The SACMEQ III project in

BOTSWANA

A study of the conditions of schooling and the quality of education

SACMEQ

Southern and Eastern Africa Consortium for Monitoring Educational Quality

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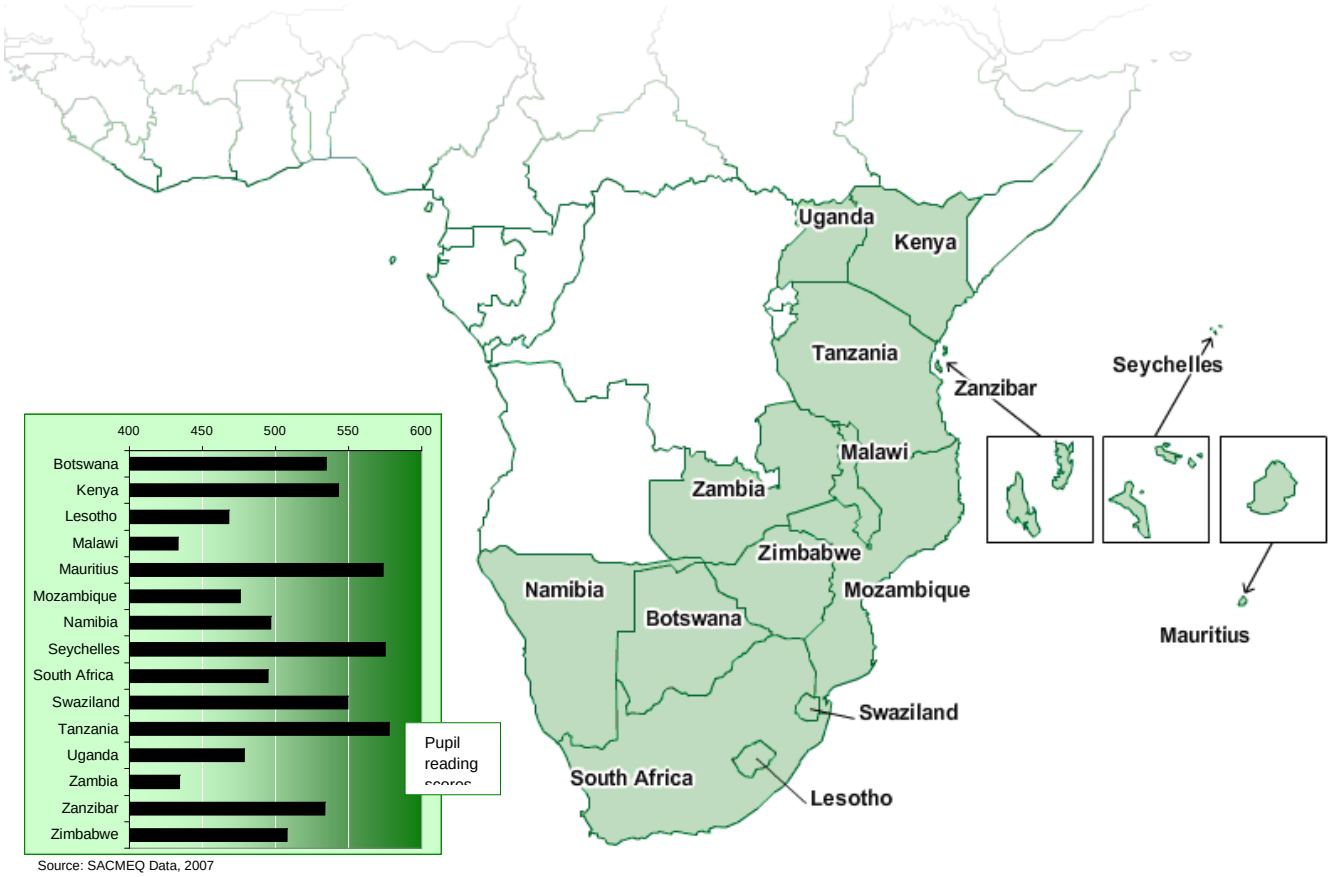


The Fifteen SACMEQ School Systems

Introduction

The Southern and Eastern Africa Consortium for Monitoring Educational Quality (SACMEQ) project is a major cross-national study on the quality of primary education in much of Sub-Saharan Africa. The project mainly aims at building capacity in the member states' ministries of education to monitor and evaluate the quality of their primary education. It is coordinated by the SACMEQ Coordinating Centre in partnership with UNESCO/IIEP which is situated in Paris. Fifteen Ministries of Education – x Botswana, Kenya, Lesotho, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, Tanzania (Mainland), Tanzania (Zanzibar), Uganda, Zambia and Zimbabwe – participate in this project. Since 1991 three SACMEQ studies (SACMEQ I, II, and III) have been undertaken by SACMEQ member countries in collaboration with UNESCO/IIEP.

The SACMEQ I and II studies examined the conditions of schooling as well as the quality of education across participating countries, and in particular collected accurate and detailed information on the reading and mathematics performance of standard 6 pupils and their teachers. Information was also collected on pupils' home backgrounds, learning environments, and the resources available in their schools. In addition to the above, teachers' and school heads' characteristics and their view points about the teaching and learning environments were also captured. At the request of the SACMEQ education Ministers, an HIV and AIDS Knowledge test (HAKT) was included to assess the knowledge levels of pupils and their teachers.

SACMEQ Projects Coverage in Botswana

SACMEQ I was conducted in 1995, however, Botswana did not participate. SACMEQ II was implemented in 2000 with a sample of 170 primary schools, while SACMEQ III was conducted in 2007 with 160 participating schools. It should be noted that more pupils participated in the SACMEQ III project than in SACMEQ II, since more students were sampled within each school. There was a decrease in the number of teachers surveyed from 420 in SACMEQ II to 386 in SACMEQ III. The 2007 sample was drawn from 784 primary schools (714 government, 13 government-aided and 57 private), which had a total number of standard 6 enrolments of 44113 (22088 males and 22025 females) and a total of 12989 standard 6 teachers.

Table 1: SACMEQ Project coverage in Botswana

SACMEQ I			SACMEQ II			SACMEQ III		
Schools	**Teachers**	**Pupils**	**Schools**	**Teachers**	**Pupils**	**Schools**	**Teachers**	**Pupils**
None	None	none	170	420	3322	160	386	3869

In addition to testing the reading, mathematics and HIV and AIDS-knowledge of students and teachers, the survey included a number of questions regarding home-background and school resources. At the school level, information was collected on teacher and school-head qualifications, in-service training, teaching guides for reading and mathematics, pupils' access to reading and mathematics books, classroom writing boards, classroom/school libraries, pupils and teachers furniture, in schools, radios, school infrastructure conditions. Questions regarding home-background included parental education, extra-tuition, the number of books in the home, electronic equipment, meals per day, sources of lighting, type of dwelling etc.

This report will provide information on seven thematic areas (outlined below). The analysis is sub-divided by gender, region, socio-economic status and school location. The seven areas of coverage in the report are as follows:

1. The setting of the study
2. The conduct of the study
3. Pupils' characteristics and their learning environments
4. Teachers' characteristics and their view points on teaching, classroom resources, professional support and job satisfaction
5. School heads' characteristics and their viewpoints on educational infrastructure, the organisation and operation of schools, and problems with pupils and staff
6. Equity in the allocation of human and material resources both among regions and among schools
7. Reading and mathematics achievement levels of pupils and teachers

Chapter 1
Setting the Scene

1.1 Introduction

This chapter provides background information on Botswana and the country's education system.

1.2 Background information on Botswana

Botswana is a landlocked country located in the South of Africa, with a total surface area of 582 000 square kilometres. It shares its borders with Namibia to the west, South Africa to the south, as well as Zimbabwe and Zambia to the north. Botswana is a member of the Commonwealth, the African Union (AU) and the Southern African Development Community (SADC). It is also houses the headquarters of the SADC. The country was a British Protectorate from 1885 to 1966, when it acquired its independence. Botswana is a democratic country with elections every five years. The last election before SACMEQ III was in 2004.

The people of Botswana are known as Batswana, and the country has a number of different tribes. The most widely spoken language in Botswana is Setswana although there are a few other African languages spoken by some tribes in the country. The official languages are English and Setswana, although English is more widely used for official purposes.

For administrative purposes, Botswana is split into nine district councils, two city councils and five town councils. The district councils are: Central, North-West, Ghanzi, Kgalagadi, Kweneng, South, Kgatleng, North-East, and South-East. The district councils are further divided into sub-districts for service delivery purposes. The two city councils are Gaborone and Francistown and the five town councils are Jwaneng, Lobatse, Sowa, Selibe-Phikwe and Orapa. The first formal census was conducted in 1971 with a population totalling 574,094. The population of Botswana was at 1,680,863 in 2001 when the last census took place (CSO; Population and Housing Census Report; 2001) and was projected to have grown to 1,736,396 in 2007(CSO; Population Projection Report, 2001). There was an average population growth rate of 2.4 percent from the 1991 census to 2001 census.

1.3 Background information on the education system of Botswana

The London Missionary Society came to Botswana in the 19th Century and was the first group of people to provide formal education. The missionaries spread Christianity and education concurrently to Batswana. The first school was established by David Livingstone among a tribe called Bakgatla ba ga Mmanaana in the 1840s. In the later years the London Missionary Society (LMS) started other schools among other tribes, providing education equivalent to primary education. At that stage there was no education policy to guide the implementation of education programmes and the general supervision of schools. By the time the country gained independence in 1966 there were 251 primary schools and 9 secondary schools offering formal education, with two primary teacher training colleges, one trade school and no university (SACMEQ II, 2005).

1.4 The organization of the school system

The school system in Botswana can be categorised into five levels, namely pre-primary, primary, secondary, post-secondary but non-tertiary (vocational and technical education), and tertiary.

(a) Pre-primary education

Pre-primary education is mainly provided by the private sector, individuals, communities, NGO's and to some extent local authorities (district councils). The Government recognizes the importance of pre-primary education and therefore commits itself to the provision of support. This includes policy formulation and curriculum development as well as strategies to improve the quality and implementation of pre-primary education. In conjunction to this, the Ministry of Local Government (through the district councils) provides support in the form of registration of schools, inspection of facilities, provision of grants and the training of pre-school teachers.

(b) Primary education

Currently the education system of Botswana consists of seven years of primary education, making up the majority of the ten years of basic education. Primary education is divided into two sub-levels, lower-primary (standard 1 to 4) and upper-primary (standard 5 to 7). The official entry age into primary school is five and a half to six for public schools and five years for private schools (Revised

National Policy on Education 1994, recommendation 16 (b): 17). At the end of standard 4 pupils sit for a national examination known as the Standard 4 Attainment Test, which determines whether students progress to upper-primary. After seven years of primary schooling (standard one to standard seven), pupils sit the Primary School Leaving Examination (PSLE). This is a diagnostic test and does not necessarily determine transition into junior secondary. All students are expected to continue into the last three of the ten years of basic education.

Currently there are 805 primary schools in the country, made up of 745 government and 60 private schools (2010 Education Stats Brief). These schools are managed by school heads who report to principal education officers in the regions, who in turn report to the chief education officers and they to the regional directors. Government is responsible for the provision of resources such as training and hiring teachers, teacher welfare, provision of infrastructure, stationery, school transport, feeding for pupils during school hours, school furniture, recreational facilities, etc. This is only for government and government-aided schools. Provision of school resources in private schools is the responsibility of school owners, but is monitored by the Ministry of Education to ensure the quality of education provided.

The responsibility for the provision of resources in government primary schools is shared between two ministries; Ministry of Education and Skills Development and Ministry of Local Government. The Ministry of Education and Skills Development is responsible for curriculum development, employment of teachers, teachers' salaries and their general welfare, as well as provision of text books for both pupils and teachers. On the other hand the Ministry of Local Government is responsible for school feeding programs and stationery, in addition to the maintenance of classrooms, school hostels (usually in remote areas), teachers' quarters, recreational facilities, as well as paying auxiliary staff such as cooks, grounds personnel, cleaners, etc.

(b) Secondary education

After the seven years of primary education, pupils have to sit for the PSLE and continue to through three years of junior secondary to complete their ten year basic education. All children in Botswana who are of school-going age have the right to these ten years of education. Senior secondary

education takes two years, making the education system a 7-3-2 structure. A Junior Certificate Examination (JCE) taken at the end of junior secondary is used to determine progression into senior secondary school (also known as form 4). It should be noted that students who fail to reach senior secondary can enrol in vocational institutions and later upgrade to technical institutions. After completion of senior secondary, depending on performance in the Botswana General Certificate of Secondary Examination (BGCSE) or equivalent, individuals can enrol in vocational, technical or tertiary institutions to acquire life skills and professional qualifications. Currently there are 276 secondary schools (238 government or government aided, and 38 privately owned) in Botswana. Government schools are fully funded by the government, while grant-aided schools are mainly operated by church organizations and receive government grants for their day-to-day operations. Private schools are owned and operated by companies but are still monitored by the government.

Secondary schools, like primary schools, are managed by school heads who report to principal education officers in the regions, with the line of authority extending to principal education officers, chief education officers and regional directors. Government (through the Ministry of Education and Skills Development) is responsible for the provision of all resources to government schools.

(c) Tertiary Education

Tertiary education is provided by both government and private institutions. Most tertiary level students are funded by government through provision of loans, grants or partial grants, depending on the perceived priority of the field of study. Tertiary education institutions in Botswana offer certificates, diplomas and degrees in different fields of study, including the social sciences, natural sciences, human resource management, accounting, business studies, education, as well as technical training and vocational training. Currently there are six teacher training institutions, nine technical colleges, 41brigades, nine institutes of health sciences, one college of agriculture, one accountancy college, one public university, nine private colleges and one college of distance and open learning. Every year some Batswana students are sent outside the country to study for courses which are not available in the country and are of priority in addressing the country's human resource needs. These fields of study include medicine and some engineering courses.

1.5 The administration of the education system

The Ministry of Education and Skills Development is responsible for the general administration of the education system of the country. The ministry is comprised of nine departments, two supporting divisions and three education councils and one training authority. The nine departments are as follows:

- Department of Corporate Services;
- Department of Teaching Service Management;
- Department of Technical and Vocational Education and Training;
- Department of Out of School Education and Training;
- Department of Curriculum Development and Evaluation;
- Department of Pre and Primary Education;
- Department of Secondary Education;
- Department of Teacher Training and Development;
- Department of Tertiary Education Financing.

The supporting divisions, training authority and councils are:

- The Division of Planning, Statistics and Research is responsible for the planning and provision of education statistics, school registration, research, and the monitoring and evaluation of education programmes and projects. The research from this division is used to inform future policy development, planning and programming.
- The Division of Special Education is responsible for the education of special needs children.
- Botswana's Examinations Council is responsible for the national examinations for primary and secondary education.
- The Tertiary Education Council coordinates the registration and accreditation of institutions offering tertiary education from the diploma level.
- Botswana's Training Authority regulates institutions offering technical and vocational education courses for certificates and below.

1.6 Financing of education

The education sector receives its funding from the government, donor agencies and development partners. Parental contributions to the financing of education are mainly through sports/development fees and minimal school fees at the secondary school level. However, it should be noted that disadvantaged pupils whose parents/guardians cannot afford these costs are exempted from paying. The role of donor agencies and development partners in education finance is very important, as they play a significant role in enabling the Ministry to provide resources such as infrastructure, equipment, teaching and learning materials, which are all needed for a conducive learning environment.

The education sector receives a large proportion of the national budget for both recurrent and development purposes. On average the Ministry of Education and Skills Development is allocated an annual amount of approximately 19% of the total national development budget (though it reached a high of 23.3% in 2009/10), while the recurrent expenditure on education averaged 28 percent of total recurrent expenditure in the three years to 2009/2010 (NDP10: 35). Despite this large share of expenditure, the Ministry still has tight resource constraints.

The Ministry of Education provides grants to non-governmental organizations every year. This indirectly contributes to the education system, e.g. in the provision of pre-schools, primary and secondary schools, special education, and education research, to mention a few areas.

1.7 National policy on education and educational progress

When Botswana became independent in 1966, the government instituted policies to address the social, economic, political and educational standards of its people. This called for the development of a National Development Plan (NDP), to be reviewed every five years. The NDP includes a discussion on education policies and the appointment of commissions to review the policies in place to address emerging issues.

The Ministry of Education and Skills Development has made and continues to make good progress in ensuring that adequate educational facilities are made available to the entire population. A number of efforts have been made to improve the quality of education through policy formulation, curriculum development, as well as strategies to implement these policies. The main aim of

education policy is to equip students with the basic skills and knowledge required for livelihood after completion of their formal education. To this end, the Ministry emphasises practical subjects in order to prepare students for future careers.

National Policy on Education from 1977 to 1993

Since independence Botswana has under taken two major education policy reviews. The first policy review was the 1976 Education for Kagisano, which emphasized the quantitative expansion of the education system. The second was the 1993 National Commission on Education which aimed to improve access to education as well as the quality of education provided in the country.

The 1977 education policy (Kagisano) was philosophically founded and named Education for *Kagisano* which means "social harmony and embraces the concept of social justice, interdependence and mutual assistance" (*Kagisano* report, 1977: 24). Education for *Kagisano* recommended that the subject matter children learn should be relevant and practical. Setswana, English, and mathematics were to be taught simply and sequentially. Government responded by introducing 10 years of basic education, and the construction of secondary and tertiary institutions such as the university, teacher training colleges etc. At this point (in 1976) most of the country was not well developed.

Therefore there was a need to ensure that there was an equitable distribution of resources in terms of teachers and the number of schools built in urban and remote, rural areas. To monitor this process the ministry of education came up with a number of implementation, monitoring and evaluation strategies. The Government introduced an umbrella body known as Teacher Employing Agencies (TEA) to hire teachers to be posted to different schools as a strategy to ensure the equitable distribution of qualified teachers to schools. TEA was later renamed the Unified Teaching Services (UTS) and changed yet again to the Department of Teaching Service Management (DTSM). There have been significant increases in the quality, quantity and diversity of educational services since the inception of the first education policy. However, not all recommendations of *Kagisano* were realized in the sixteen year period of its implementation. Subsequently, the policy was reviewed in 1993 to address emerging issues in the education system.

Revised National Policy on Education (RNPE) 1994

The Revised National Policy on Education (RNPE) of 1994 came as a result of recommendations from the second National Commission on Education in 1993. The review was influenced by the fact that over the years there have been significant changes in the economic needs of the country. The Government therefore found it necessary to review the education policy and find strategies to make the education system more compatible with the economy. The policy aimed to provide universal access to schooling, to improve the quality of education, and to equip learners with relevant skills which are required in the labour market. The policy also emphasizes the development of moral and social values, the promotion of cultural values and a cultural identity, citizenship and the development of a desirable work ethic.

One of the most important goals in primary education is to equip learners with basic skills such as literacy, numeracy and problem solving skills. Some of the strategies related to this policy were the reduction of primary school class sizes from 45 to 30, the introduction of English as a medium of instruction at standard 3 and above, as well as the upgrading and training of primary school teachers from certificate to diploma level. This was deemed necessary to enable teachers to handle new educational challenges such as the breakthrough to Setswana, guidance and counselling etc. (RNPE 1994, para.10.5.9 (c)).

