nutrition Programmes (PSNP) to include all learners who are in the General Education and Training Band (GET) and come from poorer households.

**How many books were there in learners' homes?**

The number of books to which a learner has access can influence learners' reading habits and abilities. The average number of books that were reported available in learners' homes has been reflected in the third column of Table 3.1.

At the national level the average Grade 6 learner lived in a home where there were just over 32 books. But the range in terms of the number of books available in an average home was very wide. For instance, approximately 65 percent of the homes had, on average, between five and no books at all whilst the remaining 35 percent had between 30 and 250 books per home.

The lowest number of books was in the Northern Cape where, on average, the home of a Grade 6 learner kept 12 books. Western Cape and Gauteng homes had the highest average number of books at 49,2 and 45,2 respectively.

The availability of books in homes can be related to the level of education of the parents or guardians and the economic ability to purchase books. The trend from Table 3.1 was that provinces with fewer books were invariably the same that had the lower levels of parents' education.

### **What other reading materials and electronic media did learners have at home?**

Besides books, the learners had to indicate (by putting a tick) on a given list of items, other reading materials and electronic media such as weekly or monthly magazine, daily newspaper, cassette players, video cassette recorders, telephones and others which they had at home. An index of the items was calculated and it ranged from a minimum of 1 for no item ticked to a maximum of 13 if all the items were ticked. The mean indices have been summarised as “Possessions at home” in the fourth column of Table 3.1 for the provinces and for South Africa overall.

The mean index for possessions at the home for an average Grade 6 learner was 6,6 at the national level. Western Cape and Gauteng had the highest mean indices of 9,6 and 8,5 respectively. The provinces with the lowest mean indices were Eastern Cape (5,4), Mpumalanga (5,3) and Limpopo (5,2).

It was evident from the distribution that the availability of possessions at home varied widely from province to province with provinces in rural settings being worse off than the predominantly urbanised ones.

#### **Policy Suggestion 3.4**

The Provisioning Section of the Department of Education should set a norm for the number of books per learner and school principals should be charged with seeing to it that the minimum number of books are provided to compensate for the apparent inadequacy of these resources in the learners' homes.

### **What percentage of learners spoke the language of the test at home?**

The Reading and Mathematics tests in this study were administered in English. The national and provincial percentages of learners who spoke English at home “sometimes to often” have been presented in the first column of Table 3.2.

**Table 3.2** Percentages and sampling errors for the learner language

Province	Speak English “sometimes to often”	
	%	SE
Eastern Cape	67,0	3,91
Free State	67,5	13,24
Gauteng	89,0	2,13
KwaZulu Natal	78,9	4,43
Mpumalanga	73,4	5,07
Northern Cape	65,8	5,62
Limpopo	66,4	4,91
North West	79,2	3,72
Western Cape	93,7	3,63
<b>South Africa</b>	<b>76,5</b>	<b>1,76</b>

At the national level 76,5 percent of the learners spoke English “sometimes to often” at home while the remaining 23,5 percent did not at all. For the provinces, the lowest mean percentages of learners who spoke English “sometimes to often” were in Free State (67,5%), Eastern Cape (67%), Limpopo (66,4%) and Northern Cape (65,8%) while the highest was 93,7 percent in the Western Cape.

At the Grade 6 level schools use either English or Afrikaans as a medium of instruction although the policy allows schools to use any of the official languages. The evident non-availability of learning support materials in the other languages could be an influential factor in exercising the choice. In the Free State and Northern Cape, Afrikaans is a predominant language among the communities whereas in the Eastern Cape and Limpopo neither English nor Afrikaans is predominant among the communities. This might limit the exposure of learners from these provinces to the use of English and thus curtail their opportunities to enrich their English vocabulary and be able to interact effectively with available learning materials.

#### **Policy Suggestion 3.5**

The respective Provisioning Sections of Free State, Eastern Cape, Limpopo and Northern Cape should provide greater numbers and variety of English reading materials in the schools in these provinces to compensate for the lack of home support in the use of English as a language in which learning is facilitated.

**Where did learners live during the school week?**

The distribution of where learners stayed during the school week has been presented in Table 3.3 for individual provinces and for South Africa overall.

**Table 3.3** Place where learners stay during the school week

Province	Place where learners stay during the school week							
	Parent/Guardian		Relatives/Family		Hostel/Board		Self/Children	
	%	SE	%	SE	%	SE	%	SE
Eastern Cape	73,9	4,30	15,1	2,61	3,4	1,52	7,5	1,95
Free State	73,0	6,64	14,2	3,70	2,2	1,61	10,6	3,98
Gauteng	87,3	3,21	7,3	1,78	0,6	0,36	4,8	1,88
KwaZulu Natal	82,4	4,33	9,6	1,95	3,7	1,80	4,4	1,40
Mpumalanga	62,7	7,48	16,9	2,55	4,8	1,57	15,6	5,63
Northern Cape	86,2	3,28	9,3	2,61	0,4	0,44	4,0	1,17
Limpopo	70,8	6,29	9,8	2,35	8,8	3,33	10,6	2,63
North West	79,2	5,31	14,9	3,47	2,4	1,71	3,6	2,12
Western Cape	87,6	2,50	8,8	2,69	1,9	1,20	1,7	0,90
<b>South Africa</b>	<b>78,1</b>	<b>1,82</b>	<b>11,4</b>	<b>0,87</b>	<b>3,6</b>	<b>0,73</b>	<b>6,9</b>	<b>0,86</b>

The modal (78,1%) place of stay was a home with parents or legal guardians. Another 11,4 percent of the learners stayed with relatives or another family whilst 3,9 percent stayed in a hostel or boarding accommodation. However, there was a sizable 6,9 percent of Grade 6 learners who either stayed on their own or with other children. Fairly high percentages of learners from Mpumalanga (15,6%), Free State (10,6%) and Limpopo (10,6%) indicated that they stayed on their own.

Given the age of an average Grade 6 learner, it was striking to observe the relatively high percentage of them who stayed on their own. This might not only deny these learners the support they need at home, but it could also raise questions of security for the learners and thus affect the quality of learning.

**Policy Suggestion 3.6**

Principals of schools, particularly in Mpumalanga, Free State and Limpopo, should identify learners who stay in unsafe conditions and refer these cases to the Department of Social Welfare so that, jointly, safer alternatives can be explored.



### What was the socio-economic status of learners' parents in terms of housing conditions and livestock?

Learners were asked to indicate the means of lighting, the condition of floors, walls and roofs in their homes or where they stayed during the school week. These conditions can have a direct impact on whether learners are able to study and do homework.

#### Means of lighting

The distribution of means of lighting in the Grade 6 learners' homes has been summarised in Table 3.4 (a).

**Table 3.4 (a)** Percentages and sampling errors for the lighting in learners' homes

Province	No light		Candle/Oil Lamp		Gas lamp		Electric lighting	
	%	SE	%	SE	%	SE	%	SE
Eastern Cape	4,0	1,54	39,2	6,30	5,1	1,37	51,7	6,60
Free State	1,3	0,69	30,0	13,64	0,7	0,48	68,0	13,39
Gauteng	1,6	0,94	7,0	2,77	0,8	0,51	90,6	3,58
KwaZulu Natal	1,6	0,85	36,5	8,42	3,1	1,20	58,8	8,77
Mpumalanga	4,8	2,56	19,6	5,65	5,8	1,34	69,8	6,60
Northern Cape	2,7	1,26	26,9	7,58	3,3	1,50	67,1	7,27
Limpopo	7,1	1,97	30,5	7,19	2,8	1,10	59,6	8,41
North West	6,0	4,17	32,4	9,46	1,3	0,81	60,2	9,62
Western Cape	1,0	0,76	4,4	1,43	0,4	0,36	94,2	1,89
<b>South Africa</b>	<b>3,4</b>	<b>0,61</b>	<b>26,5</b>	<b>2,72</b>	<b>2,7</b>	<b>0,40</b>	<b>67,5</b>	<b>2,93</b>

At the national level the modal means of lighting was electricity (67,5%), followed by 26,5 percent of homes that used candles or oil lamps while 3,4 percent had no means of lighting at all. Strikingly high percentages of the homes of Grade 6 learners where there were no means of lighting were from Limpopo (7,1%), North West (6,0%), Mpumalanga (4,8%) and Eastern Cape (4,0%).

#### Conditions of floors, walls and roofs

Information on the conditions of the floors, walls and roofs where grade 6 learners stayed has been summarised in Tables 3.4 (b), 3.4 (c) and 3.4 (d), respectively, per province and for South Africa overall.

**Table 3.4 (b)** Percentages and sampling errors for structure of floors in learners' homes

Province	Not sealed		Wood		Cement		Carpet/Tiles	
	%	SE	%	SE	%	SE	%	SE
Eastern Cape	30,8	4,86	5,8	1,33	33,5	4,15	29,9	5,25
Free State	27,3	13,88	3,5	1,72	26,8	6,43	42,4	9,79
Gauteng	5,9	2,51	2,9	1,14	22,3	9,75	68,9	11,32
KwaZulu Natal	10,1	2,82	4,4	2,10	50,0	7,22	35,5	7,80
Mpumalanga	20,0	4,65	6,6	2,15	50,7	6,93	22,7	5,49
Northern Cape	15,3	5,91	4,2	1,98	47,1	6,99	33,4	6,90
Limpopo	23,3	4,39	4,5	1,62	60,0	6,35	12,2	4,06
North West	6,5	2,48	2,6	0,98	67,3	4,65	23,5	4,72
Western Cape	1,1	0,77	10,3	2,43	8,9	2,10	79,7	3,02
<b>South Africa</b>	<b>15,8</b>	<b>1,73</b>	<b>4,9</b>	<b>0,65</b>	<b>40,6</b>	<b>2,58</b>	<b>38,6</b>	<b>2,98</b>

**Table 3.4 (c)** Percentages and sampling errors for structure of walls in learners' homes

Province	Not sealed		Stones		Sheets/Wood		Cut stone/Bricks	
	%	SE	%	SE	%	SE	%	SE
Eastern Cape	14,6	3,50	27,8	4,04	18,6	3,77	39,0	4,33
Free State	22,5	10,70	11,0	2,90	22,7	7,08	43,8	6,32
Gauteng	4,7	2,08	14,2	3,71	12,9	4,44	68,1	8,75
KwaZulu Natal	6,9	2,94	25,8	4,52	8,0	1,85	59,4	5,97
Mpumalanga	24,3	5,04	15,7	3,51	18,1	2,29	41,8	7,20
Northern Cape	22,8	8,42	36,3	8,74	8,7	1,76	32,2	7,94
Limpopo	19,3	3,61	34,1	3,35	15,2	2,21	31,4	5,20
North West	6,9	3,01	16,3	4,52	26,1	4,92	50,7	5,74
Western Cape	1,2	0,66	9,3	2,74	13,5	4,81	76,0	5,40
<b>South Africa</b>	<b>11,9</b>	<b>1,42</b>	<b>21,8</b>	<b>1,51</b>	<b>15,3</b>	<b>1,29</b>	<b>51,0</b>	<b>2,47</b>

**Table 3.4 (d)** Percentages and sampling errors for structure of roof in learners' homes

Province	Not sealed		Metal/Asbestos		Cement concrete		Tiles	
	%	SE	%	SE	%	SE	%	SE
Eastern Cape	31,1	4,61	42,0	5,55	9,2	1,54	17,7	3,39
Free State	15,6	3,56	53,7	7,62	13,3	3,35	17,4	5,23
Gauteng	10,4	2,20	25,9	6,93	16,0	2,60	47,8	7,91
KwaZulu Natal	20,9	4,97	35,6	5,32	9,5	1,96	34,0	5,36
Mpumalanga	23,2	2,87	33,1	5,71	16,9	2,55	26,8	4,98
Northern Cape	18,1	6,55	56,9	7,55	14,7	3,41	10,4	2,38
Limpopo	21,9	4,14	45,8	6,69	14,8	2,32	17,5	3,09
North West	5,4	1,72	65,3	8,86	15,3	4,35	13,9	4,23
Western Cape	2,8	1,17	43,2	8,04	20,9	4,35	33,1	5,46
<b>South Africa</b>	<b>18,1</b>	<b>1,53</b>	<b>41,2</b>	<b>2,50</b>	<b>13,6</b>	<b>0,92</b>	<b>27,2</b>	<b>2,19</b>

As has been shown in the last rows of Tables 3.4 (b) and 3.4 (c) respectively, for South Africa overall learners lived in homes where 40,6 percent of the floors were made of cement and 51,0 percent of the walls were sustained by cut stone or brick. Another 38 percent had carpeted or tiled floors and the rest had either unsealed (15,8%) or wooden (4,9%) floors. Homes in Western Cape and Gauteng were significantly characterised by carpeted or tiled floors and solid cut stone or brick walls. In contrast, in North West, Northern Cape, Mpumalanga and KwaZulu Natal a high percentage of floors were made of cement. It has been indicated in Table 3.4 (d) that the modal (41,2%) material for roofs was metal or asbestos. It was worth noting that, at the national level, 15 percent of the homes had sheets or wood as walls and this was indicative of informal settlements.

It was evident from the reported findings that, to varying degrees, a significantly high percentage of the learners had to do homework and general reading in conditions that were not conducive to effective learning. Many lived in conditions that predisposed them to the elements (heat and cold) and social hazards such as burglaries and petty thefts. This is particularly worrying when considering that a notable number of learners indicated that they stayed on their own or with other children.

### **The general quality of a learner's home**

The index for the general quality of the Grade 6 learner's home was constructed as a 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 conditions, and the maximum was 4 if the conditions were 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 summarised in Table 3.5 for each province and for South Africa overall.

**Table 3.5 Means and sampling errors for the general quality of learners' homes**

Province	General quality of learner's homes (Index)	
	Mean	SE
Eastern Cape	10,6	0,37
Free State	11,4	0,96
Gauteng	13,8	0,50
KwaZulu Natal	12,1	0,49
Mpumalanga	11,4	0,43
Northern Cape	11,0	0,52
Limpopo	10,6	0,36
North West	11,8	0,31
Western Cape	14,0	0,25
<b>South Africa</b>	<b>11,9</b>	<b>0,19</b>

The national mean of the index was 11,9, on the scale. The extremes for the provinces were Western Cape (14,0), Gauteng (13,8) and KwaZulu Natal (12,1) on one end of the general quality scale. According to the interpretation of the allocated scores this means that an average Grade 6 learner in these provinces stayed in a home where:

- (a) for lighting the majority of the homes used a paraffin, oil or gas lamp but few used electricity;
- (b) the majority of the floors were made of wood or cement but few had carpets;
- (c) the majority of the walls were made of stone, metal or wood but few walls were of cut stone, concrete or bricks; and
- (d) the majority of the roofs were grass thatch, mud, metal or asbestos but few were tiles.

On the lower end of the general quality scale were Northern Cape (11,0), Limpopo (10,6) and Eastern Cape (10,6). For this set of provinces the scores indicate that an average Grade 6 learner stayed in a home where:

- (e) for lighting the majority of the homes either had no light or used fire or candles but few used paraffin, oil or gas lamps;
- (f) the majority of the floors were made of earth, clay or canvass but few had wooden planks or cement;
- (g) the majority of the walls were made of cardboard, plastic, canvas, reeds, sticks or grass but few walls were of stones, mud bricks or wood; and
- (h) the majority of the roofs were cardboard, plastic, canvas grass thatch or mud but few were cement or concrete.

From the analysis above it would appear that a considerable number of the learners, those in the lower end of the general quality of home scale, stayed in temporary informal settlements - a fast-expanding phenomenon around towns and large cities where people gravitate in search of jobs and better means of livelihood. The characteristic lack of permanence in migrant informal settlements frustrates long-term educational planning for classrooms and educators and needs a comprehensive strategy that requires the Department of Education to collaborate with the Departments of Housing, the Department of Social Welfare Services and others.

**Policy Suggestion 3.7**

The Department of Education should collaborate with the Department of Housing and the Department of Social Welfare Services to work out a proactive comprehensive strategy to plan and provide education and social services for unpredictable migrant informal settlements.

**Possession of livestock**

Learners were asked to indicate the number of domestic animals in their homes. The average number of animals owned by the parents of Grade 6 learners have been reflected in Table 3.6 per province and for South Africa overall.

**Table 3.6** Means and sampling errors for the amount of livestock at learners' Homes

Province	Cattle		Sheep		Goats		Horses/ Donkeys		Pigs		Chickens	
	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE
Eastern Cape	4,4	0,90	5,3	1,65	4,4	0,95	0,6	0,12	1,9	0,63	8,8	1,87
Free State	3,0	0,70	1,5	0,92	0,3	0,15	1,5	0,87	1,5	0,66	8,5	2,34
Gauteng	0,2	0,09	1,9	1,88	0,8	0,79	0,1	0,06	0,3	0,23	1,9	0,85
KwaZulu Natal	3,2	0,55	1,0	0,39	3,6	1,00	0,7	0,22	0,5	0,15	11,3	2,32
Mpumalanga	4,5	2,10	1,5	0,88	2,4	1,29	0,9	0,43	0,4	0,16	11,2	2,90
Northern Cape	0,3	0,17	0,7	0,32	0,7	0,31	0,3	0,16	0,6	0,36	2,9	0,62
Limpopo	3,8	0,67	1,2	0,34	2,6	0,63	0,6	0,21	0,6	0,20	8,1	0,79
North West	3,6	1,02	2,1	0,81	2,9	1,11	1,7	0,65	0,8	0,27	9,8	2,34
Western Cape	0,1	0,04	0,0	0,00	0,0	0,00	0,0	0,01	0,0	0,00	1,7	1,33
<b>South Africa</b>	<b>2,8</b>	<b>0,29</b>	<b>1,9</b>	<b>0,42</b>	<b>2,4</b>	<b>0,34</b>	<b>0,7</b>	<b>0,01</b>	<b>0,8</b>	<b>0,13</b>	<b>7,6</b>	<b>0,72</b>

The modal possessions at the national level were chickens at the average of 7,6 per home of a Grade 6 learner. The average level of livestock possessions was generally low across the provinces with lowest levels in Gauteng, Northern Cape and Western Cape, most probably because these are predominantly urban areas and, therefore, people may not keep live animals.

For the rest of the provinces the relatively low levels of livestock was unexpected given that the majority of the provinces were rural with subsistence farming as the main source of livelihood. As was indicated earlier in this chapter, this finding may need to be verified.

In summary, the average Grade 6 learner in this study was of the appropriate age in terms of the Departmental age-grade norm. At the national level, the number of girls exceeded that of boys, a phenomenon which mirrors the gender composition of the South African population.

The majority of the learners stayed with their parents or legal guardians during the school week. There was, however, a notable number of learners who stayed on their own for reasons that may need to be probed further in future studies. Although overall levels of parents' education went beyond completion of primary education, a significant number of parents, particularly mothers, had no schooling at all. The number of books and other reading materials at the learners' homes varied across the provinces. But they tended to be lower in predominantly rural provinces.

It was heartening to note that, despite the presence of a significant number of characteristically informal dwellings, no less than a half of the homes from each of the provinces used electricity as a means of lighting. This could enhance the chances of meaningful reading and completion of schoolwork at home.

On the whole, the levels of resources per household, including livestock, were noticeably low. This could be an indication of unacceptable levels of poverty. The findings would, therefore, further confirm the need for government to intensify its fight against poverty.

### **General Policy Concern 2:**

#### **What were the school context factors experienced by Grade 6 learners that might impact upon teaching/learning and the general functioning of the school?**

The environment created by the school and the activities in which learners participate can influence learners' achievement. In particular, the cooperation between the home and the school contributes to enhancing a conducive atmosphere for effective learning. By establishing existing strengths and weaknesses in the support systems provided by each of the school and the home, the education system can be able to identify appropriate areas for intervention and improvement for efficient functioning of the schools.

Six specific research questions were asked to explore school context factors experienced by Grade 6 learners that might impact upon teaching/learning and the general functioning of the school.

#### **Where was the location of the school?**

Principals were asked whether their schools were 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 collapsed into one category and called 'urban'. The percentage of learners in schools located in 'urban' areas was calculated and the results have been reported in the first column of Table 3.7. Principals were further asked to indicate how many kilometers it was from the school to the nearest health clinic, a tarmac road, a public library, a bookshop, and a secondary school. These distances were averaged for each school. The average distances have also been presented in Table 3.7. The distances were used as an indication of the physical spread of the communities relative to the school.

**Table 3.7** School location

Province	Urban		Distance (km)	
	%	SE	Mean	SE
Eastern Cape	47,0	10,38	17,7	3,22
Free State	92,8	7,25	2,7	0,45
Gauteng	100,0	0,00	7,5	1,70
KwaZulu Natal	46,2	10,50	14,4	2,51
Mpumalanga	53,9	14,25	12,1	2,90
Northern Cape	69,8	13,18	15,5	8,07
Limpopo	4,7	4,27	19,6	2,71
North West	39,3	13,65	13,2	4,40
Western Cape	100,0	0,00	2,2	0,43
<b>South Africa</b>	<b>56,3</b>	<b>3,55</b>	<b>12,7</b>	<b>0,98</b>

From the data that has been presented in Table 3.7, an average of 56,3 percent of the Grade 6 learners in South Africa were in schools that were located in urban areas which were defined as “small towns” and “cities”. All the Grade 6 learners from the Western Cape and Gauteng and just over 92 percent in the Free State were in urban schools. In contrast, only 4,7 percent of the learners in Limpopo were in urban schools and the rest were in schools in rural settings. The other provinces that had the Grade 6 learners in predominantly rural schools were Eastern Cape, KwaZulu Natal and North West.

It is important to note, however, that the relatively high standard error of sampling values associated with the “urban” percentages indicated that the variation was quite wide and, therefore, inferences need to be made with caution. In particular, rural and farm schools in Free State seemed to be under-represented.

For South Africa overall, the average distance from a school to the nearest facility was approximately 13 kilometres due mainly to the rural location of most of the schools that the Grade 6 learners attended. The longest distances that separated the schools from the nearest facilities were in Limpopo, Eastern Cape and Northern Cape.

Rural/urban distinctions in the distribution of learners in South Africa appeared to be quite sharp. The long relative distances in predominantly rural settings may present hindrances to



physical access to schools by learners and educators. In the report on the Review of the Financing, Resourcing and Costs of Education in Public Schools (2003:94), a recommendation was made that “the Department of Education should, together with provincial education departments (PEDs) and the Department of Transport, investigate the feasibility of a more comprehensive and equitable system of transport assistance to poor learners, over and above the current bus schemes operated by PEDs”. The findings in this report confirm the need for that investigation.

### **How many days were learners absent in the previous month, and what were the reasons for these absences?**

The average numbers of days that Grade 6 learners were absent during the month preceding the survey and the reasons for the absences have been summarized in Table 3.8 for individual provinces and for South Africa overall.

**Table 3.8** Percentages and sampling errors for reasons of learners’ absenteeism

<b>Province</b>	<b>Days absent</b>		<b>Illness</b>		<b>Family reasons</b>		<b>Fees</b>		<b>Work</b>	
	Mean	SE	%	SE	%	SE	%	SE	%	SE
Eastern Cape	1,4	0,21	21,2	2,6	10,6	2,78	4,8	1,53	6,2	1,13
Free State	1,4	0,21	25,4	5,96	10,6	3,02	1,3	0,65	4,3	1,59
Gauteng	1,0	0,27	16,9	2,58	4,9	1,6	1,5	0,77	1,1	0,59
KwaZulu Natal	2,2	0,40	37,7	3,98	10,6	2,08	1,7	0,78	3,7	1,47
Mpumalanga	1,9	0,33	25,5	5,42	8,5	2,05	5,2	2,24	9,2	2,52
Northern Cape	1,5	0,25	33,8	3,82	5,5	2,36	3	1,29	3,8	1,39
Limpopo	2,2	0,39	20,1	3,58	8,8	1,64	6,2	1,87	9,9	2,19
North West	0,6	0,11	15,8	3,16	4,8	1,43	1,7	0,76	3,1	1,18
Western Cape	1,6	0,45	26,1	4,64	13,5	3,98	0	0	1,5	0,96
<b>South Africa</b>	<b>1,6</b>	<b>0,13</b>	<b>24,6</b>	<b>1,4</b>	<b>9</b>	<b>0,86</b>	<b>3</b>	<b>0,47</b>	<b>4,9</b>	<b>0,57</b>

At the national level, the learners had been absent for an average of 1.6 or two days, which translated into an average of 10 percent of school days in a month. The provinces with the highest absenteeism rates were Limpopo, KwaZulu Natal and Mpumalanga and the main reason for the absences, both at the national level and in these provinces in particular, was illness, followed by “family reasons” and then “work”. North West had the lowest mean number of absentees.

It was striking to observe that significant numbers of learners – five percent and more in Eastern Cape, Limpopo and Mpumalanga – had stayed away from school for reasons related to fees despite the fact that the policy of the Department stipulates that no learner may be excluded from school on the basis of failure to pay fees.

The apparent prevalence of illnesses among the Grade 6 learners in all the provinces needs further investigation, especially in view of the outbreak of HIV-AIDS and related diseases in the sub-Saharan countries, so that proper management and support measures can be taken.

### **Policy Suggestion 3.8**

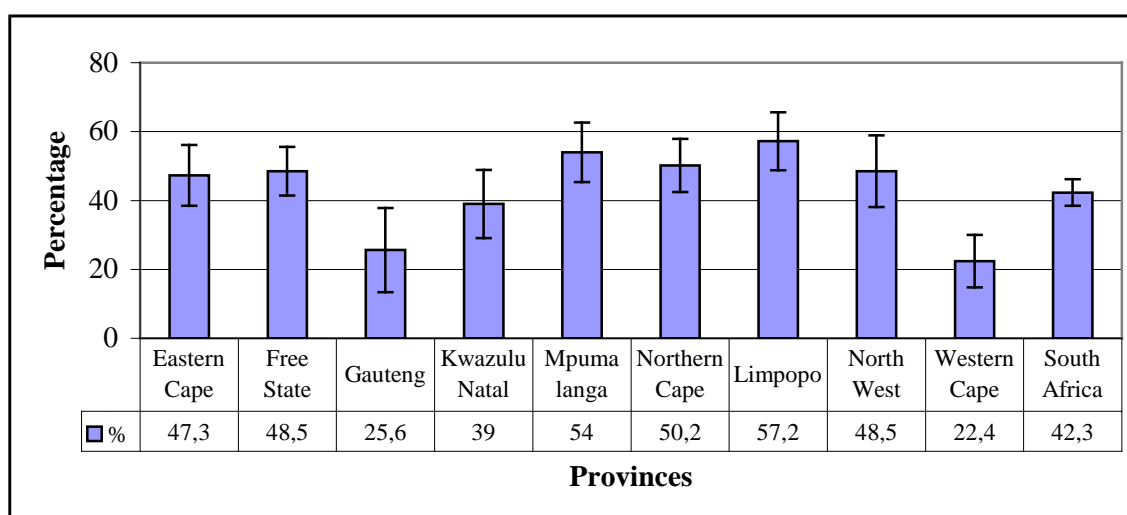
The Heads of Education in the provinces, in collaboration with their counterparts from the Health Department, should commission a joint investigation into the nature of the illnesses that prevent the learners from attending school. The investigation should then lead to the development of appropriate strategies to prevent and to manage the prevalent illnesses.

### **Policy Suggestion 3.9**

Principals, assisted by School Governing Bodies (SGBs), should monitor closely the implementation of the Department's policies on free and compulsory education to ensure that learners are not unfairly excluded from participating in education.

### **How many learners had repeated a grade, and were they currently repeating Grade 6?**

The percentages, and corresponding standard errors, of learners who had repeated a grade, at least once, have been presented in Figure 3.1.



**Figure 3.1 Percentage of repeaters according to provinces**

At the national level slightly more than 42 percent of the Grade 6 learners had repeated a grade, at least once. Although the relatively high values of the corresponding standard errors indicate fairly wide variations in the responses, repetition rates in all the provinces were unacceptably high. The lowest percent of learners who had repeated a grade was 22,4 percent in the Western Cape. In Limpopo, Mpumalanga and Northern Cape, more than half of the Grade 6 learners in the sample had repeated a grade.

No researched evidence is available to suggest that making learners repeat a grade helps them improve their performance. Instead, repetition may lead to overcrowding in the classrooms and also contributes to the presence of over-age learners. The Department's norm for repetition is one year per school phase, where necessary. Effectively, this means that a learner may not repeat more than one grade in a 3-year phase. The challenge is to provide appropriate special support to learners who may be lagging behind their age cohort in terms of performance.

**Policy Suggestion 3.10**

In the short term, District Directors should intensively monitor the implementation by schools of the policy on repetition of grades.

**Policy Suggestion 3.11**

In the long term, the Department of Education should train and employ remedial educators to give special support to learners who cannot keep pace with their age cohorts.

**How frequently did learners receive homework in Reading and Mathematics?**

Information on the frequency with which learners received homework in Reading and Mathematics has been summarized in Table 3.9.

**Table 3.9** Percentages and sampling errors for the frequency of homework given most days

Province	Reading homework		Mathematics homework	
	%	SE	%	SE
Eastern Cape	40,5	4,21	48,7	4,82
Free State	34,4	10,42	54,8	10,94
Gauteng	50,8	13,06	58,5	8,67
KwaZulu Natal	30,5	4,21	46,2	6,31
Mpumalanga	41,2	4,45	50,2	6,36
Northern Cape	28,3	3,44	43,4	5,90
Limpopo	44,8	5,27	62,8	5,48
North West	46,3	4,60	43,3	6,40
Western Cape	25,7	9,51	70,6	5,16
<b>South Africa</b>	<b>39,2</b>	<b>2,70</b>	<b>53,8</b>	<b>2,41</b>

It has been shown in the second set of figures in Table 3.9 that, for South Africa overall, homework in Mathematics (53,8%) was given more frequently than in Reading (39,2%). At the provincial level, learners in Western Cape received homework in Mathematics the most (70,6%) followed by Limpopo (62%), Gauteng (58,5%) and Free State (54,8%). However, there seemed to be a wide variation as indicated by the fairly large values of the standard errors. The results should, therefore, be interpreted with caution.

The value of homework is twofold. Firstly it enables learners to consolidate their understanding of what they learnt in class. Secondly, learners get an important opportunity to interact with family members around their schoolwork. Because they receive a wider spectrum of perspectives, learners' knowledge base may be enriched significantly by these interactions. The apparent neglect of homework in Reading in the schools may deprive learners valuable opportunities to learn and may thus impact negatively on learners' scholastic achievements.

### Did the educators correct assigned homework?

The frequencies with which educators corrected learners' homework in Reading and Mathematics have been shown in Tables 3.10 (a) 3.10 (b), respectively.

