STANDARD FOUR ASSESSMENT REPORT 2007

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STANDARD FOUR

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FOREWORD

The Revised National Policy on Education (1994) retained the Standard Four assessment in REC.17f and emphasised that it should be supported by a structured remediation programme in schools. The fact that this assessment is administered at the end of Standard Four indicates the concern of the education system that no child should proceed to higher primary level with serious learning deficiency. The recommendation on the institutionalisation of remedial programmes in schools is supported by the assessed progression throughout schooling (REC.23) as a counter measure against the common practice of automatic progression of learners between grades without the benefit of an assessment that would serve as a 'dip stick' to check the quality of their learning experiences.

Botswana Examinations Council (BEC) has taken over the design, development of the Standard Four instruments and the scoring guides and their distribution to schools. Schools administer the tests and mark the learners' responses internally and according to their own time-table. As a result the standards applied by each school in the grading of the scripts may be variable and it has not been possible to generate feedback on lower primary skills attainment or readiness levels at a national level. In addition the primary school curriculum has been reviewed and changed significantly. This has created a need to align the Standard Four Attainment test to the new curriculum

This report presents the results of an exploratory study that will allow the generation of the first national results on the performance of learners after the first four years of schooling. The report should lead to a discussion of the alignment of Test to the new curriculum, teachers' application of appropriate standards in grading student work, accuracy of the results reported and development of external monitoring of learning standards. These discussions should also help to ensure that the results are used appropriately. I invite you to read the report carefully and share with us your suggestions regarding the aforementioned.

Dr. Serara Moahi
Executive Secretary
Botswana Examinations Council.

ACKNOWLEDGMENTS

A report of this magnitude can only come out of cooperation of many people. The wisdom of Mrs Janet Gaobakwe (then Chief Education Officer in charge of Examinations, Research and Testing Division (ERTD) of the Ministry of Education) in coming up with the proposal for this study is greatly acknowledged. Many officers then working under ERTD worked hard to move the project through. The following officers were handling the three subjects of the study under ERTD: Mrs M Kwele - Setswana; Mrs T Mmualefe - English; and Mrs S Barongwi - Mathematics. The following officers participated in the study in different capacities, and they are; Betangpelo Jeremiah- Standard Four Coordinator, Khatazo Gwakuba- linking with schools and assisted in instruments scoring. Their effort in preparing the test papers and in steering the scoring exercise is greatly acknowledged. Many secretaries under ERTD spent hours capturing data while Research and Policy Development Personal Assistant assisted in typing the report. Their dedication is acknowledged with much appreciation.

Collecting data of this magnitude is only possible through collaboration of many people. The efforts of the school coordinators are hereby acknowledged with deep appreciation. We are grateful to the School Heads for allowing such dedicated teachers to handle the exercise. Scoring is a demanding exercise, particularly if the time available for it is limited. The teachers who scored the work of the candidates rose up to the challenge magnificently. They performed a thorough job to ensure that the score obtained by each individual was what the pupil deserved. Sincere thanks go to the teachers who participated in the Standard-setting exercise and came up with national benchmarks.

As we cannot mention everyone by name, the efforts of everybody who made this study possible are greatly appreciated.

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EXECUTIVE SUMMARY

Objectives of the Study

The Standard Four Assessment project was triggered off by the fact that while the predecessor of the Botswana Examinations Council (BEC), Examinations, Research and Testing Division (ERTD) conducted the tests, there was no national information about the suitability of the tests, the level of performance of the pupils and the factors that are associated with pupils' performance. The study was therefore initiated with the objectives of;

- Assessing the level of performance of the pupils
- Establishing the suitability of the tests for Standard Four
- Identifying factors that are associated with learning achievement.

In the Standard Four assessment program, pupils are assessed in Mathematics, Setswana and English. Each year ERTD was preparing the tests with their marking schemes and sending to schools to administer, mark and grade, without a common timetable and no standardisation of schools to ensure they are marking to the same standard.

Procedure Followed in the Study

The tests that were used for the 2006 Standard Four Attainment tests were used as the achievement instruments. Questionnaires were prepared for pupils, teacher, School Head and parents for collecting background information. A sample of 103 schools was obtained in a stratified random manner so that a variety of schools that are representative of the national population was obtained.

Standardisation of the procedures was considered important for collecting reliable information. A time table was issued for this assessment so that each school did the tests at the same time. The project schools were subjected to additional standardisation measures. A school coordinator was appointed for each sampled school. School coordinators were trained in their role in the administration of the instruments.

These project schools were not allowed to administer the instruments. Instead, staff of ERTD was trained on the manual that had been prepared for it. The administrators were then

assigned to schools. The school coordinator basically took the responsibility of organising the testing venue, organising teachers of the selected classes so that they can fill in the questionnaires. The School Head was also required to be around to fill in his/her questionnaire.

Because of the young ages of the pupils, four days were taken to administer the instruments, taking one subject a day and the pupil questionnaire on a separate day according to the time table that had been issued. While non-project schools administered the tests and marked the responses, the administrators brought back the scripts and questionnaire responses for processing centrally. Teachers were recruited and trained on how to mark the work of the pupils. Marks scored and responses on the questionnaire were captured electronically. SPSS was used for data analysis.

Outcome of the Study

Performance of the pupils was weak. In English and Mathematics, the mean performance was around 30% while in Setswana it reached 45%. Most pupils could not score 50% of the available marks. Girls performed better than boys in each subject.

The outcome for domain performance was as follows;

Subject	Strongest Domain	Weakest Domain
Mathematics	Knowledge	Reasoning
Setswana	Knowledge	Reasoning
English	Knowledge	Application

Better performance was therefore realised on lower cognitive processes. Even here, the scores for the better performed domain were low. Higher cognitive processes need attention.

The level of performance gives an impression that the tests were too hard for the pupils. An alignment exercise conducted by primary school teachers indicated that the tests were suitable for the level. Explanation of the level of performance therefore needs to be sought elsewhere.

Benchmark performance levels developed by these teachers showed that over 50% of the pupils did not reach the low performance level. According to the criteria they developed, 22.5%

of the pupils qualify for progression in Mathematics while 43.7 and 54.9 are suitable for progression in English and Setswana respectively.

Background Factors Associated with Performance

The age group that performed the best were 6 - 10 years old. Pre-schooling was associated with better performance. Home possessions, eating of meals and computers were positively associated with better performance.

The language of instruction has come up in many studies. Pupils who speak English more often perform better. Pedagogical practices were found to be associated with performance. Too much or too little homework and testing depressed achievement. Over 75% of the pupils were taught by female teachers and they performed better than those taught by male teachers. Experience of the teacher is important and reaches a peak at 6 - 10 years. Sharing of classrooms exists and results are lowered by this limitation. Loaded curriculum (as perceived by the teacher) was associated with lowered performance. Means of duplication supported learning achievement. The determination of the teacher to remain a teacher is also positively associated with better performance. Teacher absenteeism was found to be a strong factor operating against learning achievement.

Socio-economic factors were strongly linked to performance. These included home possessions, family problems, orphanage and parental indifference were associated with learning. The level of education of the parents had direct bearing on performance perhaps because of its link to socio-economic status. Availability of reading materials, electricity and means of receiving communication were associated with good performance.

The factors explained in this study were much more than summarised above. Having examined the pattern of performance in association with the factors, recommendations were made for consideration. It is by acting on the factors that hinder learning that improvement in the quality of education can be achieved.

1 INTRODUCTION

Background to the Project

It is recognised the world over that teaching and assessment are complementary aspects of helping a learner acquire knowledge and skills. This principle has been firmly harnessed in the Revised National Policy on Education (RNPE, 1994), recommendation 23(b) (p19), which advocates for the implementation of continuous assessment on a national basis. The thinking is that as teaching progresses, the learners and the teacher must get a feedback as to whether learning is taking place and whether there are areas of content and skills that need reteaching.

This policy therefore calls for a strong remediation programme in each school. For this reason, each school was to be provided with at least one trained remedial teacher and pre-service and in-service teacher training was to emphasise remedial teaching skills.

Implementation of continuous assessment and remediation would ensure that the strengths and weaknesses of individual learners would be well documented. The principle of remediation would make it mandatory not to push a learner on to higher levels of learning before making sure that the foundation materials have been meaningfully mastered. Thus recommendation 23(a) replaces automatic progression with assessed progression, which permits repetition of up to 12.5% and allows accelerated progression of a learner who has demonstrated competence. In making these decisions, evidence would have to be adduced and consultations between class teachers, remedial teachers, psychologists and parents would need to be carried out.