1.8 Main education policy issues on pre-primary and primary education

The Revised National Policy on Education (RNPE) 1994 outlines a number of policy recommendations which are key to the country's education developments in regard to pre-primary and primary education:

i. Promoting access to basic education and training opportunities for all population sub-groups, especially vulnerable children, primary-school age children and children with special education needs. The education system should cater for the learning needs of young people and adults in order to promote equity and social justice. [REC.73 par.8.4.5:(2), REC. 88 par. 9.6.2: (a)]

ii. Developing an effective and comprehensive policy on pre-primary schooling and linking this to the formal education system, and introducing an element of special education in the pre-service or in-service training of pre-primary teachers, Day Care Centre leaders and other Early Childhood teachers. (RNPE no. 5.3, REC.95 par.9.6.31: (a) and (i)).

iii. Providing increased educational inputs in order to improve access to primary education and address the declining educational achievement at this level. These include physical facilities, quality teachers, effective supervision, efficient distribution of instructional materials and the establishment of quality assurance systems for education and training. (RNPE no. 6.1, REC.4 par. 2.3.37)

iv. Embarking on improved pre-service and in-service training, providing incentives and improvements in the conditions of service aimed at raising the status and morale of teachers, and placing more emphasis on remedial teaching techniques in existing teacher-training programs [RNPE no. 12.3, REC.23. par.4.8.32:(d)]

v. Raising entry requirements for primary school teachers to a minimum of the Botswana General Certificate of Secondary Education (BGCSE) or the equivalent of a Diploma programme and upgrading the Certificate holders to Diploma in Primary Education. The training should provide for subject specializations at upper primary level. [REC.100 par.10.5.9: (a) and (b)]

vi. Ensuring the primary teacher training curriculum prepares teachers for some more recent educational innovations such as breakthrough to Setswana, the project method, continuous assessment, guidance and counselling, special education, and remedial teaching. [REC.100 par.10.5.9: (c).

vii. Creation of learning opportunities outside the formal education system at all levels for those who wish to pursue further learning. (RNPE no.10.3)

viii. Integration of AIDS and STD education into all levels and institutions of education, starting at the primary school level, and extending to tertiary, teacher training and non-formal institutions (Botswana National Policy on HIV and AIDS, 1998).

ix. The involvement of parents in the discussion of school-based HIV and AIDS education, primarily through the Parent Teacher Associations (Botswana National Policy on HIV and AIDS, 1998).

x. Developing a comprehensive language policy to address language barriers, particularly for remote communities who speak home languages other than Setswana and English. (REC.3 par.2.3.30, Support Programme for Education in Remote Areas (SPERA) concept paper: Nov. 2006).

xi. Ensuring community participation in the development and management of education through consultations with relevant bodies in the community. (RNPE no. 13.2)

1.9 Government's response to the policy concerns

The Ministry of Education and Skills Development has been undertaking various programmes, initiatives and activities aimed at addressing these policy concerns. Significant progress has been made in the expansion and consolidation of early childhood care and education (ECCE). Policies have been developed for the integration of children with special education needs (SEN) into mainstream education. However, the Government is not in a position to provide for special-needs children at the pre-primary level.

The Ministry has undertaken several initiatives with the aim of improving the quality of primary education. Some of these include reviewing and adapting the primary education curriculum to incorporate emerging issues as well as improving accessibility for children with special education needs. Government has also increased the provision of teaching and learning materials for children with special needs, such as Braille resources. The country's admission policy is flexible regarding admission to standard 1, to ensure that children from remote areas and from vulnerable groups are not excluded from the education system.

Some of government's efforts in meeting the learning needs for young people and adults has been focused on transforming the national literacy programme into three new programmes: 1) adult basic education (which is equivalent to standard 7 formal primary education); 2) the educational programme for out of school children; and 3) the skills training programme for both adults and out of school children.

Strategies employed to achieve gender equity and equality in education include the introduction of gender sensitive policies and mainstreaming gender issues in the curriculum, providing equal opportunities to all students as well as maintaining flexible re-admission policies to encourage learners to re-enter the education system at various levels. Life skills programmes have also been introduced to assist learners to function effectively and to be able to make informed decisions.

In an effort to improve quality and ensure excellence in education, the Ministry of Education and Skills Development embarked on several initiatives, such as the development of the National Credit and Qualifications Framework (NCQF), the Organization and Methods (O&M) review to

rationalize functions and structures for timely delivery of services, and the introduction of Performance Management Systems (PMS) to increase productivity, efficiency and the integration of Information, Communication and Technology (ICT) in education delivery.

The Ministry of Education and Skills Development has been strategically placed to lead some of the intervention programs to redress the adverse impact of HIV and AIDS on the nation. MoESD has a duty to mainstream HIV and AIDS education into all areas of formal and non-formal education, as outlined in the ministry's *Guidelines for Mainstreaming HIV & AIDS Life skills Education in the Education Sector*. This mainstreaming is guided by the following five goals contained in the same document.

Goal 1: Prevention of HIV and AIDS infection – through the integration of HIV and AIDS into teacher training and curriculum development, reviewing and revising current interactive methods, highlighting the relationship between substance abuse and HIV and AIDS infection in life skills classes, intensifying efforts for both boys and girls to delay the onset of sexual activities, and increasing the involvement of parents and other appropriate stakeholders in conveying HIV and AIDS information from schools to homes.

Goal 2: Provision of treatment, care and support – ensuring that learners have access to all services related to HIV and AIDS, and Sexually Transmitted Infections (STI).

Goal 3: Management of the National response to HIV and AIDS – by conducting action research on HIV and AIDS by both teachers and students especially at tertiary level, the Government aims to increase its understanding of the epidemic.

Goal 4: Psycho-social and Economic Impact Mitigation – Interventions are in place to enable orphans and vulnerable children to remain within the school system, and providing psycho-social counselling and support within schools.

Goal 5: Provision of a strengthened legal and ethical environment – by facilitating the development of policy concerning access to youth friendly services, and expanding education around human rights issues especially relating to HIV and AIDS in both formal and non-formal settings.

1.10 Conclusion

The education system in the country plays a critical role in the provision of training the human resources required to drive the country's economy. It thus become necessary to continually ensure that the education policy remains aligned to the current, and emerging needs of the country. Among these is the country's long-term vision; Vision 2016: "Towards Prosperity for All." This vision outlines seven strategic goals to be achieved by the year 2016 with the overall aim of improving the quality of Batswana's lives. Education is an important ingredient for the success of Botswana and it affects the performance of all socio-economic subsectors. The Ministry of Education and Skills Development is mandated to monitor the achievement of two out of the seven strategic pillars, namely; An 'Educated and Informed Nation', and 'A Prosperous, Productive and Innovative Nation'.

This Vision 2016 plan highlights the important role of education as a core aspect for the empowerment of citizens, which is a prerequisite for the socio-economic development of the country. The vision aims at an education system that is competitive, relevant and dynamic, as well as able to adapt to the changing socio-economic needs of the country. Schools are seen as a vital tool for improving productivity, developing new enterprises and generating economic growth. Similarly, Vision 2016 emphasizes continued and universal education, partnership between the public and private sectors in the provision of education, the development of life skills, as well as the recognition and use of the different languages and public education to raise awareness on various aspects of life.

The Ministry of Education and Skills Development also attaches great importance to the declarations of the 1990 Jomtien World Conference on Education and the 2000 Dakar World Education Forum. These declarations place emphasis on the need to achieve Education for All (EFA) by 2015. The concept of EFA implies reflection on the nature and purpose of education in each society so that recognized and measurable learning outcomes are achieved by all. The Ministry also recognises the Millennium Development Goals 2015 and the country is committed to meeting the goal of Universal Primary Education, among other goals. The ministry uses its education statistics indicators to monitor the progress made by the country towards achieving this goal.

Chapter 2
The Conduct of the Study

2.1 Introduction

As stated in chapter 1, Botswana is fragmented into nine district councils, two city council and three town councils for government administrative purposes. However, for operational and management of primary education up to the year 2008, Botswana had been divided into six primary education regions, being; Central North, Central South, North, South, South Central, and West. Furthermore, for the purpose of the SACMEQ project, Gaborone (the capital city) is considered as the seventh primary education region. Therefore there were seven SACMEQ III regions in Botswana. The data analysis and discussion in the following chapters are reported according to these seven regions. It should be noted, however, that in 2009 the ministry subdivided the country into 10 education regions with the objective of decentralising the management of education. The ten regions are headed by the Regional Directors.

Below is information provided by the Central Statistics Office (Education Stats Brief Report, 2008) about each SACMEQ III region:

Central North: This region has a total of 119 primary schools, 110 of which are government owned and 9 privately owned. The number of standard 6 pupils enrolled in this region was 7375. Out of these, 49.42 percent were girls.

Central South: There are 137 government primary schools and 7 private primary schools, making a total of 144 primary schools in this region. The number of standard 6 pupils enrolled in this region was at 8499, of which 49.82 percent were girls.

Gaborone: Gaborone is in the South Central region but because of its stature as the capital city of Botswana and its high population, in the SACMEQ project it was regarded as a separate region. Gaborone contains 32 government primary schools and 13 private primary schools. The number of standard 6 pupils enrolled in this region was 3689. Of these, 52.37 percent were girls.

North: The North has 75 primary schools, of which 70 are owned by the government and 5 are privately owned. The number of standard 6 pupils enrolled in this region was 3995, 47.73 percent of them girls.

South: This region has a total of 163 primary schools. The government owns 158 while the private sector owns 5 of these primary schools. The number of standard 6 pupils enrolled in this region was at 7009, 50.08 percent of which were girls.

South Central: For primary education administration purposes the region includes Gaborone city and has the highest number of primary schools. For the SACMEQ project Gaborone is treated as a separate region and therefore the rest of South Central region considered alone had 141 government primary schools and 14 private primary schools, giving a total of 145 primary schools. The number of standard 6 pupils enrolled in this region was 9480. Of these, 48.86 percent were girls.

West: Out of the 89 primary schools in this region, 83 are government schools while 6 are private schools. There were 4616 standard 6 pupils enrolled in this region. Out of these, 50.06 percent were girls.

2.2 Population and sampling

The target population for the SACMEQ III study was the standard 6 primary school cohort in Botswana, including private schools. The sampling frame for Botswana included all 774 primary schools and indicated the regions, names of schools, total school enrolments and standard 6 enrolments as of January 2007. Schools that were then excluded for sampling purposes were those who had no standard 6 pupils, schools specifically for children with disabilities such as the visually impaired and the deaf, and a small number of schools with very poor accessibility by road. Due to these reasons, 126 schools (16.2 percent of the sample) were exempted and the sampling frame was reduced to 648 schools with a total of 42247 standard 6 pupils. The SACMEQ III country coordinators met in Paris in June 2007 to calculate the country samples from the submitted country sampling frames. This was accomplished using the data management software package SANDEM.

Table 2.1: Allocated proportional sample across strata (Region)

Stratum	Defined Population		Allocation across strata		
Region	Std6 population	Number of schools	Number of sampled schools	Expected sample size	% of total std6 pupils per region
Central North	6802	103	24	600	15.0%
Central South	8500	132	28	700	17.5%
Gaborone	4119	45	20	500	12.5%
North	3599	58	20	500	12.5%
South Central	8744	128	28	700	17.5%
South	6516	124	20	500	12.5%
West	3967	58	20	500	12.5%
GRAND TOTAL	**42247**	**648**	**160**	**4000**	**100.0%**

Results summarised in Table 2.1 show the sample size in Botswana was 160 schools with an expected pupil sample size of 4000 pupils. The 160 schools were sampled from the 7 Botswana SACMEQ Regions, with each region having an almost equal chance of participating. The percentage participation in the study ranges between 12.5% and 17.5% across regions. In each school that was selected, only 25 standard six pupils were surveyed. These were identified through the use of up to date class registers and random number sampling tables. This led to a sample of 3975 pupils.

Although the target sample size per school was 25 pupils, in some schools there were fewer than 25 standard 6 pupils. In such cases, all the standard 6 pupils were considered legible for the study. The selected pupils completed the Pupils Booklet which was made up of Part A – Reading Test, Part B – Health Knowledge Test, Part C – Mathematics Test, Part D – Homework, and Part E – Questionnaire.

At most three standard 6 teachers in participating schools were sampled to complete the Teacher Booklet. There were exceptions in a few schools, where more than three teachers completed the

Teacher Booklets and most of these were in private schools and a few government schools under the subject specialisation pilot project. Eligible teachers were those who taught English, Mathematics and Health Knowledge to standard 6 classes with higher enrolments. Teachers were required to complete a Teachers Booklet (Parts A – Reading Test, Part B – Health Knowledge Test, Part C – Mathematics Test, and Part D – Questionnaire). Although all teachers were required to write the Health Knowledge test, only the Reading teacher had to write the Reading test and only the Maths teacher had to write the Maths test.

If teaching in the school was not done through teachers specialising by subject, which is a common in Botswana, eligible teachers had to complete all parts of the Teacher Booklet. Such teachers were selected from the completed School Form.

The School Heads for all the sampled schools had to complete the School Form, School Information and School Head Booklets. Where there was no School Head or the School Head was engaged in other activities, the Deputy School Head or Senior Teacher was delegated to complete these instruments. It should be noted that in these instances where the Head was not available, the Deputy School Head provided information about the School Head and not about him/herself where information on the Head was sought.

The Pupil Name Form was completed by the Data Collectors with the assistance of the School Head using the most up to date standard 6 class register available. This instrument indicates the names, class, and demographics of the sampled pupils.

2.3 Training of trainers and data collectors

The SACMEQ Coordinating committee based at UNESCO/IIEP in Paris conducted a one day Training of Trainers workshop for 15 Ministry of Education officials in August 2007. Most of the participants were Principal Education Officers from the Department of Primary Education and had participated in the 2000 SACMEQII project as well as the SACMEQIII pilot project held in 2006. The purpose of this workshop was to instruct the Trainers in data-collection methods and to discuss

any potential problems in the survey to ensure that the data collected in SACMEQ III would be of a high quality. During this training the trainers and trainees went through the Data Collectors' and National Coordinators' Manuals step by step, familiarized themselves with the Random Number Sampling tables as well as the six data collection instruments, the Pupil Booklet, Teacher Booklet, School Head Booklet, School Information Booklet, School Form and Pupil Name Form.

The country National Research Coordinators (NRC^{s}) conducted the Training of Trainers workshop from the 27th to the 31st of August 2007. The training was meant to familiarize the prospective Trainers with the instruments and the general methodology for data collection. The expectation was that after this training, the trainers would be able to train data collectors in the various different regions.

Training of Data Collectors was done from the 3rd to the 7th of September 2007. The total number of trained data collectors per region was as follows: 42 to cover South Central and Central North regions; 39 to cover Central North, West (Maun) and North Regions; and 39 for South, Gaborone, and West (excluding Maun). In order to meet the personnel requirements for data-collection, some Ministry of Education and Skills Development officials from different Departments participated as Data Collectors as well as temporary contract staff. This was due to the general shortage of staff in the responsible department within the Ministry.

2.4 Data collection

The SACMEQ III data collection exercise in Botswana took place from the 18th to the 29th of September 2007. All 160 participating primary schools from the seven different SACMEQ III regions were covered during this period by the 120 data collectors involved countrywide, divided into 40 teams of 3 data collectors each (including the team leader). Each team covered four schools in ten working days. Most team leaders were from the Ministry of Education (Primary Education Department) and had been involved in the 2006 SACMEQ III pilot project. The desired pupil sample was 4000 standard 6 pupils and 3868 pupils actually participated, i.e. 97% of the desired sample.

On the first day of the study each of the teams of three data collectors met the school management team to check if the School Form and School Information Booklets had been completed correctly. The data collectors then used up to date standard 6 class registers to select a random sample of 25 pupils. After sampling, the data collectors completed the Pupil Name Form and entered Teacher IDs in the Teacher Booklet. The data collectors also ensured that the testing room for the 25 sampled pupils was ready with 25 sitting and writing places. The Teacher Booklet, School Head Booklet, Pupil Reading and Health Knowledge Tests were completed on the 1st day of the study. The Team leader supervised the teachers and school head during data collection, while the other two data collectors were responsible for supervising the pupils.

On the second day of data collection the team leader worked with the school head to complete other parts of the Pupil Name Form and toured the school to check if the facilities mentioned in the School Information Booklet were indeed present in the school. The Mathematics test for pupils was completed during the first session of the second day while completion of the Homework section and the rest of the Questionnaire section was done during the second session of the second day. The data collection exercise was done according to the suggested Timetable for Data Collection provided by the SACMEQ III Coordinating Centre.

2.5 Data entry

The Division of Planning, Statistics & Research bought 10 computers to be used for the SACMEQ III project. Data was captured using the WINDEM software package provided by the SACMEQ Coordinating Centre. Data entry started on the 21st of November 2007 started with Pupil and Teacher Booklets Part B (Health Knowledge Test). The first and second entries for the two booklets were completed on the 30th of November 2007. The data entry for parts A, C, D and E for both Pupil and Teacher Booklets was completed by the 31st of January 2008. The data files from the ten computers were merged on the 4th of February 2008. The first data entry for other instruments (School Form, School Information, School Head and Pupil Name Form) was completed by the end of February 2008. Second data entry and merging of data files were completed by the end of March 2008.

2.6 Data cleaning by stages

On the 10th to the 14th of December 2007, the NRCs attended a Data Cleaning Workshop in Windhoek, Namibia, coordinated by the SACMEQ Coordinating Committee. This Training Workshop was meant to equip the country coordinators (NRCs) with skills required for using the data cleaning softwares (WINDEM, Janitor and SPSS) provided by the SACMEQ Coordinating centre. On the 21st of January 2008 the NRCs started data cleaning for Part B of the Pupil Booklet (Health Knowledge Test) using WINDEM and Janitor. Data cleaning for this part was completed by early April 2008 and the cleaned data was sent to the SACMEQ Coordinating Centre. The whole data cleaning exercise for other parts of the booklet was completed by the 31st of October 2008.

2.7 Data analysis

The data analysis and the interpretation of results included in this report focus on the seven thematic areas outlined in Chapter 1. The unit of analysis throughout this report is the pupil. Most of the analysis is descriptive in nature and is presented as cross tabulations by region. Since the results are based on samples both for regional and national levels, all the statistical analysis are presented in percentages with sampling errors provided alongside to allow estimation of the range of confidence intervals.

2.8 Expenditure

The government of Botswana through the Ministry of Education and Skills Development had a financial provision (vote allocation) to carry out research and consultancy activities in the education sector, including the SACMEQ III project. These funds were used to pay for conference rooms for training, transport charges, accommodation, meals, imprests and subsistence allowances. It was also used to pay for overtime for project personnel, salaries for temporary data collectors, printing of instruments, and the purchasing of other materials and supplies.

To ensure that the project had sufficient funds during the data collection exercise, the Division of Planning, Statistics and Research in collaboration with the Ministry of Finance and Development Planning and the Ministry of Education and Skills Development Accounting office and Department of Primary Education transferred part of the funds to the primary education regional offices'

financial votes. The regional administrators, chief education officers and principal education officers were charged with accountability for the funds. This arrangement was meant to facilitate easy payments in the field during SACMEQ III project data collection.

2.9 Conclusion

In conclusion, the SACMEQ III project in Botswana did not experience any major problems and was carried out successfully and according to plan. Collaboration between the various government departments and the SACMEQ coordinating team ensured that each stage of the project was completed satisfactorily and within the stipulated time-frames. Data collection was done as per the SACMEQ criteria and timeline.

Chapter 3
Characteristics of Pupils, their Homes and Learning Environments

3.1 Introduction

This chapter provides information about the personal characteristics, home background and learning environment of Standard 6 pupils. Pupils' personal characteristics, possessions at home and resources at schools are taken to have an impact on pupil's learning. A broad range of pupil characteristics and factors within pupils' home and learning environments exists, but this section focuses on only a subset of these variables, i.e. those thought to have a large impact on learning.

Therefore, a number of factors related to the learning environment (school context) will be investigated to determine how they may impact on or be associated with the learning of the standard 6 pupils. These include school characteristics such as school location, pupil absenteeism, repetition rates, frequency of homework given, access to classroom material, access to library books, and the number of sitting and writing places for pupils. Regarding pupils' personal characteristics, information was used on age, gender and the presence of home resources such as books, magazine/newspapers, television, radio, computer, telephone, parental education, type of house, number of regular meals and how often students spoke English at home.