**Table 3.10 (a)** Percentages and sampling errors for the frequency of Reading homework being corrected by educator

Province	No homework given		Never corrected		Sometimes corrected		Mostly/always corrected	
	%	SE	%	SE	%	SE	%	SE
Eastern Cape	14,5	2,63	4,9	0,98	28,1	4,02	52,6	5,31
Free State	10,9	6,21	6,3	4,35	19,5	5,63	63,3	9,54
Gauteng	6,2	2,85	6,5	2,14	24,6	4,44	62,7	7,74
KwaZulu Natal	13,6	2,67	6,8	2,08	29,4	4,60	50,2	5,30
Mpumalanga	11,5	4,01	6,7	1,64	24,3	2,70	57,5	6,39
Northern Cape	23,9	5,33	6,8	1,55	26,8	3,33	42,6	4,89
Limpopo	12,5	2,47	7,8	1,90	27,6	2,84	52,1	5,04
North West	7,4	1,43	9,0	1,87	30,2	4,02	53,4	4,01
Western Cape	25,1	6,50	10,7	3,40	28,5	6,55	35,8	6,90
<b>South Africa</b>	<b>12,8</b>	<b>1,24</b>	<b>7,1</b>	<b>0,77</b>	<b>27,0</b>	<b>1,60</b>	<b>53,1</b>	<b>2,30</b>

**Table 3.10 (b)** Percentages and sampling errors for the frequency of Mathematics homework being corrected by educator

Province	No homework given		Never corrected		Sometimes corrected		Mostly/always corrected	
	%	SE	%	SE	%	SE	%	SE
Eastern Cape	7,4	2,41	4,6	1,40	21,4	2,37	66,5	4,57
Free State	1,6	0,82	2,1	0,99	17,1	4,81	79,3	5,72
Gauteng	1,9	1,04	2,7	1,08	34,9	13,39	60,5	12,35
KwaZulu Natal	4,0	1,56	6,8	3,00	22,1	3,65	67,1	6,01
Mpumalanga	3,8	2,66	7,7	2,92	21,8	4,44	66,7	8,01
Northern Cape	8,7	3,18	8,5	2,33	31,9	5,99	50,9	5,95
Limpopo	3,8	2,13	9,2	2,26	23,7	4,26	63,3	6,11
North West	2,5	1,25	4,9	1,71	20,9	4,02	71,7	5,26
Western Cape	0,6	0,44	5,5	1,33	28,8	3,95	65,0	4,74
<b>South Africa</b>	<b>3,7</b>	<b>0,67</b>	<b>5,7</b>	<b>0,82</b>	<b>24,5</b>	<b>2,39</b>	<b>66,2</b>	<b>2,63</b>

Overall homework in Mathematics was corrected more frequently (66%) than homework in Reading (53%). However, for both Reading and Mathematics the percentages of educators who corrected homework were relatively low.

Correcting of assigned homework and regular feedback can motivate learners to dedicate more time to their schoolwork. It is the responsibility of School Management Teams (SMTs) to monitor whether educators assess learners properly and correct assigned work. In addition, the SMT should provide support to the educators as required.

**Did family members monitor, assist with, request demonstrations, ask questions about, and/or look at, learners' homework?**

Grade 6 learners' responses to whether most of the time they received assistance at home in their schoolwork have been summarized in Tables 3.11 (a), 3.11 (b) and 3.11 (c) for each of the provinces and South Africa overall.

**Table 3.11 (a)** Home assistance with school related work

Province	Home assistance 'most of the time' with school work					
	Ensure homework done		Help with the homework		Look at school work done	
	%	SE	%	SE	%	SE
Eastern Cape	37,6	4,91	29,5	3,45	36,2	3,60
Free State	58,2	9,20	37,4	8,03	32,3	7,25
Gauteng	55,0	2,95	31,6	3,16	46,3	5,12
KwaZulu Natal	53,6	5,55	40,6	4,23	37,0	3,93
Mpumalanga	46,6	4,83	36,7	4,28	42,7	4,35
Northern Cape	38,2	5,89	29,9	4,58	32,4	5,19
Limpopo	40,8	3,03	30,5	2,99	37,8	3,45
North West	44,4	3,81	40,8	4,84	43,2	3,45
Western Cape	56,8	4,73	33,2	4,41	37,9	3,78
<b>South Africa</b>	<b>48,4</b>	<b>1,82</b>	<b>34,5</b>	<b>1,49</b>	<b>39,0</b>	<b>1,58</b>

**Table 3.11 (b)** Home assistance with Reading work

Province	Home assistance 'most of the time' with school work			
	Ask to read		Questions on school Reading work	
	%	SE	%	SE
Eastern Cape	29,5	3,28	30,9	2,94
Free State	43,0	11,59	44,9	11,55
Gauteng	21,0	3,59	30,8	4,34
KwaZulu Natal	24,7	4,31	34,0	4,38
Mpumalanga	31,5	3,62	39,8	3,24
Northern Cape	25,8	3,59	30,0	4,64
Limpopo	26,1	3,40	31,7	2,94
North West	34,7	2,87	35,5	5,82
Western Cape	18,6	2,82	24,3	4,23
<b>South Africa</b>	<b>27,2</b>	<b>1,61</b>	<b>33,1</b>	<b>1,64</b>

**Table 3.11 (c)** Home assistance with Mathematics work

Province	Home assistance ‘most of the time’ with school work			
	Do mathematical calculations		Questions on school Mathematics work	
	%	SE	%	SE
Eastern Cape	30,5	3,98	28,9	2,40
Free State	26,1	7,66	29,6	7,59
Gauteng	24,6	3,99	27,5	4,58
KwaZulu Natal	29,3	5,40	34,9	4,86
Mpumalanga	38,9	3,70	37,7	4,52
Northern Cape	27,4	4,84	26,5	4,00
Limpopo	25,4	2,40	33,6	3,09
North West	33,8	4,55	32,3	4,00
Western Cape	30,9	6,74	27,6	6,35
<b>South Africa</b>	<b>29,2</b>	<b>1,71</b>	<b>31,4</b>	<b>1,63</b>

On the whole for South Africa overall, the levels of assistance to learners at home, in both Reading and Mathematics, were noticeably low. At the national level, 48,4 percent of the Grade 6 learner family members ensured that homework was done. Less than 40 percent of the family members asked about or looked at learners’ schoolwork. Significantly small percentages of learners were asked to read (27%) or helped to do mathematical calculations (29%) by their family members.

The generally low levels of assistance that learners received from family members could be ascribed to a number of factors. One is the fact that, as discussed earlier in this report, parents seemed to have attained low levels of schooling and, therefore, might not feel competent enough to give the necessary assistance. The low levels of education could also influence the interest that parents take in their children’s schoolwork. This matter should be brought to the attention of the parents in their meetings with School Governing Bodies.

**Policy Suggestion 3.12**

Principals, in collaboration with SGBs, should develop school policies that set minimum acceptable amounts of homework and the frequency of doing these in both Mathematics and Reading.

Overall, average relative distances from schools to the nearest facilities indicated that a significant number of the schools were in scattered or rural settings. This has serious



implications for the distances that learners and educators may have to travel to and from school. Absenteeism seemed to be a significant problem and the two most common reasons for learner absenteeism were illness and “family reasons”. A fairly high percentage of the learners had already repeated a grade, at least once. Considering the possibility that they could still repeat a grade at the Senior Phase level, it could be inferred that the grade repetition rate was unacceptably high.

The percentage of the Grade 6 learners who were given homework most days of the school week was just over fifty percent at most. Homework was mostly or always corrected in more than half of the cases, more so in Mathematics than in Reading. This finding points to an important area for improvement since correction of homework and regular feedback to learners are critical to continuous assessment and constant monitoring of learner progress. It was further worrying to note that only about half of the Grade 6 learners received encouragement of support from parents in doing their homework.

### **General Policy Concern 3:**

#### **Did Grade 6 learners have sufficient access to classroom materials in order to participate meaningfully in their lessons?**

Learning is a process where learners make meaning of the learning content by interacting partly with peers and teachers but mainly with resources and materials in the learning environment. Learners who have access to adequate learning support materials are more likely to perform better than those who do not. To examine this general policy concern two specific research questions were asked regarding the percentage of Grade 6 learners who had Reading and Mathematics textbooks and other basic classroom materials to aid learning.

#### **What percentage of learners had Reading and Mathematics textbooks?**

Information on the percentage of Reading and Mathematics textbooks that learners had has been reported in Table 3.12.

**Table 3.12** Percentages and sampling errors for learners having own Reading and Mathematics textbook

Province	Own Reading textbook		Own Mathematics textbook	
	%	SE	%	SE
Eastern Cape	42,1	4,87	42,3	4,85
Free State	60,9	9,89	49,1	12,36
Gauteng	55,8	13,04	51,1	13,55
KwaZulu Natal	40,3	7,04	39,9	7,69
Mpumalanga	44,8	7,75	34,6	6,63
Northern Cape	29,9	7,78	28,4	7,25
Limpopo	44,2	5,76	43,1	7,52
North West	35,4	6,47	24,7	6,49
Western Cape	49,1	11,32	36,9	9,37
<b>South Africa</b>	<b>45,6</b>	<b>2,82</b>	<b>41,1</b>	<b>3,00</b>

For South Africa overall, the average Grade 6 learner was in a school where 45,6 percent of the learners had Reading books and 41,1 percent had Mathematics books. The distribution varied among the provinces with the highest average number of books in Free State and the lowest in Northern Cape. Generally, the level of Reading and Mathematics books owned or available to individual learners was very low. However, the sampling error values tended to be high which necessitate that the results be treated cautiously.

Limited access to textbooks may impact negatively on the learners' chances to read and study Mathematics. Textbooks constitute one major non-personnel input into the education system in South Africa. The cost, procurement and maintenance of these resources were at the heart of the review that was commissioned by the Department of Education early in 2003. One major recommendation from the review was that:

*“The Department of Education should work together with the Department of Trade and Industry in conducting research into the textbook industry, with a view to identifying key Government interventions and Government-to-business partnering that can ensure a reliable supply of affordable textbooks to the schooling sector”* (Department of Education, 2003:49).

The findings in this report confirm the urgency of providing schools with Reading and Mathematics textbooks.

### What percentage of learners had adequate basic classroom supplies for writing, ruling and erasing?

The percentage of learners who had exercise books, notebooks and pencils and erasers during the term of the survey have been summarised in Table 3.13 for the provinces and for South Africa.

**Table 3.13** Percentages and sampling errors for shortages of basic classroom writing materials: Exercise books, notebook, pencil, pen, eraser and ruler

Province	Exercise books		Notebook		Pencil		Eraser		Pen		Ruler	
	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE
Eastern Cape	23,2	5,24	33,4	5,42	26,7	4,76	39,1	5,22	26,1	5,15	22,7	4,57
Free State	13,0	5,35	39,8	10,32	33,7	6,13	51,0	10,59	23,7	7,62	24,3	4,36
Gauteng	14,1	5,58	51,4	13,51	10,2	3,57	17,8	6,47	13,6	5,02	8,5	3,74
Kwazulu Natal	12,4	4,89	34,2	6,61	16,2	5,27	32,9	5,33	18,9	5,93	18,5	4,73
Mpumalanga	41,4	11,15	52,0	10,43	45,7	10,34	62,1	9,08	45,0	11,08	43,1	10,41
Northern Cape	20,8	5,60	63,2	8,13	13,4	4,04	41,9	6,94	28,3	6,88	22,0	5,39
Limpopo	40,1	9,01	52,2	8,16	43,5	9,25	57,6	7,20	46,5	8,66	42,5	9,20
North West	11,4	4,34	31,2	7,21	13,6	4,44	26,8	5,83	16,9	4,97	18,6	4,96
Western Cape	14,3	6,93	37,5	11,90	8,8	3,14	25,0	4,82	7,1	2,99	18,0	3,88
<b>South Africa</b>	<b>21,1</b>	<b>2,41</b>	<b>41,7</b>	<b>3,27</b>	<b>23,7</b>	<b>2,32</b>	<b>37,9</b>	<b>2,51</b>	<b>24,7</b>	<b>2,46</b>	<b>23,6</b>	<b>2,28</b>

For South Africa overall, the highest shortage of basic classroom writing materials among the Grade 6 learners was in notebooks (41,7% had no notebooks). More than 20 percent of the learners lacked the basic writing items such as exercise books (21,1%), pencils (23,7%) and pens (24,7%). Generally, the availability of the items was at unacceptably low levels in all the provinces.

It is possible that the low availability levels of textbooks as discussed earlier in this report combined with the shortage of stationery items as has been presented above, resulted in learners either not receiving or not doing homework on a regular basis.

#### **Policy Suggestion 3.13**

The Provincial Provisioning Sections, in collaboration with District Support Teams, should monitor and ensure timely ordering and prompt delivery of learner support materials – including basic stationery - to schools.

**General Policy Concern 4:****Did Grade 6 learners have access to library books and, if they had access, was the use of these books maximized by allowing learners to take them home to read?**

The quality of learning outcomes is determined not only by the availability of reading materials but also by the extent to which learners can access them and use them optimally. Two specific research questions were asked to explore the above general policy concern.

**What percentage of learners had access to (school and classroom) library facilities?**

Reading and Mathematics educators were asked whether they had a classroom library, book corner or book box. Principals, on the other hand, had to indicate if their schools had a conventional school library. The percentage Reading and Mathematics educators who had library facilities in their classrooms and the percentage of principals who indicated that their schools had conventional school libraries have been summarised in Table 3.13 for South Africa overall.

**Table 3.13** Percentages and sampling errors for classroom and school library facilities

	<b>Library facilities</b>			
	<b>Reading teacher</b>		<b>Mathematics teacher</b>	
	%	SE	%	SE
<b>Classroom</b>	62,6	4.19	52.6	4.53
<b>School</b>	33,3 (SE = 3,97)			

The figures presented in Table 3.13 indicate that the Grade 6 learners were in schools where 62,6 percent had Reading classroom libraries and 52,6 percent had Mathematics libraries whilst 33,3 percent of the schools had conventional school libraries.

**Were learners allowed to take library books home?**

Grade 6 learners and principals were asked whether learners were allowed to take library books home to read. The two sets of responses have been summarised in Table 3.15 for the provinces and for South Africa.

**Table 3.15** Percentages and sampling errors for learner and principal responses to whether learners are permitted to borrow books from a classroom or a school library

Province	Learner		Principal	
	%	SE	%	SE
Eastern Cape	60,4	5,13	100,0	0,00
Free State	61,3	11,66	79,1	22,73
Gauteng	82,5	8,17	94,3	6,11
KwaZulu Natal	59,8	7,89	100,0	0,00
Mpumalanga	57,5	7,67	100,0	0,00
Northern Cape	47,4	12,66	66,6	22,63
Limpopo	58,2	6,61	100,0	0,00
North West	39,7	8,37	100,0	0,00
Western Cape	45,8	12,10	89,0	11,34
<b>South Africa</b>	<b>60,2</b>	<b>3,16</b>	<b>93,8</b>	<b>3,27</b>

There were general discrepancies with more principals than learners tending to answer in the affirmative, but for South Africa overall, it could be inferred from Table 3.15 that, in schools where library books were available, between 60 and 90 percent of the Grade 6 learners were allowed to take library books home to read. However, for Northern Cape, North West and Western Cape the discrepancies between the two sets of responses were too wide to lead to any meaningful conclusion.

Library books are a valuable resource. They should not only be made available but should also be utilised maximally.

Although the level of availability of school libraries was significantly low, it should be appreciated that schools seem to take small-scale initiatives to provide classroom libraries. However, the relative shortage of Mathematics materials in the schools may discourage learners from studying this subject. It would be useful to find out whether the reason for lower percentage of Mathematics facilities was due to the shortage in the market or whether there was another factor at play.

**General Policy Concern 5:****Has the practice of Grade 6 learners receiving extra lessons in school subjects outside school hours become widespread, and have these been paid lessons?**

The practice of learners receiving and paying for extra tuition beyond school hours has been reported to be in the increase in many countries. One major problem with this practice is that it can discriminate between learners who can afford to pay and those who cannot, and thus widen opportunity inequalities. Two specific research questions were advanced to explore this concern.

**What percentage of learners received extra tuition?**

Percentages and sampling errors for extra tuition taken by learners outside school hours have been shown in Table 3.16 (a) for the provinces and South Africa overall.

**Table 3.16 (a)** Percentages and sampling errors for the extra tuition taken by learners outside school hours

Province	Extra tuition on any subject	
	%	SE
Eastern Cape	77,9	4,95
Free State	61,7	14,24
Gauteng	48,2	15,19
KwaZulu Natal	50,3	6,65
Mpumalanga	72,8	8,18
Northern Cape	58,2	9,90
Limpopo	61,6	8,60
North West	60,6	10,72
Western Cape	30,7	4,75
<b>South Africa</b>	<b>58,0</b>	<b>3,37</b>

The practice varied from province to province but, at the national level, more than half (58%) of the Grade 6 learners received extra tuition in some subject outside school hours. Most learners who had received the lessons were from Eastern Cape (77,9%) and Mpumalanga ((72,8%). In contrast, Western Cape had the lowest percentage of these. But the values of the standard errors were noticeably high and, therefore, interpretations and inferences should be made cautiously.

**Was payment made for receiving extra tuition?**

Learners were asked to indicate whether payment was made for the extra lessons they received. Responses have been summarised in Table 3.16 (b) for the provinces and South Africa.

**Table 3.16 (b)** Percentages and sampling errors for the payment of extra tuition taken by learners outside school hours

Province	There is payment		There is no payment		Don't know	
	%	SE	%	SE	%	SE
Eastern Cape	29,8	4,60	37,0	4,45	33,2	3,80
Free State	32,5	4,72	26,2	6,57	41,2	5,90
Gauteng	37,8	4,73	29,8	4,81	32,4	3,60
KwaZulu Natal	26,8	4,48	38,5	4,66	34,7	4,57
Mpumalanga	24,5	4,83	29,0	5,88	46,5	4,44
Northern Cape	23,9	3,93	36,7	9,34	39,4	6,66
Limpopo	24,5	4,85	29,8	4,82	45,7	2,76
North West	19,1	5,05	33,2	4,93	47,7	2,65
Western Cape	37,6	10,29	30,7	7,74	31,7	8,20
<b>South Africa</b>	<b>28,6</b>	<b>1,80</b>	<b>33,0</b>	<b>1,79</b>	<b>38,5</b>	<b>1,53</b>

Overall, about 28 percent of the learners indicated that their extra lessons were definitely paid for. The provinces with the highest prevalence of definitely paid for extra lessons were Gauteng (37,8%) and Western Cape (37,6%). At the national level, a significant number (38,5%) of the learners did not know whether the extra lessons they received were paid for or not, probably because the lessons were organised and paid for by parents without the knowledge of the children concerned. But there were also 33 percent of the learners who received extra lessons for which no payment was made.

The practice of paid extra lessons was significantly prevalent in South Africa. This practice has the potential to widen inequalities as many parents may not be able to pay. Although in this study no attempt was made to find out who offered the extra lessons, the possibility exists that practicing educators may be tutors as well outside working hours. There could, therefore, be a conflict of interests that may result in either the private lessons or the permanent school lessons receiving less attention from the educator. The Department should monitor the situation and invoke the relevant legislation to safeguard the interests of all the learners.

## **Conclusion**

The following were the key findings, which constitute useful baseline information about the learners and their home environments:

On the whole, there seemed to be general compliance with the policy on age of admission to school and the Grade 6 learners were at the expected age for this grade. However, this survey showed that grade repetitions in the schools were unacceptably high. With the exception of a few provinces, girls tended to outnumber boys.

The majority of the learners stayed with parents whose average education was mainly primary and barely secondary. But there was a sizable number of learners who indicated that, during a school week they either stayed on their own or with friends. Considering that these were mainly 13 year olds, the implications in terms of their security, the educational support they are supposed to receive from parents, and a host of other social issues, were incomprehensible. A complicating factor was the finding that a significant number of the learners stayed in homes whose general quality fitted a description of informal dwellings. But even more worrying were significant levels of learner absenteeism that were blamed on illness. In view of the ravages of the HIV/AIDS pandemic, there is need to follow up on this observation so that appropriate measure can be taken.

On average, learners had access to some books, print and electronic media where they stayed during a school week. The number of Reading textbooks owned by or put at the disposal of learners was higher than that of Mathematics textbooks. To promote the desired mathematical literacy in South Africa, it is recommended that provision of mathematics materials in schools be prioritised. The levels of learner support materials in general, but of stationery items in particular, indicated that many learners depend solely on what the schools provide in the way of resources. The resources varied widely among the provinces but the variations tended to be in favour of urban settings, which is an equity issue that needs an accelerated but comprehensive intervention strategy.

Possibly because of their generally modest levels of education and associated competencies, not many parents assisted with or looked at their children's homework. In addition, it has been found that a considerable number of the learners did not get their work corrected and,



therefore, receive feedback from educators either. Lack of feedback could deny children the much needed affirmation and, therefore, motivation to exert themselves in their schoolwork.

A significant number of schools provided classroom libraries or book corners which learners could access with reasonable ease - a commendable initiative which could be emulated by others to make up for the apparent paucity of reading materials in many homes. However, due concern arises from noticing that, in many schools, learners were not allowed to borrow books and take them home for reading. Understandably, there could be management reasons behind this decision – like books getting damaged or lost - but alternatives can be found so that these precious resources are not under-utilized.

A number of policy suggestions to address some of the findings have been made for both the short- and the long-term.

A couple of the suggestions are concerned with the need to redress the revealed gender inequities in the participation of children in education. Although at the national level fewer boys than girls participated, equally serious was the observation that, in Provinces like Northern Cape, Eastern Cape and Mpumalanga, extremely low numbers of girls compared to boys were in school. Besides seeking effective ways to make parents comply with the law and send all children to school, the suggestion is to constantly assist educators to make school learning programmes meaningful and interesting enough to attract and retain boys and girls alike at school.

The high levels of learner absenteeism that are due to “illnesses” call for a proactive response from the schools (or the Department of Education) to collaborate with health community workers and health centres so that, where necessary, due help can be provided at the right time. Priority provinces in this regard should be Limpopo, KwaZulu Natal and Mpumalanga but this does not suggest that other provinces should be excluded. As a matter of educational principle, quality health should be seen as a prerequisite to quality education.

The need to accelerate the resourcing and financing particularly of the poverty-stricken schools was corroborated by the findings of this survey and the suggestion is that this intervention be prioritised.

Many of the policy suggestions are basically concerned with the need for intensive monitoring of the implementation of the existing policies of the Department. Examples, which are by no means exhaustive, include the need to drastically reduce the existing excessive learner grade repetition rates and provide effective support systems – with appropriate human and material resources – to help learners progress with their age cohorts. The low levels of feedback to learners were perhaps an indication that the principles of formative continuous assessment as espoused by the Department have not taken firm root yet. Relevant units need to intensify monitoring and increase support.

## Chapter 4

### **Educators' Characteristics and their Viewpoints on Teaching, Classroom Resources, Professional Support and Job Satisfaction**

#### **Introduction**

The quality of any education system is as good as its educators. Educators set the tone of what happens in the classroom. In monitoring the quality of education it is, therefore, important that the viewpoints of the educators be taken into consideration.

The personal and professional characteristics of the Grade 6 educators have been presented in this chapter to explore whether there was a typical educator profile and how it looked like. That has been followed by a presentation of an analysis of the educators' responses to questions concerning how they allocated time to different activities, what they considered as the main goals of teaching each of Reading and Mathematics, their teaching strategies and assessment methods. The analysis was extended to include an examination of the classroom contexts in which Grade 6 learners were taught, the professional support that the educators received from various sources and some of the factors that educators felt impacted on their satisfaction with the teaching work.

Where appropriate, policy suggestions have been made on how the work and conditions of the educators could be improved to benefit learners most.

#### **General Policy Concern 6:**

#### **What were the personal characteristics of Grade 6 educators, and what was the condition of their housing?**

Motivated educators are more likely to motivate learners and thus better facilitate learning than educators who lack motivation. Therefore, the social and economic circumstances of educators play an important role in improving and sustaining high quality of teaching and learning.

Four specific research questions were used to guide the presentation and discussions on this general policy concern.

### What was the age distribution of educators?

The distribution of the mean age, in years, of the educators has been given in the first column for each of the Reading educator and the Mathematics educator in Table 4.1 (a) for all the provinces and for South Africa overall.

**Table 4.1(a) Means, percentages, and sampling errors for age, gender, and socio-economic background of Reading and Mathematics educators**

Reading educator						Mathematics educator						
Age (years)		Gender (female)		Possession at home (index)		Age (years)		Gender (female)		Possessions at home (index)		
Mean	SE	%	SE	Mean	SE	Mean	SE	%	SE	Mean	SE	
EC	40,2	1,85	67,2	9,23	8,3	0,41	37,1	1,57	50,4	10,31	8,5	0,42
FS	39,2	3,89	59,8	14,87	8,9	0,65	41,4	3,09	60,9	14,11	9,3	0,56
GA	41,2	4,10	75,4	12,16	10,1	0,40	38,3	1,51	52,3	16,61	10,6	0,22
KZN	37,7	1,28	65,3	9,87	9,6	0,38	38,7	1,43	70,2	9,49	9,2	0,65
MP	38,0	1,93	43,3	13,90	9,4	0,41	36,2	2,10	38,9	13,92	9,4	0,45
NC	35,0	2,07	50,5	13,45	8,9	1,22	38,8	1,43	40,7	13,49	10,4	0,49
LIM	37,7	1,50	31,6	10,61	7,8	0,82	38,9	1,52	37,1	10,97	7,1	0,67
NW	40,8	2,12	42,4	13,96	9,1	0,57	39,3	1,31	61,8	12,74	8,7	0,73
WC	36,8	2,71	60,7	14,84	10,9	0,25	36,2	2,81	48,0	15,74	10,9	0,27
<b>SA</b>	<b>38,9</b>	<b>0,88</b>	<b>57,9</b>	<b>4,24</b>	<b>9,2</b>	<b>0,19</b>	<b>38,2</b>	<b>0,63</b>	<b>52,6</b>	<b>4,48</b>	<b>9,1</b>	<b>0,20</b>

For South Africa overall there was no significant difference between the age distribution of the Reading and the Mathematics educators. The figures presented in the last row of Table 4.1 (a) indicate that the mean age of a Grade 6 educator was 38,9 years. The oldest average Grade 6 educator was in Gauteng (41,4 years for Mathematics) and the youngest was in Northern Cape (35 years for Reading) and the mean age range was 6,4 years.

The wide spread of teacher ages is a strength that ensures that the system does not only benefit from the experience of the older teachers but that there is a potential for a refreshing inflow of new innovative ideas from the younger teachers. This mix augurs well for the system particularly during the transition from the traditional teacher-centred approach to the learner-centred outcomes-based education.

### What was the gender distribution of the educators?

The gender distribution of the educators has been shown in the second columns for each of the Reading educators and the Mathematics educators in Table 4.1 (a). At the national level,

there were more female than male educators for both Reading and Mathematics. More females taught Reading (57,9%) than Mathematics (52,6%). This was also the trend at provincial level, with one exception. Limpopo had significantly fewer female than male Grade 6 educators for both Reading (31,6%) and Mathematics (37,1%). Limpopo also had the fewest Grade 6 Reading and Mathematics female educators among all the provinces. Mpumalanga was the next province which had fewer female than male educators for both Reading (43,3%) and Mathematics (38,9%). For Reading the highest percentage of females (75%) were in Gauteng whilst KwaZulu Natal had the highest number of female educators of Mathematics (70%).

The proportion of females to males among the Grade 6 educators mirrors the population structure in South Africa. However, the gender proportions in Limpopo and Mpumalanga were anomalous and warrant further investigation, especially in view of the fact that the two provinces share geographical borders. An investigation could, for instance, establish whether the observed patterns were related to economic or cultural factors. Besides equity considerations, a reasonable gender balance among educators has value in role modelling for learners.

**Policy Suggestion 4.1**

The Heads of Education in Limpopo and Mpumalanga should commission an investigation to establish why there were disproportionately fewer female educators at the Grade 6 level with a view to developing interventions of encouraging females into teaching.

**What was the socio-economic status of educators in terms of possessions and livestock?**

The indicator for possessions was constructed from a given list of items such as a daily newspaper, weekly or monthly magazine, radio, TV set, VCR, cassette player, telephone, refrigerator, car, motorcycle, bicycle, electricity and a table to write on, which the educators had to tick on the questionnaire if they owned. The index of the items was calculated and it ranged from a minimum of 1 for no item ticked to a maximum of 13 if all the items were ticked. The summary of the indices for possessions by Grade 6 educators has been presented as “Possessions at home” in the last column in Table 4.1 (a) for the provinces and South Africa overall.

The presentation in Table 4.1 (a) indicates that, on average, the mean index for possessions by both Reading and Mathematics educators was approximately 9. This means that the Grade 6

learner was taught by an educator whose possessions were 69 percent (9/13) of the suggested list. The highest levels of possessions occurred in Western Cape (10,9) and Gauteng (10,6) and lowest in Limpopo (7,1).

It can be inferred from the observations above that the average Grade 6 learner was taught by an educator whose socio-economic status was fairly high in terms of what he/she was able to own.

The type and mean livestock owned by the educators have been presented in the last columns of Tables 4.1 (b) and 4.1 (c) for Reading and Mathematics educators, respectively.

**Table 4.1 (b) Means and sampling errors for the type and amount of livestock at Reading educators' homes**

<b>Type of livestock</b>												
	<b>Cattle</b>		<b>Sheep</b>		<b>Goats</b>		<b>Horses/ Donkeys</b>		<b>Pigs</b>		<b>Chickens</b>	
	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE
EC	1,3	0,55	0,9	0,52	1,6	0,78	0,1	0,07	0,5	0,42	5,9	2,15
FS	0,1	0,06	0,2	0,25	0,0	0,00	0,0	0,00	0,0	0,00	0,0	0,00
GA	1,0	1,00	0,0	0,00	0,0	0,00	0,0	0,00	0,0	0,00	0,0	0,00
KZN	0,1	0,11	0,0	0,00	0,1	0,07	0,0	0,00	0,0	0,00	2,0	1,14
MP	1,0	0,88	0,0	0,00	0,0	0,00	0,0	0,00	1,2	1,17	1,8	1,33
NC	0,0	0,00	0,0	0,00	0,0	0,00	0,0	0,00	0,0	0,00	0,3	0,27
LIM	1,7	0,86	0,1	0,06	1,1	0,69	0,0	0,00	0,0	0,00	6,3	2,37
NW	1,0	0,91	0,8	0,75	1,7	1,66	0,3	0,30	0,0	0,00	0,9	0,71
WC	0,0	0,00	0,0	0,00	0,0	0,00	0,0	0,00	0,0	0,00	0,0	0,00
<b>SA</b>	0,8	0,24	0,2	0,11	0,6	0,21	0,0	0,03	0,2	0,12	2,5	0,56

**Table 4.1 (c) Means and sampling errors for the type and amount of livestock at Mathematics educators' homes**

<b>Type of livestock</b>												
	<b>Cattle</b>		<b>Sheep</b>		<b>Goats</b>		<b>Horses/ Donkeys</b>		<b>Pigs</b>		<b>Chickens</b>	
	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE
EC	1,2	0,58	0,2	0,19	3,8	2,18	0,1	0,07	0,9	0,49	9,6	3,50
FS	0,1	0,12	0,0	0,00	0,0	0,00	0,0	0,00	0,0	0,00	0,0	0,00
GA	0,0	0,00	0,0	0,00	0,0	0,00	0,0	0,00	0,0	0,00	0,6	0,62
KZN	1,4	1,21	0,1	0,14	0,2	0,25	0,2	0,17	0,0	0,00	5,3	2,16
MP	0,3	0,29	0,0	0,00	0,1	0,07	0,0	0,00	0,4	0,37	2,3	1,59
NC	0,0	0,00	0,0	0,00	0,0	0,00	0,0	0,00	0,0	0,00	0,5	0,53
LIM	1,5	0,68	0,1	0,08	0,2	0,16	0,0	0,00	0,0	0,00	5,7	2,46
NW	3,5	1,32	0,7	0,72	2,2	1,62	0,3	0,29	0,2	0,18	6,4	2,35
WC	0,5	0,49	0,0	0,00	0,0	0,00	0,0	0,00	0,0	0,00	0,0	0,00
<b>SA</b>	<b>1,0</b>	<b>0,28</b>	<b>0,1</b>	<b>0,07</b>	<b>0,9</b>	<b>0,40</b>	<b>0,1</b>	<b>0,04</b>	<b>0,2</b>	<b>0,09</b>	<b>4,3</b>	<b>0,85</b>

Educators' livestock modal possession were chickens and, for South Africa overall, an average Grade 6 learner was taught by a Reading educator who owned 2,5 chickens and a Mathematics educator who owned 4,3 chickens. Eastern Cape, Limpopo and North West, all predominantly rural provinces, had Grade 6 educators who owned the most chickens whilst in Western Cape – mainly urban – educators either owned very few or none of the animals.