The continuous assessment and remediation records would provide part of the required evidence for deciding on the progression of a learner. Recommendation 17(f) of RNPE retained Standard Four Attainment Test. This is an additional source of evidence for making decisions on progression of learners. In implementing this policy, Examinations, Research and Testing Division (ERTD) of the Ministry of Education had been preparing Standard Four tests for Setswana, English and Mathematics for assessment programme. These test papers are sent to schools with marking schemes. Each school administers the tests, marks the work of the pupils and converts the scores of the pupils into grades. The results are used by each school as part of the evidence for deciding on who should repeat. A school then compiles frequency of candidates at various grades and sends the results to the district headquarters.

As far as BEC is concerned, that is the end of the utility value of the test. There is no national picture of how pupils in Standard Four perform on these tests. It is in search of the level of performance of the pupils on the tests that ERTD initiated the Standard Four project. The project was then taken up by Botswana Examinations Council when it took over the responsibility of examinations from ERTD.

The Objectives for the Project

The objectives of the project were to:

1. **Assess the national level of achievement of the pupils by the end of four years of schooling.** For many years the tests were sent to schools without getting any feedback from schools. Administration, marking of the scripts and grading were left entirely to individual schools. It was therefore not appropriate to take the results of any one school and make an interpretation of the results or convey to the public the level of performance of the learners at this level in the three subjects.
2. **Assess the suitability of the Standard Four tests.** It was not possible to decide on restructuring the tests or to alter the level of demands of the tests because of lack of information on how the pupils were performing. The strengths and weaknesses that the study would reveal would be instrumental in informing any necessary review.
3. **Identify factors that are associated with the learning of the pupils at this stage.** The intention of assessment is not merely to gauge the level of performance, but also to identify factors that are associated with pupil learning. This study would use questionnaire to explore the factors that are associated with pupil learning in order to search for ways learning achievement can be improved.

Conceptual Frameworks for the Study

Pupils who have completed four years of schooling should have basic competency in literacy and numeracy. It is because of the central role of these two skills that the three subjects were selected for assessment at this level. The curriculum specifies what should be learnt at this stage and that is the basis of the three tests. It would be a point of success to find out that those competencies have been acquired by the pupils. Failing this, it would lead to questioning whether the curriculum, the tests, instructions or learning was defective in some way. If any defects can be identified, then corrective action would be needed.

2 STUDY PROCEDURES

Sampling

A list of all the primary schools in the country was obtained. SPSS random number generator was used to sample 150 schools. The intention was to sample about 10% of the schools in such a way that each district or municipality was proportionally represented and to end up with about 6000 pupils in the sample.

The random numbers generated resulted in some areas being over-represented in the initial sample while others were under-represented. There was therefore need for random addition or deletion. Where an area was over-represented, random number table was used to obtain numbers of schools that should be eliminated. In a similar way, random numbers were generated for selecting additional schools in areas that were under represented. The end result was 103 schools that gave roughly 6000 pupils on the basis of the PSLE registration for 2006.

The sampled schools were then notified of the project, asking them to submit the names of the pupils and the names of the classes the pupils were in. Thus all the pupils in Standard Four in the sampled schools constituted the sample of pupils to be tested. Their parents, teachers and School Heads were subsequently asked to complete respective questionnaires during instrument administration.

Instrumentation

Each year Botswana Examinations Council prepares test papers for Setswana and English languages and Mathematics to be administered to Standard Four pupils. The purpose of this Standard Four Assessment Programme is to give schools standardised test papers which they administer to their pupils who are completing Standard Four. The project used the Standard Four tests for 2007 as the achievement instruments.

Subject	Structure	Medium	Durations	Total Marks
Setswana	Multiple choice, completion items, short response and writing a composition from pictures	Setswana	80 minutes	50
English	Multiple choice, completion items, short response, writing story from pictures	English	80 minutes	50
Mathematics	Multiple choice, short response, problem solving	English	75 minutes	60

Questionnaires were prepared for pupils, their parents, teachers and School Heads. These were used for collecting background information needed for assessing subgroup differences and establishing learning correlates. The pupil questionnaire sought information on the date of birth and sex of the pupil, home background information such as availability of meals, books, radio and audio-visual, computers and many more.

Activities connected with speaking of English at home, attendance of pre-school, going to libraries, engagement in extra-curricular activities, missing of school days, travelling to school were solicited. Homework assignments and the help they got on home work were recorded. Finally, the attitude of the pupil towards schooling was assessed.

Apart from demographic variables, the teacher questionnaire sought information on teacher qualification and experience, instructional practices and conditions, provisions and supervision, the teachers' interest in the job and the assigning of homework to pupils.

The School Head was asked to supply information on the school environment, such as school location, security and safety.

Data Collection

A coordinator was appointed by the School Head. These school coordinators were trained in their role in the project. The school coordinator handled all the study activities on behalf of the School Head. They were asked to submit the names of the pupils in Standard Four, indicating the name of the class for each pupil. After the names were captured electronically, the Coordinators were requested to check the accuracy of transcription.

Botswana Examinations Council officers were trained on the instrument administration procedures. The tests and questionnaires were taken to each school by these officers. The role of the school coordinator was to prepare the pupils and a room for testing. They also played the linking role of introducing the administrators to the School Head, the teachers and the pupils. After a courtesy call on the School Head, the administrators were then taken and introduced to the pupils by the school coordinator. Thereafter the coordinator left the administrators with the pupils for the administration of the tests and pupil questionnaire. The school coordinator was only allowed back in the testing room after completion of testing. The administrators then collected the School Head, teacher and pupil questionnaires and left the

parent questionnaire for the coordinator to guide the pupils on administering the instrument to their parents.

The instruments were administered in three days since the young pupils could not be taxed with three tests and a questionnaire in one day. The timetable supplied to all schools, including those not in the sample was as follows:

Date	Time	Subject
Tuesday 02 October	0800 to 09 20	Setswana
Tuesday 02 October	1000 to 1100	Pupil Questionnaire
Wednesday 03 October	0800 to 0920	English
Thursday 04 October	0800 to 0915	Mathematics

The parent questionnaire was given to the pupils to take to their parents. After completion by the parents, the pupils returned the questionnaires to the school coordinator. The administrator came back with responses to the tests and the completed questionnaires from teachers, School Head and the pupils. Some pupils could not complete the questionnaire on the testing day. Those who could not fill the questionnaire that day were assisted by the school coordinator who then sent in the completed questionnaires. No tests were left behind for coordinators to administer to pupils who were absent on the testing day.

Teachers were recruited and trained in the scoring of the responses of the pupils to the tests. The scores assigned by these teachers were entered into a database, together with responses to the questionnaires. A quick summing up of total marks obtained by pupils had to be done so as to convey to schools performance of their pupils to help in promotion decisions.

Data Analysis

The results which are presented in the reports portray mainly pupil performance and subgroup differences. SPSS was used for data analysis. The raw score was converted to percentages to make it easier to comprehend the relative performance of the pupils in the three subjects.

Subgroup differences were tested using analysis of variance (ANOVA), with Scheffe procedure for Post-Hoc comparisons or t-test for two independent groups.

It will be helpful to comprehend the example tables given below on the outcome of ANOVA and t-test to facilitate the reading of the rest of the report.

The first example is the outcome of ANOVA Post-Hoc comparisons, testing if the pair wise mean differences are significant. The results are mostly presented in tables indicating percentages and means of students in various groups, the standard errors of these percentages and means. Where subgroups are compared, mean differences and the standard errors of the mean differences are reported. Standard errors indicate the extent of the accuracy of estimation of the percentage, mean or mean difference. An example is presented in Table XX.0 below for two subjects but from outside this study.

Table XX.0: Performances by Number of Books in the Home

Number of Books Possessed	n	% (SE)	Mathematics		Science	
			Mean (SE)	Diff (SE)	Mean (SE)	Diff (SE)
None or Very Few (0-10 Books)	2512	48.35(1.30)	355.14 (2.61)	1, 2: 12.69 (4.24)*	348.28 (2.98)	1, 2: 20.13(3.72)*
One Shelf (11-25 Books)	1496	29.51(0.87)	367.83 (4.11)	1, 3: 36.52 (6.27)*	368.41 (3.41)	1, 3: 50.61(6.60)*
One or More Bookcases (26 or More Books)	1076	22.14(0.94)	391.66 (5.89)	2, 3: 23.83 (6.17)*	398.89 (6.45)	2, 3: 30.48(6.17)*

** Significant mean differences*

The standard error of 1.30 of the percentage of 48.35 in row one means that this percentage could be between 47.05 and 49.65. The Mathematics mean of 355.14 with a standard error of 2.61 could be between 352.53 and 357.75, which is obtained by subtracting or adding 2.61. Similarly, the Science mean difference of 20.13, between rows 1 and 2 (indicated as 1, 2) could be between 16.41 and 23.85.