3.2 Interpretation of the results

When interpreting the results in this section of the report, it must be noted that the variables presented represent only a subset of a much broader range of variables derived from the data. Data are presented as descriptive statistics in tables with sampling errors provided alongside to show the precision of the estimates. The analysis focuses on addressing the following questions;

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 Standard 6 pupils that might have implications and/or impact upon teaching and learning?

2. What are the school context factors experienced by Standard 6 pupils (such as school location, absenteeism 'regularity and reasons', standard repetition, and homework

'frequency, amount, correction, and family involvement') that might impact upon teaching/learning and general functioning of schools?

3. Did Standard 6 pupils have sufficient access to classroom materials (for example, textbooks, readers, stationery) in order to participate fully in their lessons?

4. Did Standard 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?

3.3 Age and gender distribution of pupils

The gender and age distribution of pupils is important when taking into consideration the set targets for 2015 Education For All (EFA) and the Millennium Development Goals (MDG) regarding gender parity and equality in schools as well as universal primary education. According to the 2007 Botswana Education Statistics report there were 166,987 boys and 160,631 girls in primary schools, indicating 6351 more boys in schools than girls. The female Net Enrolment Ratio (NER) was 88.1% for girls aged 6-12 years and 85.7% for boys of similar age. This indicates a higher proportion of girls in primary schools who were at the recommended primary school going age (6-12 years old) than boys. The NER indicates the extent of participation in the education system for the official age-group. The measure also gives an idea of the number of children who should be at school but are actually not in the learning system. The limitation of this measure (NER) is that it does not take into consideration which standard these pupils are in, and therefore, whether they started school at the right age (usually age six in the case Botswana).

The gender distribution by region is provided in Table 3.1. Since the mean age and sex distribution of pupils are drawn from the sample, the sampling error is provided along-side the results to allow calculation of the range in which the true age value (mean age in months) and gender of standard 6 pupils are likely to fall with 95% certainty. When the sampling error is smaller it indicates that the sample statistics is more precisely estimated (one can say with approximately 95% confidence that the estimate lies within two sampling errors above or below the estimate. Where the sampling error is high, this means that can have less confidence about the accuracy of the results.

Table 3.1: Gender distribution for SACMEQ III standard 6 pupils in Botswana

Regions	Male %	Female %
Central North	51.1	48.9
Central South	49.0	51.0
Gaborone	47.6	52.4
North	48.5	51.5
South Central	50.5	49.5
South	51.2	48.8
West	48.4	51.6
Botswana	**49.8**	**50.2**

Table 3.1 above indicates that there were approximately as many boys sampled as girls in the Botswana SACMEQ III project. This could be an indication that boys and girls in Botswana had equal opportunity of being selected in the sample. South Central region had 50.5% of its sampled pupils being males and 49.5% being females. Gaborone region had 47.6% of the sample being males and while 52.4% were females. Participation in other regions varied from 50% $\pm$ 1.1 for boys to 50% $\pm$ 1.6 for girls.

Table 3.2: Mean age in months for SACMEQ III standard 6 pupils in Botswana by sex

	Pupils' mean age (months)	
Region	**Male**	**Female**
Central North	155.3	152.0
Central South	155.3	151.2
Gaborone	149.7	146.7
North	155.1	149.9
South Central	155.9	152.5
South	155.4	151.9
West	161.1	155.5
Botswana	**155.4**	**151.5**

Table 3.2 above shows the mean age in months of standard 6 pupils at the time of data collection in September 2007. The West region recorded the highest mean age for both boys and girls followed by South Central and South regions. It should be noted that the mean age of both boys and girls in the West region was above 13 years, while the expectation is that as per the RNPE, 1994 recommendations, pupils at this age could have completed primary school the previous year (i.e.

2006). The three regions with the highest pupil age cover most of the rural areas in the country and some of their participating schools were located in remote areas. Therefore it could be concluded that the school location and the flexibility of the education policy which stipulates that "the maximum entry age should be kept flexible in order to allow children in remote areas the opportunity to have access to primary education." (Revised National Policy on Education 1994, recommendation 16 (c) p.17) are influential in parent's considerations to send the child to school.

The Standard 6 pupils in 2007 would have ideally started schooling in January 2002 at an official minimum entry age of 5.5 years (66 months) for public schools and 5 years (60 months) for private schools (Revised National Policy on Education 1994, recommendation 16 (b): 17). Therefore at the time of data collection the average age of a Standard 6 pupil was expected to be approximately 120 months (10 years) for private school pupils and 132 months (11years) for public school pupils. According to the Education Statistics Report of 2002, 22.5% of standard 1 pupils were 6 years old or less and 77.5% were over the recommended entry age. Therefore it can be concluded that most of pupils started school later than the recommended minimum entry age in Revised National Policy on Education, 1994.

Policy Suggestion: Department of Pre- and Primary Education to embark on the education exercise to inform the communities on the recommended entry age to primary schools.

3.4 Home characteristics of pupils

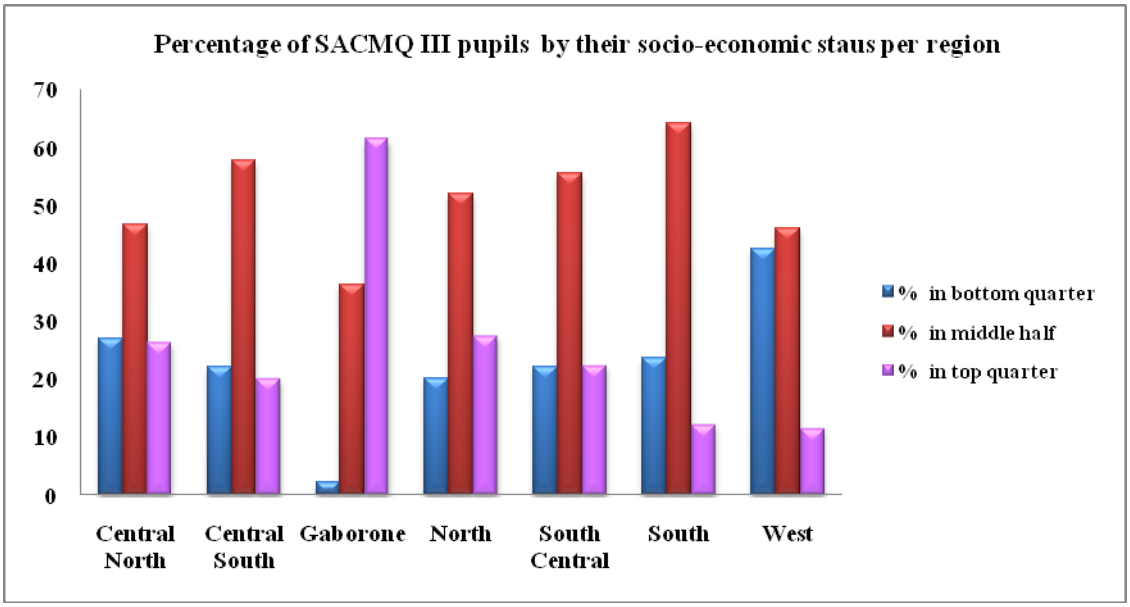
This section shows the breakdown of standard 6 pupils by their socioeconomic status. Other home characteristics discussed include the number of books found at the pupils' home, how often pupils speak English outside school (especially at home), the education status of parents, regularity of meals, sources of lighting at home, and where pupil's stay during the school week.

What was the socio-economic status of SACMEQ III pupils?

The analysis under this section is drawn from pupils' response to a question in the Pupil Booklet in which they were requested to indicate whether each of 31 items were present in their homes. The pupils' answers on the items found in their homes were used to come up with a summary that

indicated their socio economic status (bottom quarter, middle half or top quarter) within the overall Botswana population of grade 6 pupils. The figures show how the distribution of pupils differ by region from the expected national figure of 25% in the bottom quarter, 50% in the middle half, and 25% in the top quarter. The graph reflects that pupils in the Gaborone region were mostly (61.5%) from families in the wealthiest quarter of socioeconomic status. Many pupils in the West region were from families in the bottom quarter (42.5%) and middle half of the socio-economic distribution and only 11.5% from the top quarter of socioeconomic status. These results are in accordance with *a priori* expectations. For example, the West region is mostly rural and it is not surprising that households in this region have fewer possessions on average than households in Gaborone.

Figure 3.1: Percentage of SACMEQ III pupils by their socio-economic status



Taking note of the above, it is recommended that the Department of Pre-Primary and Primary Education should come up with a policy to provide rural schools with resources such as computers with Internet connection, televisions, DVD-players, radios and magazines, wherever this is feasible. This would enable these students to benefit from these resources and in part compensate for the lack of home resources. Furthermore, the Ministry of Education and Skills Development in collaboration with the Ministry of Communication Science and Technology should expedite the implementation

of NDP10 Recommendation 76 on Computer Refurbishment Project so that pupils have access to computers at an early age. There is also a need to ensure that all schools are provided with televisions so that disadvantaged pupils could also benefit from Educational Television, once this is established as per the NDP 10 Recommendation 77.

Table 3.3: Where pupils stay during school week (by region)

Regions	Home with family/ relatives %	Home with none members of family %	Hostels/boarding school %	Orphanage %	Others %
Central North	98.4	0.3	0.0	0.0	1.3
South	93.4	3.7	0.5	0.1	2.3
Gaborone	97.4	1.5	0.0	0.3	0.8
North	97.5	0.9	0.0	1.2	0.3
South Central	93.4	3.0	0.6	0.1	2.9
South	92.4	1.9	1.5	0.2	4.1
West	92.8	4.0	2.9	0.0	0.3
Botswana	**94.7**	**2.3**	**0.7**	**0.2**	**2.0**

Pupils were asked to indicate where they stayed during the school week. The responses to this question indicate the type of living arrangements students had during the school week. This analysis is important in the sense that the family's contribution towards education of children normally occurs at home though the people who stay with the pupils. The support and care that pupils receive from those in the home environment is an important factor in student performance.

The table indicates that almost all SACMEQ III pupils (94.7 percent) were staying at home with their families and/or close relatives. The remainder either stayed at home with none of their family members, stayed in hostels or boarding schools, stayed in orphanages/children's homes, or some unspecified living arrangement. Only 0.2 percent stayed in orphanage centres.

Sources of lighting where pupils stay during school week

The information about sources of light in pupils' homes, derived from responses to a question in the Pupil Booklet, is very important, as this indicates whether pupils had sufficient light resource at home to enable them to do their school work at night.

Table 3.4: Percentage of sources of light in homes where SACMEQ III pupils stay during school week

	Source of Lighting in Pupils' Homes					
	Electricity	**Paraffin/ oil**	**Candle**	**Gas**	**Fire**	**None**
Regions	%	%	%	%	%	%
Central North	50.8	35.5	12.6	0.6	0.5	0.0
South	48.1	34.5	13.6	1.8	1.9	0.1
Gaborone	85.1	11.1	3.1	0.5	0.0	0.3
North	57.1	25.8	15.0	0.9	1.2	0.0
South Central	49.8	32.6	14.2	1.9	1.4	0.1
South	31.3	40.7	27.0	0.8	0.2	0.0
West	40.9	25.9	30.3	0.0	2.6	0.3
Botswana	**50.1**	**31.4**	**16.2**	**1.1**	**1.1**	**0.1**

Just over half (50.1%) of pupils stayed in homes where the source of lighting was electricity. This reflects the fact that most villages in the country have access to electricity. The second commonly reported source of lighting homes was paraffin/oil at 31.4 percent overall, followed by the use of candles at 16.2 percent. Very few pupils (1.1%) reported using either gas or fire for lighting at home; only 0.1% reported that they did not have any source of lighting at home. The South region and the West region had the lowest percentages (31.3% and 40.9% respectively) of pupils who had electricity, while pupils in Gaborone came from families which commonly used electricity as their source of lighting (85.1%).

Table 3.5: Number of books found in pupils' homes (by region)

	% of pupils in each category of number of books at home					
Regions	**None**	**1 to 5**	**6 to 30**	**31 to 75**	**76 to 150**	**Above 150**
Central North	24.9	44.5	21.9	5.6	1.9	1.3
Central South	21.3	48.2	23.6	4.7	1.3	1.0
Gaborone	9.5	26.9	31.5	14.1	10.0	7.9
North	17.5	56.7	20.2	4.0	0.9	0.6
South Central	20.7	47.2	23.6	5.0	2.9	0.6
South	19.9	52.2	19.9	3.7	2.7	1.5
West	37.9	44.8	13.8	2.0	0.9	0.6
Botswana	**21.5**	**46.3**	**22.4**	**5.4**	**2.7**	**1.7**

Books and other reading materials found at home are believed to positively influence pupils' learning at home. Pupils were asked to indicate the number of books found in their homes besides their school books. In Gaborone only 9.5% indicated that there were no books where they stayed during the school week, with 63.5% reporting that there are more than five books in their homes. For the remaining six regions more than two-thirds of pupils fell within the categories who had no books or less than six books in their homes. The worst off were the West region, where 37.9% of pupils did not have any books in their homes and 44.8% more had less than less than six books in their homes. Somewhat less serious was the situation in Central North region, where 24.9% of the pupils had no books and another 44.5% at most five books in their homes.

The Department of Pre- and Primary should make sure that school libraries in the affected regions are fully resourced and pupils are encouraged to borrow books to read in school and at home to foster independent learning. On the other hand school, where pupils do have books at home, staff should encourage pupils to make use of these books.

Table 3.6: English at home (by region)

Percentage of pupils speaking English at home

Regions	Never	Sometimes	Most of time	All the time
Central North	25.8	66.1	6.5	1.6
Central South	21.0	69.1	7.0	2.9
Gaborone	6.4	67.6	17.5	8.5
North	16.6	78.2	4.3	0.9
South Central	24.6	64.3	8.6	2.5
South	24.0	69.9	4.2	1.9
West	23.0	68.1	6.6	2.3
Botswana	**21.3**	**68.3**	**7.6**	**2.8**

English is the official language of communication and instruction in school for all standard 6 subjects except Setswana. Therefore pupils who communicate in English more often outside school are likely to better understand their learning materials. Pupils were asked how often they used English outside school. The majority (68.3%) reported using English only 'Sometimes' outside school. The Gaborone region had the lowest percentage of pupils (6.4%) who never used English outside school, followed by the North region where 16.6% of pupils reported never using English

outside school. The remaining regions ranged from 21% to 25.8% of students who never used English outside school. Gaborone had the highest percentage (26%) of pupils who reported using English 'most of the time' or 'all the time' outside school.

3.5 Pupils and their learning environment

It is widely accepted that a conducive learning environment has a positive impact on learning. Availability of resources – such as exercise books for each subjects, pencils, pens, textbooks for mathematics and reading, pupils tables and chairs (sitting and writing space), teacher guides, teachers' tables and chairs, dictionaries for teachers' use, writing boards, access to radio, and school libraries – was used to determine the level of resources in the school. The listed items are believed to be key in enabling teaching and learning. The analysis was drawn from pupil responses in the Pupil Booklet, teacher responses in the Teacher Booklet and school head responses in the School Information Booklet.

Table 3.7: Percentage of pupils in rural and urban schools

	School location by region	
Region	**Isolated/Rural %**	**Town/City %**
Central North	43.6	56.4
Central South	64.6	35.4
Gaborone	0.0	100.0
North	19.9	80.1
South Central	50.8	49.2
South	55.1	44.9
West	84.2	15.8
Botswana	**48.4**	**51.6**

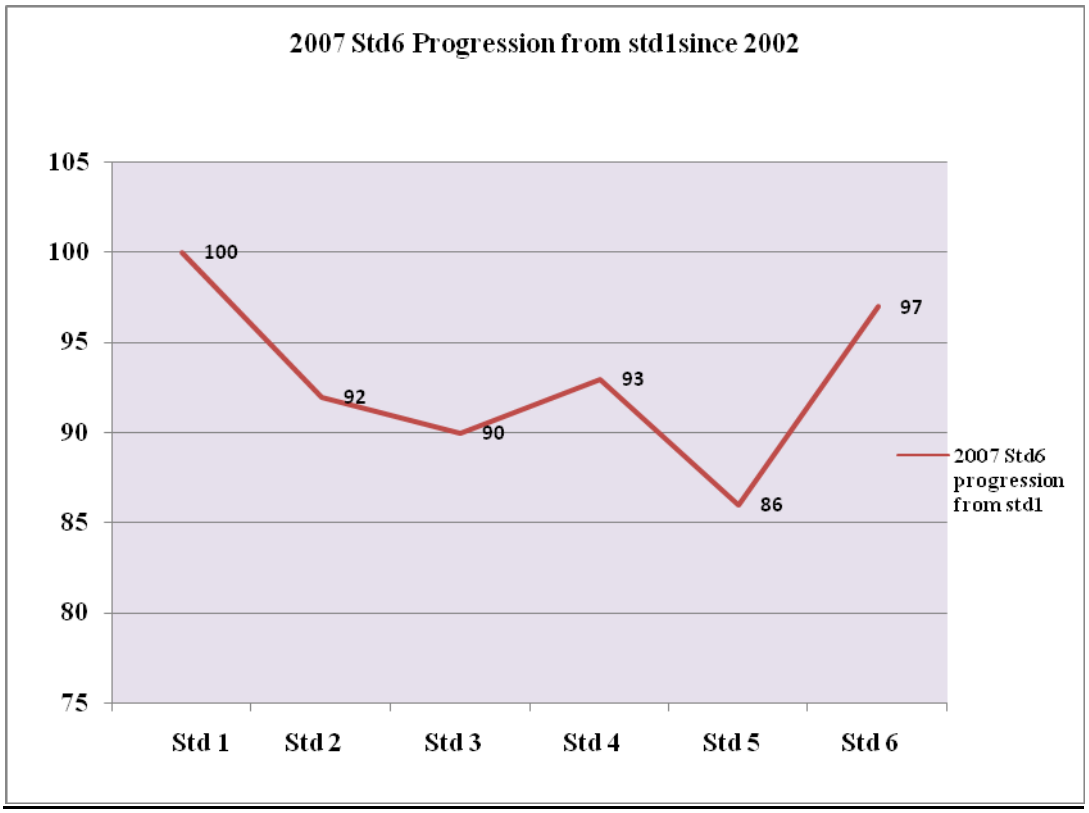
According to the table above, 84.2 percent of pupils in the West region who participated in the SACMEQ III project were in schools situated in isolated or rural areas and only 15.8 percent in towns or bigger villages. Most pupils in the Gaborone and North regions were in schools located in towns, main villages or cities. This reflects the fact that the Gaborone region consisted of Gaborone city, thus all participating schools were located in the city, and that most schools in the North region were in Francistown city and its periphery. In Botswana as a whole, there was almost equal distribution of school by isolated/ rural and town/city. It should be noted that bigger villages fell under the SACMEQ III classification of towns/ cities.

Repetition of pupils in SACMEQ III Botswana by Region

Repetition and drop-outs are important for the progression from one standard to the next. These factors also influence the quality of education. According to the Botswana Education Statistics Report (2007), there were 986 pupils (624 boys and 362 girls) repeating standard 6 in the whole country. The Revised National Policy on Education (RNPE, 1994) Recommendation 23 (a) provides for repetition for no more than 12.5% of pupils in each standard. The recommendation further states that:

> *"While repetition is accepted, in any event a pupil should repeat not more than three standards. Effective consultation between the class teachers, remedial teachers and educational psychologists on the one hand, and the parents on the other, should determine those who should repeat classes and those recommended for accelerated progression.* (RNPE 1994, REC 23 (a) p. 19)".