Material possessions generate satisfaction, boost the self-esteem and heighten motivation levels of individuals. On the whole, Grade 6 educators owned reasonable amounts of household possessions but very low levels of livestock. Whilst the absence of livestock in their possession could be some indicator of a low economic status, it could, on the other hand, leave educators more time to focus on their professional activities and thus improve their efficiency.

### **What was the general condition, repair status and lighting of educators' housing?**

Educators need a conducive infrastructure to make preparations and mark learners' books at home. In this survey educators were asked about the repair status of and lighting in their houses.

### **Repair status of educators' housing**

Information on the Reading and Mathematics educator housing that was in acceptable condition has been summarised in Table 4.2 (a) for the provinces and for South Africa overall.

**Table 4.2 (a) Percentages and sampling errors for teacher housing in acceptable conditions**

<b>Teacher housing in acceptable conditions</b>				
	<b>Reading teacher</b>		<b>Mathematics teacher</b>	
	<b>%</b>	<b>SE</b>	<b>%</b>	<b>SE</b>
Eastern Cape	44,1	10,32	52,9	10,23
Free State	77,5	11,07	56,2	15,07
Gauteng	91,3	5,13	94,2	4,34
KwaZulu Natal	66,3	10,04	69,9	10,60
Mpumalanga	100,0	0,00	91,9	5,81
Northern Cape	97,1	2,86	100,0	0,00
Limpopo	46,5	11,57	53,2	11,65
North West	74,5	12,15	45,2	13,86
Western Cape	100,0	0,00	100,0	0,00
<b>South Africa</b>	<b>71,1</b>	<b>3,54</b>	<b>70,2</b>	<b>3,66</b>

Around 70 percent of Reading and Mathematics educators at the national level indicated that the general condition of their housing was acceptable. All the educators in Western Cape and significant majorities in Northern Cape, Mpumalanga and Gauteng indicated that their housing were in generally good condition. In contrast, just fewer than 50 percent of the educators in the Eastern Cape and Limpopo indicated that they had housing that was in generally acceptable condition.

Substantial disparities in the distribution of satisfactory housing conditions are likely to attract educators to some locations and away from others and thus affect equity in the provision of the teaching service.

### **Lighting of educators' housing**

Information on the source of lighting in educators' houses has been presented in the columns of Table 4.2 (b) for each province and for South Africa overall.



**Table 4.2 (b) Percentages and sampling errors for the type of lighting in reading educator' homes**

	Type of lighting							
	No light		Candle/Oil Lamp		Gas lamp		Electric lighting	
	%	SE	%	SE	%	SE	%	SE
Eastern Cape	0,0	0,00	24,2	7,94	6,1	4,32	69,8	8,63
Free State	0,0	0,00	4,2	4,25	0,0	0,00	95,8	4,25
Gauteng	0,0	0,00	0,0	0,00	0,0	0,00	100,0	0,00
KwaZulu Natal	0,0	0,00	1,6	1,61	1,6	1,63	96,8	2,31
Mpumalanga	0,0	0,00	0,0	0,00	0,0	0,00	100,0	0,00
Northern Cape	0,0	0,00	0,0	0,00	0,0	0,00	100,0	0,00
Limpopo	0,0	0,00	11,0	5,95	0,0	0,00	89,0	5,95
North West	0,0	0,00	6,2	6,26	0,0	0,00	93,8	6,26
Western Cape	0,0	0,00	0,0	0,00	0,0	0,00	100,0	0,00
<b>South Africa</b>	0,0	0,00	6,8	1,70	1,4	0,80	91,9	1,81

For South Africa overall the majority of the Grade 6 educators (more than 91%) used electric lighting in their houses. However, a significant number of educators, 30 percent in the Eastern Cape and 11 percent in Limpopo, used either candles, oil or gas lamps.

Although all educators in South Africa qualify for State-subsidised housing, many educators prefer to purchase properties in urban centres where services are perceived to be of a higher quality than in rural areas. This results in perennial migrations of educators to the cities. Many resort to daily commuting, sometimes over considerably long distances, between their homes in the cities and schools in the rural areas. It was possible, therefore, that educators' houses in the predominantly rural Eastern Cape and Limpopo were not necessarily in unacceptable condition, but that there were few educators who owned houses in the rural areas. To minimise absenteeism and lack of punctuality that are likely if educators commute, at considerable costs sometimes, the Department of education should consider giving incentives to educators who work in rural schools.

#### **Policy Suggestion 4.2**

The Department of Education, in collaboration with the Department of Finance, should consider piloting in Eastern Cape and Limpopo, a project to attract educators to rural schools by offering them some incentives relating to housing. Depending on the success of the pilot project, the scheme could, in the long term, be rolled out to all rural schools.

### **General Policy Concern 7:**

#### **What were the professional characteristics of Grade 6 educators, and did they consider in-service training to be effective in improving their teaching?**

Whilst pre-service training is critical to give educators a sound theoretical basis for their profession, the dynamic nature of education makes it imperative that educators receive regular in-service training to keep abreast with new developments. The radical changes in education in general and in the curriculum in particular that South Africa underwent since 1994 presented more pressing challenges for major paradigm shifts in educator pre-service and in-service training. The effectiveness of these services needs to be monitored to ensure that learners receive equitable high quality education.

Five specific research questions were used to get relevant information for this policy concern.

#### **How many years of academic education had educators completed?**

The educators were asked to report “the highest level of academic education” that they had attained. Five education levels were used: primary, junior secondary, senior secondary, A-level and/or non-degree and tertiary. In Tables 4.3 (a) and 4.3 (b) the attained levels of academic education for the educators of Grade 6 learners have been presented - for the provinces and South Africa overall - separately for Reading and Mathematics educators.

**Table 4.3 (a) Academic education of Reading educators**

	<b>Primary</b>		<b>Junior secondary</b>		<b>Senior secondary</b>		<b>A-level</b>		<b>Tertiary</b>	
	%	SE	%	SE	%	SE	%	SE	%	SE
EC	26,9	9,31	14,8	7,50	25,4	8,35	16,6	7,81	16,3	7,94
FS	49,3	15,39	5,8	5,84	28,5	12,47	4,6	4,68	11,9	11,93
GA	27,5	11,52	8,8	5,58	10,5	6,84	21,6	9,82	31,6	18,67
KZN	23,3	9,07	0,0	0,00	19,4	8,73	27,0	9,36	30,3	9,56
MP	27,2	12,55	0,0	0,00	6,3	6,30	33,7	12,94	32,9	14,51
NC	9,6	7,31	0,0	0,00	10,5	6,16	36,3	13,43	43,6	13,47
LIM	35,4	10,83	0,0	0,00	18,9	9,29	26,8	10,16	18,9	10,27
NW	36,1	13,17	0,0	0,00	18,4	12,26	35,2	12,88	10,3	10,32
WC	0,0	0,00	3,4	3,44	24,1	14,61	25,8	12,73	46,7	14,74
<b>SA</b>	<b>27,3</b>	<b>3,78</b>	<b>4,6</b>	<b>1,60</b>	<b>18,7</b>	<b>3,35</b>	<b>23,9</b>	<b>3,57</b>	<b>25,4</b>	<b>4,32</b>

**Table 4.3 (b) Academic education of Mathematics educators**

	Primary		Junior secondary		Senior secondary		A-level		Tertiary	
	%	SE	%	SE	%	SE	%	SE	%	SE
EC	33,3	10,33	6,1	4,34	37,9	9,81	11,5	6,44	11,1	5,67
FS	58,4	15,06	11,1	7,96	25,8	14,09	4,7	4,74	0,0	0,00
GA	25,5	11,39	0,0	0,00	6,7	4,79	17,0	8,38	50,8	16,01
KZN	37,5	11,03	0,0	0,00	12,1	8,32	31,2	10,89	19,2	8,42
MP	27,9	12,71	4,6	4,64	3,5	3,49	29,3	12,58	34,8	14,56
NC	13,2	9,07	2,1	2,13	34,9	12,12	14,6	8,87	35,1	12,76
LIM	43,6	11,42	0,0	0,00	24,2	10,35	5,3	5,28	27,0	10,94
NW	38,6	13,56	0,0	0,00	15,1	10,33	22,3	11,99	24,1	11,63
WC	0,0	0,00	3,4	3,44	18,8	14,43	25,5	12,58	52,3	15,10
<b>SA</b>	<b>33,0</b>	<b>4,06</b>	<b>2,6</b>	<b>1,06</b>	<b>19,1</b>	<b>3,33</b>	<b>18,0</b>	<b>3,26</b>	<b>27,3</b>	<b>4,18</b>

The results presented in Tables 4.3 (a) and 4.3 (b) indicate that, for South Africa overall, the modal level of academic training was Primary education for both Reading and Mathematics educators. A significantly higher percentage of Grade 6 learners were taught by Mathematics educators whose level of education was Primary (33%) than by Reading educators who were at the same level (27,3%). However, the Grade 6 learners also had significantly more Reading educators who had either attained equivalents of A-levels (23,9%) or tertiary education (25,4%) than they had Mathematics educators who had attained the same levels (18% or 27,3% respectively).

There were conspicuous variations across the provinces. For instance, Free State and Limpopo each had significantly more Reading and Mathematics educators with Primary education than with higher education levels. In contrast, Gauteng and Western Cape each had significantly fewer Reading and Mathematics educators with Primary education than with higher levels of education.

It was evident from the results that the average Grade 6 learner in South Africa had a Reading educator with superior training in comparison with his/her Mathematics educator. A possible reason could be the fact that educators have greater chances to successfully study languages and social sciences through distance learning than they can do so in Mathematics and natural sciences. The result is that many educators who had initially received basic training in Mathematics are compelled to change to social sciences when they have to upgrade their qualifications through distance learning. This definitely erodes the country's base of Mathematics educators.

**How many years of educator training had educators completed?**

Two sets of figures representing the average number of years of teaching experience and training that the Reading and the Mathematics educator for the Grade 6 learners had have been presented in Table 4.4 for the provinces and South Africa overall.

**Table 4.4 Means and sampling errors for experience and training of reading and Mathematics educators**

	Reading educator				Mathematics educator			
	Experience (years)		Training (years)		Experience (years)		Training (years)	
	Mean	SE	Mean	SE	Mean	SE	Mean	SE
EC	15,5	1,73	2,6	0,16	12,2	1,71	3,0	0,17
FS	15,4	2,90	3,1	0,22	16,1	2,69	2,8	0,18
GA	14,8	2,37	3,3	0,17	14,3	1,18	3,5	0,20
KZN	14,3	1,35	3,3	0,16	14,8	1,67	3,2	0,17
MP	13,4	1,65	3,4	0,22	11,5	1,59	3,3	0,18
NC	11,1	2,04	3,2	0,24	15,4	1,73	3,6	0,13
LIM	12,8	1,19	3,0	0,18	13,5	1,28	2,9	0,17
NW	15,3	2,36	2,7	0,20	14,8	1,34	2,7	0,18
WC	11,8	1,93	4,0	0,03	11,6	2,02	4,0	0,03
<b>SA</b>	14,2	0,66	3,2	0,06	13,7	0,59	3,2	0,07

The results presented in the table indicate that for South Africa overall a Grade 6 learner was taught by a reading educator and a Mathematics educator both of whom had been trained for an average period of three years. There were, however, provincial variations with the longest average duration of training in years reported in the Western Cape (4 years) for both categories of educators and the shortest in Eastern Cape (2,6 years) for the Reading educator.

The averages in Table 4.4 mask considerable disparities in terms of the qualifications and duration of training for educators in South Africa. In a separate audit conducted by the Teacher Development Directorate of the Department of Education in 2002, 30 000 educators were reported to be either under-qualified or unqualified. The problem of educator training is therefore much deeper and the Department of Education needs to prioritise in-service training programmes to upgrade educators' level of training.

**Policy Suggestion 4.3**

The Department of Education should accelerate the expansion and roll out of the current pilot projects which focus on in-service training and upgrading of Science and Mathematics educators (e.g. the Dinaledi Project) in certain geographical areas of South Africa and make these accessible to a larger pool of educators in order to broaden the base of highly qualified Mathematics educators.

**How much in-service training had educators completed?**

The average number of short in-service training courses - and their mean duration in days - that the Reading and the Mathematics educators of Grade 6 learners had attended in the three years preceding the survey have been shown in Table 4.5 for the provinces and for South Africa overall.

**Table 4.5 Means and sampling errors for educator in-service courses and days attended in the last three years**

	<b>Reading educator</b>				<b>Mathematics educator</b>			
	<b>In-services courses</b>		<b>Days</b>		<b>In-services courses</b>		<b>Days</b>	
	Mean	SE	Mean	SE	Mean	SE	Mean	SE
EC	4,6	0,92	30,4	9,63	5,4	1,18	30,8	9,39
FS	4,1	1,45	18,7	10,53	4,3	1,33	11,2	2,97
GA	5,7	1,65	21,0	7,53	5,1	1,93	14,0	3,88
KZN	4,0	0,65	26,4	7,40	2,7	0,58	12,2	3,80
MP	3,0	0,58	17,6	5,32	3,9	1,99	14,7	4,54
NC	4,6	1,17	20,3	9,42	4,9	1,48	10,7	2,38
LIM	1,6	0,66	8,8	2,98	3,2	1,74	16,8	8,24
NW	4,6	2,48	15,3	9,04	2,9	1,01	8,4	3,13
WC	3,4	1,17	17,9	8,62	3,4	1,17	12,5	5,52
<b>SA</b>	<b>4,0</b>	<b>0,42</b>	<b>20,8</b>	<b>2,86</b>	<b>3,9</b>	<b>0,51</b>	<b>16,2</b>	<b>2,35</b>

At the national level, a Reading educator had attended an average of four in-service training courses that together had lasted for a mean period of 20,8 days. This was noticeably more than the Mathematics educator who had attended an average of 3,9 courses in a mean period of 16,2 days. There were significantly wide variations across the provinces. The highest average number of courses for the Reading educator (5,7) and the Mathematics educator (5,1) were both in Gauteng. Similarly, the particularly low numbers of courses - 1,6 and 3,2 respectively - were both in Limpopo.

According to the norms and standards set by the Department of Education, an educator is expected to receive 80 hours (ten eight-hour working days) of in-service training in a year. This would translate to 30 days in three years. Except for Eastern Cape (30,8 days), all the provinces had fallen below the norm in terms of the average number of days of in-service training attended by the Reading and the Mathematics educators of Grade 6 learners.

The in-service training norm is a redress measure that should be monitored properly to avoid a perpetuation of capacity inequalities among the educators in South Africa. In-service training

helps educators keep abreast with the latest developments in curriculum delivery, tested and most effective methods of facilitating learning, development of appropriate curriculum materials and many other issues of educational interest.

### **Did educators consider that in-service training improved their teaching?**

Percentages of Reading educators and Mathematics educators who reported that they found the in-service training courses they had attended effective or very effective have been displayed in Table 4.6 for the provinces and South Africa overall.

**Table 4.6 Percentages and sampling errors for the educators' perception of effectiveness of Reading and Mathematics in-service courses**

<b>Effectiveness of the in-service courses</b>				
	<b>Reading in-service courses</b>		<b>Mathematics in-service courses</b>	
	<b>%</b>	<b>SE</b>	<b>%</b>	<b>SE</b>
Eastern Cape	40,6	9,83	50,2	10,30
Free State	24,7	11,96	52,1	15,66
Gauteng	19,4	8,30	9,0	6,67
KwaZulu Natal	46,2	10,20	40,7	10,40
Mpumalanga	26,2	12,37	33,1	13,18
Northern Cape	33,1	11,99	30,6	12,06
Limpopo	15,3	7,56	23,4	9,96
North West	34,2	13,31	35,7	12,99
Western Cape	20,7	11,42	21,0	11,61
<b>South Africa</b>	<b>30,2</b>	<b>3,71</b>	<b>32,6</b>	<b>3,86</b>

For South Africa overall only 30,2 percent of the Reading educators reported that the in-service courses they had attended were effective or very effective. The corresponding percentage was 32,6 for the Mathematics educators, indicating that, on the whole, fairly more Mathematics educators who were satisfied with their in-service training than their Reading counterparts who taught Grade 6 learners. The highest level of satisfaction in terms of the percentage of satisfied educators was for Mathematics (50,2%) in Eastern Cape and the lowest was for Reading (15,3%) in Limpopo.

Generally, low percentages of Reading and Mathematics educators reported that the in-service training courses were effective. Reasons for the apparent dissatisfaction with the effectiveness of the in-service courses could relate to both the quality and the number of these courses. For instance, in Gauteng, which had the highest number of in-service courses per year, only 19,4 percent of the Reading educators reported that the in-service courses were effective. The dissatisfaction with the courses in Gauteng could therefore be ascribed to their

quality. On the contrary, the lowest level of satisfaction (15%) in Limpopo, which had the lowest number of courses as well, could be linked to the quantity (number) of the courses. To improve the level of satisfaction among the educators, the provincial Curriculum Sections should provide a sufficient number of in-service training courses that address identified needs of practicing educators.

**General Policy Concern 8:**

**How did the Grade 6 educators allocate their time among responsibilities concerned with teaching, preparing lessons and marking?**

Although the Department of Education has provided guidelines and norms for the responsibilities of educators as well as the way they should allocate time to various activities, the task of facilitating learning presents educators with considerable time and resource management challenges. The number and duration of teaching periods determine the amount of exposure that learners have to a learning area and may therefore influence achievement and levels of competence, hence the two specific research questions explored under this general policy concern were considered to provide useful information.

**How many periods did educators teach and how long were these periods?**

The educators were asked to indicate the number and duration, in minutes, of the periods they had to teach in a typical school week. The average number of periods per week and their duration in hours for a Reading educator and a Mathematics educator have been summarised in the respective first and second sets of figures in the columns of Table 4.6.

**Table 4.6 Means and sampling errors for the periods and time spent on teaching per week**

	Reading educator				Mathematics educator			
	Periods per week		Hours per week		Periods per week		Hours per week	
	Mean	SE	Mean	SE	Mean	SE	Mean	SE
EC	27,0	2,15	16,4	1,45	33,3	2,90	20,5	1,86
FS	46,7	4,78	23,8	2,31	47,4	4,60	25,2	2,36
GA	43,2	3,08	24,4	1,60	43,0	2,67	22,5	1,22
KZN	32,7	3,71	19,2	2,32	34,9	3,62	19,8	2,04
MP	40,9	3,05	21,0	1,54	39,3	2,87	20,2	1,37
NC	46,6	1,80	28,8	2,19	36,5	3,71	23,9	2,91
LIM	28,9	3,38	15,0	1,64	32,1	3,37	16,5	1,62
NW	33,9	3,42	19,8	2,88	30,7	2,67	16,2	1,51
WC	38,8	4,13	23,5	2,90	39,9	3,70	24,0	2,69
<b>SA</b>	<b>35,5</b>	<b>1,28</b>	<b>20,0</b>	<b>0,76</b>	<b>37,0</b>	<b>1,23</b>	<b>20,4</b>	<b>0,68</b>

The figures in the bottom row of Table 4.6 indicate that the Reading educator of a Grade 6 learner in South Africa had an average of 35,5 teaching periods and taught for an average of 20 hours per week. The Mathematics educator had about one more period (37) than his/her Reading counterpart, on the average. Across the provinces the mean range was considerably wide and the highest average number of teaching periods was for a Mathematics educator (47,4) in Free State whilst the lowest was for a Reading educator (27,0) in Eastern Cape.

The policy of the Department of Education sets the teaching time at 26 hours and 30 minutes for a Grade 6 educator. Accordingly, the results in Table 4.6 indicate that, on average, the time that the South African Grade 6 educator used to teach (20 hours for Reading educator and 20,4 hours for Mathematics educator) was less than it was officially expected. Except for Northern Cape where the average Reading educator taught for 28,8 hours in a school week, the average teaching time for Grade 6 educators in all the provinces fell below the norm.

In order to ensure that learners receive maximum benefit from the school programmes, School Management Teams (SMTs) should vigilantly examine school programmes to see if they met the curriculum requirements as set out by the Department and carefully manage the use of time by both learners and educators.



**How many hours per week did educators spend in lesson preparation?**

In Table 4.7 the mean time spent by educators of Grade 6 learners in preparing Reading and Mathematics lessons has been presented for South Africa overall and the provinces.

**Table 4.7 Means and sampling errors for the educator time spent on lesson preparation**

	Time spent on lesson preparation			
	Reading lesson (hours)		Mathematics lesson (hours)	
	Mean	SE	Mean	SE
Eastern Cape	16,7	2,66	15,1	2,34
Free State	16,3	4,60	17,9	4,81
Gauteng	15,1	3,89	13,6	2,25
KwaZulu Natal	13,5	2,49	16,4	3,14
Mpumalanga	11,0	3,11	12,2	3,28
Northern Cape	11,2	2,10	16,1	2,91
Limpopo	10,1	2,10	17,3	2,96
North West	13,4	3,58	11,5	3,10
Western Cape	13,0	3,28	13,2	3,09
<b>South Africa</b>	13,7	1,09	14,9	1,04

As has been reflected in the last row of Table 4.7, at the national level a Grade 6 Reading educator spent an average of 13,7 hours on lesson preparation per week whilst the average time spent on a Mathematics lesson was 14,9 hours. Thus a Grade 6 Mathematics educator in South Africa spent just over an hour longer than a Reading educator in lesson preparation per week. Provincial variations were significantly wide with the highest average figure of 17,9 hours per week recorded for Mathematics lesson in Free State whilst the lowest was 10,1 hours in Limpopo.

The assumptions behind educators' tendency to spend more time in preparing Mathematics than Reading lessons need to be investigated. The amount of time spent in the preparation of a lesson will invariably influence the quality of the lesson. Therefore, sufficient time needs to be spent in preparing all lessons.

**General Policy Concern 9:**

**What were Grade 6 educators' viewpoints on:**

- (a) learner activities within the classroom
- (b) teaching goals
- (c) teaching approaches and
- (d) assessment procedures?

The organisation of learning programmes and learner activities is informed largely by the teaching goals as set and understood by the educators. In order to ensure that all the learners reach the set learning goals, educators need to select the most appropriate teaching approaches and use relevant and valid assessment procedures.

This general policy concern was dealt with under eight specific research questions.

**What did educators consider to be the most important learner activities for teaching Reading and Mathematics?**

Educators were given a set of eight learner activities and were asked to select the ones they considered most important for teaching Reading and Mathematics. Frequencies of the activities that South African educators of Grade 6 rated as “most important” for teaching Reading and Mathematics have been presented as percentages in Tables 4.8 (a) and 4.8 (b), respectively.

**Table 4.8 (a) Percentages and sampling errors for the activities of teaching Reading**

Activity rated as ‘most important’		
	%	SE
Listening to reading	2,0	1,20
Silent reading	3,8	1,67
Learning new vocabulary	21,8	4,10
Sounding words	13,1	2,70
Reading for comprehension	44,6	4,28
Taking books home to read	8,6	2,58
Reading materials in home	4,1	1,46
Reading aloud in class	2,1	1,22

**Table 4.8 (b) Percentages and sampling errors for the activities of teaching Mathematics**

	Activity rated as ‘most important’	
	%	SE
Working in pairs or groups	56,5	4,26
Working alone	3,2	1,31
Preparing projects to be shown to the class	2,9	1,38
Using practical equipment	21,1	3,26
Homework assignments	1,6	1,04
Studying and interpreting graphs	1,8	1,04
Reciting tables, formulae, etc.	2,3	1,16
Quizzes, tests, examinations, etc..	10,7	2,66

The results in Table 4.8 (a) indicate that for the Grade 6 educators the modal activity for teaching Reading was “Reading for comprehension” (44,6%), followed in order of perceived importance by “Learning new vocabulary” (21,8%). A common feature between the two activities is that they tend to be more individualistic than group-oriented. It was curious to note that “Listening to reading” was rated the lowest (2,0%) by the educators.

The results in Table 4.8 (b) show that the modal activity for teaching Mathematics was “Working in pairs or groups” (56,5%) and the second, in order of perceived importance, was “Using practical equipment” (21,1%). The two activities tend to be more interactive than passive. “Homework assignments” was rated the lowest (1,6%).

On the whole, the Grade 6 educators of Mathematics rated ‘interactive activities’ most important whilst ‘individualistic activities’ seemed to be popular among the Reading educators. With the introduction of outcomes-based education in South Africa more emphasis has been on interactive and group-oriented rather than passive and individualistic learning. It would be informative to examine whether the interactive approach that was apparently preferred by the Mathematics educators was influenced by this emphasis or by some other factors. For Reading it was striking to note how activities like “Listening to reading” and “Reading aloud in class” were the least popular whereas these are strategic activities that could be used profitably to model good reading by the educator and also by other learners.

#### **Policy Suggestion 4.4**

The Provincial and District curriculum specialists should organize intensive in-service courses to train educators in interactive learner-centred approaches to teaching. The courses should be sustained to the extent that educators are confident to apply these approaches in their classes.

### What did educators consider to be the most important teaching goals in Reading and Mathematics?

Educators were asked to choose, from a given list, the goals of teaching Reading and of teaching Mathematics they considered “the most important”. Their ratings have been summarised in percentages in Tables 4.9 (a) and 4.9 (b) for South Africa overall.

**Table 4.9 (a) Percentages and sampling errors for the goals of teaching reading**

	Goal rated as ‘most important’	
	%	SE
Making reading enjoyable	11,2	3,68
Extending vocabulary	4,8	1,55
Improving word attack skills	2,3	1,26
Improving reading comprehension	14,9	2,92
Developing a lasting interest	28,9	3,74
Opening up career opportunities	6,1	1,89
Developing of life skills	31,8	3,91

**Table 4.9 (b) Percentages and sampling errors for the goals of teaching Mathematics**

	Goal rated as ‘most important’	
	%	SE
Basic numeracy skills	7,9	2,24
Problem solving	48,2	4,47
Different ways of thinking	14,3	2,89
Confidence in solving problems	8,1	2,28
Satisfaction from doing Mathematics	0,9	0,66
Opening up career opportunities	11,3	2,85
Developing of life skills	9,3	2,36

The ratings in Table 4.9 (a) indicate that there was a wide spread of viewpoints among the Grade 6 educators concerning the most important goal of teaching Reading. But the modal goal was “Developing of life skills” (31,8%) followed by “Developing a lasting interest” (28,9%). In contrast, for Mathematics the distinctly most popular goal was “Problem solving” (48,2%) followed, with a very wide margin, by “Different ways of thinking” (14,3%).

A striking observation was the difference of viewpoints concerning “interest” in Reading and “satisfaction” in Mathematics. There was more cohesion on “Developing a lasting interest” as a goal of teaching Reading (28,9%) than there seemed to be agreement on “Satisfaction from doing Mathematics” as a goal of teaching Mathematics (0,9%).

Psychology of motivation (Louw and Edwards, 1993) suggests that interest and satisfaction can influence the extent to which learners exert themselves to achieve easy or difficult goals. In South Africa, in particular, there is a great need to expand learning and teaching of mathematics and dispel historical myths about the (genetic) incapacity of some racial groups to learn mathematics. In order to sustain learning effort and improve performance, interest and satisfaction should be some of the goals of teaching mathematics.

### **What teaching approaches/strategies did Reading and Mathematics educators use most frequently?**

A summary of teaching strategies which South African Grade 6 educators reported that they used most frequently in teaching Reading and Mathematics has been given as percentages in Tables 4.10 (a) and 4.10 (b), respectively.

**Table 4.10 (a) Percentages and sampling errors for the strategies of teaching reading**

	Percentage indicating 'often used'	
	%	SE
Introducing passage before reading	66,8	4,44
Asking questions to test comprehension	87,6	2,77
Asking questions to deepen understanding	91,2	2,34
Using materials made by educator	36,5	4,09
Reading aloud to the class	72,0	3,82
Giving positive feedback	83,9	3,01

**Table 4.10 (b) Percentages and sampling errors for the strategies of teaching Mathematics**

	Percentage indicating 'often used'	
	%	SE
Using everyday problems	85,6	2,92
Teaching the whole class as a group	70,1	4,32
Teaching in a small group	34,8	4,34
Teaching individually	21,7	4,06
Teaching through question and answer technique	68,9	3,85
Giving positive feedback	82,7	3,19
Relating to everyday life situations	80,3	3,31
Basic skills training	77,1	3,48
Explaining mathematical processes	84,2	3,06
Using available local materials	74,7	3,55

The results in Tables 4.10 (a) indicate that for Reading the three most frequently used strategies were “Asking questions to deepen understanding” (91,2%), “Asking questions to test comprehension” (87,6%) and “Giving positive feedback” (83,9%).

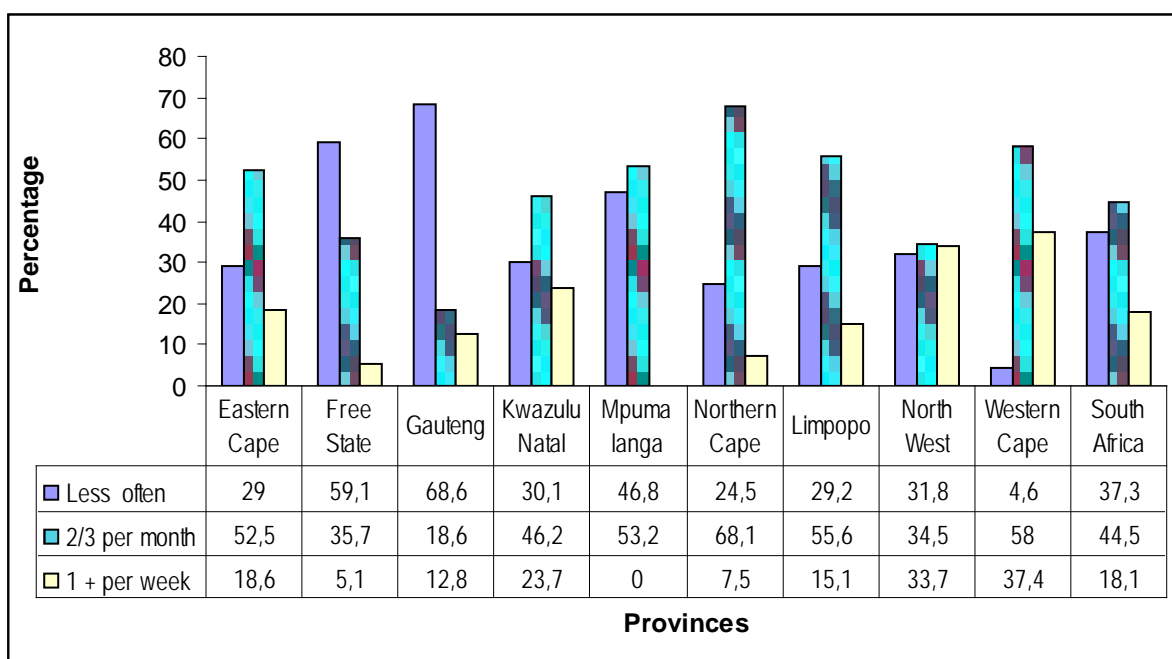
As reflected in Table 4.10 (b), the overwhelming majority of Mathematics educators (85,6%) adopted “Using everyday problems” most frequently in teaching mathematics. This was consistent with their viewpoint that the goal of teaching mathematics was “Problem solving. The other two most frequently used strategies of teaching mathematics were “Explaining mathematical processes” (84,2%) and, like in Reading, “Giving positive feedback” (82,7%). Only 21,7% of the educators used “Teaching individually” as a strategy of teaching mathematics. This again was consistent with their preference for interactive activities in teaching mathematics.