Mean differences and standard errors (**Diff (SE)**) are used throughout this report for checking whether subgroup differences are significant. In the example above, interest centres on finding out if there are significant differences in the performance of students who come from homes with different number of books. Is the difference in the Science performance of students from homes with 'None or Very Few' (0 - 10) books and students from homes with 'One Shelf' (11 - 25 books) of books statistically significant? This question is answered by looking under the column of **Diff (SE)** for Science.

The first row in this column starts with '1, 2'. This means the mean difference being considered is for rows one and two. Under Science, row one mean is 348.28 and row two mean is 368.41.

The difference between the two means is 20.13, with a standard error of 3.72 as indicated under **Diff (SE)**. To check if this mean difference is significant, multiply 3.72 by 1.96 to form a 95% confidence interval. If the product is greater than 20.13, the difference is statistically insignificant. If it is smaller, the conclusion would be that the difference is statistically significant. This is the case in this instant.

A second example is a result of a t-test to find out if the difference in the performance of two groups is significant.

Table XX.1 Performance by Sex of Teachers

Subjects	Female		Male		Mean Diff	t-value	df	Sig.(2-tailed)
	n	Mean	n	Mean				
Mathematics	3662	30.54	1932	27.77	2.77	5.65	5592	.00
Setswana	3738	45.78	1870	42.64	3.14	6.55	5606	.00
English	3683	33.97	1909	31.49	2.49	5.72	5590	.00

Table XX.1 shows the result of using t-test to find out if pupils taught by female and male teachers perform significantly differently on the three subjects. The t-test results are shown in the last column. If the value given is less than .05, the difference between the two groups is significant. In the example pupils taught Mathematics by male teachers (mean= 27.77) perform significantly lower than those pupils taught by female teachers (mean= 30.54).

A significant mean difference is indicated by an asterisk (*). Now, verify that the rest of the mean differences in Table XX.1 are statistically significant, before proceeding. The number (n) that appears as responses for the pupil, teacher, school or parent is actually the number of pupils linked to that particular variable. In this study, the pupil's performance for all the three subjects was linked to the four questionnaires.

3 PUPILS' ACHIEVEMENT

The chapter presents pupil's performance in the three subjects. The overall performance of the pupils is presented first, then a comparison in performance is made by sex, content and cognitive domains for each subject.

Overall Achievement

Performance of the pupils in the three tests is presented in Table 3.1. Generally pupils performed poorly in all the subjects with the mean performance less than 50%. The mean performance for Setswana is 45.02%, for Mathematics is 29.80% and for English it is 33.53%. The low means indicate that the pupils found the three tests difficult. Other studies conducted in Botswana for different grade levels, such as Monitoring of Learning Achievement (MLA 2001) for Standard Four pupils; Trends in International Mathematics and Science Study (TIMSS 2003) for Form One students and Southern and Eastern Africa Consortium for Monitoring Educational Quality (SACMEQ II 2005) for Standard Six pupils also revealed low performance by students in Botswana.

Table 3.1: Performance of Pupils in each of the Three Subjects

Performance of Pupils		n	Mean Percentage	S/Deviation	Maximum	Minimum
Mathematics	Overall	6217	29.80	17.28	95.00	0.00
	Girls	2878	31.95	17.31	95.00	0.00
	Boys	3038	28.65	17.09	92.00	0.00
Setswana	Overall	6226	45.02	16.84	96.00	0.00
	Girls	2898	48.77	16.29	96.00	0.00
	Boys	3062	42.16	16.48	90.00	0.00
English	Overall	6171	33.53	15.58	88.00	0.00
	Girls	2837	36.39	15.81	88.00	0.00
	Boys	2994	31.50	14.99	84.00	0.00

The sample consisted of about 2800 girls and 3000 boys. The standard deviations (SD) in the three tests are very high, indicating that there were very low scores and very high scores. In all the three subjects, the mean for girls are higher than the mean for boys.

Performance by Sex

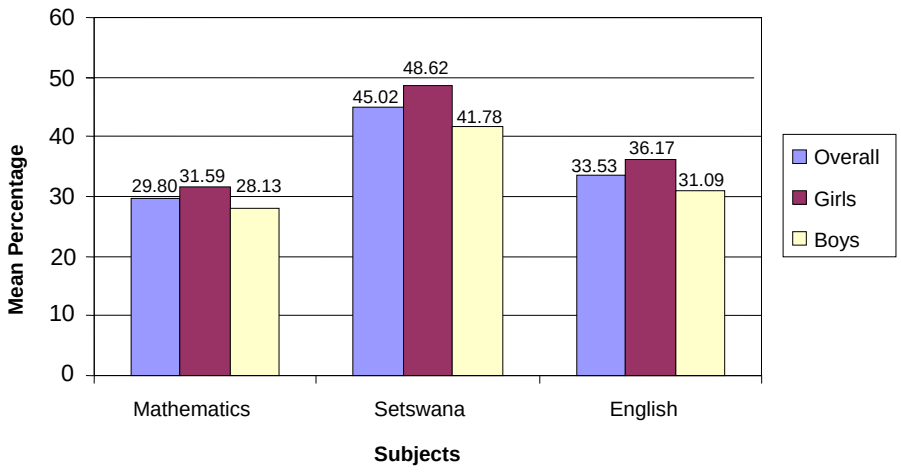
An independent sample t-test was run on the data to determine whether the two mean scores were significantly different. The results of the analysis are shown on Table 3.2.

Table 3.2: Performance in the Three Subjects by Sex

Subjects	Girls		Boys		Mean Diff	t-value	df	Sig.(2-tailed)
	n	Mean	n	Mean				
Mathematics	2878	31.95	3038	28.65	3.30	7.38	5914	.00
Setswana	2898	48.77	3062	4216	6.61	15.57	5958	.00
English	2837	36.39	2994	31.50	4.89	12.11	5829	.00

Figure 3.1 shows performance by sex in the three subjects. Girls performed significantly better than boys in all the subjects. The mean performance for girls in Setswana was 48.77 while for boys was 42.16. The mean for girls in English was 36.39 while for boys was 31.50 and the mean for girls in Mathematics was 31.95 while for boys was 28.65. Boys have always been outperforming girls in Science-related subjects, but in this study, girls have outperformed boys in all the subjects. Evidence from other studies, such as TIMSS 2007, MLA 2001 and SACMEQ 2005 also show this trend.

Figure 3.1: Performances by Sex



Performance in Mathematics Domains

Standard Four Mathematics test comprised of 60 marks coming from varying topics, namely; Numbers and Operations, Measures, Problem Solving, Geometry and Statistics. The topics varied in terms of contribution to the test as shown in Table 3.3. Numbers and Operations constituted the most (46.67%) with 28 marks and the least was Statistics (6.67%) with 4 marks.

Table 3.3: Percentage Marks Distribution by Content Domains

Content Domains	Total Mark	Percentage of Total Mark	Mean Percent
Numbers and Operations	28	46.67	31.50
Statistics	4**	6.67	49.25
Measure	12	20.00	38.92
Geometry	6	10.00	26.05
Problem Solving	10	16.67	8.48

** *Few items*

Pupils performed best in Measure with a mean mark of 38.92% and least in Problem Solving with a mean mark of 8.48%.

There are four cognitive domains namely Knowledge, Comprehension, Application and Reasoning. The total of each cognitive domain in the test and mean performance are shown in Table 3.4.

Table 3.4: Percentage Mark Distribution by Cognitive Domains

Cognitive Domains	Total Mark	Percentage of Total Mark	Mean Percent
Knowledge	29	48.33	40.94
Comprehension	13	21.67	26.34
Application	8	13.33	21.59
Reasoning	10	16.67	8.48

Knowledge contributed most (48.33%) while Application contributed the least (13.33%). Pupils performed best in Knowledge with a mean percentage of 40.94% and least in Reasoning with a mean percentage of 8.48%. Table 3.5 shows the distribution of marks by cognitive domain under each content area.