Figure 3.2: Progression rates for standard 6 pupils in Botswana, 2007



Source: (Botswana Education Statistics Report, 2007) Gross progression rate based on total enrolment i.e. inclusive of repeaters

Figure 3.1 indicates the progression rate for all 2007 standard 6 pupils in Botswana. This graph shows the percentage of pupils who were able to progress from one standard to another since they started standard 1 in 2002. The progression rate of this group was above 90 percent at all grades except for standard 5 which was at 86 percent. This could be attributed to the standard 4 attainment test which is normally used to determine progression into standard 5. Standards 1 and 4 are the most repeated standards in Botswana primary schools. Standard 4 because of the attainment test and standard 1 because of the reason that pupils have to pass the breakthrough programme to progress to standard 2. The progression rate at each standard is affected by repetition of previous standards, re-entrants and dropouts.

Table 3.8: Repetition of any standard (Std 1-6) among standard 6 pupils in 2007 in Botswana by region

% of standard 6 pupils who had repeated a standard					
Region	**Never**	**Once**	**Twice**	**Three times or more**	**Currently Repeating standard 6**
Central North	66.0	27.0	4.1	2.9	7.6
Central South	69.2	24.9	4.2	1.7	4.2
Gaborone	80.2	16.5	3.1	0.3	1.0
North	72.7	23.6	2.8	0.9	3.7
South Central	66.0	28.8	3.6	1.5	6.5
South	71.2	25.2	1.9	1.7	6.4
West	58.0	33.6	7.2	1.1	3.7
Botswana	**68.7**	**25.9**	**3.7**	**1.6**	**5.2**

Table 3.8 contains a summary of the SACMEQ III standard 6 pupil's repetition rates by region, generated from standard 6 pupils' responses to two questions asked on their repetition status. The questions were: i) How many times have you repeated a standard since you started school, including Standard 6? ii) Are you repeating Standard 6 this year?

The analysis shows that 68.7 percent of standard 6 pupils who participated in the SACMEQ III project had never repeated a standard (25.9% had repeated once, 3.7% twice and 1.6% repeated three times or more). Only 5.2 percent of standard 6 pupils reported repeating standard 6. Gaborone region had the highest percentage of pupils who had never repeated a standard (80%), followed by

the North region (72.7%). The West region had the lowest percentage of pupils who had never repeated a standard (58%). Although the percentage who had repeated a standard varies between the regions, it should be noted that in all the regions most of those who reported having repeated a standard had repeated only once. All the regions recorded less than 10 percent of standard 6 pupils who were repeating standard 6 at the time of study.

Table 3.9: Percentage of pupils per region with access to essential learning materials and equipment (SACMEQ III)

	Exercise Book &Pen/Pencil & Ruler		Own Reading Textbooks		Own Math Textbooks		Writing Board		Pupil Sitting & Writing Place		Water	
Regions	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE
Central North	80.7	2.01	72.8	4.66	62.3	7.26	92.6	4.83	100	0.00	92.3	5.37
Central South	84.8	2.80	53.8	5.50	52	5.93	90.1	5.16	100	0.00	96.2	3.77
Gaborone	88.1	2.40	77.4	6.01	76.8	5.88	88.4	7.01	100	0.00	95.0	5.02
North	69.3	7.40	80.2	5.58	78	6.72	93.7	4.90	100	0.00	94.8	5.17
South Central	84.5	1.45	61.6	5.00	60.8	5.29	95.6	1.89	100	0.00	100.0	0.00
South	74.1	6.46	58.6	8.91	67.8	8.54	89.1	5.70	100	0.00	90.4	6.64
West	81.5	5.91	48.4	8.37	47.1	8.20	95.8	2.26	100	0.00	100.0	0.00
BOTSWANA	**81.2**	**1.50**	**63.4**	**2.43**	**62.1**	**2.64**	**92.1**	**1.83**	**100**	**0.00**	**95.6**	**1.68**

The learning material and resources in the table above are believed to be essential for a conducive learning environment. For day-to-day learning, pupils are expected to have at least an exercise book, a pencil, a pen and a ruler to do their school work. Pupils are also expected to have access to a text book for each subject. Pupils should also have an adequate sitting and writing place so that they can do their school work comfortably. In addition, teachers need a writing-board in the classroom to teach effectively.

In the SACMEQ III project more than 80% of pupils in five regions had at least an exercise book, a pen or pencil. In the remaining two districts, less than 80% of pupils had access to these materials, these were South (74.1%) and North (69.3%). Generally the analysis indicated that 81.5± 1.5% of standard 6 pupils in Botswana in 2007 had at least an exercise book, a pen or pencil and a ruler. The

analysis also indicates that 80.2% of pupils in the North region had reading text books, followed by 77.4% of pupils in Gaborone, 72.8% pupils in Central North, 61.6% pupils in South Central, 58.6% pupils in South, 53.8% pupils in South Central and only 48.4% of pupils in West region.

The percentage of pupils who reported to have mathematics text books ranged from 47.1% to 78% across the regions. The West region reported the lowest percentage of pupils who had mathematics text books (47.1%), followed by Central South region (52.0%). In general there was shortage of reading text books in the whole country in 2007. This is indicated by the fact that only 63.4% of standard 6 pupils reported to own a reading text book and 62.1% reported to have mathematics textbooks country wide.

More that 80% of the pupils in all the regions were taught in class rooms which had a writing board. All the pupils (100%) in all the regions reported to have sitting and writing places in class. All the standard 6 pupils (100%) in South Central and West regions reported to be in schools with stand pipe, tank, and borehole or spring water. In other regions the percentage of standard 6 pupils in schools where there was either stand pipe, tank, borehole or spring water ranged from 83.76% to 99.97%. This gives an indication that pupils had access to water in almost all the schools in the country.

It should be noted that from the analysis above there was clearly a shortage of exercise books, pencils, pens and rulers for pupils in all the seven regions, with pupils in the North region being most affected. The presence of these resources ranged from 69.3% (North) to 88.1% (Gaborone) in the different regions. Under normal circumstance every pupil is expected to have exercise books, pencils, pens and rulers of his/her own to do the day to day school work. The importance of textbooks for pupil learning suggests that every student should have access to his/her own textbook. This is clearly not the case in Botswana, as shown by the table above. It is also expected that every classroom should have a writing board for pupils to benefit equally from the teachers demonstrations and pupils interaction and participation in their day to day learning. Water is a very essential commodity in the teaching and learning environment and therefore it is expected that all schools should have access to water.

The general picture on the availability of textbooks causes concern and therefore the Department of Pre and Primary Education should come up with a deliberate plan to ensure that West and Central South regions are assisted with textbooks. One should note that these two regions especially West region is comprised of remote areas and more often have a high rate of disadvantaged children. This means that more often than not pupils in these regions are from household that cannot afford to supplement their children's educational needs. Therefore schools should ensure that pupils have access to most of the abovementioned resources to facilitate easy learning for the pupils as well as encouraging pupils to learn on their own, even at home.

Policy Suggestion: Department of Pre and Primary Education should ensure that all schools are provided with the essential learning materials/ resources to meet the minimal standard of teaching and learning to benefit pupils and teachers

The teaching resources in Table 3.10 are believed to be essential for teaching and learning. These resources represent the basic resources needed by teachers to enable them to teach effectively. The results suggest that generally in Botswana sup-plies availability of thgese essential resources was good, as 79.4 percent of the standard 6 pupils were taught by teachers who had teacher's guides for reading and 76 percent were taught by teachers who had access to teacher's guide for mathematics, 88.2 percent were from classes where teachers had dictionaries, 87.7 percent in classes where teachers had a table and a chair specifically meant for the teacher, 86.7 percent of the pupils were taught in a class where there was either a classroom library or a school library and 82.3 percent of the pupils had access to the radio to listen to educational radio lessons. Yet a significant minority of pupils were still in classes without such resources.

The analysis further indicates that 69.3 percent and above of the pupils across the regions were taught in a class where there were resources such as teacher' tables and chairs, classroom and or school library, radio for the purpose of educational radio lessons, teacher's dictionary and teacher's guides for both reading and mathematics. Although the percentages for availability of teaching resources was above 60 percent across the regions it should be noted that the percentages of pupils taught by teachers with teacher's guide for mathematics was on average lower than percentages of other resources. It should be further noted that Gaborone region had recorded 82.9 percent and above of pupils taught by teachers with the above stipulated resources. The results in the table above may suggest that the concerned resources are inadequate but equitably distributed in schools

across the country. The government should aim to improve the provision of resources such that schools are adequately equipped with the educational resources needed for teaching and learning.

Table 3.10: Percentage of pupils per region taught by teachers with access to essential teaching materials and equipment

	TEACHING & LEARNING MATERIALS											
	Teacher Guide (Reading)		**Teacher Guide** (Math)		**Dictionary**		**Teacher Table & Chair**		**Library** (Class/School)		**Radio**	
Regions	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE
Central North	81.9	7.22	75.1	8.30	89.7	5.36	95.4	4.54	83.0	6.87	76.3	8.77
Central South	75.1	7.16	70.5	7.85	89.9	5.21	90.0	5.17	86.8	6.05	92.9	4.95
Gaborone	86.5	6.42	86.7	5.62	93.7	5.05	85.8	7.02	82.9	8.02	84.9	8.24
North	85.9	7.17	69.3	9.73	91.0	5.47	90.9	5.45	91.8	5.78	80.1	9.13
South Central	75.0	6.48	77.6	6.17	90.8	3.67	85.4	5.20	85.2	6.51	83.3	7.08
South	82.8	7.49	75.5	8.42	76.4	8.38	79.8	7.75	87.6	6.25	70.3	10.47
West	75.3	7.21	81.3	7.63	87.4	6.78	86.5	6.89	94.9	5.07	86.2	7.66
BOTSWANA	**79.4**	**2.79**	**76.0**	**3.02**	**88.2**	**2.23**	**87.7**	**2.30**	**86.7**	**2.56**	**82.3**	**3.08**

Table 3.11 shows that there was a significant number of standard 6 pupils who took extra lessons, ranging from 29.1% in Isolated/Rural areas to 27.1% in Towns/Cities.. The pupils reported different methods of payment for their extra lessons. Most of the pupils in schools based in isolated or rural areas indicated that they receive their extra lessons free of charge (72.1 %), while 18.8 percent used money payment for their extra lesson, and around five percent used other kinds of payment, apart from money and four percent used both money and other kind of payment. The percentage of pupils in schools based in major villages, towns or cities who reported to be receiving their extra lessons without payment was 66.2 percent, while 23.7 percent reported that they were paying with money for their extra lessons and around six percent were paying with other kinds of payment other than money, and four percent were paying with both money and any other kind of payment other than money. It should be noted that the general picture of payment for extra lessons in Botswana no matter where the school is located is that most of the pupils (69.1 percent) were receiving extra lessons without paying, followed by 21.2 percent of those who were using money for payment, then followed by those who used other kinds of payment and the least percentage of pupils across the school locations were those who reported to be paying with both money and other kind of payment other than money.

Table 3.11: Percentage by school location for standard 6 pupils who took extra lessons and their methods of payment

		% of pupils per Method of Payment for extra tuition			
School Location	% Receiving extra tuition	No Payment	Money payment	Other kind of payment	Money and other kind of payment
Isolated/Rural	29.1	72.1	18.8	5.1	4.0
Town/City	27.1	66.2	23.7	5.7	4.4
Botswana	**28.1**	**69.1**	**21.2**	**5.4**	**4.2**

The results in table 3.12 shows that most of SACMEQ III standard 6 pupils in Central North, Central South and Gaborone regions were in schools without school libraries. West regions had the lowest percentage which is 19.8 percent of schools without school library. This region also had the highest percentage, 64.8 percent, of schools with school libraries which allowed pupils to borrow books and took home. On the other hand the North region had the highest percentage of pupils in schools with school libraries and yet pupils were not allowed to borrow books and take home with them. South Central region had the lowest percentage of schools which did not allow pupils to borrow books from school libraries to go home with them. In general, across the regions, the percentage of pupils in schools with school libraries who allowed pupils to borrow books and go home with was higher than that of those which did not allow pupils to borrow books and go home with.

Table 3.12: Pupils access to school library books

		Not allowed to borrow books	
Regions	**No school library** (%)	**from library** (%)	**Allowed to borrow books** (%)
Central North	47.9	12.1	40.0
Central South	50.5	24.4	25.1
Gaborone	44.4	15.9	39.7
North	24.2	30.4	45.4
South Central	29.1	7.0	63.9
South	24.7	25.0	50.3
West	19.8	15.5	64.8
Botswana	**36.1**	**17.8**	**46.1**

Policy Suggestion: Regional Education Directors should ensure that primary schools have school libraries as per RNPE1994, REC 14, and that students are allowed to take library books home.

3.6 Conclusion

The analysis in this chapter has provided information on pupils' personal, home and learning environment characteristics for the 2007 standard 6 pupils who participated in SACMEQ III project. The provided information can be taken as baseline information about the primary school pupils in Botswana and their learning environment. Among others the findings have revealed that there is gender equity in terms of access for children to primary education. The analysis on school resources in place at schools has also revealed a relatively equitable distribution of resources across the country. Most of the SACMEQ III pupils reported that they stay at home with their families or relatives. This is good for pupils' since parents can provide guidance and assistance on school work. Therefore, schools should take advantage of this and strengthen their Parent Teacher Associations to ensure that parents participate in their children's learning. There is need to address the prevailing repetition rate of 31.3 percent through interventions such as remedial lessons for pupils who are struggling. The survey results suggest that not every pupil had access to essential stationery such as exercise books, pens, pencils, and rulers. Furthermore, there is a serious shortage of text books for both reading and mathematics at the standard 6 level.

The Department of Pre and Primary education should ensure that all pupils are provided with basic resources to meet their day to day learning needs. Resources such as teachers' guides, libraries, radios and writing boards were found to be adequate in schools and equitably distributed by regions. The Ministry of Local Government should be commended for the provision of school furniture such as teachers' chairs and tables, and pupils' chairs and tables.

There is evidence that most pupils (68.3 percent) speak English at home sometimes, therefore there is need for school heads and teachers to encourage pupils to speak English more often even at home to improve on their communication skills and grammar. Regarding extra lessons, 28.1 percent of SACMEQ III pupils reported that they took extra lessons outside school hours. Most of these pupils

reported that they were not making any payment for these lessons and this may suggest that the pupils were referring to remedial lessons provided by their teachers. It is therefore very important that managements for schools engages parents and encourage them to contribute towards their children's educations by engaging private tutors to assist their children with school work where need be.

Parents should also be urged to encourage their children to use English at home more often where possible and take advantage of books found in their homes to improve on their reading skills. To ensure parents' and guardians' positive participation in their children's education there should be active Parents Teacher Associations in schools. The Ministry of Education through the regional directors, in collaboration with the Ministry of Labour and Home Affairs (which is responsible for the provision of library services) should ensure that primary schools have libraries where pupils have access to books which they can borrow and take home. In the RNPE 1994, it is recommended that a standard primary school should have a library.

Chapter 4

Characteristics of Teachers, their Views on Classroom Resources and Professional Support

4.1 Introduction

This chapter presents the characteristics and experiences of standard 6 in Botswana. The teachers' views about teaching, classroom resources, professional support and their job satisfaction are some of the key variables that one would like to evaluate if one is interested in monitoring educational quality. These variables are likely to have a noticeable impact on pupil achievement

The key questions for this study that have been addressed under this chapter are as follows:

1. Personal characteristics of standard 6 teachers (for example; age, gender and socio-economic level) as well as the condition of their housing.
2. Professional characteristics of standard 6 teachers in terms of academic, professional and in-service training, and whether they considered in-service training to be effective in improving their teaching.
3. Standard 6 teachers' allocation of their time among responsibilities concerned with teaching, preparing lessons and marking.
4. Standard 6 teachers' views on a) pupil activities b) teaching goals c) teaching approach/strategies d) assessment procedures, and e) meeting and communicating with parents.
5. Availability of classroom furniture and classroom equipment in standard 6 classrooms.
6. Professional support given to standard 6 teachers.
7. The most significant determinants of teacher job satisfaction.

4.2 Personal characteristics of Standard 6 teachers

Age distribution for reading teachers

The age distribution of the teachers is indicated in Table 4.1 below. Information presented in Table 4.1a above has been summarized in Figure 4.1 below to indicate the pattern of average percentage distribution of age.

Table 4.1a: Distribution of 2007 standard 6 reading teachers by 5 year age groups

Region	Percentage of Reading Teachers by 5 year Age-Groups								
	21-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	All ages
Central North	1.9	20.0	33.2	20.0	16.9	2.7	5.2	0.0	100
Central South	7.8	12.2	19.8	23.3	23.8	8.4	4.7	0.0	100
Gaborone	5.1	4.1	8.7	49.4	25.7	1.8	2.3	2.8	100
Northern	5.8	7.1	28.8	25.5	20.9	7.4	1.8	2.8	100
South Central	3.0	8.5	11.7	28.2	24.1	17.9	5.4	1.3	100
Southern	0.0	17.2	24.3	21.1	28.7	5.9	2.7	0.0	100
Western	2.6	34.2	29.3	18.7	15.2	0.0	0.0	0.0	100
Botswana	**3.7**	**14.2**	**21.5**	**25.8**	**22.6**	**7.5**	**3.7**	**0.8**	100

Figure 4.1a: Average percentage distribution of standard 6 teachers of reading by 5 year age groups

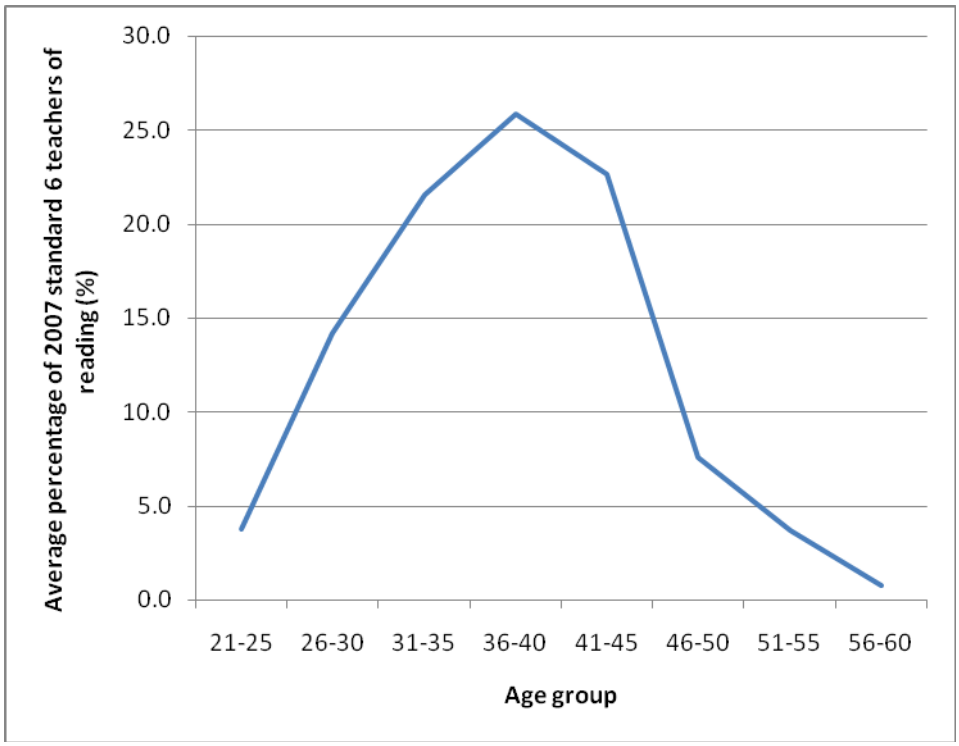


Figure 4.1a indicates that the distribution of teachers of reading for the 2007 standard 6 pupils was skewed towards age groups younger than 45 years. The modal (most frequent) age-group was 36-40 years, a group that constituted 25.8% of all teachers. The graph shows the sharp decline in number of teachers older than this age group. It may be that the attractiveness of teaching in grade 6 diminishes as teachers age, but this would only be reflected in the age distribution if there were options for them to leave teaching or to switch e to teaching in other grades. The Western region is

the least represented in these older age groups, thus this region lacks experienced teachers. The data shows that the region is dominated by teachers of age group 26 – 30 years. These teachers could be young, newly graduated from colleges/university, hence lacking experience.