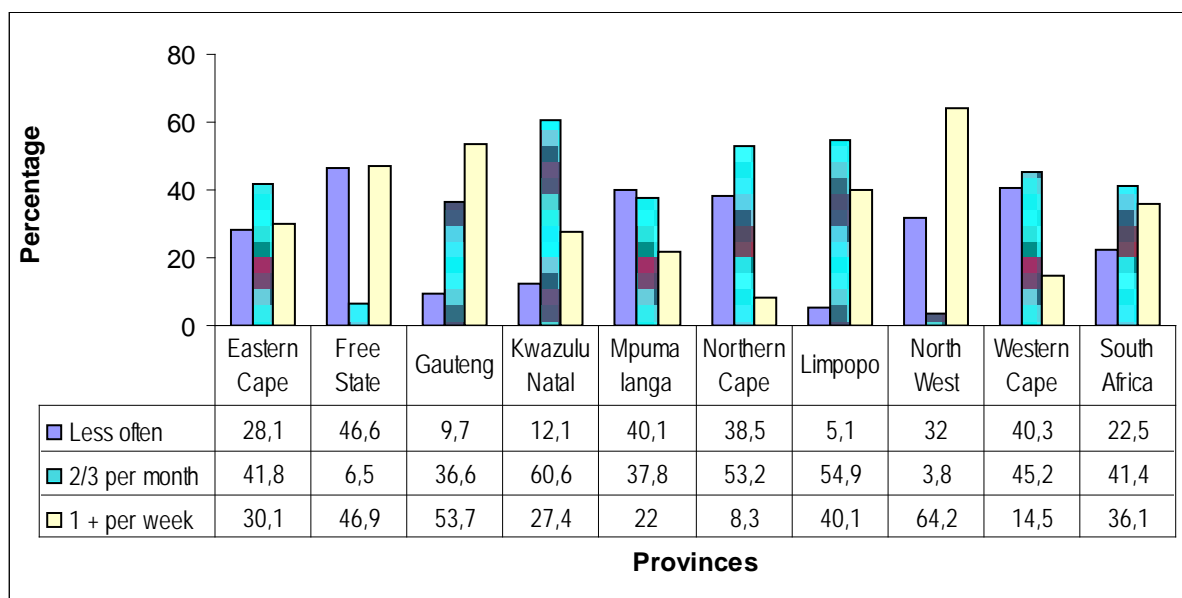
On the whole, it was heartening to observe that Grade 6 educators most frequently used teaching strategies that, if used properly and in keeping with a learner-centred and activity-based pedagogy, had the potential to promote effective learning.

#### How often did educators give written tests in Reading and Mathematics?

The frequency with which Grade 6 educators gave written tests in Mathematics and Reading has been presented in Figures 4.1 and 4.2 respectively, for South Africa overall and the provinces.

**Figure 4.1: Percentages for the frequency of Reading tests**





**Figure 4.2: Percentages for the frequency of Mathematics tests**

For South Africa overall, the frequency of giving written tests for both Reading and Mathematics was noticeably low as reflected in Figures 4.1 and 4.2, respectively. The modal frequency was 44,5% of Mathematics educators who gave written tests two or three times in a month. However, Reading educators gave weekly written tests significantly more frequently (36,1%) than the Mathematics educators (18,1%). The highest frequency occurred in North West where 64,2% of the Reading educators gave written tests weekly. In contrast, only 8,3% of Reading educators in Northern Cape gave weekly written tests. Even more worrying was the observation that in Mpumalanga no educators gave written weekly tests at all. The policy of the Department requires that continuous assessment, which includes written and other forms of assessment, be conducted in all the schools. The findings in this survey indicate an acute need to monitor the implementation of the policy and, if deemed necessary, to intensify support to educators in this regard.

**Policy Suggestion 4.5**

District Support Teams in Mpumalanga Education Department should investigate why the Grade 6 educators of Reading and Mathematics do not give weekly written tests. The Teams should then prepare a comprehensive strategy to assist educators to give written tests on a more regular basis.

**Policy Suggestion 4.6**

The Curriculum Sections in all the Provinces, assisted by the relevant unit at the national level of the Department of Education, should prioritize and intensify training of educators in the outcomes-based forms of assessment.

### Was there a specific section in learner school report for Reading and Mathematics?

The percentages of Grade 6 educators who indicated that there was specific section in learner school report for Reading (English) and Mathematics have been given respectively in the first and second sets of figures in the columns of Table 4.11.

**Table 4.11 Percentages and sampling errors for the frequency of a specific section in learner school report for Reading and Mathematics**

	English section		Mathematics section	
	%	SE	%	SE
Eastern Cape	94,5	5,51	68,7	9,67
Free State	40,4	14,25	64,3	14,62
Gauteng	59,0	18,01	48,0	16,38
KwaZulu Natal	55,8	10,63	63,4	10,78
Mpumalanga	85,5	10,00	66,7	13,67
Northern Cape	28,2	12,60	47,5	13,70
Limpopo	66,5	11,70	54,4	11,67
North West	75,8	11,42	46,4	13,46
Western Cape	48,2	15,49	47,9	15,50
<b>South Africa</b>	<b>66,0</b>	<b>4,39</b>	<b>57,9</b>	<b>4,58</b>

As shown in the last row of Table 4.11, for South Africa overall significantly more Grade 6 Reading (English) educators (66%) than Mathematics educators (57,9%) indicated that there was specific section for Reading in the learner school report. In particular, Eastern Cape (94,5%), Mpumalanga (85,5%) and North West (75,8%) distinctly stood out as provinces where Grade 6 educators agreed that in their respective learner school reports there was specific section for reporting on Reading.

A common feature of the provinces from which schools provided a specific section for Reading (English) on learner school report was that they all hosted special reading projects which trained Reading (English) educators and supplied schools with books for classrooms (book corners). Focused reporting on Reading (English) was, therefore, a project requirement to enable parents to take interest and assist their children in reading. A similar approach to reporting on Mathematics should be examined by principals of schools.

### How often did educators meet with parents each year?

Educators were asked to indicate how often they met with the parents of the Grade 6 learners in a year to discuss learner performance or related matters. Percentages of Grade 6 educators of Reading and educators of who met with parents at least once a term have been reflected in



the first and second columns of sets of figures in Table 4.12, respectively, for South Africa overall and the provinces.

**Table 4.12 Percentages and sampling errors for the frequency of educator meetings with parents frequently**

Percentages of educator meetings with parents frequently				
	Reading educator		Mathematics educator	
	%	SE	%	SE
Eastern Cape	82,0	8,51	87,0	6,63
Free State	77,6	13,15	89,3	7,61
Gauteng	97,7	2,32	93,0	4,93
KwaZulu Natal	87,7	6,46	85,9	8,15
Mpumalanga	59,8	14,29	75,1	12,89
Northern Cape	68,0	12,84	46,8	13,73
Limpopo	52,6	12,07	59,1	11,63
North West	89,6	7,48	86,4	9,29
Western Cape	100,0	0,00	91,6	8,48
<b>South Africa</b>	81,1	3,23	82,4	3,14

As has been shown in the last row of Table 4.12, for South Africa overall 81,1 percent of the Reading educators and 82,4% of the Mathematics educators met with the parents at least once a term to discuss performance and related matters. Although in the provinces the percentage of educators who met with the parents at least once a term were fairly high, with a 100 percent in Western Cape, in Northern Cape and Limpopo consistently low percentages of both the Reading and the Mathematics educators met parents.

It is one of the duties and responsibilities of educators in the South African Schools Act (1996) to meet parents and discuss with them the conduct and progress of their children. The benefits of educators meeting parents of learners can translate into improved performance because they provide parents with rare insight into their children's schoolwork. The frequency of parent meetings in the Northern Cape as reflected in this report is a cause for concern. A likely reason could be the long distances that parents have to travel to schools and the costs involved.

**Policy Suggestion 4.7**

The Head of Education in Northern Cape should commission an investigation to establish the reasons for the distinctly low frequency of meetings between educators and parents in that province. If it is deemed necessary, the Head of Education should then collaborate with his/her counterpart from the Department of Transport to find affordable ways to transport parents to school meetings, at least once a term.

**What percentage of parents met with the educators each year?**

The percentage of parents of Grade 6 learners who met the respective Reading educators and the Mathematics educators each year have been shown in the two sets of figures in Table 4.13. The statistics are for both South Africa and the provinces.

**Table 4.13 Percentages and sampling errors of parents meeting educators each year**

	Parents meet Reading educator		Parents meet Mathematics educator	
	%	SE	%	SE
Eastern Cape	39,6	5,09	35,9	5,81
Free State	44,5	6,66	43,1	7,92
Gauteng	47,6	4,56	48,2	4,72
KwaZulu Natal	41,0	5,24	43,4	6,60
Mpumalanga	25,2	7,43	30,5	5,91
Northern Cape	27,6	6,10	32,6	5,46
Limpopo	34,1	7,61	30,2	6,39
North West	39,0	6,15	38,1	5,23
Western Cape	54,9	5,74	51,3	5,01
<b>South Africa</b>	<b>40,6</b>	<b>2,15</b>	<b>39,8</b>	<b>2,17</b>

From the results in Table 4.13 it was evident and worrying that significantly few parents of Grade 6 learners met with the reading and Mathematics educators in a year. At the national level only 40,6% of the parents met the Reading educator in a year and the percentage was not significantly different from the 39,8% of the parents who met the Mathematics educator. For the provinces the highest percentage of participation by parents in educator meetings were in Western Cape and Gauteng and the lowest were in Northern Cape and Mpumalanga.

Participation of parents in the school activities of their children does not only ensure that parents provide the necessary support to children in their school work, but it can also motivate learners to take more interest in their studies. Principals and School Governing Bodies (SGBs) should examine the reasons for the apparent low participation by parents of Grade 6 learners in school activities and explore ways of encouraging them to meet the educators more frequently.

**Did educators ask parents to sign homework assignments?**

Educators had to indicate whether they did ask parents or guardians to sign that learners had completed their home Reading and Mathematics assignments. The responses of the educators have been presented in the two sets of figures in the columns of Table 4.14 for South Africa and for the provinces.

**Table 4.14 Percentages and sampling errors of educators asking parents to sign homework**

	Sign reading homework		Sign Mathematics homework	
	%	SE	%	SE
Eastern Cape	46,9	10,28	54,8	10,28
Free State	61,6	14,60	84,8	8,81
Gauteng	67,8	13,82	88,3	6,95
KwaZulu Natal	64,7	10,08	63,8	10,95
Mpumalanga	53,1	14,45	44,0	13,99
Northern Cape	20,4	10,09	32,0	11,22
Limpopo	45,2	11,98	28,3	10,13
North West	68,8	12,99	50,4	13,55
Western Cape	69,4	13,11	71,5	12,74
<b>South Africa</b>	<b>58,1</b>	<b>4,37</b>	<b>59,7</b>	<b>4,07</b>

The figures in the last row of Table 4.14 indicate that, for South Africa overall, 58,1 percent of the Grade 6 educators asked parents to sign learners' Reading assignments while 59,7 percent asked parents to sign learners' Mathematics assignments. For the provinces, there was a wide variation with the highest occurrence in Western Cape for Mathematics (71,5%) and the lowest in Northern Cape for Reading (20,4%).

It was worrying to note that, generally, a significant number of Grade 6 learners came from homes where parents or guardians were not asked by the educator to sign homework assignments. Educators should take the initiative to encourage parents to commit themselves to signing their children's schoolwork.

**General Policy Concern 10:**

**What was the availability of classroom furniture and classroom equipment in  
Grade 6 classrooms?**

Availability of adequate classroom furniture and equipment provides conducive conditions for learning and teaching. Equitable distribution or allocation of these resources is therefore an important input that might impact considerably on educators to perform their task and on learners to perform at their level best.

Four specific research questions were used to explore this general policy concern.

**What percentage of learners was in classrooms with adequate sitting and writing places?**

Between 90 percent and 100 percent of all the Grade 6 learners in all the provinces were in classrooms with adequate sitting and writing spaces in their classrooms. But the condition of these sitting and writing places was not examined and could be a subject for another study.

**What percentage of learners were in classrooms with adequate classroom furniture and equipment?**

Educators were given a list of items of classroom furniture and equipment and were asked to indicate which of these were available in the Grade 6 classrooms for Reading and Mathematics. Using the responses of the Reading educators and the Mathematics educators, the percentage of learners who were in classrooms with adequate classroom furniture and equipment was calculated.

In order to further gain insight into the distribution of these resources in South Africa overall and the provinces, an index of the resources was constructed by assigning a unit value to each listed item. The minimum value of the index was 0 for no resources and the maximum was 8 if all the resources were available. The results have been summarised in the two sets of figures in the columns of Table 4.15 for South Africa overall and in the mean values of the index in Table 4.16 for South Africa and the provinces.

**Table 4.15 Percentages and sampling errors for availability of classroom resources for the educators**

	Availability of classroom resources			
	Reading educator		Mathematics educator	
	%	SE	%	SE
A usable writing board	96,7	1,53	98,2	1,02
Chalk	99,2	0,42	98,6	0,88
A wall chart of any kind	84,8	2,89	83,6	3,10
A cupboard	69,2	3,71	68,4	3,86
One or more bookshelves	38,1	4,30	36,5	4,11
A classroom library or book corner	62,6	4,19	52,6	4,53
A educator table	88,5	2,70	85,1	2,96
A educator chair	87,1	2,85	82,4	3,17

**Table 4.16 Means and sampling errors for the classroom resources index**

	Classroom resources index			
	Reading educator		Mathematics educator	
	Mean	SE	Mean	SE
Eastern Cape	6,1	0,28	5,7	0,24
Free State	5,9	0,45	5,6	0,50
Gauteng	6,8	0,50	7,1	0,37
KwaZulu Natal	6,7	0,28	6,7	0,32
Mpumalanga	5,2	0,41	4,8	0,35
Northern Cape	5,1	0,87	5,7	0,60
Limpopo	5,3	0,42	5,2	0,38
North West	6,3	0,44	5,9	0,42
Western Cape	7,5	0,25	6,7	0,68
<b>South Africa</b>	6,3	0,14	6,1	0,14

The results in Table 4.15 indicate that, for South Africa overall, 87,1 percent of the Grade 6 learners were in the classroom of a Reading educator where there were adequate classroom resources. This was significantly higher than 82, percent of the learners who were in the classroom of a Mathematics educator. However, the results in Table 4.16 indicate that the percentages masked significant differences in the levels of the resources nationally and across the provinces.

As reflected in the last row of Table 4.16, the mean value of the resource index nationally was 6,3 for the classroom of the Reading educator and 6,1 for the classroom of Mathematics educator. For both Reading and Mathematics classrooms the highest mean values of the

resource index were in Western Cape and Gauteng. The lowest values of the resource index were in Northern Cape for the Reading classroom (5,1) and in Limpopo for the Mathematics classroom (5,2).

The noticeably large differences in classroom resource levels for Grade 6 classrooms are very likely to affect the quality of education that learners receive in the different provinces of South Africa. The Department of education, at national and provincial levels, needs to pay urgent attention to matters of redress to give every child an opportunity to access quality education.

### **How many books did educators have in their classroom library or book corner?**

Educators were asked to indicate the number of books they had in their Grade 6 classrooms. The average number of class library books per learner for each of Reading and Mathematics was then calculated. The results for South Africa overall and the provinces have been given in Table 4.17.

**Table 4.17 Means and sampling errors of class library books per learner**

<b>Class library books per learner</b>		
	Mean	SE
Eastern Cape	1,0	0,28
Free State	1,0	0,65
Gauteng	1,1	0,38
KwaZulu Natal	1,8	0,51
Mpumalanga	0,8	0,37
Northern Cape	0,4	0,21
Limpopo	1,9	0,70
North West	1,2	0,47
Western Cape	1,3	0,42
<b>South Africa</b>	1,3	0,17

For South Africa overall, a educator had in a Grade 6 classroom an average of about one (1,3) library book per learner for each of Reading and Mathematics. This tended to be the trend across the provinces except for Mpumalanga and Limpopo where the average number of books per learner were less than one. This could be interpreted to suggest that in the two provinces a Grade 6 learner had no library book for either Reading or Mathematics.

Whilst the cost of providing each school with a library could be prohibitive, provision of adequate numbers of books for classroom book corners is a reasonably realisable goal. Book

corners could provide a minimum resource at the disposal of every learner, more so because a significant number of learners came from homes where books were generally not available.

**Policy Suggestion 4.8**

The Provisioning Sections in the provincial departments of Education should prioritise schools that do not have school libraries and provide them with sets of books for classroom book corners.

**Did educators have teaching aids?**

The percentages of the Grade 6 educators who, in their schools, had access to each of the given teaching aids have been shown in Table 4.18 for South Africa and for the provinces. The first set of figures in Table 4.18 refers to teaching aids for teaching Reading and the second to teaching Mathematics.

**Table 4.18 Percentages and sampling errors of reading educators with teaching aids in the school**

<b>Teaching aids</b>										
<b>For teaching reading</b>						<b>For teaching Mathematics</b>				
<b>Map</b>		<b>English dictionary</b>		<b>Educator's guide</b>		<b>Geometrical instruments</b>		<b>Educator's guide</b>		
	<b>%</b>	<b>SE</b>	<b>%</b>	<b>SE</b>	<b>%</b>	<b>SE</b>	<b>%</b>	<b>SE</b>	<b>%</b>	<b>SE</b>
EC	69,6	9,62	66,1	9,36	68,8	9,30	53,3	10,28	66,8	9,84
FS	45,8	14,90	61,1	15,76	78,3	15,95	67,3	15,88	59,8	15,82
GA	87,8	8,02	92,7	4,13	81,3	9,95	84,3	9,57	90,5	6,96
KZN	74,5	9,72	76,5	9,48	85,8	7,74	68,5	10,60	66,0	11,15
MP	60,5	14,28	35,5	13,19	61,0	14,43	57,1	14,10	58,0	14,40
NC	76,7	12,24	84,2	10,68	47,8	13,40	57,8	12,61	78,2	10,66
LIM	48,0	11,98	50,2	11,62	61,3	11,75	56,9	11,75	50,6	11,74
NW	51,4	14,28	65,5	14,43	55,4	14,55	56,2	14,00	54,0	13,94
WC	96,6	3,44	100,0	0,00	84,7	10,55	68,6	14,04	84,7	10,55
<b>SA</b>	<b>68,8</b>	<b>3,94</b>	<b>70,3</b>	<b>3,70</b>	<b>73,1</b>	<b>3,87</b>	<b>64,4</b>	<b>4,19</b>	<b>67,4</b>	<b>4,07</b>

At the national level, there were significantly more educators who had access to Reading teaching aids than those who had mathematics teaching aids as has been reflected in the last row of Table 4.18. The modal teaching aid was an English educator's guide (73,1%) and the least available was a Mathematics geometrical set (64,4%). On the whole, particularly low percentages of Grade 6 educators in Limpopo and North West had access to teaching aids.

Among other factors, the shortage of teaching aids and equipment in South African schools has been blamed also on poor maintenance (Department of Education, 2003). Besides the

provision of these resources by the Provisioning Sections, principals and educators should also be held accountable for ensuring the longevity of resources at their disposal.

### **General Policy Concern 11:**

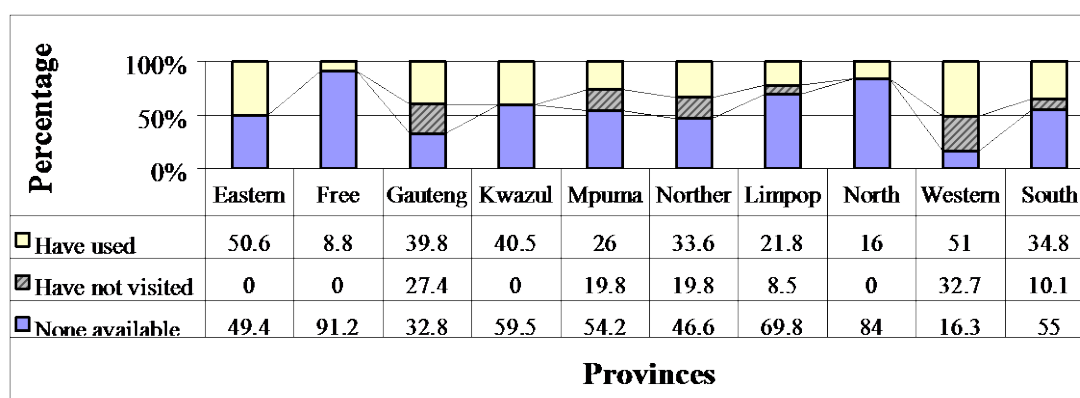
#### **What professional support did Grade 6 educators receive?**

In addition to regular in-service training, educators need a sound professional support system for development and sustained resourcefulness. To this end, the provision of resource centres and professional advice from both the principals and the professional support staff has always been seen as an indispensable necessity. But, unless these services are properly monitored, their availability and utilisation may not contribute to professional development and efficiency in the system.

Four specific research questions were used to explore this general policy concern.

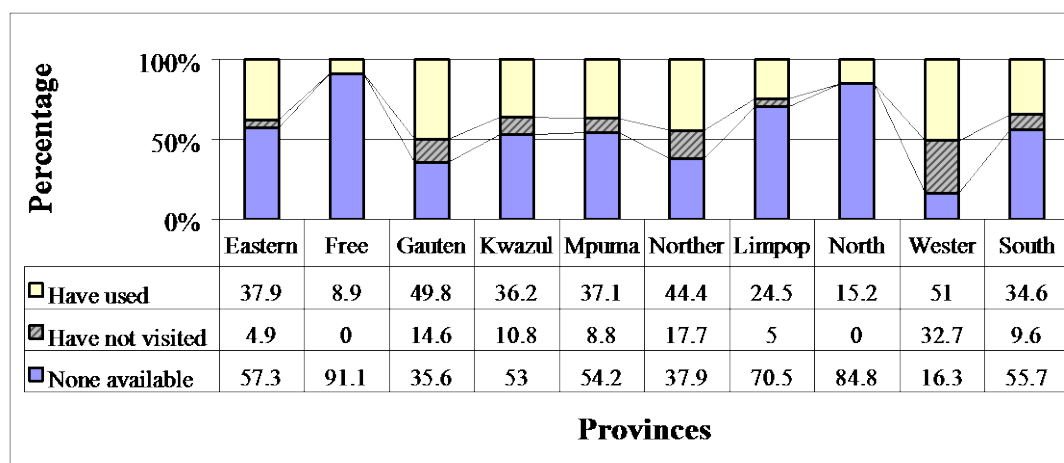
#### **Did educators use education resource centres?**

Educators were asked whether there was a resource centre that served their schools and whether they had used or visited the resource centre during the academic year of the survey. A resource centre was defined to the educators as “a place where educators from different schools in the surrounding area can go to borrow teaching materials or seek the advice of the staff of the resource centre concerning some aspect of classroom lessons”. A summary of the Reading and Mathematics educators’ responses has been represented in Figures 4.3 and 4.4, respectively, for South Africa overall and the provinces.



**Figure 4.3: Percentages for the availability and use of education resource centres for literacy educators**





**Figure 4.4: Percentages for the availability and use of education resource centres for Mathematics educators**

The results in Figures 4.3 and 4.4 indicate that, on the whole, the availability and use of resource centres for Reading and for Mathematics were not significantly different. Approximately 55 percent of the Grade 6 Reading educators and Mathematics educators had no resource centres available to them. It was of great concern to observe that, for both Reading and Mathematics, about 10 percent of the educators had never used a resource centre and only about 34 percent in each case had either visited or used a resource centre. Provinces where there seemed to be an acute shortage of resource centres as indicated by the “None available” percentages for both Reading and Mathematics were Free State, North West and Limpopo.

Provision of appropriately resourced and properly managed resource centres could greatly alleviate the apparent shortage of resources such as books and equipment in the schools. In the long term, resource centres can be used more cost-effectively because more than one school can share their resources.

**Policy Suggestion 4.9**

The Department of Education, in collaboration with the Department of Public Works and the Department of Finance, should explore the option of building a resource center for every cluster of a reasonable number of schools in each province where these do not exist.

**How did educators use education resource centres?**

Educators were asked to indicate exactly what they had used the resource centre for during the year of the survey. The national and provincial percentages of educators who used a resource centre for a particular purpose have been presented in Tables 4.19 (a) for the Reading educator and in Table 4.19 (b) for the Mathematics educator respectively.

**Table 4.19 (a) Percentages and sampling errors of reading educator's purposes for using the resource centre**

	Reading educator									
	Don't use		Borrow material		Make material		Training		Speak with educators/staff	
	%	SE	%	SE	%	SE	%	SE	%	SE
EC	0,0	0,00	15,7	6,90	12,7	6,64	42,1	10,27	37,5	9,90
FS	0,0	0,00	8,8	6,34	4,7	4,75	4,7	4,75	4,7	4,75
GA	40,7	21,39	10,8	6,42	10,8	6,42	33,9	19,17	40,5	17,57
KZN	0,0	0,00	24,1	9,13	25,2	8,84	33,3	9,82	36,4	10,17
MP	43,2	22,18	8,8	8,79	12,2	9,30	26,0	12,36	19,6	11,31
NC	37,1	18,45	9,2	6,56	0,0	0,00	26,5	11,68	25,3	11,80
LIM	28,0	29,98	11,0	7,63	11,0	7,63	21,8	10,01	9,7	6,74
NW	0,0	0,00	16,0	10,89	8,5	8,55	8,5	8,55	16,0	10,89
WC	39,1	16,41	35,4	15,21	17,0	14,46	18,1	11,00	32,6	15,68
SA	22,5	5,44	16,4	3,16	13,9	2,98	27,3	4,37	27,7	4,32

**Table 4.19 (b) Percentages and sampling errors of reading educators' purposes for using the resource centre**

	Mathematics educator									
	Don't use		Borrow material		Make material		Training		Speak with educators/staff	
	%	SE	%	SE	%	SE	%	SE	%	SE
EC	11,4	11,75	21,7	8,55	13,7	7,16	31,5	9,51	30,4	9,35
FS	0,0	0,00	8,8	6,34	4,7	4,75	4,7	4,75	8,8	6,34
GA	22,6	14,20	14,2	7,88	17,2	9,24	48,4	16,63	40,7	18,16
KZN	22,9	15,66	20,6	9,26	19,6	8,84	20,4	9,33	29,1	10,52
MP	19,1	19,89	14,8	10,14	18,2	10,57	23,9	11,50	17,5	10,15
NC	28,4	15,22	0,0	0,00	0,0	0,00	41,9	13,92	28,3	12,77
LIM	16,9	18,90	5,8	5,80	5,8	5,80	24,5	11,02	10,2	7,14
NW	0,0	0,00	15,2	10,31	8,1	8,08	8,1	8,08	15,2	10,31
WC	39,1	16,41	30,1	15,18	17,0	14,46	32,2	13,87	46,7	15,78
SA	21,7	5,53	16,2	3,22	13,4	3,02	26,8	4,33	26,2	4,35

The results in Tables 4.19 (a) and 4.19 (b) indicate that for South Africa there were a significant percentage of the Grade 6 educators, about 22 percent, who did not use resource centres. To a large extent this could be blamed on the non-availability of these centres. But on the whole, the pattern of usage of resource centres was the same for both Reading and Mathematics educators both at the national and at the provincial level. At the national level, there were two modal uses of the resource centres by the Grade 6 educators. Firstly, resource centres were used principally as training venues by 27,3 percent of the Reading educators and

26,8 percent of the Mathematics educators. Secondly, educators used the resource centres to speak to and seek advice from the staff at the centre. Only about 13 percent of the educators borrowed material from the resource centres.

Notwithstanding the apparent non-availability of resource centres in some provinces, the level and manner of utilisation of resource centres by the educators of a Grade 6 learner were not satisfactory. Making and borrowing materials from the resource centres could be optimally exploited to compensate for the lack of libraries and classroom books in many schools. Resource centres could ideally provide a supportive role to the development of appropriate curriculum materials by the educators.

**What support did subject advisors or inspectors give to educators in terms of administrative, professional and pedagogical matters?**

Viewpoints of South African Grade 6 educators on the actions and support given by subject advisors or inspectors have been summarised in percentages in Table 4.20. Because of the diversity of nomenclature for “inspectors” across the provinces, an inspector was defined as any Departmental official who visits and supports educators in schools other than a subject advisor.

**Table 4.20 Educators' descriptions of the actions of the inspector and advisor**

	Percentage of educators agreeing							
	Reading educator				Mathematics educator			
	Inspector		Advisor		Inspector		Advisor	
	%	SE	%	SE	%	SE	%	SE
<u>Pedagogical role</u>								
Bring new ideas	57,7	5,53	63,9	5,29	55,9	5,48	69,9	5,06
Clarify educational objectives	54,9	5,54	59,5	5,32	50,7	5,53	65,2	5,27
Recommend new teaching materials	44,8	5,50	58,1	5,39	45,4	5,53	62,3	5,20
Contribution to my classroom teaching	26,9	4,73	16,6	3,64	21,3	4,05	19,6	4,03
Explain curriculum content	39,8	5,32	56,5	5,33	41,2	5,40	61,6	5,27
Suggest improving teaching methods	48,0	5,58	61,4	5,36	50,6	5,52	66,0	5,17
<u>Critical versus advisory role</u>								
Comes to advise	59,1	5,44	64,4	5,31	58,1	5,34	71,0	4,92
Comes to criticise	4,3	2,23	3,5	1,77	8,1	2,87	3,5	1,61
Finds faults and report them to the employer	7,4	2,67	7,3	2,60	6,8	2,31	9,7	2,90
<u>Professional development role</u>								
Provides information for educator self-development	54,1	5,53	50,2	5,45	47,6	5,47	56,8	5,39
Encourage professional contacts with other educators	49,7	5,51	56,6	5,31	51,3	5,55	63,2	5,26
Provides in-service training to educators	42,0	5,32	50,4	5,22	46,4	5,44	55,0	5,49

In general, the figures in Table 4.20 indicate that significantly higher percentages of both Reading educators and Mathematics were of the viewpoint that subject advisors gave more preferred pedagogical and professional support than inspectors. But negligibly small percentages (about 4%) of the educators were of the opinion that either of these officials comes to schools to criticise.

The preference of subject advisors to inspectors by educators could be traced to the authoritarian approach that inspectors used in dealing with educators during the pre-1994 Apartheid era. However, with the post-1994 transformation, not only has the name of these officials changed, but their approach also became more developmental than punitive. Nevertheless, the findings in this survey indicate that inspectors should initiate strategies and

approaches that will help them establish rapport with educators so that learners can benefit from the services of this important service.

### Did principals advise educators on their teaching?

Educators' responses to a question on the frequency of advice to educators from principals have been presented in Table 4.21 for the provinces and South Africa overall.

**Table 4.21 Percentages and sampling errors for the frequency of advice to educator from principal**

Percentage of educators receiving advice 'sometimes' or 'often'				
	Reading educator		Mathematics educator	
	%	SE	%	SE
Eastern Cape	89,7	5,78	89,7	5,78
Free State	87,0	9,10	72,4	13,00
Gauteng	85,8	8,63	96,1	4,01
KwaZulu Natal	89,8	6,19	86,5	7,01
Mpumalanga	88,0	11,99	82,2	12,47
Northern Cape	75,4	12,73	59,0	12,40
Limpopo	83,6	8,95	89,2	7,45
North West	100,0	0,00	85,3	10,68
Western Cape	92,9	4,97	84,3	9,76
<b>South Africa</b>	<b>88,7</b>	<b>2,71</b>	<b>87,1</b>	<b>2,73</b>

At the national level, significant majorities of both Reading educators (88,7%) and Mathematics educators (87,1%) responded that they "sometimes" or "often" received advice from their principals. Although at the national level the difference between the Grade 6 Reading educators and Mathematics educators who received advice from the principals were not significant, at the provincial level the differences in this regard were fairly significant. The most probable reason was that in South African schools more principals had specialised in a language than in Mathematics.

On condition that they are properly qualified, appropriately experienced and adequately equipped, principals can play a major role in giving support to educators at the teaching site level.

**General Policy Concern 12:****What factors had most impact upon educators' job satisfaction?**

There is evidence to show that job satisfaction enhances motivation that in turn leads to longer staff retentions. Educators who are satisfied with their job are therefore more likely to work harder for the benefit of the learners and are less likely to leave the teaching profession.