Table 3.5: Total Marks by Content and Cognitive Domains

Content Domains	Cognitive Domains				Total
	Knowledge	Comprehension	Application	Reasoning	
Numbers and Operations	10	10	8	0	**28**
Statistics	4**	0	0	0	**4**
Measure	9	3**	0	0	**12**
Geometry	6	0	0	0	**6**
Problem Solving	0	0	0	10	**10**
Total	**29**	**13**	**8**	**10**	**60**

** *Few items*

In Numbers and Operations, the items were evenly distributed among the cognitive domains with the exception of Reasoning. Most of the items in Measure and Geometry were from knowledge whilst Problem Solving contributed only in Reasoning. Due to the few numbers of items in some cognitive domains of the same content area, no meaningful comparisons can be inferred from the performance.

To find out how pupils performed in each content area and cognitive domain the distribution of pupils were categorised into four, namely 0%, 1 - 50%, 51 - 75% and above 75%. Further analysis was done to determine the proportion of pupils getting a certain percentage as indicated in Tables 3.6 and 3.7.

Table 3.6: Pupils' Performance in each Content Area

Content Domains	Mean Score	0%	1 – 50%	51 – 75%	Above 75%
Numbers and Operations	31.50	3.0	80.0	13.8	3.1
Statistics	49.25	19.6	34.7	42.2	3.5
Measure	38.92	6.7	66.3	22.9	4.1
Geometry	26.05	25.2	66.7	6.4	1.7
Problem Solving	8.48	56.9	40.8	1.6	.7

The majority of pupils fall within the 1 - 50% category except for Problem Solving. Only a few pupils got more than 75% in each content area. However, there were some pupils getting a zero% in content areas, with the highest in Problem Solving (56.9%).

Table 3.7: Pupils' Performance in each Cognitive Domain

Cognitive Domains	Mean Score	0%	1 – 50%	51 – 75%	Above 75%
Knowledge	40.94	2.1	62.8	32.6	2.5
Comprehension	26.34	7.9	80.1	9.8	2.2
Application	21.59	51.3	36.9	7.7	4.1
Reasoning	8.48	56.9	40.8	1.6	.7

Performance in each cognitive domain shows that the majority of pupils scored less than 50%, in all the cognitive domains with the highest in Application and Reasoning with around 88% and 97% respectively. Only a few pupils scored above 75%. Some pupils scored zero with the highest scoring zero in Application (51.3%) and Reasoning (56.9%). This shows that pupils are not good at applying knowledge.

Performance in English Domains

The English test comprised of 50 marks derived from three content areas as shown in Table 3.8.

Table 3.8: Percentage and Mark distribution by Content Domains

Content Domains	Total Mark	Percentage of Total Mark	Mean Percent
Grammar	23	46	40.00
Reading	14	28	34.96
Composition	13	26	20.54

Grammar contributed 46% while Reading and Composition contributed 28% and 26% respectively. Pupils performed best in Grammar with a mean mark of 40.00% and least in Composition with a mean mark of 20.54%.

There are three cognitive domains namely Knowledge, Understanding and Application. Their contribution to the test and mean performance are shown in Table 3.9.

Table 3.9: Percentage and Mark Distribution by Cognitive Domains

Cognitive Domains	Total Mark	Percentage of Total Mark	Mean Percent
Knowledge	20	40	45.75
Understanding	14	28	29.70
Application	16	32	20.33

Knowledge contributed most (40%) while Understanding and Application contributed 28% and 32% respectively. Pupils performed best in Knowledge with a mean mark of 45.75% and least in Application with a mean mark of 20.33%.

Table 3.10 shows the distribution of marks per content under each domain whilst Table 3.11 shows the performance in each cognitive domain of a specific content area.

Table 3.10: Mark Distribution by Content and Cognitive Domains

Content Domains	Cognitive Domains			Total
	Knowledge	Understanding	Application	
Grammar	18	2**	3**	**23**
Reading	2**	12	0	**14**
Composition	0	0	13	**13**
Total	**20**	**14**	**16**	**2**

** *Few items*

Most of the items in Grammar were from Knowledge whilst Understanding and Application had very few. In Reading, most items were from Understanding while Knowledge had very few and Application had none. In Composition, all items were under Application. Due to few items, no meaningful comparisons of performance can be inferred from the cognitive domains of each content area.

To find out how pupils performed in each content area and cognitive domain the distribution of pupils were categorised into four, namely 0%, 1 - 50%, 51 - 75% and above 75%. Further analysis was done to determine the proportion of pupils getting a certain percentage as indicated in Tables 3.11 and 3.12.

Table 3.11: Pupils' Performance in each Content Area

Content Domains	Mean Score	0%	1 - 50%	51 - 75%	Above 75%
Grammar	40.00	1.1	72.1	21.3	5.4
Reading	34.96	.8	88.8	9.7	.7
Composition	20.54	29.0	60.0	8.6	2.4

Majority of pupils fall within the 1 - 50% category while a few got more than 75% in each content area. However, there were some pupils getting a zero % in each content area, with the highest in Composition (29%).

Table 3.12: Pupils' Performance in each Cognitive Domain

Cognitive Domains	Mean Score	0%	1 - 50%	51 - 75%	Above 75%
Knowledge	45.75	1.1	65.8	26.3	6.8
Understanding	29.70	1.3	92.3	5.9	.6
Application	20.33	25.1	67	7.1	.7

Performance by each cognitive domain shows that majority of pupils (more than 65%) scored less than 50% and only a few (about 6%) obtained above 75% in each cognitive domain. Some pupils scored zero with the highest scoring zero in Application. This shows that our pupils are not good at applying knowledge since the largest number getting zero was in Composition which falls only under Application domain.

Performance in Setswana Domains

The Setswana test comprised of 49 marks derived from three content areas as shown in Table 3.13.

Table 3.13: Mark and Percentage Distribution by Content Domains

Content Domains	Total Mark	Percentage of Total Mark	Mean Percent
Grammar	20	40.82	58.53
Reading	19	38.78	46.20
Composition	10	20.41	20.24

Grammar contributed 40.82% while Reading and Composition contributed 38.78% and 20.41% respectively. Pupils performed best in Grammar with a mean mark of 58.53% and least in Composition with a mean mark of 20.24%.

There are also three cognitive domains namely Knowledge, Understanding and Application. Their contribution to the test and mean performance are shown in Table 3.14.

Table 3.14: Mark and Percentage Contribution by Cognitive Domains

Cognitive Domains	Total Mark	Percentage of Total mark	Mean Percent
Knowledge	19	38.78	62.73
Understanding	10	20.41	44.82
Application	20	40.82	20.41

Application contributed most (40.82%) while Knowledge and Understanding contributed 38.78% and 20.41% respectively. Pupils performed best in Knowledge with a mean percentage of 62.73% and least in Application with a mean percentage of 20.41%.

Table 3.15 shows the distribution of marks by cognitive domain under each content area whilst Table 3.16 shows the performance in each cognitive domain of a specific content area.

Table 3.15: Mark distribution by Content and Cognitive Domains

Content Domains	Cognitive Domains			Total Mark
	Knowledge	Understanding	Application	
Grammar	16	2*	2*	**20**
Reading	3*	8	8	**19**
Composition	0	0	10	**10**
Total	**19**	**10**	**20**	**49**

*** Few items*

Most of the items in Grammar were from Knowledge whilst Understanding and Application had very few. In Reading, equal number of items were from Understanding and Application while Knowledge had very few. In Composition, all items were under Application. Due to few items in some cognitive domains of the same content area, no meaningful comparisons can be inferred from the performance of cognitive domains.

To find out how pupils performed in each content area and cognitive domain the distribution of pupils were categorised into four, namely 0%, 1 - 50%, 51 - 75% and above 75%. Further

analysis was done to determine the proportion of pupils getting a certain percentage as indicated in Tables 3.16 and 3.17 respectively.

Table 3.16: Pupils' Performance in each Content Area

Content Domains	Mean Score	0%	1 - 50%	51 - 75%	Above 75%
Grammar	58.53	.2	30.9	56.2	12.7
Reading	46.20	.4	56.1	34.6	8.9
Composition	20.24	37.8	52.7	5.7	3.7

Majority of pupils fall within the 1 - 50% category with the exception of Grammar while a few got more than 75% in each content area. However, there were some pupils getting a zero % in content areas, with the highest in Composition (37.8%).

Table 3.17: Pupils' Performance in each Cognitive Domain

Cognitive Domains	Mean Score	0%	1 - 50%	51 - 75%	Above 75%
Knowledge	62.73	.2	21.7	54.6	23.4
Understanding	44.82	2	65.9	21.3	10.8
Application	20.41	4.5	95.5	0	0

Performance by each cognitive domain shows that majority of pupils (more than 65%) scored less than 50%, with the exception of Knowledge. Some students (23.4% and 10.8% in Knowledge and Understanding respectively) obtained above 75 % in each cognitive domain while none scored above 75% in Application. Some pupils scored zero with the highest scoring zero in Application. This shows that our pupils are not good at applying knowledge.