Age distribution for teachers of mathematics

Distribution of age of teachers of mathematics is as shown in Table 4.1b. A very similar pattern that was observed with age distribution of teachers of reading applies to mathematics teachers.

Table 4.1b: Distribution of 2007 standard 6 mathematics teachers by 5 year age groups

Region	Percentage of Mathematics Teachers by 5 year Age-Groups								
	21-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	All ages
Central North	1.9	14.1	33.2	20.0	21.0	4.5	5.2	0.0	100
Central South	3.3	13.5	15.2	23.1	24.8	15.4	4.7	0.0	100
Gaborone	5.1	5.7	13.4	40.4	20.6	5.7	6.4	2.8	100
Northern	2.5	16.3	19.6	34.0	15.6	7.4	1.8	2.8	100
South Central	3.0	8.5	11.4	30.1	25.0	15.3	5.4	1.3	100
Southern	0.0	17.2	28.2	21.1	23.8	6.9	2.7	0.0	100
Western	2.6	36.4	30.1	14.3	16.6	0.0	0.0	0.0	100
Botswana	**2.6**	**14.7**	**20.9**	**25.6**	**22.1**	**9.3**	**4.1**	**0.8**	**100**

Age distribution for health teachers

The age distribution of 2007 standard 6 health teachers is as shown in Table 4.1c. Once again, this shows quite similar patterns to those for reading and mathematics teachers.

Table 4.1c: Percentage distribution of 2007 standard 6 teachers of health by 5 year age groups

Region	Percentage of Mathematics Teachers by 5 year Age-Groups								
	21-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	All ages
Central North	1.9	19.9	30.4	25.5	12.6	4.5	5.3	0.0	100
Central South	5.1	14.4	16.7	24.2	23.8	11.2	4.7	0.0	100
Gaborone	5.1	5.7	11.8	48.8	20.6	3.9	1.3	2.8	100
Northern	4.3	16.5	23.9	26.6	16.8	7.3	1.8	2.8	100
South Central	3.0	8.5	10.8	34.2	20.8	16.0	5.4	1.3	100
Southern	0.0	17.2	26.6	23.9	23.6	5.9	2.7	0.0	100
Western	7.5	40.5	22.4	14.4	15.2	0.0	0.0	0.0	100
Botswana	**3.5**	**16.2**	**19.9**	**28.2**	**19.6**	**8.2**	**3.6**	**0.8**	**100**

Gender distribution of teachers of standard 6 pupils in 2007

The information presented in Table 4.2 indicates that there was no gender balance in the distribution of teachers of standard 6 pupils in 2007: There were far more female than male teachers in all regions except the Western Region. Observing the high numbers of male teachers in the Western region, it seems necessary that Department of Pre- and Primary Education carry out an investigation to determine factors that lead to this deviation from national norms. One would expect the small number of male teachers to be more evenly distributed.

Table 4.2a: Gender distribution of teachers of 2007 standard 6 pupils

Region	% of Standard 6 Reading Teachers by Sex		% of Standard 6 Mathematics Teachers by Sex		% of Standard 6 Health Teachers by Sex	
	Male	Female	Male	Female	Male	Female
Central North	48.6	51.4	40.4	59.6	41.1	58.9
Central South	24.4	75.6	22.1	77.9	20.5	79.5
Gaborone	30.2	69.8	30.6	69.4	25.6	74.4
Northern	26.4	73.6	31.9	68.1	32.2	67.8
South Central	21.2	78.8	22.9	77.1	22.9	77.1
Southern	28.3	71.7	33.6	66.4	30.1	69.9
Western	80.2	19.8	76.3	23.7	81.3	18.7
Botswana	**34.1**	**65.9**	**33.4**	**66.6**	**32.7**	**67.3**

Policy Suggestion: Department of Pre and Primary Education carry out an investigation to determine factors that lead to more male teachers teaching in the Western region whereas the data reflects that there were more female teachers nationally.

4.3 Professional characteristics of Standard 6 teachers

The professional characteristics of teachers that are assessed under this section include the number of years of teacher training that the teachers completed, academic qualifications of teachers, their experience in teaching standard 6, in-service courses attended, and their views on the effectiveness of the in-service courses.

The distribution of years of teacher training by region is presented in Table 4.3a below. The data show that 63.0% of Botswana pupils in 2007 standard 6 were taught reading by teachers who had

completed at least 3 years of teacher training. There is still a good number of pupils who were taught reading by teachers who may not have received adequate training: 36.9% of the pupils were taught by teachers who had received only 2 years of training or less.

Table 4.3a: Teacher training of reading teachers by region

Region	% of Standard 6 Reading Teachers by years of teacher training completed			
	1 Year	2 Years	3 Years	>3 Years
Central North	0	35.8	41.4	22.8
Central South	1.8	39.0	31.8	27.4
Gaborone	0	22.6	26.0	51.4
Northern	0	24.5	33.4	42.0
South Central	0	47.1	22.3	30.6
Southern	1.5	42.7	23.0	32.8
Western	2.6	20.1	61.0	16.3
Botswana	**0.8**	**36.1**	**32.2**	**30.8**

Table 4.3b: Teacher training of mathematics teachers by region

Region	% of Standard 6 Mathematics Teachers by years of teacher training completed			
	1 Year	2 Years	3 Years	>3 Years
Central North	0	40.0	36.0	24.0
Central South	1.8	35.6	28.2	34.4
Gaborone	0	26.4	21.8	51.8
Northern	0	32.5	31.6	35.9
South Central	0	45.4	24.9	29.7
Southern	1.5	37.3	22.8	38.3
Western	2.6	13.8	70.7	12.9
Botswana	**0.8**	**35.4**	**31.4**	**32.3**

Table 4.3b above shows that at least 36.2% of standard 6 pupils of 2007 were taught mathematics by teachers who had received only 2 years of training or less. As for health teachers, the number of students taught by teachers who were trained for at most 2 years was 37.6% (see Table 4.3c below). These teachers may hold the Primary Teaching Certificate (PTC) qualification, which is a two year program. The other educational qualification offered by the Botswana colleges of education is the Diploma in Primary Education (DPE), which takes 3 years. In an attempt to improve the quality of

primary teachers, the Government of Botswana has raised the minimum requirement for teaching in primary schools to the 3-year DPE qualification (RNPE, 1994).

Table 4.3c: Teacher training of health teachers by region

Region	% of Standard 6 Health Teachers by years of teacher training completed			
	1 Year	2 Years	3 Years	>3 Years
Central North	0	34.4	43.0	22.6
Central South	1.8	38.1	30.0	30.1
Gaborone	0	28.3	22.6	49.1
Northern	0	27.1	39.7	33.2
South Central	0	47.0	24.2	28.8
Southern	1.5	47.5	21.8	29.2
Western	2.6	15.2	69.1	13.2
Botswana	**0.8**	**36.8**	**33.2**	**29.1**

Teachers who have completed more than 3 years of training are probably degree holders. In Botswana, a Bachelors degree in Primary Education (B.Ed – Primary) is a 4 year programme. The Western region has the lowest number of teachers holding higher qualifications of teaching at primary level. It is important to ensure that highly qualified teachers are equitably distributed across the country.

Policy Suggestion: Department of Teaching Service Management should ensure equitable distribution of highly qualified teachers of primary schools across the regions in the country.

Teacher experience

Teaching experience was grouped in five-year intervals from 1 year of experience to 26 or more. Tables 4.4a, 4.4b and 4.4c present the percentage of pupils taught by teachers with different levels of experience for the different subjects.

There is a significant proportion of teachers in all of the experience categories, except “greater than 26 years”. This could imply that many teachers leave the teaching profession after teaching for 16 – 20 years, either to pursue other jobs or to retire. However, the national aggregate data mask large regional differences. For example, the majority of teachers from the Western region have only 1-5

years of experience. The same phenomenon is observed with the teachers of mathematics and health, as shown in Tables 4.4b and 4.4c. It is worth noting that the West region has more rural villages and settlements than the other regions. For teachers to be retained in this region, the issue of incentives was raised in the European Development Fund (EDF) 9 Education and Training Sector Policy Support Programme's Joint Annual Appraisal recommendation **2.2.4** perhaps needs to be considered.

Table 4.4a: Standard 6 Reading teacher experience by region

Region	% of Standard 6 Reading Teachers by number of years of teaching					
	1-5	6-10	11-15	16-20	21-25	≥26
Central North	20.2	36.3	12.7	20.5	6.4	3.8
Central South	23.4	19.5	17.3	24.0	9.5	6.2
Gaborone	9.3	7.2	25.5	38.7	14.2	5.2
Northern	18.5	16.6	24.9	28.3	10.2	1.5
South Central	9.6	13.9	18.2	38.1	12.3	7.9
Southern	25.0	21.5	16.0	11.3	23.5	2.7
Western	52.6	14.9	12.6	19.8	0.0	0.0
Botswana	**21.1**	**19.5**	**17.6**	**25.9**	**11.4**	**4.6**

Table 4.4b: Standard 6 Maths teacher experience by region

Region	% of Standard 6 Mathematics Teachers by their number of years of teaching					
	1-5	6-10	11-15	16-20	21-25	≥26
Central North	20.2	36.3	12.7	20.5	6.4	3.8
Central South	23.4	19.5	17.3	24.0	9.5	6.2
Gaborone	9.3	7.2	25.5	38.7	14.2	5.2
Northern	18.5	16.6	24.9	28.3	10.2	1.5
South Central	9.6	13.9	18.2	38.1	12.3	7.9
Southern	25.0	21.5	16.0	11.3	23.5	2.7
Western	52.6	14.9	12.6	19.8	0.0	0.0
Botswana	**21.1**	**19.5**	**17.6**	**25.9**	**11.4**	**4.6**

Table 4.4c: Standard 6 Health teacher experience by region

Region	% of Standard 6 Health Teachers by their number of years of teaching					
	1-5	6-10	11-15	16-20	21-25	≥26
Central North	20.2	36.3	12.7	20.5	6.4	3.8
Central South	23.4	19.5	17.3	24.0	9.5	6.2
Gaborone	9.3	7.2	25.5	38.7	14.2	5.2
Northern	18.5	16.6	24.9	28.3	10.2	1.5
South Central	9.6	13.9	18.2	38.1	12.3	7.9
Southern	25.0	21.5	16.0	11.3	23.5	2.7
Western	52.6	14.9	12.6	19.8	0.0	0.0
Botswana	**21.1**	**19.5**	**17.6**	**25.9**	**11.4**	**4.6**

Chapter 5

Characteristics of School Heads and their Views on Education Infrastructure, Organisation, Operation of Schools and Problems

5.1 Introduction

This chapter serves to provide personal information about school heads who participated in the SACMEQ III project, as well as their views on school organisation, operation, infrastructure, and problems experienced with both pupils and teachers. Information will be provided on age and gender of school heads, their academic and professional qualifications, years of experience as school heads and as teachers, views on conditions of school infrastructure, daily activities such as teaching, school and community relations, pupil performance, availability of school policies and procedures for addressing problems of pupils and teachers. All of these aspects are thought to be important in respect to school management.

The analysis on the gender distribution of school heads is meant to provide information on how males and females progress to senior positions in the teaching field. Gender equality in teacher management and gender equity in teacher progression are both important considerations for the Government of Botswana. The academic and professional qualifications of school heads are believed to be key factors for the effective management of schools .School heads should also be able to guide, mentor and coach teachers in their field of work and should be qualified as teachers themselves. They should also be aware of the latest reforms being implemented in order to improve on the performance of their schools. In-service and managerial courses for school heads are important as these are expected to enhance school heads' performance and their planning skills to guide the day to day activities of the school. Furthermore, for a school to achieve its objectives requires a positive relationship between the school team and the community where the school is located. The school infrastructure should also be in good condition with all essential resources in place. It should be noted that the information provided is as of September 2007 and is therefore no longer current, i.e. some school heads may have retired or left the teaching profession and the newly promoted may be of a different gender, age, or academic/professional qualification. Since the

SACMEQ III project in 2007, the Government of Botswana has increased its provision of school resources and thus the situation on the ground may be slightly different to that reported in the SACMEQ data. Also, because the number of school heads sampled is relatively small, sampling errors may be quite large, particularly when smaller areas (e.g. regions) are considered, thus the precision of estimates may not always be great.

Therefore to provide information on all of the above, the analysis will focus on four major questions:

1. What were the personal characteristics of school heads (for example, age, and gender)?
2. What were their professional characteristics (in terms of academic and professional preparation, experience and specialised training)?
3. What were their views on general school infrastructure (for example, electrical and other equipment, water, and basic sanitation) and the condition of school buildings?
4. What were their views on (a) daily activities (for example, teaching, school-community relations, and monitoring pupil progress), (b) organisational policies (for example school magazine, open days, and formal debates), (c) inspections, (d) community input, and (e) problems with pupils and staff (for example, pupil lateness, teacher absenteeism, and lost days of schools)?

5.2 Personal characteristics of school heads

This section of the chapter provides information on the age and gender of school heads for all the schools in the SACMEQ III project. It is important to know the age distribution of school heads as this provides an indication of the predominant age groups (young or old) that fill this position and can also inform Ministry management on the number of school heads who are in the retirement category.

Figure 5.1 shows that, in all the regions except Central South, more than half of all standard 6 pupils in the SACMEQ III project were in schools where the school heads were females. The national average shows that 64.3 percent of pupils were in schools where the heads were female. This is a clear indication that more women than men progress to higher teaching positions, although

in the Central South and West regions the difference in female and male school heads were minimal. There were large female majorities for school heads in the South region (80.9 percent of children were in schools where heads were female), the North region (75.6 percent), and South Central region (72.2 percent). In Botswana, the primary school teaching profession time has for a very long time been dominated by women. When comparing SACMEQ II to SACMEQ III results, it is found that there was a further increase in female school heads in SACMEQ III in most regions except for Gaborone and West. The percentage of female school heads declined from 85.2 percent in SACMEQ II to 64.5 percent in SACMEQ III in Gaborone region and from 60.3 percent to 54.6 percent in the West region.

Figure 5.1: Gender of school heads by region

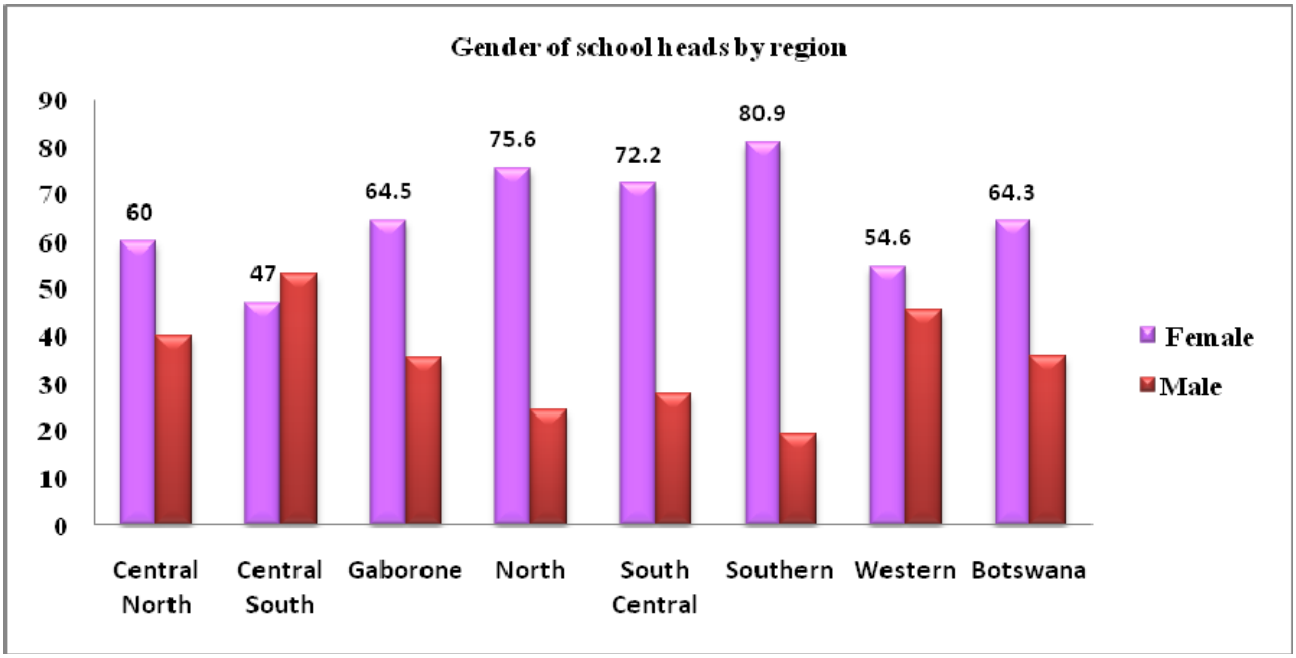
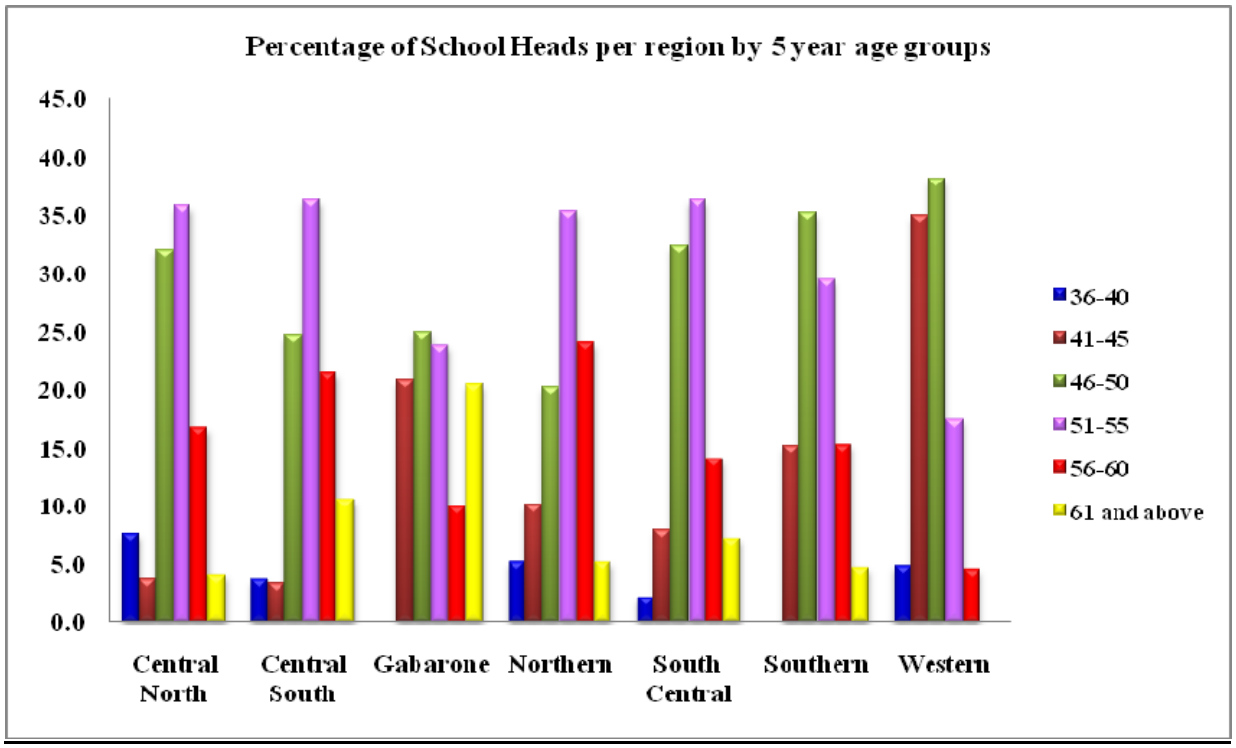


Figure 5.2 shows that in five out of seven regions (Central North, Central South, North, South Central and West), the largest proportion of school heads were aged 36 – 40 years. Only in the Southern and Western regions were there more school heads in aged between 46 and 50 years.