The educators in this survey were given a list of items that were possible sources of satisfaction in an educator's job and were asked to rank the three they considered the most ones in order of importance. In the first column of Table 4.22 the "sources of satisfaction" have been grouped into broader categories has been shown. For each "source of satisfaction" the percentage of the Reading educators and the Mathematics educators who indicated that it was the most important is given in the rest of the columns of Table 4.22.

**Table 4.22 Percentages and sampling errors for sources of educator job satisfaction**

	Percentage of educators indicating reason as 'very important'			
	Reading educator		Mathematics educator	
	%	SE	%	SE
<i>Living conditions</i>				
Travel distance to school	65,3	3,94	64,2	4,04
Availability of educator Housing	60,8	4,17	66,0	4,09
Quality of educator housing	62,8	4,09	61,9	4,16
<i>School facilities/equipment</i>				
Quality of school buildings	79,2	3,33	76,5	3,58
Quality of classroom furniture	77,0	3,36	80,9	3,30
<i>Relationships with others</i>				
Quality of school manpower and administration	97,9	1,00	96,3	1,37
Amicable relations with staff	93,8	1,95	96,2	1,44
Good relation with community	94,4	1,74	92,5	2,16
<i>Career advancement</i>				
Expanded opportunities for promotion	70,7	3,74	74,1	3,53
Opportunities for professional development	91,8	2,19	95,3	1,63
Level of educator salary	78,8	3,46	82,9	3,20
<i>Educational outcomes of learners</i>				
Seeing learners learn	97,7	1,06	97,6	1,10

Further calculations (mean percentage per category) and ranking of categories revealed the following order of importance as perceived by the educators:

1. Educational outcomes of learners
2. Relationships with others
3. Career advancement
4. School facilities/equipment
5. Living conditions

The underlying main difference between the top category, “Educational outcomes of learners”, and the third, “Career advancement”, is that in the former nothing material accrues to the educator whilst in the latter there is material gain such as “Level of educator salary”. It would appear, therefore, that the Grade 6 educators’ job satisfaction was influenced more by intrinsic rather than extrinsic motivators.

### **Conclusion**

The profile of the educator that emerged out of this analysis indicated that, on the whole, female educators were in absolute majority. But there were disproportionately very few female educators in Limpopo and Mpumalanga. The majority of the educators were in their late thirties and, on the whole, were committed and led fairly decent economic lives. Exceptions were in the Eastern Cape and Limpopo where the general quality of educator housing was generally not satisfactory.

In terms of the levels of their academic education and pre-service training the educators met or exceeded the minimum requirements. However, their average teaching experience in number of years was noticeably low although it was commensurate with their average age. There was need for the Teacher Development and Curriculum sections to increase the provision and to improve the quality of the in-service training that the educators receive.

On average educators prepared lessons but tended to dedicate more time to Reading than to Mathematics preparations. In fact the educators demonstrated perceptions that could influence the equity in the way they teach Reading and Mathematics and in turn affect learners attitudes towards the two subjects. They were of the opinion that the goal of teaching Reading is to develop comprehension and lasting interest whereas teaching Mathematics was

associated more with solving problems. There is a challenge to make educators realise that teaching for comprehension and interest has value in Mathematics as well.

An observation of concern was that educators tended to administer tests very infrequently and the situation was particularly acute in Mpumalanga.

The educators interacted with communities and involved parents in the education of their children to a very limited extent. Opportunities for parental involvement, such as asking parents to sign learners' homework for instance, were not optimally exploited and there was need for improvement in this regard. Actually there were instances where educators had never sat in meetings with the parents. There were generally very few meetings that involved educators and parents in Northern Cape.

The educators acknowledged and preferred the pedagogical role played by subject advisors during school visits. Principals were also seen as playing a crucial role in providing advice to educators on matters related to teaching.

The policy suggestions were made with regard to some areas that need development or improvement. One such area, like in the case of learners, was the need to investigate and rectify glaring gender inequities in the allocation or distribution of educators, with special focus on Limpopo and Mpumalanga. A policy suggestion has also been made concerning apparent economic inequities in the general quality of educator housing in Eastern Cape and Limpopo. These conditions may lead educators to migrate and cause even more serious problems associated with migrations and informal settlements.

The observed infrequent testing of learners prompted a number of suggestions, which have to do with mounting intensive in-service training courses to build capacity among the teachers on the implementation of continuous assessment in general and finding how frequent testing fits within the framework of continuous assessment.

It was particularly worrying to note the low levels of interactions among educators and parents and a suggestion has been made on possible ways of overcoming possible barriers.



## Chapter 5

### **Principals' Characteristics and their Viewpoints on Educational Infrastructure, Organization and Operation of Schools and Problems with Learners and Staff**

#### **Introduction**

Principals occupy a key position to influence, manage and direct the utilisation of material and human resources that are available to help the school deliver on its mandate. In order to be better able to discharge their responsibilities, principals need not only to be empowered educationally and professionally, but the infrastructure of the school needs to be conducive to effective delivery. Their leadership skills are also critical for setting the scene for a vibrant and enabling environment for teaching and learning.

In this chapter the biological, educational and professional characteristics of the principals in the schools where the Grade 6 learners attended school have been described. The principals' viewpoints have also been presented and discussed on the availability in the schools of electrical and other equipment, water and basic sanitation. The manner in which principals viewed and handled daily school activities, related to and handled issues pertaining to educators, learners and the general community have also been discussed. Where appropriate, suggestions have been made on how the role of principals could be improved.

#### **General Policy Concern 13:**

#### **What were the personal characteristics of the principals?**

The principal occupies a critical position that is likely to impact on the interpretation and implementation of the policies in the education system and thus influence the strategic direction of a school. Appropriate teaching experience and management skills are essential criteria in the appointment of principals. Traditionally there has been a tendency to emphasise gender as the main consideration for appointment to the position of a principal. For equity reasons, appointment of principals should be based on objective criteria.

Specific research questions that were explored under this policy concern were about the age and the gender distribution of the principals.

### What was the age distribution of the principals?

The age distribution of the principals, in average years, for South Africa and the provinces, has been presented in the first column of Table 5.1.

**Table 5.1. Means, percentages, and sampling errors for principal age and gender**

	Age (years)		Gender (female)	
	Mean	SE	%	SE
Eastern Cape	44,8	1,31	16,2	7,93
Free State	46,4	2,11	16,2	11,41
Gauteng	48,5	2,20	15,7	8,38
KwaZulu Natal	44,4	1,61	19,9	8,00
Mpumalanga	48,0	1,71	27,3	12,15
Northern Cape	46,3	1,34	0,0	0,00
Limpopo	47,8	1,41	20,0	9,22
North West	47,9	2,30	45,0	13,88
Western Cape	44,4	2,00	24,7	13,18
<b>South Africa</b>	46,3	0,65	21,0	3,45

The mean age of a principal where a South African Grade 6 learner attended school was 46,3 years as has been reflected in the last row of Table 5.1. The average age range was 4,1 years with the oldest average principal in Gauteng (48,5 years) and the youngest in KwaZulu Natal and Western Cape (44,4 years in each province).

On the whole, the Grade 6 learner was in a school where the mean age of the principal was significantly higher than that of an ordinary educator. It would be expected, therefore, that principals would have more experience which would be useful in guiding the younger educators.

### What was the gender distribution of the principals?

The percentage of female principals in the schools where the Grade 6 learners attended has been shown in the second column of Table 5.1 for South Africa overall and the provinces.

In the last row of Table 5.1 it has been shown that 21 percent of the principals where the Grade 6 learner attended school were females. North West had the highest percentage of the female principals (45%) while, in contrast, in Northern Cape there was no female principal in all the schools that participated in the survey. The latter was a worrying observation when

viewed in the light of the South Africa's equity and affirmative action policies that stipulate that women must be represented at all levels in the workplace.

Generally, gender imbalances were more pronounced among the principals than they were among the educators. For instance, although female educators were in the majority in the schools where the Grade 6 learner attended, they were sorely under-represented at the level of a principal. The Constitution of the Republic of South Africa requires that any appointments be made with due regard to the need to redress gender and other imbalances of the past in order to achieve broad representation.

**Policy Suggestion 5.1**

School Governing Bodies should identify competent female educators and prioritize their promotion to posts of principals.

**General Policy Concern 14:**

**What were the professional characteristics of the principals?**

The amount and quality of supervision that principals can give to educators will be influenced considerably by their own professional and specialised training as well as their teaching experience. For a fair spread of quality education outcomes it is important to establish the relative distribution of professionally qualified and experienced principals in the system.

Seven specific research questions were asked to explore this general policy concern.

**How many years of academic education had educators completed?**

The principals were asked to report "the highest level of academic education" that they had attained. Five education levels were used: primary, junior secondary, senior secondary, A-level and/or non-degree and tertiary. The percentage of principals who had attained various levels of academic education has been given in the columns of Table 5.2 for the provinces and for South Africa overall.

**Table 5.2      Level of academic education of principals**

	<b>Level of academic education</b>									
	<b>Primary</b>		<b>Junior secondary</b>		<b>Senior secondary</b>		<b>A-level</b>		<b>Tertiary</b>	
	%	SE	%	SE	%	SE	%	SE	%	SE
EC	3,6	3,61	16,5	7,13	16,9	7,52	25,8	9,53	37,1	9,93
FS	15,3	10,73	0,0	0,00	16,3	16,33	19,6	13,30	48,9	16,35
GA	4,8	4,95	5,6	5,79	3,9	4,04	12,7	8,28	73,0	12,40
KZN	5,2	3,06	0,0	0,00	17,5	7,66	24,3	8,98	53,0	10,43
MP	20,3	11,08	4,6	4,64	26,7	13,91	22,6	11,35	25,7	12,60
NC	9,6	9,62	0,0	0,00	20,7	11,45	30,4	13,54	39,3	14,51
LIM	9,4	6,09	0,0	0,00	15,0	7,48	34,4	10,95	41,2	11,35
NW	16,9	11,44	5,9	5,95	38,5	13,58	19,2	10,53	19,5	11,08
WC	0,0	0,00	0,0	0,00	0,0	0,00	20,6	10,69	79,4	10,69
<b>SA</b>	<b>7,8</b>	<b>2,05</b>	<b>4,4</b>	<b>1,57</b>	<b>15,8</b>	<b>3,02</b>	<b>23,4</b>	<b>3,70</b>	<b>48,6</b>	<b>4,39</b>

The summary in Table 5.2 shows that, at the national level, the modal level of education (48,6%) among the principals of the schools where Grade 6 learners attended was a tertiary qualification. However, the fact that there were 7,8 percent of the principals whose academic level of education was primary school was a cause for concern as this could impact on the quality of academic support that these principals could give to the educators.

At the provincial level 79,4 percent of the principals in Western Cape and 73 percent in Gauteng had attained tertiary qualifications. The percentages of principals who had attained primary schooling as their highest qualification were unsatisfactorily high in provinces like Mpumalanga (20,3%), North West (16,9%) and Free State (15,3%).

On the whole, the majority principals of the schools where Grade 6 learners attended had qualifications above the required minimum relative education qualification value (REQV 13), which is Grade 12 plus three years apposite training. The few principals whose highest academic qualifications were primary and junior secondary education should be encouraged to enrol in the educator upgrading courses that the Department has provided.

### **How many years of educator training had principals completed?**

The number of years of educator training that principals had completed have been shown in the middle column of Table 5.3

**Table 5.3 Means and sampling errors for the teaching experience and training of the Principals**

	<b>Experience (years)</b>		<b>Educator training (years)</b>		<b>Specialised training (weeks)</b>	
	Mean	SE	Mean	SE	Mean	SE
EC	22,4	1,54	2,9	0,19	20,6	6,04
FS	21,9	1,71	3,5	0,24	18,6	9,98
GA	25,5	3,01	3,5	0,20	16,1	8,43
KZN	22,2	1,51	3,5	0,15	13,5	4,90
MP	22,9	1,79	3,4	0,24	10,0	5,89
NC	23,3	1,44	3,7	0,12	18,8	10,74
LIM	21,6	1,35	3,2	0,17	29,5	13,55
NW	23,0	2,13	2,9	0,17	5,5	0,66
WC	21,9	1,27	3,9	0,08	35,8	11,42
<b>SA</b>	22,7	0,70	3,3	0,07	18,1	2,86

At the national level, an average principal of a school where Grade 6 learners attended had undergone 3,3 years of educator training. At the provincial level the longest average training period for a principal was 3,9 years in Western Cape and the shortest was 2,9 years in each of Eastern Cape and North West.

For their professional development, the principals, especially in Eastern Cape, North West and Limpopo, should compensate for their apparent under-training by participating more frequently in in-service training courses.

### **How many years of teaching experience had principals completed?**

The average number of years that a principal in a school where the Grade 6 learners attended had completed as a educator has been shown in the first column of Table 5.3 for South Africa overall and the provinces.

At the national level, an average principal had taught for an average of 22,7 years. At the provincial level, the longest serving principal (25,5 years) on average was in the Northern Cape and one with the shortest average number of years of teaching experience (21,6 years) was in Limpopo.

The minimum requirement in respect of experience for appointment to the post of a principal in South Africa is three years. The average principal in a school where the Grade 6 learner in this survey attended met the minimum requirement in terms of teaching experience.

### **Have principals received specialised training in school management?**

The principals were asked to report whether they had received specialised training in school management and if so, to indicate the duration of the training programme in weeks. The average number of weeks of specialised training received by the principals in school management has been reflected in the last column of Table 5.3.

At the national level a Grade 6 learner was in a school where an average principal had received 18,1 weeks of specialised training in school management. There was a significantly wide range in the duration of specialised training of principals in school management across the provinces. The longest duration was an average of 35,8 weeks (about nine months) in Western Cape and the shortest was 5,5 weeks (about one month) in North West.

The South African Schools Act specifies that the job of a school principal is to ensure that the school is managed satisfactorily and in compliance with applicable legislation, regulations and personnel administration measures as prescribed. This calls for a minimum intensive in-service training to familiarise new appointees with the legislation, regulations and personnel administration measures.

#### **Policy Suggestion 5.2**

The Educator Development Directorate at the national level together with its provincial counterparts should determine a minimum specialized in-service training on school management and ensure that District Managers develop, structure and implement comprehensive in-service training courses on school management for all new principal appointees.

### **How many years of experience had a principal had as either principal or acting principal – in the current school and all together?**

The average number of years that a principal had been a principal in the current school and elsewhere altogether has been presented in the first and second main columns of Table 5.4, respectively, for the provinces and South Africa overall.

**Table 5.4 Means and sampling errors of Principals' years of experience as a principal**

	<b>This school</b>		<b>Altogether</b>	
	Mean	SE	Mean	SE
Eastern Cape	9,3	1,09	10,9	1,40
Free State	5,9	1,09	9,1	1,72
Gauteng	9,9	1,41	10,5	1,33
KwaZulu Natal	6,3	0,95	8,5	1,36
Mpumalanga	6,9	1,14	10,6	2,75
Northern Cape	4,6	0,89	7,6	1,51
Limpopo	9,7	1,74	11,7	1,85
North West	8,6	1,18	9,2	1,43
Western Cape	5,4	0,85	5,5	0,84
<b>South Africa</b>	<b>8,0</b>	<b>0,47</b>	<b>9,7</b>	<b>0,57</b>

Nationally, the Grade 6 learner was in a school where the average principal had either acted or been appointed as a principal in the current school for eight years as shown in Table 5.4. But the mean experience as acting or appointed principal altogether was 9,7 years which suggests that there was significant mobility of principals among the schools. The highest mobility of principals - as indicated by the difference between the years as a principal altogether and the years as a principal in the current school – was in Free State and Mpumalanga.

Although there was no restriction on the number of years that a principal should spend in a school, a high turnover of principals could jeopardise stability in schools. District managers, in collaboration with School Governing Bodies, should establish the reasons for the apparent high turnover of principals in the schools in Mpumalanga and Free State.

#### **What percentage of the school staff had post-secondary academic education?**

In the first column of Table 5.5 the percentage of educators who had post-secondary education, nationally and per province, in the schools where the Grade 6 learners attended have been listed.

**Table 5.5 Percentages, means and sampling errors for the qualifications of the school staff**

	Post-secondary academic education		Educator training (years)	
	%	SE	Mean	SE
Eastern Cape	52,3	8,70	2,8	0,08
Free State	30,9	13,49	2,7	0,12
Gauteng	57,2	9,72	3,5	0,18
KwaZulu Natal	60,5	8,82	3,0	0,14
Mpumalanga	38,1	11,78	2,9	0,10
Northern Cape	42,3	12,76	3,1	0,07
Limpopo	44,5	9,11	3,0	0,09
North West	31,7	11,81	2,8	0,07
Western Cape	73,9	10,68	3,1	0,36
<b>South Africa</b>	<b>51,3</b>	<b>3,51</b>	<b>3,0</b>	<b>0,06</b>

Nationally, a Grade 6 learner was in a school where only 51,3 percent of the educators had post-secondary academic education. The variations were significantly wide in the provinces with 73,9 percent of these educators, the highest, distributed in the Western Cape. The lowest percentage was in Free State (30,9%) but percentages of educators with post-secondary education in Mpumalanga (38,1%) and North West (31,7%) were also alarmingly low.

The relatively lower percentage of educators who had post-secondary academic education at the Grade 6 level could be ascribed to the tendency of educators to study privately (distance learning) and then move to high schools once they have acquired higher qualifications. The challenge for South Africa is to ways and means to retain highly qualified educators at the primary school level.

#### **What average years of educator training were received by the school staff?**

The average number of years of educator training that had been received by the educators in the schools where the Grade 6 learners attended have been presented in the last column of Table 5.5 for South Africa overall and the provinces.

Nationally the average educator had received 3 years of educator training. Average educator training durations tended to be longer in Gauteng, Northern Cape and Western Cape whilst the shortest, less than three years of training, were in Mpumalanga, Eastern Cape, North West and Free State.



The relatively high percentage of educators who had been trained for less than the required minimum of three years, particularly those who had not passed Grade 12 either, poses huge challenges for in-service training.

**General Policy Concern 15:**

**What were the principals' viewpoints on general school infrastructure and the condition of school buildings?**

In the SACMEQ I survey (1998) it was found that the level of physical resources available in a school was highly related to the scholastic performance of the learners. In order to provide learning opportunities to all the learners it would be important, therefore, to supply schools with the necessary facilities, equipment and services.

The following six specific research questions were explored concerning this general policy concern:

**What items of equipment did schools have?**

The principals were given a list of items of equipment and general facilities and were asked to indicate whether these were available in their schools or not. The items, grouped into broad categories according to similarity or usage, and the percentage of the principals who indicated that these were available in their schools have been displayed in Table 5.6.

**Table 5.6 Percentages and sampling errors for schools with general facilities**

	Percentage with facility	
	%	SE
<i>School buildings</i>		
School library	33,4	3,97
School hall	33,5	4,32
Staff room	56,8	4,07
Principal's office	74,8	3,36
Store room	59,4	3,76
Cafeteria	22,4	3,98
<i>School grounds</i>		
Sports area/ playground	66,5	4,18
School garden	66,3	3,90
<i>General services</i>		
Piped water/ well or bore-hole	85,5	2,88
Electricity	77,1	3,36
Telephone	70,6	3,30
<i>Equipment</i>		
First-aid kit	51,0	4,23
Fax machine	43,0	3,70
Typewriter	73,2	3,68
Duplicator	63,7	3,93
Radio	48,3	4,26
Tape recorder	42,0	4,21
Overhead projector	45,7	3,88
Television set	37,2	4,01
Video-cassette recorder	34,4	4,04
Photocopier	48,3	3,61
Computer	39,4	3,43

Generally, the Grade 6 learner was in a school where the levels of availability of all the items in Table 7.3 were worrying. Many of these items are so basic that, unless they are available, the quality of life and education is compromised. For example, even though from Table 5.6 it has been indicated that 85,5 percent of the schools had piped-water, the absence of this basic resource in the remaining 14,5 percent of the schools remains a serious matter.

Further calculations (average percentage for each broad category) revealed relative levels of availability per category. Accordingly, the average Grade 6 learner was in a school where the facilities were available in the following decreasing order:

1. General services
2. School grounds
3. Equipment

#### 4. School buildings

Some of the items are a prerequisite to others and, therefore, careful choices would have to be made in procuring them. For instance, to provide most of the items under “Equipment” in Table 7.3 there would need first to be storerooms (school buildings) for their safe storage. There would need first to be installation of electricity before most of the gadgets could be supplied. There needs, therefore, to be a comprehensive national campaign to improve the existing general facilities in the schools but also, in the long term, to erect new school buildings.

##### **Policy Suggestion 5.3**

The Department of Education should lead a national campaign that involves the Departments of Public Works and of Labour, in the short term, to prioritize schools in the most disadvantaged provinces and provide them with basic facilities such as piped-water, electricity and basic equipment.

#### **What kind of water supply did schools have?**

The kind of water supply in the schools that Grade 6 learners attended has been reflected under ‘General services’ in Table 5.6. It has been indicated that 85,5 percent of the schools had either piped water or wells or boreholes. It was not clear where the remaining 14,5 percent of the schools got their water supplies. The report on the School Register of Needs 2000 Survey showed that, at the national level, 27,3 percent of all the schools in South Africa had no potable water on site, and that the densest distribution of these schools occurred in the Eastern Cape and KwaZulu Natal.

Common practice is that, where no other source of water is available on site, especially in rural schools, schools provide tanks to collect water on rainy days. This is a very undependable source of water as droughts are a common phenomenon in South Africa. With the extension of municipal services into the rural areas, the prospects were very good that schools would benefit from comprehensive water provision and electricity installation projects.

### What was the nature and provision of toilet facilities in schools?

Information concerning toilet provision for learners within schools has been presented as the second set of figures in Table 5.7. The mean scores referred to the average number of learners per toilet for each province and for South Africa overall.

**Table 5.7 General condition of buildings and toilet facilities**

	Need repair		Toilet provision	
	%	SE	Mean	SE
Eastern Cape	55,9	10,32	55,6	9,50
Free State	56,9	15,81	36,8	4,76
Gauteng	25,1	13,14	33,7	7,11
KwaZulu Natal	34,2	9,92	51,4	10,53
Mpumalanga	48,2	14,44	70,4	9,54
Northern Cape	15,8	10,66	32,1	2,42
Limpopo	80,2	8,49	128,6	43,07
North West	61,3	13,91	52,4	7,69
Western Cape	0,0	0,00	32,4	2,88
<b>South Africa</b>	<b>44,5</b>	<b>4,08</b>	<b>58,7</b>	<b>6,93</b>

For South Africa overall the average Grade 6 learner was in a school where there was an average of 58,7 learners per toilet. The Departmental norm for provision of toilets is 10 learners per toilet. The availability of toilets in schools in South Africa overall was thus unacceptably low and fell 600 percent below the norm.

There was considerable variation in toilet provision among the provinces – ranging from a low of 32,1 learners per toilet in Northern Cape to a high of 128,6 learners per toilet in Limpopo.

Insufficient provision of toilets may have serious health implications for the school communities. Female learners are particularly susceptible to inadequate provision of toilets and may be forced to participate less in schools if this basic need is not met.

The very high value of the average learner to toilet provision in Limpopo was cause for concern. However, the corresponding value of the standard error of sampling was also very high. In addition, the Report on the School Register of Needs 2000 Survey put the ratio for this province at 57 learners per toilet in 1996 and subsequently at 45 learners per toilet in 2000. According to the same source, corresponding ratios for Western Cape were 29 learners

per toilet in 1996 and 30 learners per toilet in 2000. Caution needs to be exercised, therefore, in interpreting this statistics.

On the whole the figures presented on toilet provision suggest that a more detailed audit should be undertaken in order to establish whether some schools have serious problems in this area. The Department of Education could collaborate with the Department of Public Works and local communities to remedy the situation of inadequate toilets in schools.

**Policy Suggestion 5.4**

The Department of Education should solicit the assistance of local communities to plan and provide toilets in those schools, and particularly in Limpopo, where the Report on the School Register of Needs 2000 Survey and this particular survey both indicate that there was an acute inadequacy.

**What was the general condition of school buildings?**

The percentages of school buildings that were in need of repair per province and for South Africa overall have been given in the first set of figures in Table 5.7.

For South Africa overall 44,5 percent of the school buildings where the Grade 6 learner attended were in need of repair. The highest percentage of school buildings that needed repair were in Limpopo whilst in Western Cape no school had buildings that needed repair.

The Report on the School Register of Needs 2000 Survey showed that 34,5 percent of all the public ordinary schools in South Africa had buildings that were either weak or very weak. The condition of school buildings does not only contribute in setting the ethos of the school, but it also indicates the extent to which learners and educators are safe and protected against the elements.

The particularly high percentage of schools that needed repair in Limpopo was worrying. Although the Department of Education's major school building initiatives like the Thuba Makote School Building Project have been focused on this province and others in a lesser predicament to try and remedy the situation, it would appear that the scale of the problem demands more.

**Policy Suggestion 5.5**

The Department of Education, in collaboration with the Department of Public Works, should target Limpopo for a comprehensive school building project and improve the condition of school buildings in that province.

**What was the classroom space available for learners?**

Information concerning the floor space, in average square metres, available per learner in the schools where the Grade 6 learners attended has been presented in Table 5.8. The mean area per learner has been presented per province and for South Africa overall.

**Table 5.8 Means and sampling errors of the classroom space available for learners**

Classroom space		
	Mean	SE
Eastern Cape	1,0	0,52
Free State	0,7	0,27
Gauteng	0,7	0,25
KwaZulu Natal	0,8	0,17
Mpumalanga	4,0	3,25
Northern Cape	1,3	0,28
Limpopo	1,0	0,46
North West	0,1	0,04
Western Cape	1,2	0,20
<b>South Africa</b>	1,1	0,29

The figures in the last row of Table 5.8 indicated that a Grade 6 learner in South Africa had on average 1,1 square metres of classroom space available to him or her. No conclusion could be drawn, therefore, about this province until the values were verified. The smallest average classroom space per learner was in North West (0,1 square metres).

**General Policy Concern 16:**

**What were the principals' viewpoints on (a) daily activities, (b) organisational policies, (c) inspections, (d) community input, and (e) problems with learners and staff?**

The daily administrative responsibilities of a principal stretch beyond the management of professional work and include liaison with the community, maintaining discipline among both educators and learners as well as setting the entire ethos of the school. It is therefore essential that the principal should organise his/her activities in an efficient way to attend to all of them.

Eight specific research questions were used to explore this general policy concern.

### **What amount of teaching did principals undertake?**

Principals were asked to indicate the number and the duration in minutes of the periods they actually taught in a typical school week in the schools where the Grade 6 learners attended. The average time in minutes that the principals were teaching in a typical week has been summarised for the provinces and for South Africa overall in Table 5.10.

**Table 5.9      Means and sampling errors for amount of principal teaching per week**

<b>Principal teaching minutes per week</b>		
	<b>Mean</b>	<b>SE</b>
Eastern Cape	821,9	76,57
Free State	285,4	58,87
Gauteng	237,7	92,32
KwaZulu Natal	364,7	70,72
Mpumalanga	539,0	152,70
Northern Cape	504,5	93,10
Limpopo	608,6	86,76
North West	536,0	91,69
Western Cape	347,9	70,15
<b>South Africa</b>	<b>481,8</b>	<b>33,61</b>

As has been presented in Table 5.10, the Grade 6 learner in South Africa was in a school where the principal was teaching for 481,8 minutes (8,03 hours) in a typical school week. On average principals in the Eastern Cape spent the most time (821,9 minutes or approximately 13,7 hours) teaching in a typical school week. On the other hand, fairly low average teaching durations for principals in a typical school week have been recorded in Gauteng and Free State - 237.7 minutes (4 hours) and 285,4 minutes (4,8 hours) respectively.

The guidelines in the South African Schools Act (1996) put the scheduled teaching time for a principal between 10 percent and 92 percent (3,5 hours and 32,2 hours) of the total time available for school activities in a formal school week of 35 hours, although the scheduled teaching time may vary depending on the curriculum needs, the timetable and the staff establishment of the school. For South Africa overall and the provinces, therefore, the Grade 6 learner was in a school where the teaching time for a principal in a typical school week complied with the national guidelines. But there were considerable variations among the

provinces. Caution needs to be exercised in interpreting the results in Table 5.10 because of the very high values of the standard errors. There could have been systematic inconsistencies in the responses.

On the whole, the average Grade 6 learner was in a school where the principal's teaching load in hours left him/her enough time which they could use to do administrative tasks, provide professional support to the rest of the school staff and attend to community contacts.

### **What level of importance did principals attach to administrative tasks and other activities associated with the position of a principal?**

Principals were asked to rate six administrative tasks and other activities associated with the position of a principal according to perceived level of importance. The percentage of principals who rated each activity as "very important" has been summarised per task or activity in Table 5.11 for South Africa overall.

**Table 5.10 The importance of various principals' tasks or activities**

	Percentage rating as 'very important'	
	%	SE
Contact with community	91.6	2.32
Monitoring learners' progress	99.1	0.70
Administrative tasks	95.9	1.83
Discuss educational objectives with the teaching staff	96.2	1.49
Professional development (Educators)	90.6	2.40
Professional development (Principals)	95.3	2.14

From the summary in Table 5.10, the average Grade 6 learner in South Africa was in a school where the principal rated all the six tasks or activities as "very important". In rank order "Monitoring learners' progress" was rated top as "very important" by almost all (99,1 percent) the principals whilst "Contact with community" and "Professional development" of educators were rated second last (91,6%) and last (90,6%), respectively.

The South African Schools Act (1996) identifies "Contact with community" and "Professional development" of educators as some of the core responsibilities of a principal. Worldwide a principals' merit tends to be judged on the basis of the school pass rates. This was probably the perception that led the majority of the principals in this study to rate "Monitoring of learners' progress" as the single most important tasks or activity. However,



the professional development of the educators and the extent to which the school is an integral part of the community fabric are also important indicators of broader building of human resource capacity and collective ownership of schools, respectively.

**What was the incidence of school activities such as school magazine, public speaking day, “open days”, etc?**

Principals were asked to indicate which of the following activities occurred in their schools:

School Magazine: The production of a school magazine in the form of a little booklet or some sheets of paper posted on the wall

Public Speaking Day: A public speaking day when learners read speeches to parents that they themselves have written

Open-Door Policy: An ‘open-door policy’ for parents to visit the principal or educators at any time either by appointment or not by appointment

Open-Day Policy: An ‘open-day policy’ where a special day is nominated for parents to visit the principal or educators

Formal debates or debating contests

The percentages of principals who indicated the top four school activities that occurred in their schools have been presented in Table 5.12.

**Table 5.11 Percentages and sampling errors for the school activities**

	Percentage of school activities	
	%	SE
School Magazine	38,4	4,38
Public Speaking Day	38,3	4,46
Open-Door Policy	88,6	2,59
Formal Debates or Debating Contests	44,9	4,51

According to the set of figures in Table 5.11, the modal activity in the schools where the Grade 6 learners attended was “Open-Door Policy” while - of the top four activities - “Public Speaking Day” occurred the least in the schools.

Public interest in and unrestricted access to the school can promote cooperation between the school, the parents and the community at large. If properly monitored such that minimal

disruption occurs to teaching and learning, the cooperation can have significant spin-offs. Some of the spin-offs could be maintaining a high ethos and discipline in the school, effective communication and mutual trust between the school and the parents.

However, it was worrying to note the low levels of activities such as debates, production of school magazines and public speaking by learners in the schools. These activities create valuable opportunities for learners to develop useful social skills and cognitive capabilities that may be applied in contexts outside the school later in life and thus enhance the chances of life-long learning.

**Policy Suggestion 5.6**

The Heads of Department (HoDs) in the provinces should make it a requirement that activities like debates, public speaking days and school magazine days be included in the annual programmes of the schools.

**How many school days were lost in the last school year due to non-school events?**

The average number of official school days that had been lost in the previous school year due to events such as the late start of term, organisation of examinations, school festivals, national celebrations, storms, etc. have been presented for each province and for South Africa overall in Table 5.12.