The low performance in the Application cognitive domain for all content areas in the three subjects shows that pupils have extreme difficulties in applying abstract thinking. This is consistent with the TIMSS 2003 study findings where Form One students performed badly in questions that required application of knowledge. Once pupils are able to apply knowledge to new situations it is hoped that performance will be enhanced. Teachers should pay particular attention to this cognitive domain during instruction. Probably this could be traced to the way they are taught and assessed both at school level and nationally, then instructional strategies have to be changed, starting with changing the classroom teacher through in-service workshops and also changing the way pupils are assessed nationally.

Benchmarks

Given the performance of pupils in the three tests, the next step was to develop benchmarks which describe levels to which determine to what extent have pupils mastered the syllabus content of the lower primary. National benchmarks were developed by the same group of teachers who scored the tests. This benchmarking exercise is described in the section that follows.

National Benchmarks (Levels of Performance)

In a well constructed test, pupils with higher abilities are more likely to respond correctly to more items than pupils of lower abilities. By studying the characteristics of items that separate pupils at different ranges on the ability scale, it is possible to describe benchmarks that indicate different levels of pupils' achievements. This process of scaling ability is called scale anchoring, and it involves identifying the demands of the Standard Four syllabus as per the items in the tests. The test items were then grouped according to the identified benchmarks. Pupils at each benchmark are likely to answer correctly items at or below that benchmark.

Setting of Benchmarks

Standard Four teachers were made to take the pupils' assessment instruments (tests). The teachers were then requested to go through the syllabus for each subject and come up with competency standards. The TIMSS benchmarking structure of low, medium and high proficiency and the grade descriptions at different levels (A, C & E) for JCE were used as guidance. The teachers also used their own professional judgement based on the syllabus expectations at Standard Four. All these materials were used to come up with these competency levels (performance standards). The competency benchmarks of low, medium and high were established. The teachers went through the tests and classified each item according to its cognitive features. This classification was compared with the classification done by the subject specialist at Botswana Examinations Council (BEC). The two classifications did not differ much. This gave the project team the confidence that the tests classification by cognitive domains was correct. The teachers were also requested to consider each item and fit it at the appropriate level of the benchmark by cognitive demands and content area. Thus the total scores for each cognitive domain and benchmarks were established (refer to Appendix 1 and 3).

The teachers were then requested to use the performance standards or competency levels at each benchmark to determine the cut-off score for that benchmark. This is the minimally acceptable performance level at each benchmark. The low benchmark cut-off score would be the score of the total items of a pupil who satisfies this competency level. This would be the lowest acceptable performance. Any mark below this score would indicate performance that has failed to reach this benchmark, and this proportion of pupils would be regarded as ungraded. The teachers also set the progression cut-off score, this is the score a pupil would need to get to progress from Standard Four to Standard Five. The policy on progression at primary school is that a pupil should move from one level to the next if he/she has exceeded the minimally acceptable Standard.

The Standard Four teachers also carried out a Test Curriculum Match Analysis (TCMA). This process allowed for the determination of the correlation of the test to the curriculum from which the test was derived. The results of this match indicated a close relationship between the test and the curriculum, see Appendix 2.

The benchmarks for the three subjects are described in Table 3.18.

Table 3.18: Description of Benchmarks

Benchmark	Minimum Score Level	Brief Description* Subject		
		Mathematics	Setswana	English
High	Mathematics = 55 Setswana = 41 English = 44	• Apply Mathematical knowledge and understanding to solve problems • Solve multi step problems involving addition, subtraction, multiplication and division • Use knowledge of place value and simple fraction to solve problems • Solve simple equations • Show understanding of three dimensional objects, how shapes can make other shapes • Demonstrate a variety of measurement skills and interpret, organise and represent data in tables to solve problems	• Read and write a story and recall events, characters and meanings of words and explain ideas • Write own sentences using different parts of speech correctly • Write a composition of not less than three quarters of page • Write compound and complex sentences	• Read and write a story and recall events, characters and meanings of words and explain ideas • Write own sentences using different parts of speech correctly • Write a composition of not less than three quarters of page • Write compound and complex sentences
Medium	Mathematics = 37 Setswana = 27 English = 17	• Apply basic Mathematical knowledge in straight forward situation • Read, interpret and use different representation of numbers • Perform operations up to 3 digit number and decimals • Extend simple patterns • Are familiar with a range of two dimensional shapes • Interpret different representation of the same data	• Read and recall events and characters in a story read • Write a meaningful short paragraph • Use punctuation marks correctly in reading and writing	• Read and recall events and characters in a story read • Write a meaningful short paragraph • Use punctuation marks correctly in reading and writing
Low	Mathematics = 15 Setswana = 8 English = 7	• Have some basic Mathematical knowledge • Demonstrate an understanding of whole number and can do simple computation with them • Demonstrate familiarity with basic properties of shape, such as triangle, square and rectangle • Read information from simple graph and tables	• Read and write simple sentences • Use basic punctuations appropriately in reading and writing • Arrange words alphabetically • Translate simple sentences • Explain kinship terms • Decode meaning of simple words and phrases • Spell words with basic form and follow rules of orthography	• Read and write simple sentences • Use basic punctuations appropriately in reading and writing • Arrange words alphabetically
Progression Score to STD 5		26	22	17
Total Test Score		60	49	50

**For more details, refer to Appendix 1.*

The percentage of pupils that reached each National benchmark was computed. Table 3.19 shows the percentages of Standard Four pupils at each benchmark.

Table 3.19: Description of Benchmarks

Benchmark	Mathematics	Setswana	English
High	0.0	1.0	0.0
Medium	5.1	36.5	43.7
Low	53.2	60.0	48.1
Ungraded	41.6	2.5	8.2
Progression	22.5	54.9	43.7

According to Standard Four teachers, 0.0% in Mathematics, 1.0% in Setswana and 0.0% in English of the 2007 Standard Four pupils reached the high benchmark. About 48% in English, 53% in Mathematics and 60% in Setswana reached the low benchmark. According to the Standard Four teachers, for a pupil to progress to Standard Five, they need to have attained 26 out of 60 in Mathematics, 22 out of 49 in Setswana and 17 out of 50 in English. Using these cut-offs, the following will progress in each subject: 23% in Mathematics, 55% in Setswana and 44% in English. The proportion of pupils reaching each benchmark is relatively comparable to the results obtained for the MLA 2001 projects, where the Standard Four teachers then carried out a similar process to establish cut-offs for a pupil to be competent enough to progress to Standard Five.

Summary

Overall performance shows that pupils performed better in Setswana with a mean score of 45.02 and worst in Mathematics with a mean score of 29.80. Girls performed significantly better than boys in all the subjects. Mathematics test comprised mainly of items from Numbers and Operations content constituting 28.0% of the test with least items coming from Statistics (6.7%). Pupils performed best in Knowledge obtaining a mean of 40.94 and least in Reasoning, obtaining a mean of 8.48.

In English, Grammar contributed 46% while Reading and Composition contributed 28% and 26% respectively. Pupils performed best in Grammar with a mean mark of 40.00% and least in Composition with a mean mark of 20.54%. Knowledge contributed most (40%) while Understanding and Application contributed 28% and 32% respectively. Pupils performed best in Knowledge with a mean mark of 45.75% and least in Application with a mean mark of 20.33%.

In Setswana Grammar contributed 40.82% while Reading and Composition contributed 38.78% and 20.41% respectively. Pupils performed best in Grammar with a mean mark of 58.53% and least in Composition with a mean mark of 20.24%. Application contributed most (40.82%) while Knowledge and Understanding contributed 38.78% and 20.41% respectively. Pupils performed best in Knowledge with a mean percentage of 62.73% and least in Application with a mean percentage of 20.41%.

Generally, more items were set from Knowledge cognitive domain and pupils also did well as shown by the high mean scores. Normally, questions that can be set from this domain are low order recall type of questions which do not require application of facts and principles.