Figure 5.2: SACMEQ III School Heads by 5 year age- groups per region



5.3 Professional characteristics of school heads

What were the professional characteristics of school heads (in terms of academic and professional preparation, experience and specialised training)?

This section of the chapter provides information by regions on the professional qualifications of school heads in SACMEQ III. Among other things the analysis will be on the academic qualification, years as a teacher, and years of teacher training the school head had completed. It is also important to report on the proportion of school heads who had undergone specialised training in school management as well as on HIV/ AIDS issues. Furthermore the discussion in this section will cover staff/ teachers' post secondary academic qualifications. The aim is to determine the distribution of human resources across regions. It is also important to know how much is being done on professional training of school heads to equip them with skills to enable them to perform their duties effectively.

Table 5.1: Percentage of pupils in schools with desirable human resources by regions

Desirable Human Resources in Schools-School Heads							
	1 year or more of teacher training	Sch. Head Educ. – Senior Sec. or more		Sch. Head. Mngt. Course		Sch. Head HIV and AIDS Course	
Regions	**%**	**%**	**SE**	**%**	**SE**	**%**	**SE**
Central North	100	59.4	10.28	61.4	10.38	64.8	10.27
Central South	100	35.6	9.22	71.3	8.73	74.7	8.41
Gaborone	95	64.9	10.97	75.8	9.74	70.2	10.48
North	100	49.0	11.48	80.5	9.01	75.9	9.70
South Central	100	53.7	9.63	72.6	8.56	74.7	8.42
South	95	20.2	9.26	59.7	11.28	55.1	11.42
West	100	14.6	8.05	65.4	10.95	75.1	9.94
Botswana	99	**43.1**	**3.88**	**68.9**	**3.83**	**69.8**	**3.79**

Table 5.1 provides information on school head qualifications (academic and professional). It is desirable for any school head to have undergone some form of academic training, e.g. secondary education as well as professional training such as teacher training and management courses. Higher secondary education for teachers is believed to be very important. The education policy emphasizes upgrading primary school teaching qualification from certificate to diploma level; across many institutions in the country, for someone to qualify for entry into diploma courses he/ she should have completed some secondary education, preferably senior secondary. Thus the absence of secondary education of teachers or principals constrains their further training and upgrading of their professional qualifications.

On the issue of teacher training, it is expected that every teacher, including school heads, should have undergone one year or more of teacher training. Management courses are also important since they teach the school head how to manage pupils, teachers, support staff and other resources, effectively. There is also a need for school heads to undergo specialised courses on HIV/ AIDS, given the importance of the pandemic to all sectors of the school system. All in all it is critical to empower school heads with knowledge and skills so that they can mentor, guide, coach and empower their teachers and pupils.

Table 5.1 shows that almost all pupils are in schools where the school heads had undergone one or more years of teacher training. Yet it is concerning that most school heads surveyed in SACMEQ

III did not have a senior secondary qualification or more, despite improvement from SACMEQ II across all regions except for the North region, where there was a slight decline in school heads with senior secondary qualification or more. More than 50 percent of pupils in all the SACMEQ III regions were in schools where the school heads had taken a management course and a special course on HIV/ AIDS. The percentage of pupils with school heads who had attended a management course increased from SACMEQ II in all the regions except for the West region. South region had the lowest percentage of school heads that had senior secondary or more, who had attended a school head management course, as well as the lowest percentage of school heads who had attended an HIV/ AIDS course.

Table 5.2: Distribution of teaching experience of school heads

	Numbers of years of teaching for school heads				
	≤10 years	**11 to 15 years**	**16 to 20 years**	**21 to 25 years**	**26 years +**
Regions	%	%	%	%	%
Central North	0.0	0.0	19.1	20.7	60.2
Central South	0.0	0.0	3.7	17.3	79.0
Gaborone	4.9	0.0	5.1	25.6	64.4
North	0.0	0.0	5.2	19.9	74.8
South Central	2.1	4.1	3.5	18.4	71.8
South	0.0	0.0	0.0	25.2	74.8
West	0.0	4.9	16.9	57.9	20.3
Botswana	**0.9**	**1.3**	**7.1**	**24.0**	**66.7**

Table 5.2 summarises the number of years of teaching for school heads in SACMEQ III schools in 2007. The number of years of teaching includes the number of years as school head. The results reveal that two-thirds of the standard 6 pupils were in schools where the school heads had 26 years or more of teaching experience. This was the general situation across the regions, except for the West region, where this was only 20.3%. The percentage of pupils in schools where school heads had more than 26 years of teaching experience ranged from 60.2 percent in Central North to 74.8 percent in North region. This considerable experience of school heads should ensure, all things being equal, that most of the school heads should be equipped with teaching skills to mentor, coach, guide and develop their teachers.

Table 5.3: Percentage of pupils in schools with desirable physical resources by regions

Regions	Desirable Physical Resources: Satisfactory Building Conditions		School Head Office		Staff Room		Electricity		School Fence	
	%	SE	%	SE	%	SE	%	SE	%	SE
Central North	71.5	9.41	83.6	7.71	75.9	8.85	72.5	9.20	92.5	5.26
Central South	67.5	9.05	78.5	7.92	70.9	8.79	89.3	5.95	89.6	5.79
Gaborone	75.7	9.76	89.8	7.02	85.4	8.05	100.0	0.00	84.8	8.27
North	70.6	10.41	85.4	8.04	65.5	10.89	95.1	4.94	90.5	6.59
South Central	50.8	9.66	75.3	8.28	69.5	8.80	96.5	3.51	82.2	7.36
South	76.0	9.68	75.2	9.90	80.3	9.09	74.8	10.00	95.3	4.69
West	67.0	11.14	66.6	10.76	85.4	8.02	81.6	8.65	85.2	8.12
Botswana	67.0	**3.83**	**78.8**	**3.35**	**75.2**	**3.54**	**86.7**	**2.70**	**88.6**	**2.55**

Table 5.3 shows that more than 60 percent of pupils in Botswana were in schools with desirable physical resources such as good building conditions, availability of an office for the school head, a staff room, electricity, tap water and school fence. The same situation was observed during the SACMEQ II study. Although a good number of schools had the desirable resources, it should be noted that there were a few schools which did not have adequate physical resources and therefore there remains a need for the Ministries of Education and Local Government to ensure that such schools are provided with more resources to ensure a conducive teaching and learning environment.

5.4 Conclusion

It has been observed that most SACMEQ III standard 6 pupils in Botswana were in schools where school heads were mainly females aged 46-55 years. Even in SACMEQ II most school heads were females, with an average age 50 years. Almost all SACMEQ III school heads had one year or more teacher training qualification, with 43.1 percent of them having completed senior secondary or more. To enable their performance and ensure quality in their day to day running of the school, 68.9 percent of the school heads had attended management courses. One the other hand, given the importance of HIV/ AIDS in Botswana, it is worrying that only 69.8 percent of school heads surveyed in SACMEQ III reported that they had attended training courses on HIV/ AIDS. These courses are normally meant to equip management with the skills needed to mitigate the impact of

the pandemic in schools. Most school heads (66 percent) were long service teachers with 26 years of teaching experience including those years as school head, which is similar to what was found in SACMEQ II.

Chapter 6
Provision of School Resources

6.1 Introduction

The Ministry of Education and Skills Development is committed to increasing access to primary education as well as the general quality of education in the country. To ensure this the Ministry strives for equitable distribution of education resources across the regions in the country. These resources include qualified teachers (including school heads), classrooms, classroom resources, well equipped school libraries, maintained school infrastructures such as pupils' toilets, teachers accommodation, sporting grounds, availability of water and electricity in schools, etc.. To achieve this, the Ministry has clearly stipulated the standard requirements for resources in primary schools in Recommendations 14 and 15 of the Revised National Policy on Education 1994.

Recommendation 14 of the Revised National Policy on Education (1994) clearly stipulated that a standard primary school should have (as a minimum) the following resources:

- An adequate number of classrooms up to a maximum of 22.
- An administration block with office space for the school head, deputy school head, typist, staff room and two storerooms for storage of books and pupils food.
- A library equipped with library books.
- A resource centre.
- A fully equipped science room.
- A sports field for various sporting activities.
- Teachers' housing with a minimum of 2 bedrooms (each teacher should be provided with accommodation).
- Adequate toilet facilities, including provision for the disabled.
- Typewriters/ computers, photocopiers.

Further in Recommendation 15 the policy states that to increase access and equity in primary schools, the Ministry should build more special schools for the disabled and improve the care, supervision and support for these children in primary school hostels in order to reduce school drop-outs in such schools. Furthermore, through the social welfare services the government has come up with the initiatives of providing the orphans, needy and vulnerable children with basic needs such as clothes, school uniforms, payment of any school fees that may be requested from parents, e.g. sports and development fees, food at and after school, etc. All this is meant to boost children's dignity and ensure that they have access to education.

6.2 Provision of school resources by region

The variables listed in Table 6.1 are key human resources that are believed to impact significantly on pupil performance. It is desirable that teachers should be trained in the subjects they teach, have sufficient knowledge of these subjects, should also have regular class attendance, and the class size should also be no more than 40 pupils per class. The results in Table 6.1 above show that 64 percent of standard 6 pupils were being taught reading by teachers who had reached a desired level of subject knowledge, while only 41.2 percent were taught mathematics by teachers with the desired subject knowledge. The highest percentage of pupils with teachers with desired knowledge in reading was in West region (86%) followed by Gaborone (74.6). South Central region was the lowest in terms of percentage (55.9%) of pupils being taught by teachers with desired knowledge in reading.

In all the regions except for Central North, more than 50 percent of pupils were being taught by teachers who had not reached an adequete level of mathematics knowledge. The percentages of pupils taught by teachers with desired knowledge in mathematics ranged from South Central region with 29.6 percent to North region with 46.5 percent and Central North region with 63.0 percent.

Table 6.1: Percentage of pupils per region in schools with desirable human resources

	Desirable Human Resources in Schools							
	Reached desired teacher subject knowledge in reading		Reached desired teacher subject knowledge in mathematics		Acceptable class size (≤ 40)		Teacher class attendance	
Regions	%	SE	%	SE	%	SE	%	SE
Central North	61.5	9.37	63.0	9.10	100.0	0.00	88.1	6.63
Central South	56.2	7.97	32.5	7.00	100.0	0.00	93.0	4.89
Gaborone	74.6	7.23	35.3	8.70	100.0	0.00	100.0	0.00
North	63.4	7.78	46.5	8.39	100.0	0.00	90.1	6.84
South Central	55.9	6.27	29.6	6.27	100.0	0.00	86.1	6.59
South	68.6	8.25	45.7	10.01	100.0	0.00	90.0	6.86
West	86.3	3.84	42.8	8.06	100.0	0.00	90.1	6.84
Botswana	**64.0**	**3.05**	**41.2**	**3.18**	**100.0**	**0.00**	**90.5**	**2.41**

The table shows that all standard 6 pupils in Botswana were in classes that did not exceed 40 pupils. A relatively low pupil-teacher ratio ensures that pupils have sufficient access to their teachers,

which is vital for pupil learning. However, it should be noted that there are many other factors that affect pupil learning, including adequate teaching resources, teacher qualification and teacher skills. Importantly, Botswana has managed to decrease average class sizes across the country. Further evidence is provided by the 2007 National Education Statistics report, which revealed that the country's average pupil teacher ratio was at 25 pupils per teacher.

Given the still inadequate subject knowledge of many teachers, it appears as if there is need for strategic in-service training for reading and mathematics teachers. This will help teachers to acquire required knowledge of these subjects and in the end impact positively on pupil learning.

Policy Suggestion:

1. Department of Teacher Training and Development in collaboration with Department of Pre and Primary Education should intensify in-service training on mathematics and reading for primary school teachers.
2. The other option is to implement subject specialisation at primary school level. This will allow teachers to teach as per their lines of subject competency.

Chapter 7

Reading and Mathematics Achievement and HIV and AIDS Knowledge Levels of Pupils and their Teachers

7.1 Introduction

This chapter presents the scores of pupils and their teachers in Mathematics and Reading tests. The test scores of the present study are compared with those of SACMEQ II to determine if there has been an improvement in standard 6 pupil achievement between 2000 and 2007 (SACMEQ III). As is indicated in the SACMEQ II (2005) report, SACMEQ studies focus on literacy and numeracy because these are the most important goals of primary education. The study further assessed pupils and their teachers' knowledge on HIV and AIDS. Knowledge about HIV and AIDS and the ability to manage the pandemic are viewed as some of the most important factors for the country's socio-economic development (Botswana National Policy on HIV and AIDS, 1998). It is crucial that as pupils progress through the foundation of basic education they learn about HIV and AIDS. The current analysis shows both achievements and problems regarding the knowledge and skills that pupils had acquired towards the end of their primary education. This report also highlights the level of discrimination and stigmatization among students with respect to persons infected with HIV. The extent at which primary school teachers and school heads are risk prone to HIV infections was also assessed in the present analysis.

Analysis of the data indicates overall improvements in pupil achievements in both mathematics and reading between 2000 and 2007. Counter to this trend, South and South Central regions recorded declines. Another observation is that pupils in the cities performed much better than those in rural areas. The impact of socio-economic status on student performance has been highlighted in previous reports (Botswana SACMEQ II report, 2000; TIMSS report, 2007), and this report also focuses on this impact. A trend in pupils' performance by gender is still an area of interest in this analysis, just as it was in SACMEQ II (2000).

7.2 Pupil reading scores

Table 7.1a below shows pupils' mean scores for reading for SACMEQ II (2000) and SACMEQ III (2007). Comparison of the scores indicates whether there has been improvement in standard 6 pupils' reading skills between 2000 and 2007.

Table 7.1a: Means and sample errors for reading test scores of pupils for SACMEQ II and SACMEQ III

	Reading mean scores SACMEQ II (2000)		Reading mean scores SACMEQ III (2007)		Change (2000– 2007)
Region	Mean	SE	Mean	SE	Mean Change
Central North	506.1	6.56	552.4	10.99	46.3
Central South	498.7	6.15	527.1	7.50	28.4
Gaborone	577.2	14.67	603.2	13.02	26.0
North	530.0	8.85	545.3	7.08	15.3
South Central	531.9	9.43	523.9	9.36	-8.0
South	523.4	9.90	501.0	4.91	-22.4
West	504.9	6.76	514.8	5.36	9.9
Botswana	521.1	3.46	534.6	3.51	13.5
SACMEQ	500.0	1.16	509.7	1.23	9.7

The national mean reading score for standard 6 pupils was 534.6 in 2007, which was higher than the SACMEQ average and an improvement from SACMEQ II, when the reading score for Botswana was 521.1. This increase in the overall mean score was the net effect of most provinces improving. Of all the regions where student reading scores improved, the Central North region registered the highest increase of mean reading score, which was a full 46.3 points. Other regions that experienced strong improvement were Central South and Gaborone. The average score in the South Central and South regions decreased by 8.0 points and 22.4 points respectively, but the small decline in South Central was not statistically significant. (To be 95% confident that there really has been a decline, the decline must be larger than approximately twice the sampling error.) The quite substantial decrease in South is worrying, though, as it has now fallen well behind the countrywide average and a full standard deviation below the mean scores in Gaborone. As a result of this, regional differences in Botswana have widened between 2001 and 2007.

Generally speaking, pupils in the South and West regions have a low socio-economic status and few learning resources at their homes (especially books), as has been reflected in Chapter 3 of this report. The implication is that pupils' access to reading material is very limited in these dominantly rural regions. It thus seems appropriate that the Department of Curriculum Development and Evaluation (DCDE) should give special attention to providing more material to school libraries in the South and West regions, in order to increase pupils exposure to rading material.

Policy Suggestion: Ministry of Education and Skills Development's (MoESD) Department of Curriculum Development and Evaluation should prepare more material that can enhance reading English language for the libraries of the schools in the rural areas.

Analysis of reading test scores by socio-economic levels further confirms that pupils from low socio-economic status perform considerably worse than those from higher socio-economic status backgrounds, as reflected in Table 7.1b. While it is not disputed that a higher socio-economic status provides a better learning environment, it is has been demonstrated that the teaching-learning style has a significant influence on the learning outcomes (Unterberg 2003). Therefore, the research team would like to suggest that Department of Teacher Training and Development (MoESD) embarks on coming up with teaching-learning strategies that would assist in closing the gap, on reading skills, that exists between pupils coming from different socio-economic classes. One could further suggest that the teaching strategies that would best suit the pupils in rural areas be considered.

Table 7.1b further indicates that mean test scores for reading is higher for girls than for boys. However, both boys and girls have scored higher mean reading scores than the SACMEQ III mean score for reading. Girls have scored reasonably higher than the boys in both tests for SACMEQ II and SACMEQ III. As mentioned in the SACMEQ II Botswana Report (2005), there is more of an element of late maturity in boys than in girls. Nevertheless, deliberate efforts are required by the Department of Teacher Training and Development (MoESD) to ensure greater learning of reading amongst boys. A related suggestion was also made by the Botswana Examinations Council in their Standard Four Assessment report of 2007. The Botswana Examination Council (2007) observed that, from primary school until the first year of secondary education, in Botswana, girls perform significantly better than boys in all subjects (TIMSS report of 2007).

Table 7.1b: Means for reading test scores for SACMEQ II and SACMEQ III, and changes in the reading scores of pupils by sub groups

	Reading mean scores SACMEQ II (2000)		Reading mean scores SACMEQ III (2007)		Change (2000– 2007)
	Mean	SE	Mean	SE	Mean change
Pupil gender					
Boys	507.2	3.92	519.7	5.06	12.5
Girls	534.4	3.60	549.4	4.53	15.0
School location					
Rural	502.4	3.36	508.1	4.85	5.7
Urban	539.1	5.68	559.5	6.99	20.4
Socioeconomic levels					
Low SES (bottom 25%)	490.8	3.75	474.4	5.30	-16.4
High SES (Top 25%)	573.1	8.30	583.6	5.82	10.5
Botswana	521.1	3.46	534.6	4.57	13.5
SACMEQ	500.0	1.16	509.7	1.23	

7.3 Teacher reading scores

Reading scores for Botswana teachers in all regions are above the SACMEQ III mean reading scores for teachers (Table 7.2). Comparison of SACMEQ II and SACMEQ III mean scores indicates that there has been an increase in the mean reading scores for teachers across the regions, except for the South Central region. Teachers in the West region have scored the highest mean reading score of 790.5. It is interesting to note that while pupils in the West region have been among the worst performing in reading in both SACMEQ II and SACMEQ III, teachers in this region achieved the highest mean scores in both SACMEQ II and III. There may be a greater challenge of imparting skills from teachers to pupils in such areas where conventional learning opportunities are limited. This may further suggest that the Department of Teacher Training and Development conduct more in-service training to empower teachers on imparting skills to disadvantaged pupils.