**Table 5.12 Means and sampling errors for number of official school days lost**

	Average of official school days lost	
	Mean	SE
Eastern Cape	5,8	1,43
Free State	1,9	0,58
Gauteng	1,6	0,57
KwaZulu Natal	4,0	2,23
Mpumalanga	2,7	0,63
Northern Cape	3,3	0,74
Limpopo	3,3	0,90
North West	4,0	1,74
Western Cape	0,7	0,27
<b>South Africa</b>	<b>3,3</b>	<b>0,56</b>

For South Africa overall an average of 3,3 official school days had been lost in the year before the survey. The highest average number of official school days lost (5,8 days) in the school where the Grade 6 learner attended were in Eastern Cape while only 0,7 days had been lost in Western Cape. The average numbers of days lost in KwaZulu Natal and North West (4 days each) were also unacceptably high.

Since 2000 the Department has undertaken a comprehensive campaign of sending senior officials of the Department each year to monitor the start of the school year in all the provinces to ensure that teaching and learning start promptly on the opening day.

### **What were the purposes and frequency of school inspections?**

Principals were asked to indicate how often inspectors had visited their schools in the three years preceding the survey and also to indicate the purpose of the visits. The average number of visits to a school by inspectors in the three years before the survey has been presented for each province and for South Africa overall in Table 5.13 (a). Further, information on the percentage of principals who indicated the purpose of each inspection visit has been summarised in Table 5.13 (b).

**Table 5.13 (a) Means and sampling errors of the frequency of school inspection over 3 years**

	Numbers of inspections over 3 years	
	Mean	SE
Eastern Cape	7,0	1,76
Free State	20,5	4,26
Gauteng	19,2	8,44
KwaZulu Natal	11,2	2,33
Mpumalanga	7,2	1,23
Northern Cape	9,0	1,45
Limpopo	7,0	1,30
North West	10,3	3,25
Western Cape	13,9	2,34
<b>South Africa</b>	<b>11,4</b>	<b>1,48</b>

**Table 5.13 (b) Percentages and sampling errors for school inspections**

	Inspection took place in past 3 years	
	%	SE
Full inspection	4,7	1,70
Routine inspection	40,0	4,44
Inspect educators – <u>not</u> for promotion	12,6	2,75
Inspect educators – <u>for</u> promotion	12,5	2,63
Assist educators	35,9	4,37
Advise the principal	61,8	4,18
Address crisis/problem	43,0	4,26
Courtesy call	74,8	3,59

It has been shown in Table 5.13 (a) that, at the national level, the average Grade 6 learner was in a school that had been visited by inspectors 11,4 times in three years before the survey. This relatively low number of inspection visits to schools could be ascribed to the transition from the authoritarian inspections to developmental support services that started after 1994.

It has been shown in the set of figures in Table 5.14 (b) that the modal purpose of inspection visits in this period was “Courtesy call” (74,8%) which was followed in rank order by “Advise the principal” (61,8%) and then by “Address crisis/problem” (43,0%). “Full inspection” (4,7%) and inspection of educators either for promotion or not for promotion (about 12% each) became significantly less frequent. All these observations corroborated the contention of the transition.

In Table 5.13 (a) it has been shown that the average number of inspection visits to schools for each province was generally very low. Although Free State and Gauteng seemed to have relatively higher average numbers of inspection visits to schools, these should, however, be interpreted with great caution seeing that the corresponding standard errors also tended to be relatively high.

But the observation from Table 5.13 (b) that only 35,9 percent of the principals were of the view that the inspections were assisting educators raises concerns which will hopefully be addressed as the transition matures. Assisting educators in their professional tasks is one of the challenges that face the country as it introduces new and revised curricula in the post-apartheid era.

**What was the contribution of the community in terms of time and resources for maintaining the school and for providing supplementary funding?**

Information on the type of contribution and the percentage of the community that was contributing to supplement funding and resources in the schools has been summarized in Table 5.14 for South Africa overall.

**Table 5.14 Parent/community contributions to the school**

	Learners in school with community contributing to the school	
	%	SE
Building of school facilities	33,0	3,85
Maintenance of school facilities	56,8	4,39
Construction/maintenance and repair of furniture/equipment	43,8	4,29
The purchase of textbooks	35,0	3,94
The purchase of stationery	48,1	4,14
The purchase of other school supplies	65,5	4,41
Payment of examination fees	24,2	3,65
Payment of the salaries of additional educators	27,0	3,57
Payment of an additional amount of the salary of educators	7,1	2,27
Payment of the salaries of non-teaching staff	32,6	4,04
Payment of an additional amount of the salary of non-teaching staff	6,1	1,94
Extra-curricular activities	85,1	3,87
Assisting educators in teaching without pay	25,3	3,44
Provision of school meals	20,6	3,30

On the whole, it has been shown in the set of figures in Table 5.14 that 85,1 percent of the Grade 6 learners were in schools where the community made contributions to extra-curricular activities such as school trips; 65,5 percent were in schools where communities contributed to purchase school supplies and 56,8 percent were in schools where communities contributed to the maintenance of school facilities. The figures are not mutually exclusive which means that in many instances the same learners were in schools where communities contributed to all of extra-curricular activities, purchase of school supplies as well as maintenance of school facilities.

It has been shown in Table 5.14 also that there were small percentages of Grade 6 learners who were in schools where communities contributed to the payment of (a) the salaries of additional educators (27,0%), (b) an additional amount of the salary of educators (7,1%) and (c) an additional amount of the salary of the non-teaching staff. Again the figures are not mutually exclusive and, therefore, the figures could be referring to the same schools.

According to the Constitution of South Africa (Act 108 of 1994) the State has the responsibility to provide quality education to all learners and to redress past inequalities in education provision. Whilst the contributions of communities to school funds and resources may be commendable, the equity goal of transformation would be compromised and

inequities would be perpetuated unless school communities were adequately integrated to reflect the true demographics of the country.

**Policy Suggestion 5.6**

The Government should monitor the integration of school communities to avert a situation where community contributions to schools by racially distinct groups serve to perpetuate past inequalities.

**What were the main behavioural problems of learners?**

Principals were given a list of common learner behavioural problems in schools and were asked to indicate the frequency of occurrence of these in their schools. The percentage of principals who indicated that the given behavioural problems ‘never’ occurred in their schools has been shown in Table 5.15 in increasing order of ‘never’ occurs. For instance, only 1,0 percent of the principals indicated that ‘Arriving late at school’ by learners ‘never’ occurred in their schools. By inference, 99 percent of the principals indicated that ‘Arriving late at school’ by learners occurred ‘often’ in their schools.

**Table 5.15    Learner behavioural problems**

	Percentage indicating ‘never’ occurs	
	%	SE
Arriving late at school	1,0	0,68
Health problems	3,6	1,64
Fights	5,8	1,92
Intimidation of learners	9,3	2,43
Use of abusive language	12,1	2,78
Dropping out of school	14,7	2,75
Cheating	17,6	3,13
Theft	17,9	3,33
Vandalism	31,2	3,85
Classroom disturbance	41,2	4,23
Skiping classes	45,8	4,43
Intimidation of educators/staff	67,1	4,31
Drug abuse	68,7	4,34
Alcohol abuse	72,7	4,21
Sexual harassment of learners	74,6	4,34
Physical injury to staff	92,0	3,51
Sexual harassment of educators	93,8	3,37

From Table 5.15 it could be inferred that the significant top five learner behavioural problems in the schools where the average Grade 6 learner attended were, in order of frequency of occurrence:

- (a) Arriving late at school (99%). This could partly be ascribed to the findings in this survey and others that, on average, learners had to walk relatively long distances to get to school.
- (b) Health problems (96,4%). In this survey illness was also found to be the leading reason for absenteeism among the learners.
- (c) Fights (94,2%)
- (d) Intimidation of learners (90,7%)
- (e) Use of abusive language (87,9%)

Although the following five learner behavioural problems were found to occur with least frequency as has been presented in Table 5.15, the percentages (in brackets) of principals who indicated that these occurred 'often' in the schools where the Grade 6 learners attended were found to be unacceptably high. According to the South African Schools Act most of these behaviours may lead to suspension of affected learners. They were:

- (a) Drug abuse (31,3%).
- (b) Alcohol abuse (27,3%)
- (c) Sexual harassment of learners (25,4%)
- (d) Physical injury to staff (8,0%)
- (e) Sexual harassment of educators (6,2%)

To address the behavioural problems above and others of a similar nature, the Department has embarked on initiatives like the Safe Schools Project and Values in Education with the aim of inculcating a culture of responsibility and the values of democracy and citizenship. It is hoped that the impact of these initiatives will soon be realized and the levels of these misdemeanors

### **What were the main behavioural problems of educators?**

Information on the educators' behavioural problems in the schools where the Grade 3 learners attended has been presented in Table 5.16. The figures in the table refer to the percentage of principals who indicated that the respective educator behavioural problems 'never' occurred in their schools. They have been presented in increasing order of 'never' occurs.

**Table 5.16 Educator behavioural problems**

	Percentage indicating 'never' occurs	
	%	SE
Health problems	11,9	2,63
Arriving late at school	15,4	3,72
Absenteeism	37,3	4,33
Skipping classes	63,3	4,20
Intimidation or bullying of learners	66,8	4,16
Use of abusive language	68,4	4,04
Alcohol abuse	82,3	3,11
Drug abuse	89,7	2,56
Sexual harassment of learners	95,8	1,72
Sexual harassment of educators	96,3	1,54

From Table 5.16, the average Grade 6 learner in South Africa was in a school where 88,1 percent and 84,6 percent of the principals reported 'Health problems' and 'Arriving late at school', respectively, as the significant top two educator behavioural problems that occurred 'often' in the schools. It is worth noting that these two were also the top two learner behavioural problems which the principals had reported to occur 'often' in the schools. Alcohol abuse and drug abuse by educators were reported to occur 'often' by 17,7 percent and 10,3 percent of the principals, respectively.

According to the percentages indicated in the principals' responses, there was more abuse of drugs and alcohol among the learners than among the educators in the schools. Notwithstanding, the frequency of drug and alcohol abuse among the educators was unacceptably high and could lead to disciplinary problems.

### **Conclusion**

A particularly noticeable phenomenon was the gross under-representation of females in the posts of principals. Otherwise principals were appropriately qualified and had adequate experience teaching experience.

Principals indicated that a need for the erection of school buildings, provision of equipment and, in some instances, the provision of piped-water. According to the principals' responses, a substantial number of school buildings were in need of repairs. The provision of toilets for learners was particularly unsatisfactory in Limpopo.



Most principals maintained good working relations with the parents and the community in general. They maintained an 'open door policy' for parents to visit the principal or educators at any time either by appointment or not by appointment. A significant percentage of principals indicated that school communities made financial contributions that were used either to top up educator salaries, or to pay additional educators or to pay non-teaching staff. Concern has been expressed about the potential for this practice to widen inequities and exclude from the school learners whose parents may not be able to make such contributions.

## **Chapter 6**

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

#### **Introduction**

Equitable distribution of human and material resources in the education system is one of the key transformational goals of the government in South Africa. Since 1994 there have been numerous legislative and strategic initiatives taken to ensure that educators and school facilities were equitably accessible to all learners regardless of race, socio-economic status or geographical location. The policy measures that the Department of Education took to redress the inequities inherited from the past included (a) making basic education free and compulsory for all children between the ages of 7 and 15 years, (b) setting national norms for educator: learner ratios for primary and secondary schools and (c) setting national norms for allocation of State funds for non-personnel resources in schools on a sliding scale that favours the poor.

Redress of inequalities in the education system is part of the government's broader campaign of poverty alleviation and building of a broad human resource base. Fair and equitable distribution of resources and opportunities are necessary conditions for national stability. Parents are likely to have sustained confidence in an education system that affords equal opportunities to learners in every location in the system. Equitable access to resources will also broaden learner participation and heighten their success rates in the system. It could be expected, therefore, that learners' scholastic performance will mirror the distribution of resources in the system.

In this chapter two basic statistical measures of variation (level of equity) have been described and used to explore the extent of equitable distribution of human and material resources among the provinces and among schools within provinces. The two General Policy Concerns that have been explored in this chapter were concerned with the distribution of human resources and material resources, respectively. The findings have been discussed and appropriate policy suggestions made.

### **A 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 where the Grade 6 learner in South Africa participated. 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 ( $\rho$ ) to determine the percentage of variation in a resource distribution - among schools in a province - that can be ascribed to variation among the provinces. The rest of the variation (100% minus the calculated value of rho) could be ascribed to allocation variations among schools within the provinces. Knowing the location of variations (inequities) in the distribution of resources will be useful in indicating the level at which decisions to rectify the situation should be taken.

#### **(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 and 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 intraclass correlation ( $\rho$ ) quantifies the amount of variation that can be attributed to variation among the provinces. The value of the coefficient ( $\rho$ ) varies between zero and one. Expressed as a percentage – by multiplying the coefficient by 100 -  $\rho$  varies between zero percent and 100 percent. In this case, a  $\rho$  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, no province has an advantage over others concerning the allocation of the particular resource. A rho numerical value of 100 percent in the variation means that all the variation in the allocation of a 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 South Africa or in the provinces.

**General Policy Concern 17:**

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

It is not only essential to provide qualified personnel in the school system, but it is also important to have an equitable allocation of human resources among schools within individual provinces as well as among the various provinces.

One specific research question was used to explore this general policy concern.

**Were qualified and experienced Grade 6 educators and principals distributed equitably among provinces and among schools within provinces?**

Percentages that indicate the variation of human resources among schools within provinces as compared to variations among schools at the national level have been given under the numbers 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 provinces, and (b) variation among provinces**

	Variation among schools within provinces									Variation among provinces (rho x 100)
	1	2	3	4	5	6	7	8	9	
Reading educator professional qualification	88,1	117,9	75,9	101,7	97,6	91,0	93,3	88,1	16,3	19,0
Reading educator experience	133,4	111,0	97,9	87,6	86,9	103,6	70,3	111,5	80,8	0,0
Math. educator professional qualification	97,6	105,0	87,7	89,7	120,7	57,9	87,4	99,5	16,9	19,4
Math. educator experience	133,3	112,5	82,6	105,9	80,1	94,0	83,4	75,7	95,1	0,0
Principal professional qualification	118,0	97,9	98,8	100,9	93,7	59,1	96,0	82,5	33,7	12,7
Principal Experience	106,3	91,7	119,1	105,5	112,6	74,4	95,0	116,3	69,4	0,0
Inspectors/advisors visits for Reading educators	102,6	137,4	59,1	102,9	101,6	94,9	83,6	93,5	118,8	0,0
Inspectors/advisors visits for Mathematics educators	76,2	130,8	84,5	90,6	89,7	87,5	126,9	108,9	108,9	0,0
Learner/educator Ratio	143,9	60,1	75,2	115,3	88,7	40,0	74,5	94,8	86,4	5,3

1=Eastern Cape, 2=Free State, 3=Gauteng, 4=KwaZulu Natal, 5=Mpumalanga, 6=Northern Cape, 7=Limpopo, 8=North West, 9=Western Cape

### **Discussion of variations in human resource allocations among schools within provinces**

It has been shown in Table 6.1 that the variation in the distribution of professionally qualified Grade 6 Reading educators among schools within provinces significantly exceeded the national variation by 17,9 percent for Free State (Province 2). Other

human resource allocations that varied among schools within provinces, the affected provinces, and the percentage by which the variation exceeded the national variation (in brackets) were:

- 1 Mathematics educator professional qualification for Free State (11%), and Mpumalanga (Province 5) (20,7%)
- 2 Mathematics educator experience for Eastern Cape (33,3%), Free State (12,5%), and kwaZulu Natal (Province 4) (5,9%)
- 3 Reading educator experience for North West (11,5%).

Free State, Mpumalanga, Eastern Cape, and kwaZulu Natal have a significant number of schools that are in predominantly farm or rural settings. There is a tendency for highly qualified educators to take up posts in these schools only in their first years of teaching but then leave for urban alternatives as soon as the opportunity presents itself. Only those with lower qualifications or who are not professionally qualified and are therefore less in demand elsewhere, remain longer in these conditions. This could explain the apparent internal inequity in the distribution of qualified and experienced educators in these provinces compared to the national variation.

A significant excessive variation of 18 percent - compared to national variation - in principal professional qualifications occurred in Eastern Cape. Provinces that had significant relative inequities – excessive variation indicated by percentages in brackets - in the distribution of principal experience were: Eastern Cape (6,0%), Gauteng (19,2%), kwaZulu Natal (5,9%), Mpumalanga (12,6%) and North West (16,3%).

Except for Gauteng, the provinces with significant internal inequities in the distribution of experienced principals were again those that had significantly large numbers of schools in rural and farm settings. The apparent relative inequity in the distribution of principal experience could, therefore, be ascribed to the same reasons that were advanced in the case of educators in general.

Significant relative inequity in the distribution of inspectors'/advisors' visits to schools for Reading educators – percentage of excess variation shown in brackets -

occurred in Free State (37,4%) and Western Cape (18,8%). It would be useful to find out why there seemed to be a tendency for inspectors/advisors to visit some schools and not others for Reading in these two provinces.

There were more provinces with significant relative inequities in the distribution of inspectors'/advisors' visits to schools for Mathematics than for Reading. Excessive relative inequities in the distribution of inspectors'/advisors' visits to schools for Mathematics – percentages shown in brackets – occurred in Free State (30,%), Limpopo (26,9%), North West (8,9%) and Western Cape (8,9%).

One possible reason for the relative inequity in the distribution of inspectors'/advisors' visits to schools could be the shortage of qualified inspectors/advisors for Mathematics, which is a considerable problem in South Africa. Re-training of educators in the social learning areas to redirect them to the Mathematics career path is one of the strategies employed by the government in South Africa to address the shortage of educators in Mathematics.

Two provinces, Eastern Cape and kwaZulu Natal, had significantly large relative inequities in the distribution of learner: educator ratios. For the Eastern Cape the excessive variation in the learner: educator ratio among schools within the province was 43,9 percent and in kwaZulu Natal it was 15,3 percent. This phenomenon could again be traced to migrations of educators to urban centres thus leaving behind throngs of learners to be attended to by few educators.

Eastern Cape and kwaZulu Natal are the most populous provinces in South Africa. Large and particularly overpopulated areas in these provinces have been identified as nodal zones where development initiatives are concentrated for social and economic rejuvenation. The initiatives include building of schools to reduce classroom overcrowding, creation of jobs and general alleviation of poverty.

### **Discussion of variations in human resource allocations among the provinces**

The percentages of variations in human resources among schools that can be ascribed to variations among provinces (inter-provincial inequities) have been summarized in the last column of Table 6.1. Resources with significant percentage variations (in brackets) that could be attributed to differences among the provinces were:

- 1 Reading educator professional qualification (19%)



- 2 Mathematics educator professional qualification (19,4%)
- 3 Principal professional qualification (12,7%)
- 4 Learner/educator ratio (5,9%).

At the national level, the Department of Education in South Africa passed laws and made appropriate policies that all provinces have to implement to ensure equitable distribution of human resources. Examples were policies that required educators to be deployed in schools according to the norm learner/educator ratios. The finding that significantly low percentages of variations in the distribution of human resources were attributable to differences among provinces and that the greater variations occurred within provinces could be an indication that inequities had more to do with policy implementation than policy formulation. Because the distribution of human resources has labour implications, the findings that indicate inequitable distributions of professionally qualified educators and principals within some provinces need to be explored further and acceptable solutions be found in consultation with teacher unions.

**Policy suggestion 6.1**

The Head of Education in Gauteng should commission an investigation to find out why the distribution of experienced principals in that province seemed to be relatively uneven.

**Policy suggestion 6.2**

The Heads of Education in Free State and Western Cape should set up Task Teams, led by senior district officials, to investigate whether there are enough inspectors/advisors and whether the itineraries of these officials covered all the schools.

**Policy suggestion 6.3**

District Managers/Directors in Free State, Limpopo, North West and Western Cape should ensure that Mathematics is equitably represented in district teams that visit and support schools.

**Policy suggestion 6.4**

The Department of Education needs to collaborate with the Department of Public Works to provide classrooms and reduce the particularly inequitable distributions of learner: teacher ratios in Eastern Cape and KwaZulu Natal.

**General Policy Concern 18:**

**Have material resources been allocated in an equitable fashion  
among provinces and schools within provinces?**

It is not only essential to provide adequate material resources to schools, but it is also important to have an equitable allocation of the resources among schools within individual provinces as well as among the various provinces.

One specific research question was used to explore this general policy concern.

**Were (a) general school infrastructure, (b) classroom equipment, and (c) classroom teaching materials distributed equitably among provinces and among schools within provinces?**

For the Grade 6 learners in South Africa percentages indicating variations of the resources among schools within provinces compared with variations among all schools at the national level and percentages of variations among provinces have been given in the columns of Table 6.2.

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

	Variation among schools within provinces									Variation among provinces (rho x 100)
	1	2	3	4	5	6	7	8	9	
Classroom furniture index by Reading educator	86,1	86,7	81,9	82,0	70,8	143,7	109,4	105,2	30,5	15,8
Classroom furniture index by Mathematics educator	78,5	107,6	75,1	80,6	96,1	94,8	104,3	78,5	106,9	19,7
Toilets per Learner	66,0	21,2	31,5	83,0	47,7	14,5	226,8	40,8	12,1	12,0
Classroom library by reading educator	104,6	106,6	93,6	88,0	100,2	101,3	101,1	102,7	76,7	5,1
Classroom library by Mathematics educator	102,1	102,1	97,8	99,2	102,3	85,3	103,0	102,3	95,2	1,1
Classroom space per Learner	75,2	38,0	30,6	45,9	285,8	49,1	56,4	5,9	30,8	2,1
Reading educator housing quality	112,2	102,6	58,2	108,7	0,0	26,6	111,9	105,0	0,0	21,6
Mathematics Educator housing quality	110,2	111,8	53,1	101,8	76,2	0,0	110,6	111,8	0,0	17,7
School resources index	72,5	62,0	77,5	109,2	77,5	29,7	61,9	65,3	41,9	48,3

1=Eastern Cape, 2=Free State, 3=Gauteng, 4=KwaZulu Natal, 5=Mpumalanga, 6=Northern Cape, 7=Limpopo, 8=North West, 9=Western Cape

### **Discussion of variations in material resource allocations among schools within provinces**

From the information that has been summarized per province in Table 6.2, the highest variation in the distribution of classroom furniture for Reading educators among schools within provinces occurred in Northern Cape and was 43,7 percent in excess of variation at the national level. Other significant variations in excess of national levels – percentage excess shown in brackets – occurred in Limpopo (9,4%) and North West (5,2%). For the distribution of classroom furniture for Mathematics educators variations in excess of the national level occurred in Free State (7,6%), Limpopo (4,3%) and Western Cape (6,9%).

Classroom furniture is a basic requirement to create an environment that is conducive to learning and teaching. The apparent inequities in the provision of classroom furniture within some provinces were a cause for concern. Appropriate action to redress the situation should be taken by District officials in Northern Cape and the other provinces that were affected to a lesser degree.

Compared to the variation at the national level, the variation in the distribution of toilets per learner in Limpopo was unacceptable and alarming. The variation exceeded the national level by 126 percent. There is an urgent need for action to be taken to address this matter as it has serious health implications.

Although on the whole the distribution of libraries for both Reading and Mathematics educators within provinces did not seem to vary widely from the national level, there were noticeable excessive internal variations in this resource in Eastern Cape (4,6%) and Free State (6,6%) for Reading educators in particular. A possible reason for the variations in these provinces could be the provision of reading materials to selected pilot schools through projects like The READ Project and Masifunde Sonke Reading Project. The long-term plan is to make the reading materials available to all the schools.

Except for Mpumalanga, the variation in the distribution of classroom space per learner in all the provinces was less than the variation among all the schools in South

Africa. For Mpumalanga the internal variation in the distribution of classroom space per learner was 128,6 percent wider than the variation at the national level. This finding needs to be verified through further research and, if it is confirmed, the provincial Head of Department should set up a Task Team to accelerate and monitor the process of redistributing learners in an acceptable but more equitable manner.

Distribution of both Reading and Mathematics educator housing quality varied by approximately 10 percent within each of Eastern Cape, Limpopo and North West. Further, distribution of Reading educator housing quality in kwaZulu Natal exceeded the variation at the national level by 8,7 percent whilst in Free State the distribution of the Mathematics educator housing quality varied by 11,8 percent in excess of the national variation.

It was again noted that the provinces with excessive relative variations in the distribution of educator housing quality were those that had significant numbers of schools in predominantly rural or farming settings. In these situations educators who can afford daily commuting tend to buy houses in towns or villages where infrastructure is conducive with running water, electricity, and other amenities.

A curious observation has been shown in Table 11.16 (b). In each of Mpumalanga, Northern Cape and Western Cape the variation in the distribution of either Reading or Mathematics educator housing quality or both was zero percent. This means that in each of these provinces Grade 6 learners had Reading or Mathematics or both Reading and Mathematics educators whose housing quality did not vary among schools within the province.

### **Discussion of variations in material resource allocations among the provinces**

Percentages of variations among schools with Grade 6 that could be attributed to variations among the provinces for material resource allocations have been reflected in the last column of Table 11.16 (b). The highest amount of variation that was attributable to variation among provinces (inequity among provinces) was 48,3 percent for the allocation of school resources. This was a worrying observation as it indicated that, for South Africa overall, only about half of inequalities in school

resources among the schools where Grade 6 learners attended could be ascribed to differences in allocation within the provinces.

Since 1994 the government of South Africa has used the equitable share formula (ESF) to allocate the largest slice of non-personnel funding to the poorest of provincial departments of education as a means of redressing past inequities in the provision of school resources. The findings in this survey indicate that the formula may need to be reviewed to accelerate the redress process.

Other variations in material resource allocation (given as percentages in brackets) that could be attributed to variations (inequities) among the provinces occurred for:

- 1 Classroom furniture index by Reading educator (15, 8%)
- 2 Classroom furniture index by Mathematics educator (19,7%)
- 3 Toilets per Learner (12,0%)
- 4 Classroom library by Reading educator (5,1%)
- 5 Reading educator housing quality (21,6%)
- 6 Mathematics educator housing quality (17,7%)

With the exception of the school resources index, the percentages of the variations in the allocation of material resources that could be attributed to inequities among the provinces were generally low. This suggests that the process of redress should now shift to a focus on monitoring the implementation of the transformation policies at the level of provinces and districts.

**Policy suggestion 6.5**

District officials in Northern Cape should investigate the distribution of classroom furniture among the schools in the respective districts and, if inequities are seen to persist, take decisive actions to re-allocate furniture to needy schools.

**Policy suggestion 6.6**

The Head of Education in Limpopo should commission an audit of the sanitation facilities in the schools in that province and, where provision is found to be inadequate, the assistance of local communities should be solicited in order to improve the learner: toilet ratio.

**Policy suggestion 6.7**

The Heads of Education in Eastern Cape, Free State, kwaZulu Natal, Mpumalanga and North West – the provinces with significant numbers of schools that are predominantly in rural or farm settings – should, in collaboration with the Department of Public Works, initiate pilot projects to provide adequate housing quality for educators in rural schools to curb the apparent exodus of educators to urban environments.

**Conclusion**

The findings in this chapter indicate that, to a large extent, inequitable allocations of human resources occurred within provinces rather than among the provinces. Professionally qualified and experienced educators and principals were not equitably allocated or distributed among the provinces. But the inequity in the distribution or allocation of these resource was more pronounced within the provinces themselves and this was particularly so for the large rural provinces like, Eastern Cape, Free State, Mpumalanga and kwaZulu Natal. It appeared odd that within Gauteng, which has many of its schools in urban areas, the distribution of experienced principals appeared to be widely inequitable. Within each of Eastern Cape and kwaZulu Natal there were also considerable inequalities in learner/educator ratios, which could be a natural consequence when educators tend to gravitate to preferred locations and leave others.

Visits to schools by inspectors or subject advisors were found to be unevenly spread within Free State and Western Cape. The value of the support that these officials can provide to educators cannot be overemphasized, which makes their equitable distribution a matter of profound educational importance.

The analysis indicated striking inequities in the allocation of school resources among the provinces. These were items that include photocopiers, radios, libraries or book corners, telephones and similar items that a school needs on a daily basis. There were huge differences in the distribution of school resources within each of Eastern Cape and kwaZulu Natal again. Inequity in the distribution of toilets for learners within Limpopo stood out very conspicuously.

A number of policy suggestions have been made and most of them are concerned with on-going monitoring at all levels and accelerating the process of transformation and redress. Moreover, because the findings indicated that existing inequities were within rather than among the provinces, the suggestions will be more applicable at provincial and district levels with the necessary support and monitoring from the national level.



## Chapter 7

### The Reading and Mathematics Achievement Levels of Learners

#### Introduction

Learner achievement is used by many countries of the world as one single most important output that indicates the efficiency of an education system. However, research findings from studies in South Africa and elsewhere have indicated that the level and quality of learner achievement may be influenced to varying degrees by the quality of the education inputs and other contextual factors in the teaching and learning environment. For purposes of evaluating and monitoring to ensure equitable allocation of human and material resources in the education system, it is important to identify and target critical leverage points for effective intervention. To this end, a useful starting point is to make available researched knowledge of education inputs that have direct impact on learner achievement and those that play a supportive role by creating an environment conducive to efficient teaching and effective learning. Such knowledge informs quality decisions to provide resources in a prioritized fashion to realize meaningful measurable effects on the system.

In this survey Grade 6 learners completed purpose-designed tests in Reading or Literacy and Mathematics. The learners' responses were scored and a comprehensive analysis was done to establish learners' levels of achievement in Reading and Mathematics and to examine whether there were differential levels of achievement according to gender, socio-economic level and location of the school. Data were also analyzed to determine the percentage of learners who demonstrated mastery of the "essential" test items that were based on the South African school curriculum content. A critical discussion of the findings has been presented and some policy suggestions made.

**General Policy Concern 19:**

**What were the levels and variations in the achievement levels of Grade 6 learners in Reading and Mathematics for South Africa?**

A relative comparison was made to assess the distribution of learners' achievement, for instance, among schools within provinces or among the provinces. Although this comparison could not be used to make judgments about the absolute quality of performance in any of these instances, it could be useful in establishing the relative distribution of learner achievement among the provinces and thus give an indication of areas that need intervention in order to address any equity or quality disparities.

Three specific research questions were used to explore this general policy concern.

**What were the overall mean Rasch scores of learners in Reading and Mathematics in South Africa?**

Data on the Grade 6 learners' scores were analyzed using computer software that applied the Rasch Model of measurement. The basic feature of the Rasch Model is that the programme performs a linear transformation of the test scores into a scale on which the pre-determined mean score is 500 and the standard deviation is 100. The Grade 6 learners' mean Rasch scores on all items in Reading and Mathematics have been presented in the columns of Table 7.1 for the provinces and for South Africa overall.

**Table 7.1: Means and sampling errors for the Reading and Mathematics test scores of learners with all test items**

	Learner performance on all test items			
	Reading		Mathematics	
	Mean	SE	Mean	SE
Eastern Cape	444,3	13,98	449,5	10,72
Free State	446,4	12,43	447,7	5,99
Gauteng	576,3	35,14	552,3	25,97
Kwazulu Natal	517,5	21,57	510,3	17,45
Mpumalanga	428,4	17,50	433,6	10,80
Northern Cape	470,5	13,33	461,1	8,23
Limpopo	437,0	19,60	446,2	18,77
North West	428,0	9,59	419,8	10,58
Western Cape	629,1	17,90	591,0	23,89
<b>South Africa</b>	492,4	8,98	486,2	7,18

The results presented in Table 7.1 indicate that, for South Africa overall, the Grade 6 learners performed notably better in Reading (mean Rasch score of 492,4) than in Mathematics (mean Rasch score of 486,2). However, both mean scores were below the pre-determined mean Rasch score of 500. Mean Rasch scores for Grade 6 learners in three provinces – Western Cape, Gauteng and kwaZulu Natal – exceeded the overall mean Rasch score of 500 for both Reading and Mathematics. Their mean Rasch scores were as follows:

- 1 Western Cape: 629,1 for Reading and 591,0 for Mathematics
- 2 Gauteng: 576,3 for Reading and 552,3 for Mathematics
- 3 KwaZulu Natal: 517,5 for Reading and 510,3 for Mathematics

Except for kwaZulu Natal, these were provinces where, as was reported in Chapter 3, indices for home possessions and books at home were fairly high for the Grade 6 learners.