A thorough analysis of the test items and the lower primary syllabus enabled the examiners to come up with a description of three competency levels of the pupils, namely low, medium and high benchmarks. After describing the performance at each benchmark, minimum cut-off scores at each level were determined and the progression score that will allow the pupils to proceed to Standard Five. In Mathematics, 41.6% of the pupils were ungraded, that is they did not meet the minimum competency level for the low benchmark while for Setswana and English it was 2.5% and 8.2% respectively. No pupils reached the high benchmark in Mathematics and English while only one percentage of the pupils reached this benchmark in

Setswana. Progression rates for Mathematics, Setswana and English were 22.5%, 54.9% and 43.7% in that order. Recommendation 23 (a) of the RNPE of 1994 allows only 12.5% repetition in Standard Four, it shows that majority of the pupils proceed to Standard Five without having reached the lowest competency level in the three subjects. If competency levels are to be used, there should be more emphasis on quality rather than quantity for progression.

Policy Implications

1. Most pupils failed to attain the minimum competency standard, thus the RNPE recommendation that allows only up to 12.5% repetition in each class should be revisited in order to maintain standards, rather than the bias towards percentage of pupils to progress.

2. A common marking guide should be used for the scoring of the Standard Four attainment test. This could assist the teachers to familiarise themselves with the required standard of achievement at this level as such schools will be able to benchmark their performance at an early stage.

3. More research should be carried out to find the root cause of the underperformance of boys.

4. The knowledge cognitive domain dominates in all the subjects. Efforts should be made to equip teachers and item writers in setting high order thinking items which will stimulate creativity and innovativeness in pupils.

4 PUPILS' BACKGROUND VARIABLES AND THEIR PERFORMANCE

This chapter intends to discuss the background of the Standard Four pupils. Such background variables include the home and the school environments and their impact on the performance of the Standard Four pupils.

Characteristics of the Pupils

It is important to appreciate the characteristics of the Standard Four pupils who were involved in the study. Such characteristics include pupils' sex, age and pre-school attendance.

Pupils' Sex

The total number of pupils who responded to the questionnaire was 6131. Out of these 3153 (51.4%) were males while 2968 (48.4%) were females. The National Educational Statistics records dating as far back as 1995 show that boys' enrolment has always outnumbered girls in primary schools (CSO, 2006). The percentage of girls at PSLE 2008, however, is higher than that of boys.

Pupils' Age

The largest (46.6%) group of pupils in the sample was that of the ten year olds followed by the 11 year olds with 26.0% as shown in Table 4.1. The average age of pupils is 11.6 years. The age distribution of the pupils in the sample is therefore consistent with the policy of children starting school at the age of six or slightly older for remote areas. This also compares with Government statistics which indicate that most children start Standard One when they are aged 7 years and finish Standard Seven at the age of 14 (CSO, Education Statistics, 2004). SACMEQ and MLA studies also found that pupils started school when they were 7 years and 6 years old respectively (Ministry of Education, 2005; UNESCO, 2001).

A small proportion of the pupils constituting 12.2% started school at the age of 5 or less. However, this is much lower than the National Education Statistics of previous years (2001-2004), which shows an average of 22.2% in this age group. Some pupils started school very late, at an age of 10 years or older, though this constitutes a small number of 82 (1.3%). The

Education For All (EFA), Universal Basic Education (UBE), and Universal Primary Education (UPE) declarations require that all school-age children be at school at the right time.

Performance of the pupils in all subjects decreases with age as shown in Figure 4.1. For example, at age 8, the mean performance for Setswana, English, and Mathematics were 51.14, 49.56, and 41.67 respectively. At age 10, the mean performances for the same subjects in the same order were 48.23, 36.45 and 32.22. And for those at age 12, the mean performance for Setswana, English and Mathematics were 37.63, 25.66 and 22.71 in that order.

Figure 4.1: Pupils' Age and Performance

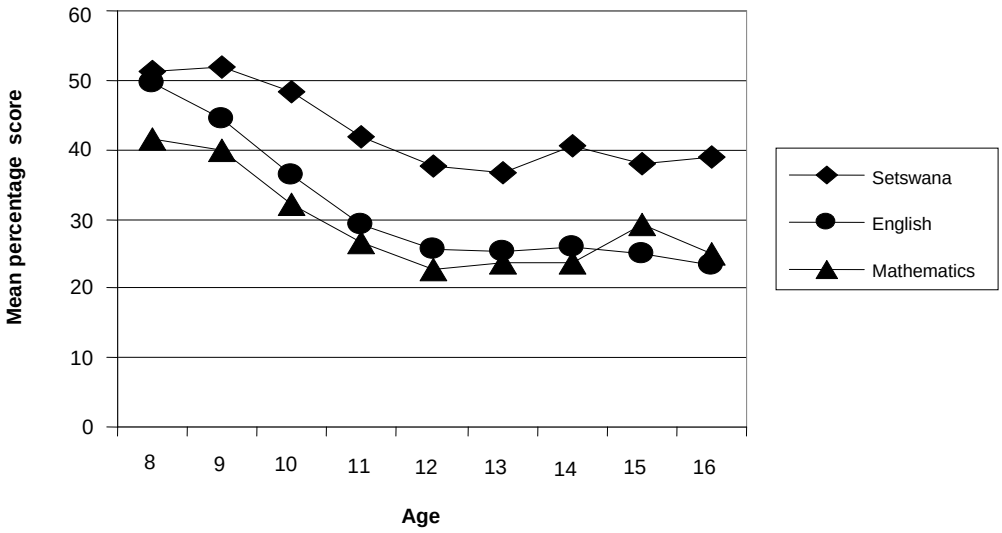


Table 4.1 shows that pupils in the age category of 8 - 10 years performed significantly better than those older than 10 years old in all the subjects. However, no significant difference in performance was observed between those of age category 11 - 13 and 14 years or above. This could suggest that young children learn better than older ones.

Age and Performance

Table 4.1: Pupils' Age and Performance

Pupils' Age		n	%	Mean (SE)	Diff (SE)
Mathematics	8 -10 years	3471	59.3	20.28 (.18)	1,2: 5.05 (.27)*
	11-13 years	2298	39.3	15.23 (.19)	1,3: 5.76 (1.13)*
	14 years or older	82	1.4	14.52 (1.17)	2,3: .71 (1.13)
Setswana	8 -10 years	3503	59.4	24.47 (.14)	1,2: 4.26 (.22)*
	11-13 years	2315	39.2	20.21 (.17)	1,3: 4.51 (.91)*
	14 years or older	81	1.4	19.96 (1.04)	2,3: .25 (.92)
English	8 -10 years	3444	59.7	19.07 (.14)	1,2: 5.10 (.20)*
	11-13 years	2242	38.9	13.98 (.12)	1,3: 6.48 (.83)*
	14 years or older	81	1.4	12.59 (.67)	2,3: 1.38 (.84)

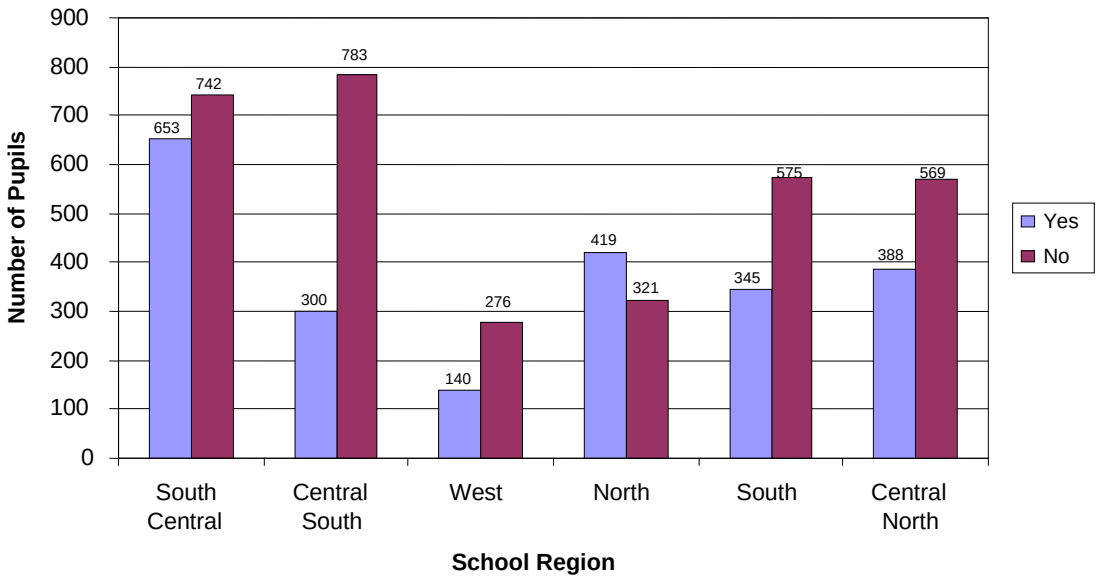
** Significant mean differences*

Pupils' Pre-school Attendance

Pre-school education is offered by private schools and therefore those pupils who attend are those whose parents can afford to pay tuition fees. Such a situation places those who have attended pre-school at an advantage when they start Standard One together with those who did not attend pre-school. However, since the concept of basic education was redefined at the World Conference on Education For All to include pre-primary education, the Government of Botswana has made significant strides in providing an enabling environment for the expansion of this level in terms of developing a comprehensive policy and monitoring all pre-primary education providers.