Table 7.2: Mean teacher reading scores (SACMEQ II and SACMEQ III) and changes in the mean reading scores of teachers by region

Region	Teacher reading score 2000		Teacher reading score 2007		Change (2000 - 2007)
	Mean	SE	Mean	SE	
Central North	760.7	6.14	778.2	17.06	17.5
Central South	739.8	5.73	756.7	8.56	16.9
Gaborone	763.6	11.86	785.4	14.82	21.8
North	765.7	12.49	767.7	8.21	2.0
South Central	760.5	9.85	759.6	9.02	-0.9
South	759.1	12.97	765.8	9.87	6.7
West	771.6	7.96	790.5	7.70	18.9
BOTSWANA	**757.7**	**3.69**	**769.0**	**4.45**	11.3
SACMEQ	**733.9**	**1.47**	**749.7**	**1.32**	15.7

7.4 Pupils reaching various reading competency levels

Eight levels of reading competence were used to assess the performance of pupils. These levels are discussed in Chapter 2 of this report. The skills range from poor reading skills (pre-reading, emergent reading and basic reading) to acceptable reading skills (reading for meaning, interpretive reading, inferential reading, analytical reading and critical reading). The prevalence of poor and acceptable reading skills is shown by region in Table 7.3.

Table 7.3: Percentage of pupils, in standard 6 who have reached "poor reading skills" or "acceptable reading skills" by region (SACMEQ II & SACMEQ III)

Region	Poor reading skills (levels 1-3), SACMEQ II	Poor reading skills (levels 1-3), SACMEQ III	Acceptable reading skills (levels 4-8), SACMEQ II		Acceptable reading skills (levels 4-8), SACMEQ III		Change in acceptable reading skills
	%	%	%	SE	%	SE	%
Central North	30.7	17.2	69.3	3.13	82.8	2.88	13.5
Central South	36.9	25.8	63.1	3.25	74.2	3.37	11.1
Gaborone	11.8	10.6	88.2	2.43	89.4	2.47	1.2
North	21.5	18.0	78.5	3.54	82.0	2.68	3.5
South Central	20.3	27.2	79.7	2.57	72.8	3.57	-7.0
South	23.5	36.3	76.5	3.23	63.7	3.78	-12.9
West	30.6	26.6	69.4	4.88	73.4	2.60	4.0
BOTSWANA	26.2	24.2	**73.8**	**1.27**	**75.8**	**1.32**	2.0

Table 7.3 shows that there has been a decrease in the number of pupils who acquired acceptable reading skills in the South and South Central regions, with pupils in the South region registering the largest decline (12.9%) and also a large increase in the proportion with poor reading skills. It is important to note that the South region has many rural and remote areas. It has already been highlighted earlier in this chapter that special attention needs to be given to specific regions since a number of studies have indicated specific peculiarities for the different regions in the country. Different departments in the MoESD should ensure that the peculiarities of the regions are addressed in the deployment of resources.

7.5 Teachers reaching various reading competency levels

It is important that the subject knowledge and specifically reading competence levels of teachers is also assessed. The percentage of teachers reaching acceptable reading competences for SACMEQ II and SACMEQ III is shown in Table 7.4.

Table 7.4: Percentage and sampling errors of teachers reaching acceptable competences in reading

Region	Teachers reaching Acceptable reading skills (2000) Levels 4-8		Teachers reaching Acceptable reading skills (2007) Levels 4-8	
	%	SE	%	SE
Central North	100.0	0.00	98.5	1.51
Central South	100.0	0.00	100.0	0.00
Gaborone	100.0	0.00	100.0	0.00
North	100.0	0.00	100.0	0.00
South Central	100.0	0.00	100.0	0.00
South	100.0	0.00	100.0	0.00
West	100.0	0.00	100.0	0.00
BOTSWANA	**100.0**	**0.00**	**99.8**	**0.25**
SACMEQ	**99.6**	**0.07**	**99.9**	**0.06**

In the 2000 SACMEQ II study, all teachers had an acceptable level of reading skills (Table 7.4). Similarly, in SACMEQ III, almost all teachers reached the acceptable competence level (the small deviation in the North Central region is not statistically significant). Achievement of reading skills

for teachers may not necessarily ensure that pupils would achieve more: Other factors such as teaching-learning styles are also important for an impact on pupils' acquisition of skills.

7.6 Pupil mathematics scores

Mathematics performance of pupils was also assessed. The mean scores by region are presented in Table 7.5a below.

Table 7.5a: Means and sample errors for mathematics test scores of pupils for SACMEQ II and SACMEQ III by region

Region	Mathematics mean scores		Mathematics mean scores		Change in the Mathematics scores
	SACMEQ II (2000)		SACMEQ III (2007)		(2007 score – 2000 score)
	Mean	SE	Mean	SE	
Central North	506.2	5.56	538.1	10.99	31.9
Central South	497.2	6.98	514.5	7.50	17.2
Gaborone	542.9	14.37	569.3	13.02	26.4
North	512.3	6.01	520.5	7.08	8.2
South Central	526.1	8.00	513.2	9.36	-12.8
South	509.8	8.31	496.1	4.91	-13.7
West	506.4	6.81	506.1	5.36	-0.2
Botswana	512.9	3.14	520.5	3.51	7.7
SACMEQ	500.0	1.16	509.7	1.23	9.7

The table shows that mathematics performance improved very little between 2001 and 2007, and that Botswana was performing just above the SACMEQ III mean for all 15 countries. Pupils in Gaborone region have performed relatively better in the mathematics tests than other regions in both SACMEQ II and SACMEQ III. It also recorded the largest improvement in mean mathematics score of 26.4 points, thus widening regional disparities. Pupils in the South and West regions performed relatively poorly in both SACMEQ II and SACMEQ III. Their mean test scores for mathematics are below the national average. The mean mathematics score in the South region is also below the SACMEQ III average. South and West regions are more rural areas and removed from the major population concentrations in the east (National Development Plan 10, 2009), which could contribute to their relative neglect compared to the more densely populated eastern part of the country (NDP 10, 2009).

Table 7.5b: Means and sampling errors for mathematics test scores of pupils by subgroups, and change in the mean test scores from SACMEQ II to SACMEQ III

	Mathematics mean scores SACMEQ II (2000)		Mathematics mean scores SACMEQ III (2007)		Change (2000– 2007)
	Mean	SE	Mean	SE	
Pupil gender					
Boys	508.2	3.29	517.5	3.95	9.3
Girls	517.4	3.51	523.6	3.51	6.2
School location					
Rural	500.5	3.72	501.1	3.30	0.6
Urban	524.8	4.92	538.8	5.61	14.0
Socioeconomic levels					
Low SES (bottom 25%)	490.8	4.35	479.0	4.40	-11.8
High SES (Top 25%)	549.6	7.49	553.1	5.09	3.5
Botswana	**512.9**	**3.14**	**520.5**	**3.51**	**7.6**
SACMEQ	**500.0**	**1.16**	**509.7**	**1.23**	**9.7**

Table 7.5b indicates that even in mathematic girls score slightly higher than boys, though this difference is not statistically significant; that pupils in urban centres scored significantly higher than those in rural areas, but that they did not perform as much better than the SACMEQ average as they did in reading, indicating a smaller advantage in mathematics than in reading; and that, as in reading, those who come from families with higher socio-economic status scored much higher than those from lower socio-economic status. As a high percentage of pupils from low socio-economic status families were recorded in the South and West regions of Botswana, it is not surprising that pupils in these regions performed the worst of all regions (Table 7.5a). The recommendation of the National Development Plan 10 (2009) that infrastructure and services in the rural areas be improved would therefore also bring educational benefits to these areas.

Policy Suggestion: Ministry of Local Government should improve infrastructure of primary schools in rural areas in the South and West regions of the country, and Department of Curriculum Development and Evaluation as well as Department of Teacher Training and Development should ensure that services offered in schools in the rural areas are improved.

One way of improving educational outcomes in the most rural areas could be the implementation of multi-grade teaching, as recommended in the 2008 Joint Annual Appraisal report (Recommendation

2.2.6). This would allow smaller schools closer to pupils' homes in isolated rural regions. If pupils attend schools located in their settlement rather than having to travel long distances to schools or staying in hostels, parental involvement in pupils' school work would be higher and pupils would be able to attend school activities more often. This could assist in improving performance.

Other resources that the Ministry of Education and Skills Development can utilize in the South and West regions, where there are more rural areas and low socio-economic status, are teacher assistants (Draft on Inclusive Education Policy for Botswana, 2010). This development is crucial, considering that English is a third language for a reasonable number of pupils in these regions and some may still struggle to understand it even when they reach standard 6. Pupils' mother tongues in these regions include *Sesarwa, Sekgalagadi* and *Seherero*, to mention but a few. A teacher aide could help explain concepts in the pupils' first language, since the medium of instruction in Botswana schools is English (Draft on Inclusive Education Policy for Botswana, 2010).

7.7 Pupils reaching various mathematics competency levels

Pupils were also assessed on their competence in mathematics. Similar to the reading competency levels, mathematics competency levels ranged from *pre-numeracy* (level 1) to *abstract problem solving* (level 8). Pre-numeracy pupils (level 1) are able to apply single step addition or subtraction operations, recognize simple shapes, match numbers and pictures, and count in whole numbers. Pupils at the abstract problem solving level (level 8) are able to identify the nature of an unstated mathematical problem imbedded within verbal or graphic information and then translate the problem into symbolic, algebraic, or equation form in order to solve the problem.

Details of the competency levels are outlined in Chapter 2 of this report. The distribution of student competence according to poor and acceptable competency levels by region is shown in Table 7.6 below.

Table 7.6: Percentage of pupils reaching poor and acceptable mathematics competence levels by region

Region	Poor		Acceptable		Change in acceptable competence level
	SACMEQ II	SACMEQ III	SACMEQ II	SACMEQ III	
	%	%	%	%	%
Central North	68.0	45.7	32.0	54.3	22.3
Central South	71.5	58.5	28.5	41.5	13.0
Gaborone	51.6	34.9	48.4	65.1	16.7
North	64.4	54.2	35.6	45.8	10.2
South Central	58.0	62.4	42.0	37.6	-4.4
South	68.6	69.1	31.4	30.9	-0.5
West	68.0	62.5	32.0	37.5	5.5
BOTSWANA	64.9	56.5	35.1	43.5	8.4
SACMEQ	70.2	63.1	29.8	36.9	7.1

A high percentage (65.1%) of standard 6 pupils in Gaborone region had achieved acceptable mathematics competence levels in the SACMEQ III test. This is remarkable, considering that only 48.4% had achieved acceptable competence levels in SACMEQ II (2000). The results indicate that pupils living in the cities are doing better than those in other parts of the country. There are a number of urban centers like Tutume, Tonota, Selebi Phikwe and Bobonong located in the Central North region. This could have influenced the results observed in the region, where 54.3% of the pupils achieved acceptable mathematics competence levels. While there has been improvement in the percentage of pupils reaching acceptable competency levels in other regions, there has been a decline in the percentage of the pupils in the South Central and South regions achieving acceptable levels of mathematics competence.

7.8 Teacher mathematics scores

Mathematics mean test scores for teachers are as presented in Table 7.7 below

Table 7.7: Mean scores and sampling errors for mathematics for teachers by regions for SACMEQ II and SACMEQ III, and the change in mathematics scores between the two SACMEQ tests

Region	Teacher mathematics score SACMEQ II		Teacher mathematics score SACMEQ III		Change
	Mean	SE	Mean	SE	(2000 - 2007)
Central North	761.1	8.45	817.3	12.06	56.1
Central South	740.9	10.70	771.0	11.48	30.0
Gaborone	752.2	13.91	777.0	14.88	24.9
North	750.6	9.37	794.3	12.84	43.6
South Central	757.2	15.54	750.3	10.38	-6.9
South	758.1	14.87	783.6	17.56	25.5
West	756.0	11.89	786.4	17.96	30.4
BOTSWANA	**753.3**	**5.11**	**780.0**	**5.21**	26.7
SACMEQ	**791.6**	**2.23**	**789.0**	**1.89**	-2.7

According to the results presented in Table 7.7 above, the mean test scores for teachers in Botswana were below the SACMEQ mean for teachers. For SACMEQ II, all the mean test scores for the regions were below the SACMEQ mean. However, teachers in the North and the Central North regions managed to score mean test scores that were above the SACMEQ III mean test score. Since the Central North region far outperformed the other regions, it could serve as a benchmark for teachers from other regions wishing to enhance their mathematics skills.

Policy Suggestion: Regional Education Officers of Department of Pre and Primary Education together with those of the Department of Teacher Training and Development should organize in-service training aimed at enhancing teacher skills in mathematics to improve mastery of the subjects. This is especial;ly pertinent as some teachers are teaching subjects that were neither their major nor their minor during their professional training (Draft Report on Subject Specialisation, Botswana, 2010).

7.9 Teachers reaching acceptable mathematics competency levels

Table 7.8 shows the distribution of mathematics competency levels of teachers across Botswana's regions.

Table 7.8: Percentages and sampling errors of pupils taught mathematics by teachers at different mathematics competency levels by region

Region	Percentages of pupils taught by teachers reaching specific mathematics competency levels										Total
	Level 4		Level 5		Level 6		Level 7		Level 8		
	%	SE	%	SE	%	SE	%	SE	%	SE	%
Central North	0.0	0.00	0.0	0.00	8.7	4.19	39.8	8.61	51.4	9.38	100.0
Central South	1.3	1.33	0.0	0.00	24.8	5.83	46.1	7.45	27.8	6.79	100.0
Gaborone	0.0	0.00	3.2	3.20	14.8	7.22	58.5	9.07	23.5	8.27	100.0
North	0.0	0.00	0.0	0.00	13.8	5.50	41.4	8.64	44.8	8.36	100.0
South Central	1.2	1.15	2.9	2.07	37.0	6.57	37.3	6.04	21.6	5.62	100.0
South	2.4	2.39	7.1	5.46	12.4	6.35	34.3	8.13	43.8	9.64	100.0
West	0.0	0.00	10.6	6.38	11.7	4.76	37.3	9.48	40.5	8.38	100.0
BOTSWANA	**0.9**	**0.51**	**2.9**	**1.14**	**19.8**	**2.37**	**41.5**	**3.08**	**34.9**	**3.09**	100.0
SACMEQ III	**1.5**	**0.26**	**6.5**	**0.48**	**16.0**	**0.71**	**35.6**	**0.93**	**40.2**	**0.85**	99.8

It has been indicated earlier that levels 1 to 3 are poor competency levels and levels 4 to 8 are the acceptable competency levels. According to Table 7.8, all pupils in standard 6 classes of Botswana primary schools are taught by teachers that had demonstrated acceptable mathematics competency levels as defined for pupils in the SACMEQ III mathematics test. However, the competency levels vary from level 4 (basic numeracy) to level 8 (abstract problem solving). The number of pupils taught by teachers at the different mathematics competency levels varies across the regions (as is shown in Table 7.8).

The low competence levels of some teachers could be ascribed to the fact that teachers in Botswana primary schools teach all nine subjects in the primary curriculum, regardless of their own subject matter knowledge (Department of Pre and Primary Education, report on National Stakeholders Conference on Subject Specialisation, 2010). The Department of Pre and Primary Education has further indicated that their proposal to roll out subject specialization is supported by the findings of a study on subject specialization at primary schools conducted by the Ministry of Education and Skills Development's department of Curriculum Development and Evaluation in 2008. That study found that 70% of the teachers who participated rated 'subject specialization' as an effective strategy for teaching primary school level. In 1993, a team that was commissioned to review the entire education system of Botswana had observed that:

> "One factor that both teachers and the general public consider to affect the quality of teaching and learning at the primary level is the generalist teacher" (page, 126).

The commission had recommended that specialized teachers be introduced at higher levels of primary schools. They stated that it is important to adopt the strategy of using specialized teachers for a holistic education programme that will ensure a smooth transition to junior secondary school. This recommendation was adopted as is indicated in the Revised National Policy on Education' 1994, recommendation 24(c). The research team would like to recommend that the Department of Pre and Primary Education embark upon a concentrated effort to expedite recommendation 24(c) of RNPE 1994, so that primary school teachers could specialize in the subjects that they studied during their college training.

Policy Suggestion: Department of Pre and Primary Education in collaboration with Department of Teaching Service Management should make a concerted effort to ensure the implementation of recommendation 24(c) of the Revised National Policy on Education of 1994.

7.10 Pupil and teacher HIV and AIDS Knowledge levels

This section of the chapter presents the findings on the HIV-AIDS Knowledge Test (HAKT) results. The test was taken by pupils, teachers and the school head of the schools where data were collected. Variables that were assessed included HIV and AIDS knowledge by region, gender, socio-economic status and school location. Further, attitudes and risk perceptions towards HIV infection for the pupils, teachers and school heads were assessed.

HIV and AIDS knowledge levels by region, gender, socio-economic status and school location

Pupils' performance on the HAKT by region

Table 7.9: Mean scores for pupils' HIV-AIDS knowledge test and percentage of pupils reaching minimum and desirable levels of knowledge about HIV and AIDS

Region	PUPILS					
	Transformed score		Reaching minimum level		Reaching desirable level	
	Mean	SE	%	SE	%	SE
Central North	510.1	14.25	36.2	4.32	10.1	3.08
Central South	485.9	9.7	28	5.61	4.7	1.4
Gaborone	566.3	14.06	60.6	3.95	18.4	4.3
North	516	8.31	37.8	5.97	7.5	1.22
South Central	480.6	10.45	22.7	4.58	4.7	1.73
South	491.4	9.26	29.9	4.22	4.5	1.47
West	470.9	6.72	19.6	4.36	3.8	1.31
BOTSWANA	**498.9**	**4.32**	**31.9**	**2.85**	**7.1**	**0.85**

The average SACMEQ III HIV-AIDS Knowledge Test score for 2007 standard 6 pupils in Botswana was 498.9, almost the same as the mean score of SACMEQ III countries of 500. Many regions scored below the SACMEQ III mean HAKT score. However, pupils in Gaborone region have a high mean score of 566.3, followed by those in the North (Francistown) region with a mean score of 516 and Central North (Tutume, Tonota, Selebi Phikwe, Bobonong) region with 510.1. These are the only regions that have pupils scoring above the SACMEQ mean. The three regions where pupils achieved a higher mean score are more urbanized than the other regions. The national HIV and AIDS policy of 1998 states that the HIV and AIDS epidemic should be regarded as a national crisis and that each sector of society and community-based organizations should develop and implement their own HIV and AIDS prevention activities with the support from the Ministry of Health. The policy further states that the Ministry of Education and Skills Development should integrate AIDS education into all levels and institutions of education. The policy indicates that MoESD should ensure that pupils benefit from HIV and AIDS education even at home. HIV and AIDS education should be tailor-made for every sector of the community, so that pupils in various locations can benefit from strategies that will be effective for them. The strategies employed to implement the policy are probably not effective enough if education on HIV and AIDS issues is better articulated in urban areas than in other parts of the country. The research team would therefore like to recommend that the HIV and AIDS unit of the Ministry of Education and Skills Development further research their HIV and AIDS education strategies to ensure that they effectively cater for different locations.

Policy Suggestion: The HIV and AIDS unit of the Ministry of Education and Skills Development should employ varying strategies for HIV and AIDS education for different locations to ensure that the interventions for each region are suitable to the peculiarities of the communities living in those locations.

According to the data presented in Table 7.9, in 2007 only 39% of the pupils in standard 6 had reached at least the minimum knowledge level about HIV and AIDS. Thus a high proportion (61.0%) are not well informed about HIV and AIDS.

Teachers' performance on the HAKT by region

Table 7.10: Mean scores for teachers' HIV-AIDS knowledge test and percentage of teachers reaching minimum and desirable levels of knowledge about HIV and AIDS

Region	TEACHERS					
	Transformed Score		Reaching minimum level		Reaching desirable level	
	Mean	SE	%	SE	%	SE
Central North	794.6	16.93	100	0	91.7	4.63
Central South	766.2	14.55	98.2	1.79	88	5.19
Gaborone	783.8	14.98	100	0	97	2.99
North	770.2	13.59	100	0	92.8	4.24
South Central	772.1	10.87	100	0	96.7	2.32
South	794.8	15.52	100	0	93.6	4.03
West	803.9	16.79	100	0	91.3	5.4
BOTSWANA	**781.8**	**5.75**	**99.6**	**0.38**	**92.8**	**1.68**

Table 7.10 indicates that in 2007 almost all teachers (99.6%) of standard 6 pupils in Botswana had reached the minimum knowledge level about HIV and AIDS and that a very large percentage, 92.8%, had also reached the desirable knowledge level.