The lowest mean Rasch scores were obtained by Grade 6 learners from Mpumalanga - 428,4 for Reading and 433,6 for Mathematics – and from North West where the scores were 428,0 for Reading and 419,8 for Mathematics. A distinguishing feature between these two provinces and those that ranked top, with the exception of kwaZulu Natal, was that these had many schools in predominantly rural or farm settings.

The standard errors of the means as reflected in Table 7.1 were fairly large – generally larger for Reading than for Mathematics. The results should, therefore be interpreted with due caution.

It was worth noting that, in general, where the Reading mean Rasch scores were higher for a province compared to another, corresponding Mathematics mean Rasch scores were also higher. In other words, learners who performed well in Reading also tended to perform well in Mathematics. It could be useful to examine conclusively whether Grade 6 learners' Reading ability was a prerequisite to achievement in Mathematics. This information would be useful for planning learning programmes that are integrated but prioritize activities that maximize synergies where these exist.

**What were the percentages of between and within school variance associated with learner Rasch scores in Reading and Mathematics?**

**Table 7.2: Variation among schools within provinces and among provinces associated with learner Rasch scores in Reading and Mathematics**

Sub-groups	Variation among schools within provinces									Variation among provinces (rho x 100)
	EC	FS	GA	KN	MP	NC	LP	NW	WC	
Reading test										
SACMEQ II pupils	67,3	49,9	83,8	102,3	55,7	53,8	96,8	35,3	72,3	44,87
Mathematics test										
SACMEQ II pupils	60,5	26,3	111,5	92,0	42,8	34,2	103,7	38,9	103,9	41,04

The largest variation (more than 100) in reading amongst schools in provinces is in Kwazulu Natal followed by schools in Limpopo, Gauteng and the Western Cape. The same four provinces also had the largest variation in Mathematics. The highest variation is in Gauteng followed by Western Cape, Limpopo and Kwazulu Natal. The variation among the provinces in Reading and Mathematics is almost the same.

**What were the overall percentages of learners across the various levels of competence in Reading and Mathematics?**

In addition to relative comparisons where a learner's performance is compared with that of other learners, SACMEQ has adopted an approach that compares a learner's performance with the level of difficulty of the test item. This approach is based upon a characteristic of the Rasch Model that enables the ability levels of learners to be aligned with the difficulty levels of test items according to a probabilistic linkage between a person's ability and item difficulty. For each test (Reading and Mathematics) the levels of difficulty of the items were calculated. The items were then organized into ordered clusters according to level of difficulty. For each cluster of items a group of skills or competencies that are required to answer the items correctly were identified. Each cluster is then characterized by a number, according to how it ranks with others in the hierarchy of clusters, and a label that denotes the overarching competence represented by the cluster (Appendix 1 and Appendix 2).

Two levels of competence, one from Reading and the other from Mathematics, have been provided as an illustration.

For the Reading test the lowest level of competence is denoted as Level 1: "Pre-Reading". The level number is "1" and the overarching competence is "Pre-Reading". The group of skills or competencies to answer the items in this cluster require that the learner:

"Locates familiar words in a short (one line) text. Matches words to pictures. Uses letters to identify unknown words. Follows short and familiar instructions"

For Mathematics the fourth level of competence is denoted as Level 4: "Beginning Problem Solving". The level number is "4" and the overarching competence is "Beginning Problem Solving". The group of skills or competencies to answer the items in this cluster require that the learner:

"Analyzes a visual or verbal prompt in order to count. Recognizes shape, number, and time. Uses a single familiar basic operation (add, subtract, multiply, or divide) in simple problem solving".]

The percentages of Grade 6 learners who reached various competence levels in Reading and Mathematics have been presented in the columns of Tables 7.3 (a) and 7.3 (b), respectively. A comprehensive account of how the levels were determined and what their significance is has been presented in Chapter 2.

**Table 7.3 (a) Percentages and sampling errors for Reading competence levels of learners**

Percentage of learners reaching the Reading competence level																
	1		2		3		4		5		6		7		8	
	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE
EC	19,1	3,59	24,2	2,99	21,6	2,92	17,5	2,39	8,3	1,96	4,5	2,14	3,7	2,18	1,1	0,75
FS	12,9	3,42	22,3	3,47	25,9	2,31	24,3	2,99	7,8	2,94	3,6	1,45	3,2	1,89	0,0	0,00
GA	1,0	0,63	6,0	2,19	10,8	3,93	17,9	6,61	10,8	3,39	12,6	3,79	29,9	12,93	11,0	4,27
KZN	6,0	1,38	16,0	3,40	20,0	3,40	15,7	2,60	12,3	2,79	9,7	1,90	11,1	3,74	9,2	3,19
MPU	21,7	4,20	30,1	4,76	22,3	2,26	13,3	3,77	7,4	2,46	1,9	1,64	2,8	2,85	0,4	0,41
NC	11,9	2,58	14,9	3,06	24,7	4,58	21,4	2,66	14,2	2,85	4,3	1,73	8,0	2,88	0,7	0,71
NP	23,6	5,06	27,0	3,24	23,2	3,26	11,3	2,48	7,0	2,51	2,4	1,32	2,4	1,20	3,1	3,07
NW	16,8	4,24	28,3	3,65	25,0	3,23	20,6	4,24	7,3	2,15	1,6	0,90	0,4	0,41	0,0	0,00
WC	0,0	0,00	3,2	1,52	5,1	2,28	8,9	2,69	10,6	4,16	16,9	4,21	28,6	3,63	26,8	4,95
<b>SA</b>	12,2	1,21	18,8	1,26	19,1	1,26	16,0	1,29	9,4	0,99	7,0	0,81	10,9	2,32	6,6	1,10

From the information presented in the columns of Table 7.3 (a), the modal competence in Reading for Grade 6 learners in South Africa overall was Level 3 (Basic Reading) achieved by 19,1 percent of the learners. The percentage of Grade 6 learners who demonstrated Reading competencies at other levels were:

- 1 Level 1 (Pre-Reading): 12,2 percent
- 2 Level 2 (Emergent Reading): 18,8 percent
- 3 Level 4 (Independent Reading): 16,0 percent
- 4 Level 5 (Interpretive and inferential Reading): 9,4 percent
- 5 Level 6 (Critical Reading): 7,0 percent
- 6 Level 7 (Analytical Reading): 10,9 percent
- 7 Level 8 (Insightful Reading): 6,6 percent.

As the figures in the summary indicate, there were varying percentages of learners at all the Reading competence levels up to Level 8. The cumulative percentage of learners who demonstrated Reading competencies above Basic Reading (Level 3) was 49,9 percent whilst those who showed Reading competencies below the Basic Reading level were 31,0 percent of the sample.

The wide spread in Reading competencies among the Grade 6 learners has considerable implications for in-service training of educators to empower them to handle learner Reading needs at the appropriate competence levels. Emphasis should be on a differentiated approach to teaching that seeks to meet individual learners at their appropriate level of learning need. The spread of learning abilities has implications for the provision of learner support materials as well. There cannot be a one-size-fits-all but materials need to be supplied according to identified real needs.

Variations in Reading competencies among the provinces were also fairly wide as has been reflected in Table 7.3 (a). At one extreme end were learners from the predominantly urban Western Cape with 5,1 percent who attained Basic Reading competence and a cumulative 91,7 percent who attained levels from 3 to 7. These were followed by 10,8 percent of the learners from Gauteng, also a predominantly urban setting, attaining the Basic Reading level and a cumulative 82,2 percent attaining higher levels. Third in order of percentages were learners from KwaZulu Natal that is largely rural. Twenty percent of them attained the Basic Reading level and 58,0 percent attained higher levels.

At the lower end of the Reading competence scale were learners from North West, Limpopo and Mpumalanga. Significant percentages of learners in these provinces – between 45 and 52 percent – had only achieved competence levels lower than Basic Reading.

The distribution of learner competence levels in Reading was heavily skewed towards the lower competencies. This raises fundamental questions on the possible factors at play in the education system. One possibility is that there could be systematic gaps in the manner in which reading and general literacy development take place in the schools. These could be gaps in educator training levels, availability and use of reading materials in schools or a combination of these and others. A more focused research into how educators facilitate reading sessions in the classrooms could reveal pertinent practical issues.

**Table 7.3 (b) Percentages and sampling errors for Mathematics competence levels of learners**

Percentage of learners reaching the Mathematics competence level																
	1		2		3		4		5		6		7		8	
	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE
EC	11,6	2,25	52,1	4,42	25,5	2,92	7,2	2,26	1,7	1,56	1,6	1,10	0,0	0,00	0,3	0,26
FS	6,8	1,40	56,0	3,75	33,1	3,50	2,4	1,15	1,8	1,00	0,0	0,00	0,0	0,00	0,0	0,00
Gau	2,4	0,95	24,0	8,67	23,7	6,01	13,1	3,61	17,1	7,95	15,1	4,46	3,5	1,72	1,2	0,67
KZN	3,4	0,88	39,1	6,16	23,6	2,79	13,0	2,72	8,5	2,89	8,4	3,36	2,8	1,33	1,3	0,70
MPU	10,6	2,37	64,6	5,52	20,4	4,03	2,7	2,07	1,2	1,24	0,4	0,41	0,0	0,00	0,0	0,00
NC	6,4	1,51	50,4	5,08	31,7	3,38	9,1	2,17	2,1	1,14	0,4	0,36	0,0	0,00	0,0	0,00
NP	13,5	2,69	57,3	4,12	21,1	3,00	3,3	1,35	0,6	0,41	0,2	0,24	1,4	1,44	2,6	2,64
NW	18,3	4,75	61,8	2,52	17,4	3,88	2,3	1,03	0,2	0,20	0,0	0,00	0,0	0,00	0,0	0,00
WC	0,5	0,54	13,1	4,39	25,7	4,82	19,4	2,21	12,2	2,13	16,1	3,45	8,6	2,63	4,4	2,29
<b>SA</b>	<b>7,8</b>	<b>0,77</b>	<b>44,4</b>	<b>2,32</b>	<b>23,8</b>	<b>1,37</b>	<b>8,8</b>	<b>0,96</b>	<b>6,1</b>	<b>1,47</b>	<b>5,8</b>	<b>1,09</b>	<b>2,1</b>	<b>0,46</b>	<b>1,3</b>	<b>0,48</b>

For South Africa overall, the percentages and sampling errors for Grade 6 learners who attained various levels of competence in Mathematics have been reflected in the last row of Table 7.3 (b). The modal competence in Mathematics was Level 2 (Emergent Numeracy), which was attained by 44,4 percent of the learners. In addition, there were 7,8 percent of the learners who achieved only Level 1 (Beginning Numeracy). All together this left less than 50 percent of the learners reaching competence levels higher than Emergent Numeracy. Specifically, a total of only 47,8 percent of the Grade 6 learners had competence above Level 2 in Mathematics and only 1,3 percent were competent at Level 8. Given that Grade 6 is a key transition stage between the Intermediate and the Senior Phases of the school system, the significantly low numeracy competencies were worrying. It would have been expected that a considerably lower percent of the learners should have Levels 1 and 2 competencies and that more learners would demonstrate higher levels of competence.

Quantitatively, more than half of the Grade 6 learners from three provinces – Western Cape, Gauteng and kwaZulu Natal – demonstrated competence levels above the national modal Level 2. But, as it has been shown in Table 7.3 (b), the distribution of learner numeracy competencies for these provinces also had a fair qualitative spread, albeit in very small percentages, across all the eight levels. A striking observation from Table 7.3 (b) were learners from Limpopo where, although the majority of learners demonstrated lower numeracy competence levels, there was an appreciable qualitative spread of competencies up to the highest level (Level 8). In other words,



of the provinces that had few Grade 6 learners with high order numeracy competencies,

Limpopo was the only one where the few learners with high competencies were spread across all the levels up to Level 8.

Numeracy and mathematical literacy are some of the priority competencies that are enshrined in the curriculum in South Africa. The universal challenge that faces the education system is to provide the right number of appropriately qualified Mathematics educators in all the schools, which is probably one factor that could have contributed to the particularly low levels of competence in Mathematics among the Grade 6 learners. Although it may not be a complete solution, the idea of redirecting and training supernumerary non-mathematics educators to teach mathematics, at least at the lower grades, could reduce the problem significantly. It could be coupled with a mentoring system where the ‘new’ mathematics educator receives on-going support from a peer until he/she is fairly grounded in this area.

**Policy Suggestion 7.1**

The Department of Education should collaborate with educator unions to identify supernumerary non-mathematics educators who are willing to be retrained as mathematics educators. The volunteers should then be given intensive in-service training and on-going support to help them teach mathematics at the lower grades.

**What were the overall percentages of Grade 6 learners across the various levels of mastery in Reading?**

<sup>1</sup>[SACMEQ adopted an approach of comparing performance to agreed standards that had been established by committees consisting of curriculum specialists, researchers and experienced educators from the respective member countries. **Prior to the collection of data**, the committees carefully examined the Reading test items to identify items that were central to their respective school system curricula – “essential” items - and indicated how many of those would a learner be expected to answer correctly in order to (a) **barely survive** during the next year of schooling and to (b) be **guaranteed to succeed** during the next year of schooling. Learners who answered the first set of items correctly were said to have reached the ‘Minimum level of mastery’ and those who answered the second set correctly were at the ‘Desirable level of mastery’.

Minimum and Desirable performance cut-off points (scores) for the different school systems were calculated and equated to equivalent Rasch scores. When all equivalent Rasch scores had been identified for Minimum and Desirable levels, they were averaged to obtain overall SACMEQ Minimum and Desirable performance levels. The calculated cut-off Rasch score for 'Minimum level of mastery' was 487,61 and 592,81 for 'Desirable level of mastery'.]

The percentages and corresponding standard error of sampling values for the Grade 6 learners reaching Minimum and Desirable levels of mastery in Reading have been presented in Table 7.4 for the provinces and for South Africa overall.

**Table 7.4 Percentages and sampling errors of learners reaching Minimum and Desirable Reading levels of mastery**

	Learners reaching Minimum level of mastery		Learners reaching Desirable level of mastery	
	%	SE	%	SE
Eastern Cape	18,5	5,88	5,1	2,96
Free State	16,3	6,76	3,2	1,89
Gauteng	65,9	11,83	43,2	16,58
Kwazulu Natal	43,9	8,34	22,1	6,76
Mpumalanga	12,9	7,06	3,7	3,67
Northern Cape	30,3	5,90	8,7	3,51
Limpopo	15,5	5,54	5,9	4,26
North West	10,4	3,19	0,6	0,45
Western Cape	84,2	4,44	56,8	7,80
<b>South Africa</b>	<b>35,1</b>	<b>3,18</b>	<b>18,4</b>	<b>3,23</b>

In the last row of Table 10.4 it has been indicated that, for South Africa overall, the percentage of Grade 6 learners who reached the Minimum level of mastery in the Reading test was 35,1 percent and only 18,4 percent reached the Desirable level of mastery. By generalisation, it can be inferred with 95 percent level of confidence that  $35,1 \pm 2(3,18)$  percent, or between 28,74 percent and 41,46 percent of the population of Grade 6 learners in South Africa will reach the Minimum level of mastery in the SACMEQ Reading test. The generalisation has serious implications because it predicts that, if learners are assessed through examinations that are equivalent to these SACMEQ Reading tests, then it can be said with a 95 percent level of confidence that no more than 41,46 percent of them would be successful.

The ranges were wide among the provinces. The highest percentages of learners who reached both the Minimum and the Desirable levels of mastery in Reading were in Western Cape. Notably high percentages of learners from Gauteng also reached the two levels of mastery. However corresponding standard errors in this case were markedly high and the results should, therefore, be accepted with some caution. The lowest percentages for both levels of mastery occurred in North West - 10,4 at Minimum level and 0,6 percent at Desirable level of mastery.

The findings have significant implications for teaching and curriculum development. In order to assist the significantly high percentage of learners who could not reach the Minimum levels of mastery in Reading, it would be useful to investigate, on one hand, whether there was effective teaching and consistent monitoring in the schools. Effective teaching of Reading would involve exposing learners to different kinds of text and encouraging them to do independent reading to develop vocabulary and the necessary literary skills. Consistent monitoring, on the other hand, would ensure that educators receive on-going support in their professional work and are thus adequately resourceful in their dealings with learners.

It has been shown in this section that the average achievement of Grade 6 learners from three provinces - kwaZulu Natal, Gauteng and Western Cape - exceeded the SACMEQ benchmark of 500 on the Rasch scale in both Reading (Literacy) and Mathematics. But for South Africa overall, the achievement of the average Grade 6 learner in both Reading and Mathematics fell below the benchmark. The deficit was wider for Mathematics than for Reading.

Significant variations in achievement were noted among the provinces and were characterised by markedly higher learner scores in provinces that had most of their schools in urban settings. Analysis of learner achievement according to a hierarchy of Reading and Mathematics competencies revealed that the average Grade 6 learner was in a school where there was a fairly wide spread – from the simplest to the complex - of competencies for Reading among the learners. However, for Mathematics a worrying significant majority of the learners demonstrated competencies that were too basic and simple for a Grade 6 learner.

**General Policy Concern 20:****What were the Reading and Mathematics achievement levels of important sub-groups of Grade 6 learners?**

For a more focused analysis of factors that might have implications for monitoring equity and might, therefore, impact upon teaching and learning, information was gathered to identify important sub-groups of the Grade 6 learners. Three important sub-groups that were identified for the purpose of this study were gender, the socio-economic level and the location of the school.

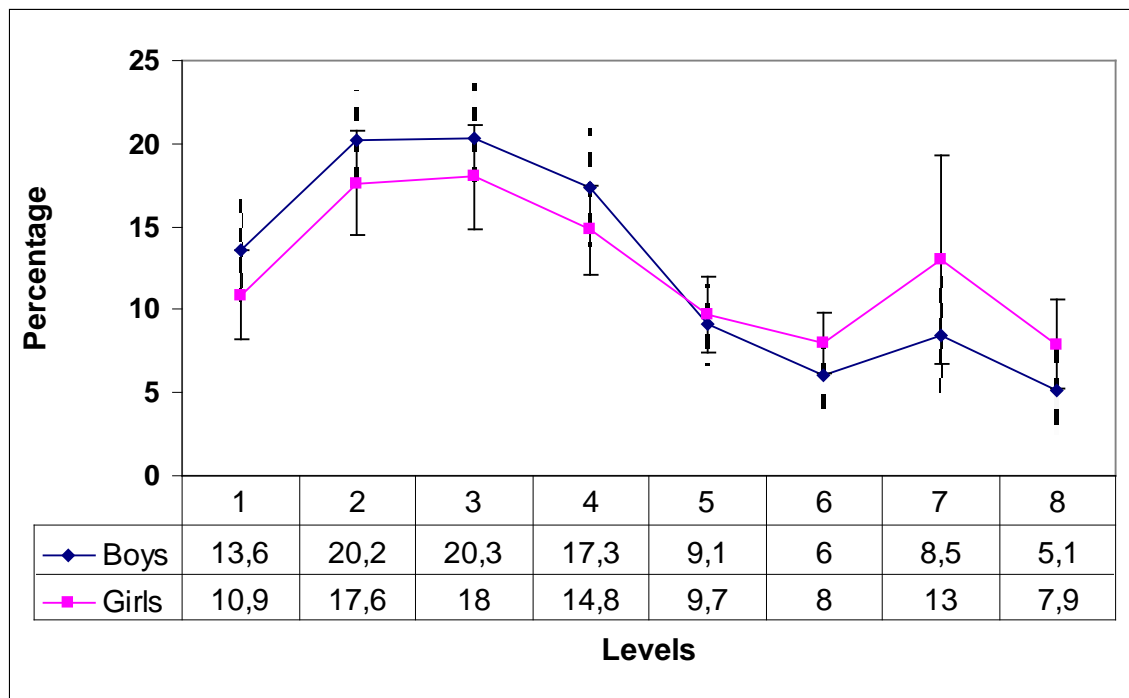
Three specific research questions that relate to each of the three important sub-groups were used to explore this general policy concern.

**What were the gender differences in Reading and Mathematics achievement for learners?**

The percentages of boys and girls who achieved various levels of competence in Reading and Mathematics have been presented in the top rows of Tables 7.5 (a) and 7.5 (b), respectively, for South Africa overall.

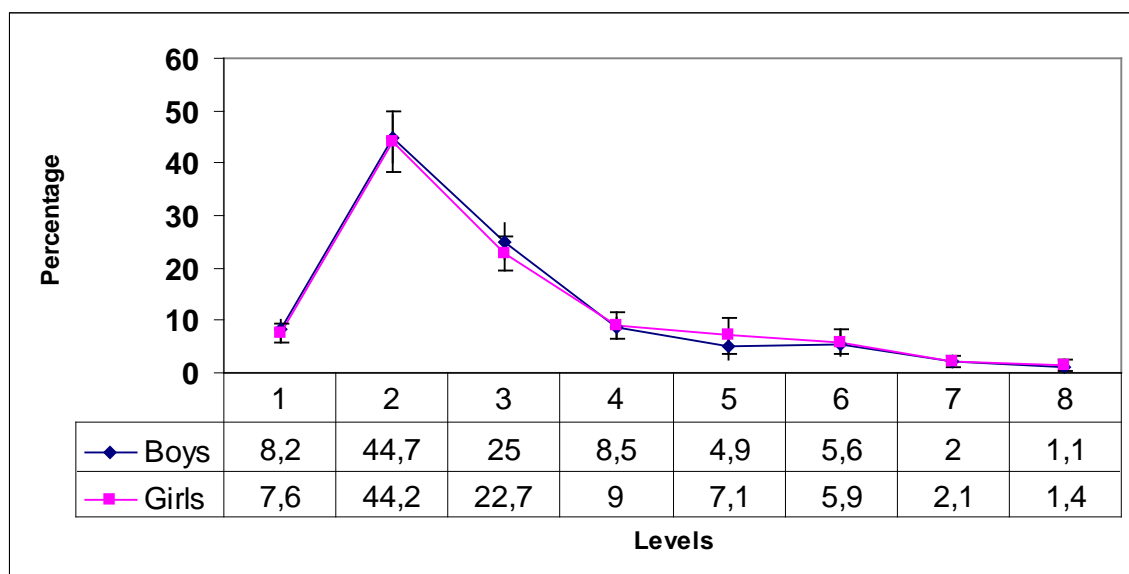
**Table 7.5 (a) Percentages and sampling errors for Reading levels of learners by sub-groups**

Percentage of learners reaching the Reading achievement level																
	1		2		3		4		5		6		7		8	
	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE
<b>Gender</b>																
Boys	13,6	1,49	20,2	1,41	20,3	1,59	17,3	1,71	9,1	1,17	6,0	1,02	8,5	1,68	5,1	1,23
Girls	10,9	1,36	17,6	1,56	18,0	1,56	14,8	1,33	9,7	1,15	8,0	0,93	13,0	3,13	7,9	1,33
<b>Socio-economic level</b>																
Low SES	17,4	1,77	24,7	1,57	25,3	1,43	16,9	1,41	8,2	1,08	4,2	0,71	2,5	0,79	0,7	0,34
High SES	7,0	1,02	13,0	1,39	13,0	1,47	15,1	1,73	10,6	1,35	9,8	1,26	19,1	3,62	12,4	1,90
<b>School location</b>																
Isolated/ Rural	19,1	2,20	28,6	1,78	26,6	1,67	15,6	1,46	6,8	1,21	2,3	0,80	0,7	0,30	0,2	0,14
Small town	12,7	2,49	16,8	2,33	18,5	2,03	20,8	3,01	11,1	1,74	6,7	1,40	9,1	2,69	4,2	1,62
Large city	1,2	0,49	5,9	1,52	8,4	1,82	11,7	2,38	12,0	2,50	14,6	2,41	27,8	6,22	18,4	2,75
<b>South Africa</b>	12,0	1,22	18,7	1,28	19,0	1,27	15,8	1,30	9,5	1,00	7,1	0,82	11,0	2,35	6,7	1,12



**Figure 7.1: Percentages and sampling errors for literacy levels of boys and girls**

As shown in the top set of figures in Table 7.5 (a), for both boys and girls the modal achievement was Level 3 (Basic Reading). The modal percentages were 20,3 percent for the boys and 18,0 percent for the girls. The cumulative percentage of boys who demonstrated Reading competencies above Basic Reading was 46,0 percent whilst that of girls was 53,4 percent. There were, therefore, significant gender differences in Reading achievement with more girls at the upper end of the Reading scale and more boys at the lower end.



**Figure 7.2: Percentages and sampling errors for mathematics levels of boys and girls**

Gender differences in participation and performance in school systems have been the key subject of numerous research studies and have received particular attention in evaluation studies of education systems. For promotion of inclusive participation by all learners in education, a proactive approach that identifies and enhances the strengths of individual learners is required. Gender differences in Reading are partly ascribable to the general tendency of girls to read materials such as magazines and cooking recipes and by so doing enrich their vocabulary more than boys tend to do. This can become a self-perpetuating phenomenon because female educators who read keenly provide ideal role models for girl learners. Initiatives that promote reading role models among male educators should be encouraged.

**Table 7.5 (b) Percentages and sampling errors for Mathematics levels of learners by sub-groups**

Percentage of learners reaching the Mathematics achievement level																
	<b>1</b>		<b>2</b>		<b>3</b>		<b>4</b>		<b>5</b>		<b>6</b>		<b>7</b>		<b>8</b>	
	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE
<b>Gender</b>																
Boys	8,2	0,96	44,7	2,22	25,0	1,69	8,5	0,97	4,9	1,24	5,6	1,21	2,0	0,48	1,1	0,43
Girls	7,6	0,97	44,2	2,87	22,7	1,64	9,0	1,31	7,1	1,78	5,9	1,20	2,1	0,55	1,4	0,60
<b>Socio-economic level</b>																
Low SES	10,7	1,14	54,9	2,04	25,5	1,54	6,0	1,09	1,7	0,63	1,1	0,63	0,1	0,09	0,0	0,04
High SES	5,0	0,73	34,2	3,22	22,1	2,19	11,5	1,40	10,3	2,34	10,3	1,66	4,0	0,88	2,5	0,92
<b>School location</b>																
Isolated/Rural	11,8	1,48	59,6	2,08	22,7	1,70	4,6	1,09	1,0	0,49	0,3	0,15	0,1	0,10	0,0	0,00
Small town	7,7	1,35	46,9	3,87	27,5	2,17	9,8	1,98	4,0	1,62	2,3	0,90	1,4	0,65	0,4	0,30
Large city	2,4	0,75	20,0	4,21	21,1	3,22	14,2	2,01	15,5	4,04	17,1	2,71	5,7	1,55	4,0	1,60
<b>South Africa</b>	7,9	0,77	44,4	2,34	23,5	1,37	8,8	0,97	6,1	1,49	5,8	1,10	2,1	0,47	1,3	0,48

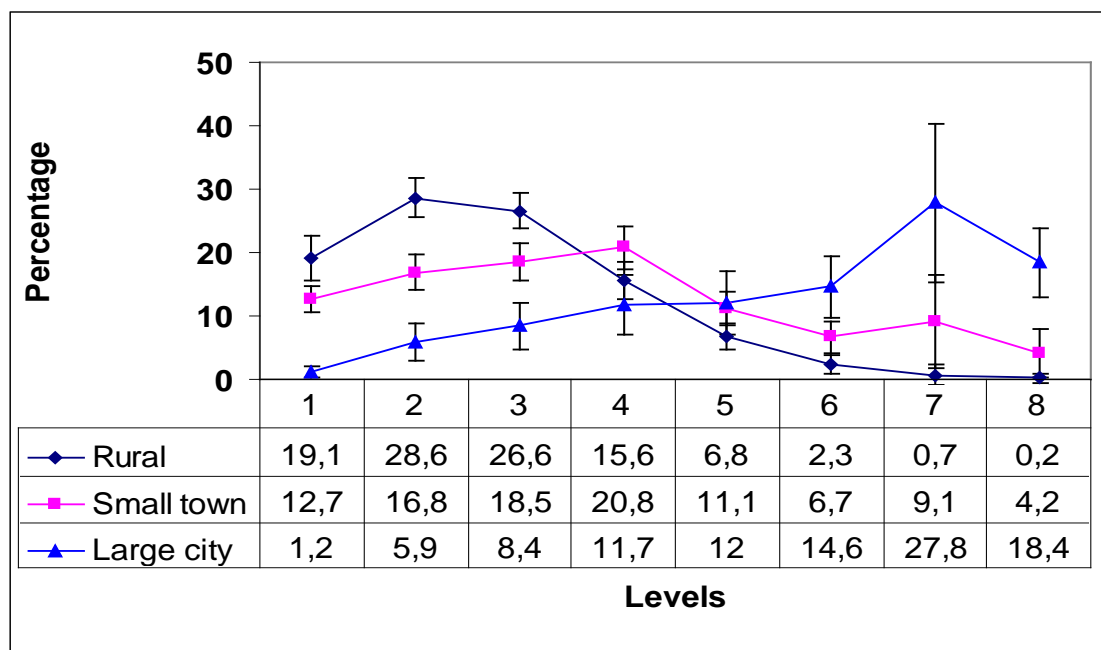
For Mathematics it has been shown in the top set of figures in Table 7.5 (b) that the modal achievement was Level 2 (Emergent Numeracy). The modal percentage for boys was 44,7 percent slightly higher than the 44,2 percent for girls. Like in the case of Reading, the percentages of boys who achieved higher levels beyond the modal level tended to decline fast whilst those of the girls smoothed out very gently. Unlike in the case of Reading, the percentages of both boys and girls achieving the highest

level for Mathematics were remarkably comparable. Approximately two percent of each of the boys and the girls achieved Level 8 (Independent Numeracy).

On the whole, the general pattern of achievement by boys and girls was the same for Reading and Mathematics but the levels of achievement were consistently unequal. More boys than girls achieved at the lower end of the scale whilst more girls tended to score on the higher end. But this pattern tends to be reversed at the higher grades of the school system. For instance, boys tend to perform significantly better than girls in Grade 12 mathematics examinations. Further research needs to be conducted to examine factors that tend to reverse the patterns of achievement as boys and girls get into the senior classes of the school system.

### What were the school location differences in Reading and Mathematics achievement for learners?

Using information that the Grade 6 learners provided about the location of their schools, it was possible to identify three sub-groups according to location, namely isolated/rural, small town, and large city schools. The percentages of learners - from each sub-group - who achieved various levels of Reading and Mathematics have been given in the middle set of figures in Tables 7.5 (a) and 7.5 (b), respectively.