Figure 4.2 shows that pupils who attended pre-school in each region, were fewer than those who did not attend pre-school, with the exception of North region. A total of 2479 (40.4%) indicated that they attended Pre-school while 3619 (59.0%) indicated that they did not attend pre-school.

Figure 4.2: Pre-School Attendance by Pupils per Region



Pupils who attended pre-school performed significantly better in all the subjects than those who did not as shown in Table 4.2. It is apparent that pre-school attendance gives pupils some advantage at primary school. However, good performance cannot be wholly attributable to attending pre-school, some factors such as socio-economic background may also come into play.

Table 4.2: Mean Performance by Pre-School Attendance

Attended Pre-School		Mean (SE)	Diff (SE)
Mathematics	Yes	39.34 (.36)	9.09(.40)*
	No	30.25(.22)	
Setswana	Yes	34.32(.38)	6.73(.45)*
	No	27.59(.27)	
English	Yes	48.21(.34)	4.65(.44)*
	No	43.56(.28)	

** Significant mean differences*

Home Environment

Considerable amount of learning takes place in the home where the child spends most of the time before attending school. Toys, artefacts and older brothers, sisters and cousins that the child interacts with are important learning experiences. Variables that will be considered to be part of the home environment will be the number of books, going to the library, resources,

location of the home in relation to school, eating a meal, speaking of English at home, and people staying with the child.

Number of Books

Books are an important source of information. Figure 4.3 shows the number of books pupils have at home. Majority of pupils (65.8%) have fewer books between 0 - 10. Twenty-one percent reported having 11 - 25 books and only 11.3% reported having more than 25 books at home.

Figure 4.3: Number of Books in the Home

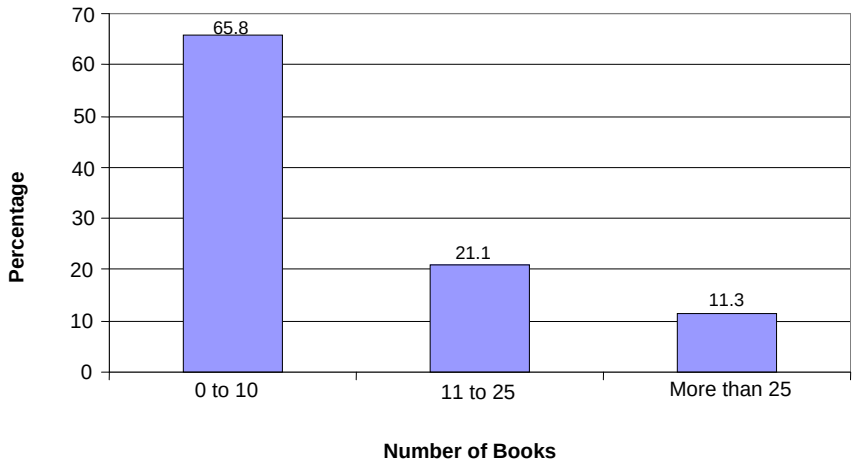


Table 4.3 shows that the number of books correlated positively with pupils' performance. Those pupils who had more than 25 books performed significantly better than those with less than 25 books. Parents are encouraged to buy more books for their pupils in order to read widely to improve their knowledge and inculcate the culture of reading.

Table 4.3: Number of Books the Pupils have at Home and Performance

Number of Books		n	%	Mean (SE)	Diff (SE)
Mathematics	0 - 10	3924	67.5	29.27(.27)	1,2: -1.28(.56)*
	11 - 25	1242	21.4	30.55(.48)	1,3: -8.29(.72)*
	At least 26	650	11.2	37.55(.79)	2,3: -7.01(.83)*
Setswana	0 - 10	3949	67.4	44.92(.27)	1,2: -1.22(.54)*
	11 - 25	1268	21.6	46.14(.46)	1,3: -3.97(.71)*
	At least 26	643	11.0	48.89(.64)	2,3: -2.75(.81)*
English	0 - 10	3843	67.0	32.45 (.24)	1,2: -2.34(.50)*
	11 - 25	1220	21.3	34.79(.45)	1,3: -9.71(.64)*
	At least 26	671	11.7	42.16(.70)	2,3: -7.37(.74)*

** Significant mean differences*

Going to the Library

Only a small fraction (7.4%) of the pupils in the sample frequent the library to read, as indicated in Table 4.4, to supplement what they were taught in class.

Table 4.4: Frequency of Visiting the Library and Pupils' Performance

Frequency of Going to the Library		n	%	Mean (SE)	Diff (SE)
Mathematics	Never	2487	42.5	26.97(.33)	1,2:-6.02(.46)*
	Sometimes	2929	50.0	32.99(.32)	1,3: -5.34(.88)*
	Frequently	437	7.5	32.31(.99)	2,3: .68(.87)
Setswana	Never	2486	42.1	42.81(.34)	1,2: -5.11(.45)*
	Sometimes	2985	50.6	47.92(.29)	1,3: -1.42(.86)
	Frequently	427	7.2	44.23(.80)	2,3: 3.69(.85)*
English	Never	2380	41.2	30.91(.30)	1,2: -5.26(.42)*
	Sometimes	2957	51.2	36.17(.29)	1,3: -4.95(.80)*
	Frequently	434	7.5	35.86(.86)	2,3: -.31(.79)

** Significant mean differences*

Pupils who go to the library *sometimes* or *frequently* performed significantly better than those who *never* go to the library, in all the three subjects. Pupils who *frequent* the library did not perform significantly different than pupils who go to the library *sometimes* except in Setswana.

Resources

A number of other learning resources, apart from text books are important in the learning process. These are items such as radio, television, video recorder, telephone and computer. Table 4.5 shows to what extent each of the resources is available and how the availability of a particular resource is related to pupils' performance.

Table 4.5: Learning Resource at Home and Pupils' Performance

Resources		Yes			No			Mean Diff	t-value	df	Sig. (2-tailed)
		n	%	Mean	n	%	Mean				
Mathematics	Radio	4908	85.5	31.34	838	14.6	26.02	5.32	8.31	5744	.00
	Video	2277	40.2	34.53	3394	59.8	27.86	6.67	14.48	5669	.00
	Computer	1045	18.6	35.32	4570	81.4	29.58	5.74	9.79	5613	.00
	Telephone	2748	48.7	32.90	2893	51.3	28.62	4.28	9.40	5639	.00
Setswana	Radio	4941	85.5	46.24	841	14.5	42.15	4.09	6.62	5780	.00
	Video	2270	39.8	47.83	3439	60.2	44.07	3.76	8.37	5707	.00
	Computer	1017	18.0	46.68	4632	82.0	45.47	1.20	2.08	5647	.04
	Telephone	2764	48.7	47.17	2911	51.3	44.44	2.34	6.23	5673	.00
English	Radio	4830	85.4	34.68	824	15.6	30.28	4.40	7.53	5652	.00
	Video	2233	40.0	38.64	3348	60.0	30.85	7.79	18.86	5579	.00
	Computer	1030	18.7	40.15	4490	81.3	32.67	7.48	14.14	5518	.00
	Telephone	2720	49.1	36.64	2825	50.9	31.69	4.95	12.00	5543	.00

Radio is the commonly available resource at home as 85.4% indicated that they have it, followed by telephone with 48.7% then video with 40.2%. Only 18.6% had computer yet it is an extremely important learning tool these days. Pupils who had a particular resource performed significantly better than those who did not have a resource.

Distance to School

Every settlement which has been declared a village is provided with a primary school. Therefore almost all villages have primary schools. Unlike secondary schools, boarding in primary schools is limited to certain people called Remote Area Dwellers (RADs). Consequently, majority of primary schools do not have boarding facilities. Unfortunately, those who stay far have to walk to school. Table 4.6 shows number of pupils who travel certain distance to school and their performance.