The data on HAKT scores indicate that there is an information gap about HIV and AIDS between teachers and their students.

Pupils' performance on the HAKT by gender

Further analysis of pupils' performance on the HIV and AIDS Knowledge Test by gender in Table 7.11 shows the mean scores and percentages of pupils' performance on the HAKT by gender and region.

Table 7.11: Mean scores and percentages of pupils' performance on the HIV and AIDS Knowledge Test by gender

Region	PUPILS					
	Transformed score		Reaching minimum level		Reaching desirable level	
	Boys	Girls	Boys	Girls	Boys	Girls
	Mean	Mean	%	%	%	%
Central North	505.0	515.5	35.8	36.7	10.8	9.4
Central South	477.5	493.9	25.0	31.0	4.2	5.2
Gaborone	549.4	581.6	55.7	65.0	13.2	23.1
North	510.1	521.6	36.1	39.4	6.6	8.4
South Central	477.1	484.2	23.4	22.0	4.4	5.1
South	478.9	504.5	24.8	35.2	5.3	3.8
West	464.2	477.2	18.4	20.7	3.7	3.8
BOTSWANA	**490.6**	**507.0**	**29.7**	**34.0**	**6.5**	**7.7**

Table 7.11 indicates that girls acquire more knowledge about HIV and AIDS and have a better understanding of issues related to HIV and AIDS than boys. This gender imbalance in knowledge on HIV and AIDS is observed across all regions of the country.

Pupil performance on the HAKT by socio-economic status

Table 7.1.2 indicates that socio-economic status has a significant bearing on pupils' HIV and AIDS knowledge. Even in the Gaborone region, pupils from low socio-economic status did not reach the minimum knowledge level on the HAKT. This shows that the socio-economic factor could have a greater impact on a pupil's knowledge than the location. One may further argue that there is a larger disparity between pupils of different socio-economic settings in the city than in other localities. None of the pupils from low SES in the city could reach the minimum level of knowledge and again none of them achieved the desirable level. A similar observation is made in the North region, which is mainly occupied by the city of Francistown. From Table 7.12, one can see that fewer low SES students reached the minimum HIV and AIDS knowledge level than high SES students, and that this trend was even more pronounced in the urbanized areas of Gaborone and North.

Table 7.12: Pupils' mean scores in the HAKT and percentages of pupils reaching minimum and desirable knowledge levels by socio-economic status by region

Region	PUPILS					
	Transformed scores		Reaching minimum level		Reaching desirable level	
	Low SES	High SES	Low SES	High SES	Low SES	High SES
	Mean	Mean	%	%	%	%
Central North	447.4	558.8	15.6	55.8	1.2	18.9
Central South	413.2	529.8	9.9	45.3	1.4	9.3
Gaborone	387.3	580.0	0.0	65.7	0.0	21.6
North	439.3	550.5	0.0	54.7	0.0	11.7
South Central	445.7	518.8	3.9	36.8	2.0	9.4
South	437.8	539.6	11.2	50.5	0.0	12.5
West	451.2	515.3	15.9	34.7	2.2	9.8
BOTSWANA	**438.8**	**544.2**	**11.0**	**50.1**	**1.3**	**13.9**

Pupils' performance on the HAKT by school location

Pupils' performance on the HAKT was analysed by region and school location and ixs presented in Table 7.13.

Table: 7.13: Pupils' mean score for HAKT and their distribution according to achieving minimum and desirable levels by school location by region

Region	PUPILS					
	Transformed scores		Reaching minimum level		Reaching desirable level	
	Rural	Urban	Rural	Urban	Rural	Urban
	Mean	Mean	%	%	%	%
Central North	485.2	529.4	24.8	45.1	3.9	14.9
Central South	465.0	524.0	20.4	42.0	2.1	9.4
Gaborone	.	566.3	.	60.6	.	18.4
North	482.9	524.3	19.8	42.3	4.2	8.4
South Central	465.2	496.5	15.1	30.5	3.3	6.2
South	475.9	510.3	26.3	34.2	1.6	8.2
West	471.2	469.5	20	17.3	3.5	5.3
BOTSWANA	**471.5**	**524.5**	**20.8**	**42.2**	**2.8**	**11.1**

The data indicates that, on average, pupils in urban areas achieve higher HIV and AIDS knowledge than those in rural area. However, in the West region there is not much difference between pupils from urban areas and those from rural areas. This is most probably because the lifestyles of people living in Maun and Ghanzi (urbanized villages) do not differ much from those of people living in the areas around those centres.

Teachers' performance on the HAKT by school location

Teachers' performance on the HAKT was also assessed. Almost all teachers of standard six pupils reached at least the minimum level of knowledge on HIV and AIDS (Table 7.14).

Table 7.14: Teachers mean scores on HAKT and their distribution by region and gender

Region	TEACHERS					
	Transformed scores		Reaching minimum level		Reaching desirable level	
	Male	Female	Male	Female	Male	Female
	Mean	Mean	%	%	%	%
Central North	821.2	767.2	100	100	89.2	94.3
Central South	795.5	756.7	92.7	100	89.3	87.6
Gaborone	797.3	779.9	100	100	93.8	97.9
North	792.1	762.2	100	100	89.9	93.9
South Central	795.1	765.7	100	100	100	95.8
South	857	768.5	100	100	100	90.9
West	811.7	772.2	100	100	91.7	89.4
BOTSWANA	**813.1**	**765.5**	**98.9**	**100**	**92.9**	**92.7**

It is reasonable to expect that teachers reach very high knowledge levels on HIV and AIDS knowledge assessment. Teachers obviously have a higher exposure to HIV and AIDS information than pupils. Teachers are well informed to empower the pupils with knowledge on issues of HIV and AIDS. There is a need for the school environment to prepare pupils by providing them with knowledge about issues of HIV and AIDS, especially in the rural areas. The reason for the massive knowledge gap between teachers and their students needs to be explored further.

7.11 Attitudes about HIV and AIDS

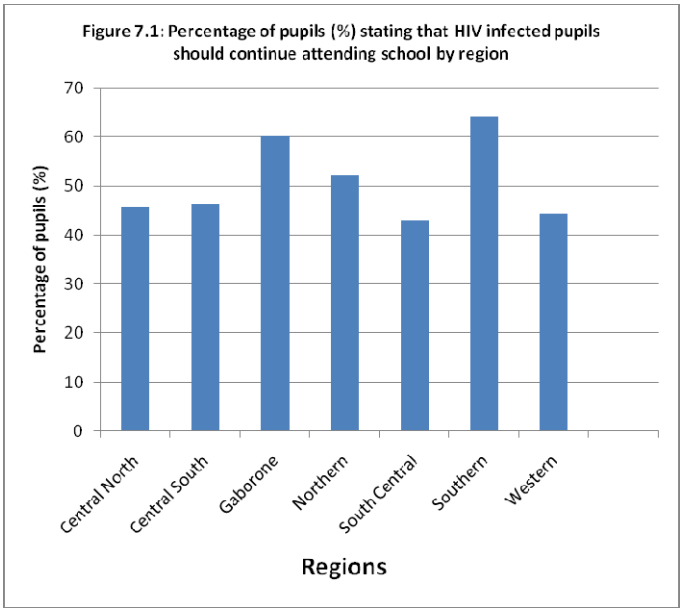
Stigma

The attitudes of pupils, teachers and school heads towards pupils infected with HIV were assessed (Table 7.15a). Respondents were asked if a pupil who is infected with HIV should be allowed to continue attending school. The intention of the question was to find out if there was still a stigma attached to pupils infected with HIV.

Table 7.15(a): Percentage distribution of pupils' response on whether a pupil infected with HIV should be allowed to attend school *(stigma)* by region

	PUPILS					
	No		Not Sure		Yes	
Regions	**%**	**SE**	**%**	**SE**	**%**	**SE**
Central North	25.4	3.49	28.9	2.91	45.7	3.8
Central South	28.3	3.81	25.3	2.73	46.4	3.39
Gaborone	16.9	2.99	22.8	2.99	60.2	4.65
North	26.1	1.74	21.6	2.86	52.3	3.53
South Central	28.1	2.11	28.8	2.49	43.1	2.94
South	24.1	4.27	11.6	2.83	64.3	6.18
West	34.3	3.53	21.3	2.93	44.4	4.75
BOTSWANA	**26.4**	**1.32**	**23.6**	**1.09**	**50.1**	**1.61**

Table 7.15(a) indicates that there was still a stigma attached to HIV infected pupils in the eyes of their standard 6 peers. About half of the pupils (50.1%) indicated that they believed pupils infected with HIV should be allowed to continue attending school, while the other half were unsure or against such attendance. However, two out of the seven regions of Botswana, viz. South and Gaborone regions (Figure 7.1), show considerably greater acceptance. Attaching stigma to HIV infection appears to be common in the West, South Central, Central South and Central North regions. It is reasonable to expect that stigma amongst pupils is negatively related to knowledge about HIV and AIDS. Pupils in the West region scored the lowest in the HAKT and also have the highest levels of stigma among the regions.



Teachers' responses on whether pupils infected with HIV should be allowed to continue with school are shown in Table 7.15(b).

Table 7.15(b): Percentage distribution of teachers' response on whether a pupil infected with HIV should be allowed to attend school *(stigma)* by region

	TEACHERS					
	No		Not Sure		Yes	
Regions	%	SE	%	SE	%	SE
Central North	0.0	0.0	0.0	0.0	100.0	0.0
Central South	0.0	0.0	2.8	2.0	97.2	2.0
Gaborone	0.0	0.0	3.5	3.6	96.5	3.6
North	0.0	0.0	0.0	0.0	100.0	0.0
South Central	0.0	0.0	0.0	0.0	100.0	0.0
South	0.0	0.0	0.0	0.0	100.0	0.0
West	0.0	0.0	0.0	0.0	100.0	0.0
BOTSWANA	**0.0**	**0.0**	**0.9**	**0.5**	**99.1**	**0.5**

There is no indication of teachers in Botswana attaching stigma to pupils infected with HIV. Nationally, 99.1% of the teachers stated that pupils infected with HIV should be allowed to attend school, not statistically significantly different from 100%. School heads were also asked the same question. All schools heads in all regions who responded to the questionnaire were in favour of children continuing at school.

Thus attaching stigma to pupils infected with HIV was observed amongst some pupils but not amongst the teachers and the school heads.

Discrimination

Pupils were asked some questions to find out if they would discriminate against a friend or a relative infected with HIV. Reponses to these questions are summarized in Tables 7.16 and 7.17. Pupils indicated that they w ould be friendlier or that they would treat the friend as they did before they knew that the friend is HIV infected were classified in the table as demonstrating a positive attitude.

Table 7.16: Percentage distribution of pupils by region showing how they would behave towards a friend infected with HIV

PUPIL BEHAVIOUR WITH A FRIEND INFECTED WITH HIV						
	Avoid/ shun him or her		Not sure		Positive attitude	
Region	%	SE	%	SE	%	SE
Central North	8.6	1.9	32.4	4.0	59.0	4.2
Central South	9.3	2.0	33.2	3.0	57.5	3.4
Gaborone	8.5	1.5	28.2	2.7	63.2	2.7
North	10.2	1.5	26.2	3.4	63.6	3.9
South Central	11.6	1.7	35.1	2.7	53.3	2.8
South	11.1	2.0	23.7	3.7	65.2	4.8
West	17.2	2.8	25.9	3.3	56.9	4.7
BOTSWANA	**10.6**	**0.8**	**30.3**	**1.3**	**59.1**	**1.5**

There were some pupils (10.6%) who indicated that they would avoid or shun a friend who was infected with HIV. The numbers that would discriminate against an HIV-positive friend in this manner were particularly high in the West region, the same region where there a higher percentage of pupils attached stigma to HIV infected pupils. The research team would like to recommend that the Department of Pre- & Primary Education come up with measures to intensify HIV and AIDS education for pupils in the West region.

Another noteworthy fact is that, though the percentage of pupils who attach stigma to the HIV infected is relatively high, the percentage who would discriminate against a friend or a relative is low. This indicates that pupils are more likely to discriminate against people they do not know, as one might expect.

Pupils were asked if they would care for a sick relative who had AIDS. The results from this question are found in Table 7.17.

Table 7.17: Percentage distribution of pupils' responses by region on whether they would care for a sick relative who had AIDS

PUPIL WILLING TO CARE FOR A RELATIVE ILL WITH AIDS						
	No		Not sure		Yes	
Region	%	SE	%	SE	%	SE
Central North	10.8	2.3	26.4	3.7	62.8	4.0
Central South	18.9	2.5	25.4	2.6	55.7	3.4
Gaborone	9.9	2.3	30.0	3.7	60.1	3.5
North	15.3	3.3	17.5	2.7	67.2	4.1
South Central	17.4	3.1	31.1	3.2	51.5	4.0
South	16.3	3.9	10.1	2.9	73.6	5.7
West	22.6	4.4	16.3	3.3	61.1	6.1
BOTSWANA	**16.0**	**1.2**	**23.4**	**1.3**	**60.6**	**1.7**

Again, pupils in the West region have the highest percentage of pupils that would not care for a sick relative who had AIDS. Thus it appears that pupils in the West region have the lowest levels of HIV and AIDS knowledge and the highest levels of HIV and AIDS discrimination and stigmatization. Compared to the West region, more pupils in the South had a positive attitude towards the HIV infected and those sick with AIDS.

Policy Suggestion: Department of Pre & Primary Education should come up with interventions to intensify HIV and AIDS education across the primary schools. The interventions should focus on educating pupils about caring for the HIV infected and the AIDS patients without putting themselves at riskof being infected.

7.12 Risk perception about HIV and AIDS

Teachers and school heads were asked to rate their risk of being infected with HIV. The results to this question are provided in Table 7.18(a) below.

According to the data presented in Table 7.18(a), a significant proportion of teachers from the Central South and West regions believed they were at a 'High/Very High' risk of being infected with HIV. Similarly, the school heads in the West region believed they were the most vulnerable to HIV infection (Table 7.18(b)).

Table 7.18(a): Teachers' self-assessment of the risk of being infected by HIV by region

	TEACHERS					
	No/ Low Risk		Medium Risk		High/Very High Risk	
Region	%	SE	%	SE	%	SE
Central North	52.3	9.3	25.7	7.7	22.0	6.3
Central South	49.4	7.6	11.0	4.6	39.6	6.9
Gaborone	63.0	8.9	16.2	6.5	20.7	6.6
North	59.2	8.2	8.1	3.3	32.8	8.5
South Central	56.3	6.9	21.7	5.3	22.1	6.4
South	65.0	8.6	15.3	7.3	19.7	6.8
West	33.1	10.2	20.5	6.9	46.4	9.2
BOTSWANA	**54.4**	**3.2**	**17.4**	**2.4**	**28.2**	**2.7**

Table 7.18(b): School heads' self assessment of the risk of being infected by HIV by region

	SCHOOL HEADS					
	No/ Low Risk		Medium Risk		High/Very High Risk	
Region	%	SE	%	SE	%	SE
Central North	63.5	10.1	8.6	6.0	27.9	9.3
Central South	45.4	9.6	14.5	6.8	40.1	9.5
Gaborone	74.1	10.2	11.0	7.5	14.9	8.2
North	60.4	11.2	10.3	7.1	29.2	10.4
South Central	53.1	9.7	7.2	5.0	39.7	9.5
South	49.7	11.5	15.1	8.3	35.2	11.0
West	25.0	10.0	32.5	11.1	42.5	11.3
BOTSWANA	**52.9**	**4.0**	**13.1**	**2.7**	**34.1**	**3.9**

Interventions for empowering pupils with HIV and AIDS knowledge and skills for reducing risks of being infected would be relevant for the teachers and school heads as well. As indicated in Tables 7.17 and 7.18, there is disparity across regions on issues of stigma attached to the HIV infected, discrimination of AIDS patients and vulnerability of teaching staff to HIV infection.

7.13 Conclusion

Information presented in this chapter indicates that there has been an improvement in pupil reading and to a somewhat lesser extent mathematics achievement between 2000 and 2007. However, not all regions within the country performed equally. This disparity could be an indication of the

peculiarities of the different regions that need to be considered when resources are distributed. A trend of girls performing better than boy is still observed across the regions – this was also observed in SACMEQ II (2000).

The national average reading score for the SACMEQ III study was 534.6 (2007). The score was 13.5 points higher than that of the SACMEQ II (2000) score of 521.1 and was considerably higher than the SACMEQ III mean score for reading (509.7). There is still significant variation by region, gender, socio-economic status and school location. On average, girls scored higher than boys, pupils from low socio-economic background performed considerably worse than those from high SES backgrounds, and rural pupils performed much lower than those who lived in cities. These were also areas of concern in the 2000 SACMEQ II results. The data indicates that 75.8% of the 2007 standard 6 pupils in Botswana possess acceptable reading skills, i.e. they were reading at levels that indicate they derive meaning from what they read. For both SACMEQ II and SACMEQ III, virtually all standard 6 teachers had reached acceptable reading skills, when measutred by the same standards as pupils.

Achievement in mathematics reflects an akmost similar pattern as that in reading. The pattern is that pupils in cities perform better than those in rural areas, girls perform slightly better than boys and pupils from high socio-economic background perform much better than those from low socio-economic background. An increase of 7.6 points in the national mathematics mean score has been observed between the 2000 and 2007 SACMEQ tests. Standard 6 pupils in Botswana scored a somewhat higher national mathematics mean score (520.5) than the mean score for the SACMEQ countries (509.7).

Pupils' competency levels in mathematics were also measured. Those with poor competence are able to perform only simple addition and subtraction, matching numbers to pictures, recognizing shapes and counting in whole numbers. Though they still represent a high 56.5 % of Botswana's standard 6 pupils in the SACMEQ III study, this percentage has declined from 64.9% in the SACMEQ II project, which is a positive development. The improvement in mathematics performance is further reflected realized in the fact that the percentage of standard 6 pupils who

have acquired acceptable mathematics competency improved from 35.1% to 43.5% between 2000 and 2007, where acceptable competency in this standard is where a pupil is able to translate mathematical problems into equation form in order to solve the problems.

While there has been an improvement in mathematics achievement, it is disconcerting that some pupils are taught by teachers who have reached only relatively low levels of mathematics competence levels, especially in the Central South, South Central and South regions. Therefore, the research team would like to advise that Department of Pre- and Primary Education to ensure that teachers in primary schools teach the subjects that they are competent in.

There is a similar pattern for HIV and AIDS knowledge as for reading and mathematics knowledge: boys perform worse than girls, pupils from low socio-economic background perform worse than those from high socio-economic backgrounds, and pupils in rural areas perform worse than those in urban areas. About 30% of boys reached a minimum level of HIV and AIDS knowledge, while 34% of girls reached these levels. Only 11% of pupils from low SES backgrounds reached the minimum levels of knowledge, while 50% of those from high SES backgrounds reached these levels. Only 20.8% of pupils in rural areas reached these levels, while 42.2% of those in urban areas reached the minimum levels of knowledge about HIV and AIDS. Practically 100% of all teachers have reached the minimum level of HIV and AIDS knowledge.

Some elements of stigma and discrimination attached to the HIV infected had been observed among the pupils but not amongst teachers and school heads. On average 50% of pupils indicated that pupils infected with HIV should be allowed to continue attending school, while virtually all their teachers and school heads indicated the same.

A higher risk of being infected by HIV is observed among the school heads than the teachers. At least 34% of the school heads are at a high risk of being infected by HIV (self-assessed), while 28% of the teachers believe they are at a high risk.