**Figure 7.3: Percentages and sampling errors for Reading levels and school location**

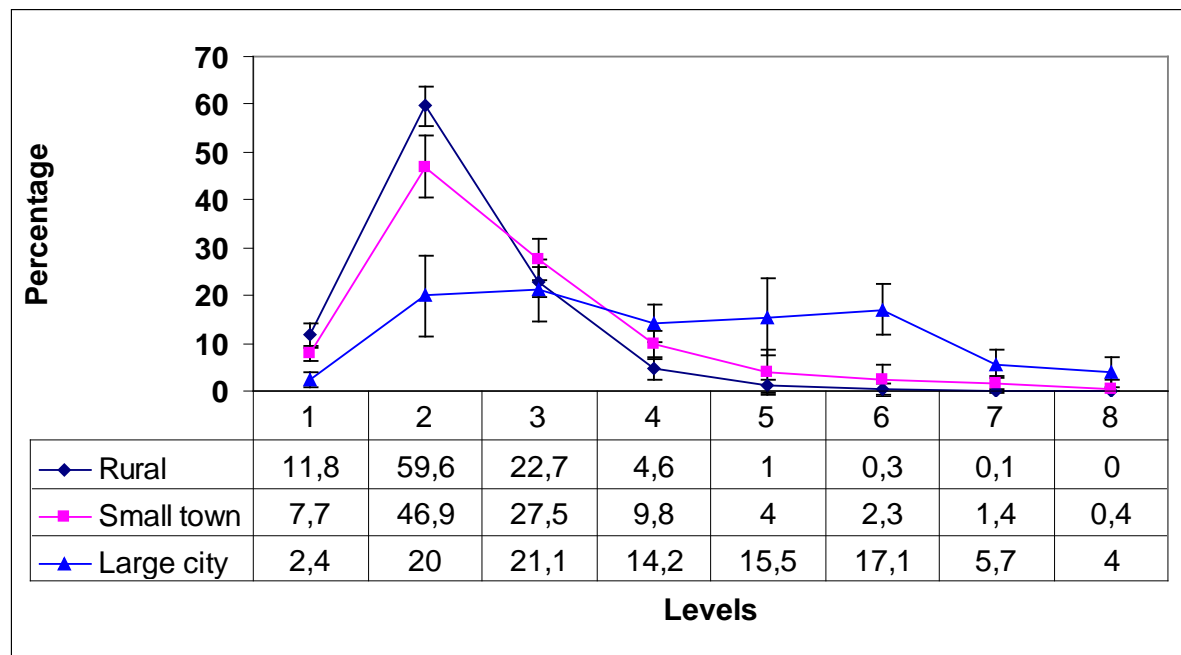
As has been presented in Table 7.5 (a), the modal achievements in Reading (the levels achieved by the highest percentage of learners) for learners in the three sets of school locations showed particularly striking differences. The modal achievements were **Level 2** (Emergent Reading) achieved by 28,6 percent of learners from isolated/rural schools, **Level 4** (Independent Reading) achieved by 20,8 percent of learners from small towns and **Level 7** (Analytical Reading) achieved by 27,8 percent of learners from large cities.

A possible explanation for the observed differential achievements among the learners in different school locations is that the location of the school may impact on learners' access to support facilities such as community centres, libraries, and even bookshops. These facilities tend to be scarce in rural areas whereas learners in cities can access them fairly easily.

The percentages of learners who achieved at the highest level of competence (Level 8) in Reading also varied widely among the three location sub-groups. Less than one percent (0,2%) of learners from isolated/rural schools, less than five percent (4,2%) from small towns and 18,4 percent from large cities achieved Insightful Reading (Level 8). There seemed to be a very strong relationship between the school location and the achievement of the learners in Reading.

In general, Grade 6 learners in cities demonstrated higher level literacy competencies and achieved significantly higher levels of Reading than their rural counterparts.





**Figure 7.4: Percentages and sampling errors for mathematics levels and school location**

Concerning achievement in Mathematics, it has been shown in Table 7.5 (b) that the differences among the location sub-groups expressed in terms of modal achievements were narrower and occurred more towards the lower end of the scale than was the case with Reading achievement. The modal achievement for learners from both isolated/rural and small town schools was Level 2 (Emergent Numeracy) achieved by 59,6 percent and 46,9 percent of the learners, respectively. The majority of the learners from the large city schools (21,1%) achieved the Level 3 (Basic Numeracy).

For isolated/rural and small town schools the percentages of learners who achieved various levels of achievement declined dramatically towards the high end of the scale and ended with no learners from isolated/rural schools and only 0,4 percent from small town schools achieving at Level 8. For large city schools, on the contrary, substantially high percentages of learners achieved higher levels with four percent at Level 8.

Two strands emerge from the presentation and analysis of the findings relating to achievement and school location. Firstly, there appears to be a convincing relationship between the location of the school and the achievement of learners in Reading. High percentages of learners from large city schools tended to achieve

higher levels of Reading competence than their counterparts from rural and small town schools. Secondly, for Mathematics achievement there seemed to be a factor or factors other than school location that influence achievement because, regardless of the location of their school, the majority of the learners achieved around the same level (Level 2).

There are ramified implications. For improving learner Reading achievements at all school locations, an accelerated equitable redistribution of educators and reading materials should be explored with greater vigour. For mathematics, however, more research should be conducted to establish whether at pre-service level educators were properly trained to teach this subject. For instance, the curriculum for pre-service training of educators should provide a sound philosophical foundation on the nature of mathematics to enable educators to demystify and contextualise this subject and thus make it more interesting to the majority of the learners.

The various in-service training initiatives that the Department of Education has taken to upgrade mathematics educators need to be subjected to on-going systematic monitoring to ensure that they are relevant to the educators' learning site needs and that they assist educators to develop facilitation skills that provide a conducive climate for effective learning of mathematics. But a more coordinated approach needs to be considered that will include, among others, an examination of issues such as the language of instruction, the availability of appropriate learner support materials and the methods of assessment in mathematics.

**Policy suggestions 7.2**

The Heads of Education in the provinces should monitor and accelerate the process of equitable distribution of educators and reading materials across all school locations to redress the identified rural/urban inequalities in reading performance.

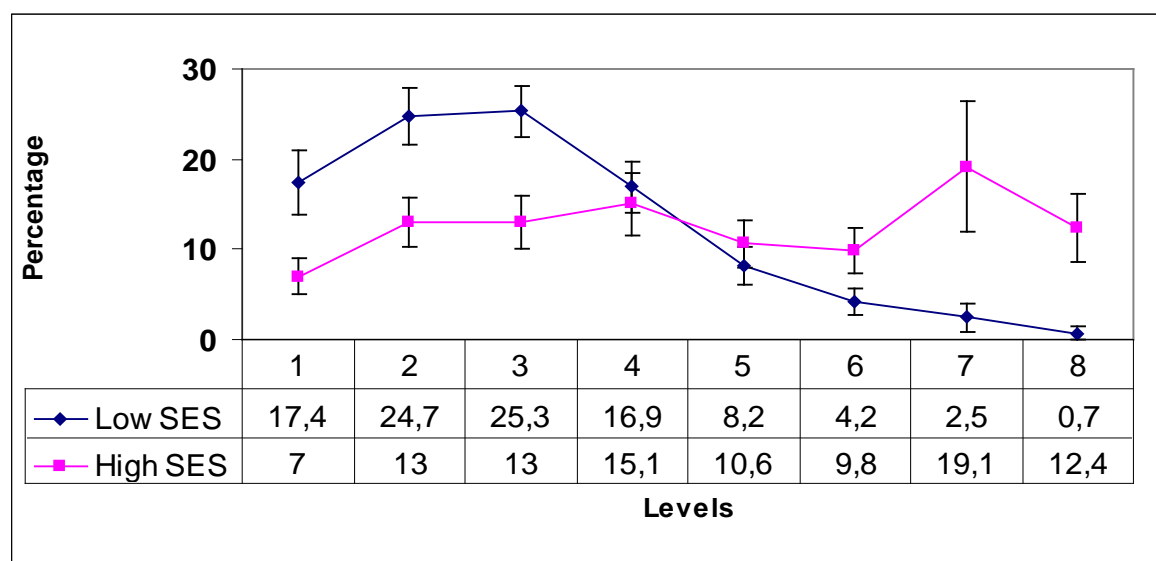
**Policy suggestions 7.3**

The Teacher Development Directorate should liaise with the institutions that provide pre-service training of educators to establish a forum where the Department of Education can make substantive contributions towards making the training programmes for mathematics educators more responsive to the school curriculum needs and the needs of educators on the learning sites.

### What were the socio-economic differences in Reading and Mathematics achievement for learners?

The socio-economic levels of the Grade 6 learners were determined and expressed in terms of the levels of home possessions as reported in Chapter 3. Two sub-groups were identified: learners in the low economic status sub-group (Low SES) were those who came from homes whose possessions were half or less than the suggested list of items and learners in the high economic status sub-group (High SES) were those who came from homes where the possessions were more than half the suggested list of items.

The percentages and sampling errors for learners who achieved various levels in Reading and Mathematics from the two socio-economic sub-groups have been presented in the middle set of figures in Tables 7.5 (a) and 7.5 (b), respectively.

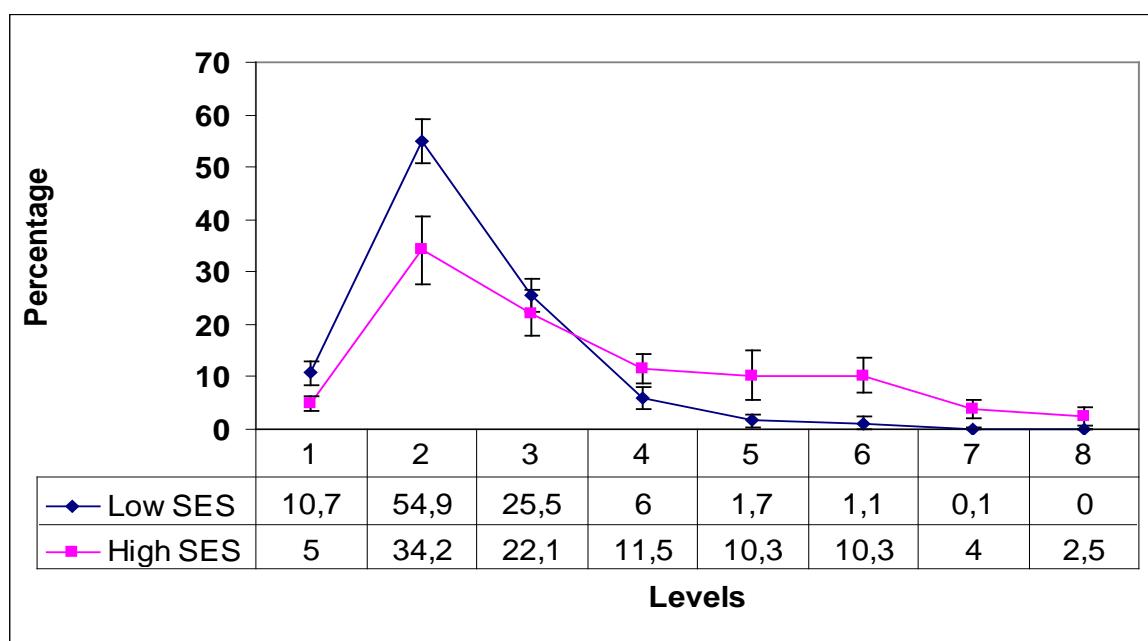


**Figure 7.5: Percentages and sampling errors for literacy levels and socio-economic levels**

The presentation in Table 7.5 (a) indicates that the modal achievement in Reading for the low socio-economic status learners was **Level 3** (Basic Reading) that was achieved by 25,3 percent of the learners. The majority of the learners in this sub-group achieved lower levels and significantly few achieved higher levels. On the contrary, the modal achievement in Reading for the high socio-economic status sub-group was **Level 7** (Analytical Reading) and that was achieved by 19,1 percent of the learners. Less than one percent (0,7%) of the learners from the low socio-economic

status sub-group achieved the highest level of Reading competence (Level 8) whereas for the high socio-economic status learners 12,4 percent achieved at the highest level.

On the whole, learners from the high socio-economic status sub-group achieved significantly higher levels of Reading than their counterparts from the low socio-economic status sub-group. It could be concluded, therefore, that the home socio-economic status of the learners influences, to a large extent, their achievement in Reading. Because the education system may not have direct influence on the socio-economic status of the learners' homes, the implication may be that schools need to be sufficiently resourced to compensate for apparent dearth of basic support materials at the learner homes.



**Figure 7.6: Percentages and sampling errors for mathematics levels and socio-economic levels**

The figures in Table 7.5 (b) indicate that, for both the low and the high socio-economic status learners the modal achievement in Mathematics was **Level 2** (Emergent Numeracy). This level was achieved by 54,9 percent of the low socio-economic status sub-group and by 34,2 percent of the high socio-economic status sub-group. Furthermore, a significant majority of the learners from the low socio-economic status sub-group achieved levels from 1 to 3 whereas the high socio-economic status learners were fairly evenly spread across the higher levels of achievement.

The relationship between the learner's socio-economic status and their level of achievement seems to be fairly strong, more so in Reading than in Mathematics. However, further in-depth research should be conducted for conclusive evidence. Consideration should be given to some other possible factors. For instance, parents with a substantial amount of education are more likely to monitor and support their children in their schoolwork than parents with low or no education. Such learners are more likely to be motivated and to achieve higher than the others. There is a possibility, therefore, that the differential influence may not be due to the presence of the resources per se, but may be due to a supportive home environment that educated parents provide. Should this be the case, it would, in principle, be possible to encourage parents in low socio-economic groups to also motivate their children in their schoolwork and thus improve their levels of achievement.

**Policy suggestion 7.4**

The Systemic Evaluation Directorate should undertake a comprehensive research to test the hypothesis that learners from homes with high levels of resources achieve higher levels of literacy and numeracy than learners from homes with low levels of resources.

**Conclusion**

Analysis of the Grade 6 learners' test scores for Reading and Mathematics revealed two strands in learner achievement. For Reading (Literacy) the overall level of achievement was fairly within acceptable limits on the SACMEQ benchmark (Rasch scale). Variations (inequities) in learner Reading achievement were significantly wide both within the provinces and among the provinces. Learners' overall achievements in Reading for three provinces - kwaZulu Natal, Gauteng and Western – clearly exceeded the benchmark while for North West and Mpumalanga overall achievements were significantly low.

Overall achievement of the learners in Mathematics (Numeracy) was noticeably on the lower end of the benchmark. But the general pattern of achievement distribution among the provinces was the same as for Reading.

It has been shown that there was a fairly even spread of Reading competencies among the learners although they tended to cluster around the Basic Reading level which was a fairly low competence for an average Grade 6 learner. Gender, school location and

the socio-economic status of the learner were found to be major factors than influence equity in the distribution of Reading competencies and achievement. Girls' achievement in Reading indicated that their literacy competencies were remarkably higher than those of their male counterparts and learners from cities demonstrated higher competencies than learners from rural areas and small towns. Learners from different socio-economic conditions achieved distinctly variegated levels of competence, with the odds evidently in favour of the high socio-economic status subgroup.

Although overall achievement in Mathematics was generally low, the girls in this study demonstrated significantly higher numeracy competencies than the boys. A curious question that arises is why this trend tends to be reversed at higher grades like in Grade 12 where it has been observed that boys tend to perform better than girls in Mathematics. It has been suggested that this observation be investigated more thoroughly.

While for Reading the challenges seemed to be largely around inequalities in terms of access to resources and achievement, for Mathematics there were apparently deeper problems of a systemic nature. Not only did learners reach very low levels of achievement, but also learners achieved almost the same level regardless of school location or socio-economic status. This indicates that the factors behind this phenomenon need to be sought elsewhere. Pre-service training of teachers, availability of appropriate mathematics learner support materials and constant monitoring of in-service training programmes have been suggested as some of the possible areas for intervention. A more comprehensive and properly coordinated approach is recommended.

Few policy suggestions have been made regarding some of the findings reported in this chapter. Basically, the policy suggestions relate to two broad issues that were found to be of major concern, namely, the need to provide for the learning needs of all learners in an equitable fashion and possible strategies to improve learner achievements in mathematics.

The analysis that was done in Chapter 6 on the levels of equity in the distribution of human and material resources showed that a large measure of inequities in this regard were at provincial rather than national level of the Department of Education. Further, the findings in this chapter indicate significant differential learner achievements that are associated with the distribution of resources. The suggestion, therefore, is that the Heads of Education in the provinces should commission Task Teams to monitor and accelerate the process of equitable distribution of educators and reading materials across all school locations to redress the identified inequalities.

Some of the measures that can be taken involve more consultations than financial costs. For instance, Task Teams could identify schools that have surpluses of furniture and books and negotiate the redistribution of these to more needy schools. However the redistribution of human resources such as qualified mathematics educators could be a more challenging labour relations affair. For this reason, the suggestion is to engage teacher unions to find acceptable solutions.

In order to address the problem of low achievements in mathematics, a suggestion is made that, in addition to other initiatives that are already on the ground, the re-training of non-mathematics educators who may be in excess in their learning areas should be explored. This should be done on a voluntary basis but should be properly coordinated to ensure that volunteers receive adequate support. The benefits would be two-fold. Firstly, the Department would receive the service it needs. Secondly, the morale of the individuals who would otherwise be supernumeraries, would get a boost when they know they are rendering a needed service.

## **Chapter 8**

### **Conclusion And Agenda for Action**

#### **Introduction**

In addition to expanding opportunities for educational planners to gain the technical skills required to monitor and evaluate the general conditions of schooling and the quality of basic education, SACMEQ seeks particularly to generate information that can be used by decision-makers to plan and implement improvements in their education systems. In this report a number of policy suggestions were made to address the key findings of the SACMEQ II survey in South Africa.

In this chapter all the research-based policy suggestions that have been made throughout the report have been brought together and, by so doing, an agenda for action has been synthesized that is both meaningful and feasible for the Department of Education in South Africa. On the one hand the meaningfulness of the agenda will derive from an in-depth understanding of the history and social context of South Africa as well as an appreciation of the goals of redress and transformation that the new democracy has set for itself. On the other hand the feasibility of the policy suggestions will hinge on the availability of resources and will, therefore, require a well-considered prioritization schedule.

#### **Grouping of policy suggestions**

Included in the agenda for action is a summary of the thirty nine (39) policy suggestions that arose from the research findings in Chapters 3 through 7. The policy suggestions have been grouped systematically according to their operational implications for the Department. The grouping was intended to facilitate, firstly, a more coherent debate concerning the prioritization of the suggestions and, secondly, a systematic selection of realistic avenues of action. Accordingly, the following groupings of the policy suggestions were identified:



**Group 1:** *Policy suggestions concerning the monitoring of the implementation of existing education policies*

**Group 2:** *Policy suggestions that identified established practices that might need to be evaluated and reviewed in the area of policy and planning.*

**Group 3:** *Suggestions on data to be collected for planning purposes.*

**Group 4:** *Policy suggestions that called for the Department to have major consultations with communities and experts.*

**Group 5:** *Suggestions that identified educational policy research programmes for the Department.*

Further grouping of the policy suggestions could be considered for ease of implementation. For instance, the suggestions could be grouped according to the intensity of their financial demands and also according to whether they are seen as short-, medium- and long-term. The sections/units that will be responsible for leading action for each policy suggestion could make decisions.

### **Responsibility for action**

The section or unit of the Department that should lead the suggested action has been identified. It is possible that taking action on a given policy suggestion could be the responsibility of more than one section or unit. Where this is the case, the affected sections or units will need to develop and communicate among themselves a suitable and properly coordinated strategy for the action.

**Table 8.1** Summary of policy suggestions**Group 1:** Policy suggestions concerning the monitoring of the implementation of existing education policies

<b>Policy Suggestion</b>	<b>Relevant unit/section</b>	<b>Time</b>	<b>Cost</b>
<i>Policy Suggestion 3.9</i> Principals, assisted by School Governing Bodies (SGBs), should monitor closely the implementation of the Department's policies on free and compulsory education to ensure that learners are not unfairly excluded from participating in education	Provincial Education Departments	Short	Low
<i>Policy Suggestion 3.10</i> In the short term, District Directors should intensively monitor the implementation by schools of the policy on repetition of grades.	Provincial Education Departments	Short	Low
<i>Policy Suggestion 3.13</i> The Provincial Provisioning Sections, in collaboration with District Support Teams, should monitor and ensure timely ordering and prompt delivery of learner support materials – including basic stationery - to schools	Provincial Education Departments	Short	Low
<i>Policy Suggestion 4.6</i> The Curriculum Sections in all the Provinces, assisted by the relevant unit at the national level of the Department of Education, should prioritize and intensify training of educators in the outcomes-based forms of assessment	Curriculum Section	Medium	High

<b>Policy Suggestion</b>	<b>Relevant unit/section</b>	<b>Time</b>	<b>Cost</b>
<i>Policy Suggestion 4.7</i>			
The Head of Education in Northern Cape should commission an investigation to establish the reasons for the distinctly low frequency of meetings between educators and parents in that province. If it is deemed necessary, the Head of Education should then collaborate with his/her counterpart from the Department of Transport to find affordable ways to transport parents to school meetings, at least once a term	Provincial Education Department (Northern Cape)	Short	Medium
<i>Policy Suggestion 6.3</i>			
District Managers/Directors in Free State, Limpopo, North West and Western Cape should ensure that mathematics is equitably represented in district teams that visit and support schools	Provincial Education Departments (Free State, Limpopo, North West and Western Cape)	Medium	Medium
<i>Policy Suggestion 6.4</i>			
The Department of Education needs to collaborate with the Department of Public Works to provide classrooms and reduce the particularly inequitable distributions of learner: teacher ratios in Eastern Cape and kwaZulu Natal	Provincial Education Departments (Eastern Cape and kwaZulu Natal)	Long	High
<i>Policy Suggestion 6.5</i>			
District officials in Northern Cape should investigate the distribution of classroom furniture among the schools in the respective districts and, if inequities are seen to persist, take decisive actions to re-allocate furniture to needy schools	Provincial Education Department (Northern Cape)	Short	Low
<i>Policy Suggestion 7.2</i>			
The Heads of Education in the provinces should monitor and accelerate the process of equitable distribution of educators and reading materials across all school locations to redress the identified rural/urban inequalities in reading performance	Provincial Education Departments	Medium	Medium

Policy Suggestion	Relevant unit/section	Time	Cost
<i>Policy Suggestion 7.4</i>			
The Systemic Evaluation Directorate should undertake a comprehensive research to test the hypothesis that learners from homes with high levels of resources achieve higher levels of literacy and numeracy than learners from homes with low levels of resources	Systemic Evaluation Directorate	Medium	High

**Group 2: Policy suggestions that identified established practices that might need to be evaluated and reviewed in the area of policy and planning**

*Policy Suggestion 3.4*

The Provisioning Section of the Department of Education should set a norm for the number of books per learner and school principals should be charged with seeing to it that the minimum number of books are provided to compensate for the apparent inadequacy of these resources in the learners' homes	Planning Section of the Department of Education	Medium	High
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*Policy Suggestion 3.5*

The respective Provisioning Sections of Free State, Eastern Cape, Limpopo and Northern Cape should provide greater numbers and variety of English reading materials in the schools in these provinces to compensate for the lack of home support in the use of English as a language in which learning is facilitated	Provincial Education Departments (Free State, Eastern Cape, Limpopo and Northern Cape)	Medium	High
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*Policy Suggestion 3.7*

The Department of Education should collaborate with the Department of Housing and the Department of Social Welfare Services to work out a proactive comprehensive strategy to plan and provide education and social services for unpredictable migrant informal settlements	Planning Section of the Department of Education	Long	High
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<b>Policy Suggestion</b>	<b>Relevant unit/section</b>	<b>Time</b>	<b>Cost</b>
<i>Policy Suggestion 5.2</i>			
The Educator Development Directorate at the national level together with its provincial counterparts should determine a minimum specialized in-service training on school management and ensure that District Managers develop, structure and implement comprehensive in-service training courses on school management for all new principal appointees	Teacher Development	Medium	Medium
<b><u>Group 3:</u> Suggestions on data to be collected for planning purposes</b>			
<i>Policy Suggestion 3.8</i>			
The Heads of Education in the provinces, in collaboration with their counterparts from the Health Department, should commission a joint investigation into the nature of the illnesses that prevent the learners from attending school. The investigation should then lead to the development of appropriate strategies to prevent and to manage the prevalent illnesses	Provincial Education Departments	Medium	High
<i>Policy Suggestion 4.5</i>			
District Support Teams in Mpumalanga Education Department should investigate why the Grade 6 educators of Reading and Mathematics do not give weekly written tests. The Teams should then prepare a comprehensive strategy to assist educators to give written tests on a more regular basis	Provincial Education Department (Mpumalanga)	Short	Low
<i>Policy Suggestion 5.1</i>			
School Governing Bodies should identify competent female educators and prioritize their promotion to posts of principals.	Provincial Education Departments	Long	Medium

<b>Policy Suggestion</b>	<b>Relevant unit/section</b>	<b>Time</b>	<b>Cost</b>
<i>Policy Suggestion 6.2</i>			
The Heads of Education in Free State and Western Cape should set up Task Teams, led by senior district officials, to investigate whether there are enough curriculum facilitators/advisors and whether the itineraries of these officials covered all the schools	Provincial Education Departments (Free State and Western Cape)	Short	Low
<i>Policy Suggestion 6.1</i>			
The Head of Education in Gauteng should commission an investigation to find out why the distribution of experienced principals in that province seemed to be relatively uneven	Provincial Education Department (Gauteng)	Medium	Medium
<i>Policy Suggestion 6.6</i>			
The Head of Education in Limpopo should commission an audit of the sanitation facilities in the schools in that province and, where provision is found to be inadequate, the assistance of local communities should be solicited in order to improve the learner: toilet ratio	Provincial Education Department (Limpopo)	Short	High

**Group 4: Policy suggestions that called for the Department to have major consultations with communities and experts**

<i>Policy Suggestion 5.4</i>			
The Department of Education should solicit the assistance of local communities to plan and provide toilets in those schools, and particularly in Limpopo, where the Report on the School Register of Needs 2000 Survey and this particular survey both indicate that there was an acute inadequacy	Planning Section of the Department of Education	Short	Medium

<b>Policy Suggestion</b>	<b>Relevant unit/section</b>	<b>Time</b>	<b>Cost</b>
<i>Policy Suggestion 5.6</i>			
The Heads of Department (HoDs) in the provinces should make it a requirement that activities like debates, public speaking days and school magazine days be included in the annual programmes of the schools	Planning Section of the Department of Education	Medium	Low
<i>Policy Suggestion 7.1</i>			
The Department of Education should collaborate with educator unions to identify supernumerary non-mathematics educators who are willing to be retrained as mathematics educators. The volunteers should then be given intensive in-service training and on-going support to help them teach mathematics at the lower grades	Human Resource Development Unit	Medium	High
<i>Policy Suggestion 7.3</i>			
The Teacher Development Directorate should liaise with the institutions that provide pre-service training of educators to establish a forum where the Department of Education can make substantive contributions towards making the training programmes for mathematics educators more responsive to the school curriculum needs and the needs of educators on the learning sites	Teacher Development Directorate	Long	Medium

**Group 5: Suggestions that identified educational policy research programmes for the Department**

<b>Policy Suggestion</b>	<b>Relevant unit/section</b>	<b>Time</b>	<b>Cost</b>
<i>Policy Suggestion 3.1</i>			
The Heads of Education in each of Northern Cape, Eastern Cape and Mpumalanga should commission investigations to find out why the participation of female learners seems to be particularly lower in their respective provinces and, through their curriculum sections, assist schools to organize their learning programmes in interesting ways to encourage girls to participate in larger numbers and stay longer in school	Provincial Education Departments (Northern Cape, Eastern Cape and Mpumalanga)	Medium	Low
<i>Policy Suggestion 3.2</i>			
The ABET Directorate at the national office, in cooperation with its provincial counterparts, should expand and intensify ABET outreach programmes and encourage the parents who do not have any schooling or have at least not completed primary schooling to participate in ABET programmes	ABET Section	Long	Medium
<i>Policy Suggestion 3.3</i>			
The Heads of Education in the provinces should accelerate the Education Department's plan to extend the existing Primary School Nutrition Programmes (PSNP) to include all learners who are in the General Education and Training Band (GET) and come from poorer households	Provincial Education Departments	Medium	High
<i>Policy Suggestion 3.6</i>			
Principals of schools, particularly in Mpumalanga, Free State and Limpopo, should identify learners who stay in unsafe conditions and refer these cases to the Department of Social Welfare so that, jointly, safer alternatives can be explored	Provincial Education Departments (Mpumalanga, Free State and Limpopo)	Short	Medium



<b>Policy Suggestion</b>	<b>Relevant unit/section</b>	<b>Time</b>	<b>Cost</b>
<i>Policy Suggestion 3.11</i>			
In the long term, the Department of Education should train and employ remedial educators to give special support to learners who cannot keep pace with their age cohorts	Teacher Development	Long	High
<i>Policy Suggestion 3.12</i>			
Principals, in collaboration with SGBs, should develop school policies that set minimum acceptable amounts of homework and the frequency of doing these in both Mathematics and Reading	Provincial Education Departments	Short	Low
<i>Policy Suggestion 4.1</i>			
The Heads of Education in Limpopo and Mpumalanga should commission an investigation to establish why there were disproportionately fewer female educators at the Grade 6 level with a view to developing interventions of encouraging females into teaching	Provincial Education Departments (Limpopo and Mpumalanga)	Short	Low
<i>Policy Suggestion 4.2</i>			
The Department of Education, in collaboration with the Department of Finance, should consider piloting in Eastern Cape and Limpopo, a project to attract educators to rural schools by offering them some incentives relating to housing. Depending on the success of the pilot project, the scheme could, in the long term, be rolled out to all rural schools	Departments of Education and Finance	Medium	High

<b>Policy Suggestion</b>	<b>Relevant unit/section</b>	<b>Time</b>	<b>Cost</b>
<i>Policy Suggestion 4.3</i>			
The Department of Education should accelerate the expansion and roll out of the current pilot projects which focus on in-service training and upgrading of Science and Mathematics educators (e.g. the Dinaledi Project) in certain geographical areas of South Africa and make these accessible to a larger pool of educators in order to broaden the base of highly qualified Mathematics educators	Teacher Development	Long	High
<i>Policy Suggestion 4.4</i>			
The Provincial and District curriculum specialists should organize intensive in-service courses to train educators in interactive learner-centred approaches to teaching. The courses should be sustained to the extent that educators are confident to apply these approaches in their classes	Provincial Education Departments	Long	Medium
<i>Policy Suggestion 5.3</i>			
The Department of Education should lead a national campaign that involves the Departments of Public Works and of Labour, in the short term, to prioritize schools in the most disadvantaged provinces and provide them with basic facilities such as piped-water, electricity and basic equipment	Planning Section of the Department of Education with Departments of Public Works and of Labour	High	High
<i>Policy Suggestion 5.5</i>			
The Department of Education, in collaboration with the Department of Public Works, should target Limpopo for a comprehensive school building project and improve the condition of school buildings in that province	Planning Section of the Department of Education with Department of Public Works	High	High

<b>Policy Suggestion</b>	<b>Relevant unit/section</b>	<b>Time</b>	<b>Cost</b>
<i>Policy Suggestion 6.7</i>			
The Heads of Education in Eastern Cape, Free State, kwaZulu Natal, Mpumalanga and North West – the provinces with significant numbers of schools that are predominantly in rural or farm settings – should, in collaboration with the Department of Public Works, initiate pilot projects to provide adequate housing quality for educators in rural schools to curb the apparent exodus of educators to urban environments	Provincial Education Departments (Eastern Cape, Free State, kwaZulu Natal, Mpumalanga and North West)	Long	High

### **Conclusion**

Critical areas that need intervention in the education system have been identified in this chapter. In the agenda for action the necessary interventions have been prioritized in terms of both cost and time frames. The implementation of the proposed agenda for action calls for a concerted effort by the identified units of the Department. The Department will be advised to make resources available for these interventions and do so according to national priorities.

In a few parts of this report, reference has been made to the need to interpret some of the findings with caution because of the quantitative inadequacies in the sample that was used. It is recommended that future surveys should use larger and more representative samples as stipulated in the SACMEQ minimum requirements to bolster the credibility of the findings. Attempts should also be made to shorten the period between data collection and the release of the report. Dedicating time and sufficient resources – both human and material – to this project can only improve the value of these studies to the education system. Nonetheless, the SACMEQ II project provided valuable baseline information and technical know-how that will ensure an improved process in future.

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