Table 4.6: Distance Pupils Travel to School and their Performance

Distance to School		n	%	Mean (SE)	Diff (SE)
Mathematics	Less than 1 km	2467	41.9	30.19(.34)	1,2:.93(.52)
	Between 1 and 2 km	1981	33.7	29.26(.37)	1,3:-1.81(.57)*
	More than 2 km	1437	24.4	32.00(.49)	2,3:-2.74(.60)*
Setswana	Less than 1 km	2462	41.5	45.51(.33)	1,2:.34(.50)
	Between 1 and 2 km	2020	34.1	45.17(.38)	1,3:-.18(.55)
	More than 2 km	1446	24.4	45.69(.44)	2,3:-.52(.58)
English	Less than 1 km	2409	41.5	33.26(.31)	1,2:-.38(.47)
	Between 1 and 2 km	1941	33.4	32.88(.34)	1,3:-3.17(.52)*
	More than 2 km	1453	25.04	36.43(.45)	2,3:-3.56(.54)*

** Significant mean differences*

The distance to school the pupil travelled did not affect performance in Setswana. However, pupils who stayed more than 2 kilometres performed significantly better than those who stayed closer to school. Probably these pupils use other modes of transport to school other than walking.

Eating a Meal

Three meals a day are sufficient for a pupil's well being. Meals are taken in the morning, during daytime and in the evening. The frequency of taking each meal by pupils involved in the study is shown in Table 4.7.

Table 4.7: Eating a Meal and Pupils' Performance

Frequency of Eating a Meal			n	%	Mean (SE)	Diff (SE)
Eating a meal in the morning	Mathematics	Not at all	858	15.23	24.47(.53)	1,2:-6.81(.70)*
		Sometimes	1976	35.08	31.27(.39)	1,3:-7.22(.67)*
		Always	2799	49.69	31.69(.33)	2,3:-.41(.50)
	Setswana	Not at all	876	15.44	40.34(.55)	1,2:-5.87(.67)*
		Sometimes	1998	35.21	46.21(.31)	1,3:-6.33(.64)*
		Always	2801	49.36	46.67(.96)	2,3:-.46(.49)
	English	Not at all	857	15.44	29.21(.47)	1,2:-4.96(.63)*
		Sometimes	1949	35.12	34.17(.35)	1,3:-6.13(.62)*
		Always	2743	49.43	35.33(.31)	2,3:-1.17(.46)
Eating a meal during the day	Mathematics	Not at all	533	9.89	25.17(.69)	1,2:-4.42(.85)*
		Sometimes	1712	31.77	29.59(.41)	1,3:-7.12(.80)*
		Always	3143	58.33	32.28(.32)	2,3:-2.70(.52)*
	Setswana	Not at all	529	9.76	41.26(.72)	1,2:-3.45(.83)*
		Sometimes	1714	31.62	44.71(.39)	1,3:-5.75(78)*
		Always	3177	58.62	47.01(.30)	2,3:-2.30(.50)*
	English	Not at all	522	9.87	30.05(.61)	1,2:-2.96(.79)*
		Sometimes	1656	31.35	33.00(.37)	1,3:-5.32(.73)*
		Always	3111	58.82	35.36(.29)	2,3:-2.36(.47)*
Eating a meal in the evening	Mathematics	Not at all	592	11.09	24.01(.65)	1,2:-5.91(.84)*
		Sometimes	1409	26.41	29.92(.46)	1.3:-8.09(.76)*
		Always	3335	62.50	32.10(.30)	2,3:-2.18(.54)*
	Setswana	Not at all	593	11.05	40.14(.66)	1,2:-5.26(.81)*
		Sometimes	1428	26.63	45.40(.45)	1.3:-6.58(.70)*
		Always	3342	62.32	46.72(.29)	2,3:-1.32(.52)
	English	Not at all	577	11.09	27.98(.56)	1,2:-5.20(.77)*
		Sometimes	1385	26.43	33.18(.41)	1.3:-7.34(.70)*
		Always	3279	62.56	35.32(.28)	2,3:-2.15(.50)*

** Significant mean differences*

It can be noted that at least 15.00% of the pupils do not take a meal in the morning compared to at least 9.00% for daytime and at least 11.00% for the evening.

It can also be noted that pupils who eat a meal *sometimes* or *always* in the morning performed significantly better in all subjects than pupils who *do not eat* a meal at all, but there is no significant difference in performance between those who eat *sometimes* and those who *eat*

always in all the subjects. Since pupils who ate a meal in the morning performed better, meals should always be made available before going to school.

Similarly, pupils who ate something during the day and those who ate something in the evening performed significantly better than those who did not eat anything in all the subjects. Thus eating is associated with better performance.

Speaking of English at Home

English is used as a medium of instruction in all Government schools starting from Standard Two. Table 4.8 shows the frequency of speaking English at home and pupils' performance.

Table 4.8: Speaking English and Pupils' Performance

Speaking English at Home		n	%	Mean (SE)	Diff (SE)
Mathematics	Not at all	2193	37.3	24.43 (.33)	1,2:-9.75(.46)*
	Sometimes	3314	56.4	34.18 (.30)	1,3:-6.87(.93)*
	Always	369	6.3	31.30 (.99)	2,3:2.88(.91)*
Setswana	Not at all	2214	37.5	40.52 (.35)	1,2:-8.49(.44)*
	Sometimes	3369	56.7	49.01 (.28)	1,3:-2.20(.95)
	Always	335	6.1	42.72 (.88)	2,3:6.29(.93)*
English	Not at all	2152	37.2	28.02 (.27)	1,2:-9.60(.41)*
	Sometimes	3269	56.7	37.62 (.28)	1,3:-8.50(.84)*
	Always	369	6.2	36.52 (.94)	2,3: 1.10 (.82)

** Significant mean differences*

The majority of the pupils (56%) speak English at home *sometimes* and 6.3% *always* speaks English at home. Those who do not speak English *at all* at home constituted 37% of the pupils in the sample.

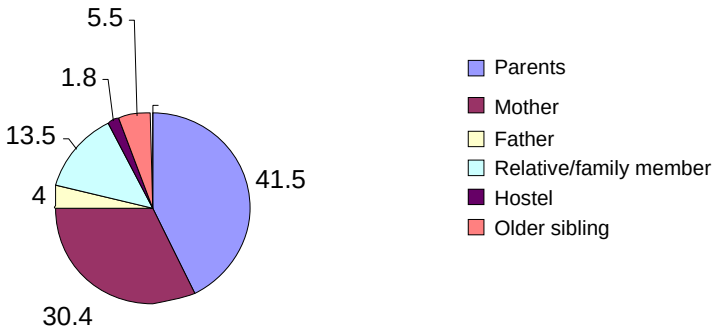
Table 4.8 also shows that pupils who speak English at home *sometimes* or *always* performed significantly better in English and Mathematics, whereas in Setswana pupils who speak English *sometimes* performed significantly better than others.

Parents should therefore encourage their children to speak English at home as this enhances performance in other subjects.

People Staying with the Pupils

Figure 4.4 shows the different people the pupils stay with. The majority of pupils (41.5%) indicated that they stay with both parents followed by those who stay with their mothers. Conversely, only 4% stay with their fathers. About 21% of the pupils did not stay with their parents.

Figure 4.4: People Staying with the Pupils



The relationship between the pupils and whom they stay with matters a lot in the pupils' academic achievement. Pupils who stayed with both parents performed significantly better in all the subjects than those who stayed with other guardians (See Table 4.9). Pupils who stayed with their mother or father performed the same except in Setswana where those who stayed with their mothers performed significantly better.

Table 4.9: People Staying with the Pupils and their Performance

People Staying with the Pupils		n	%	Mean (SE)	Diff (SE)
Mathematics	Both parents	2459	42.9	32.16 (.36)	1,2: 2.92(.53)* 1,3: 3.40(1.17)* 1,4: 2.25(.70)* 1,5: 6.43(1.71)* 1,6: 2.45(1.02)* 2,3: .48(1.19) 2,4: -.67(.73) 2,5: 3.51(1.72)* 2,6: -.47(1.04) 3,4: -1.15(1.27) 3,5: 3.03(2.01) 3,6: -.94(1.47) 4,5: 4.18(1.78)* 4,6: .20(1.14) 5,6: -3.97(1.94)*
	Mother	1806	31.5	29.24 (.40)	
	Father	235	4.1	28.76 (1.18)	
	Relative/Another family	807	14.1	29.90 (.59)	
	Hostel/Boarding	105	1.8	25.73 (.1.35)	
	Older sibling	320	5.6	29.70 (.96)	
Setswana	Both parents	2465	42.9	47.10 (.33)	1,2: 2.22(.51)* 1,3: 5.12(1.13)* 1,4: 1.50(.67)* 1,5: 6.45(1.71)* 1,6: 3.59(.97)* 2,3: 2.89(1.14)* 2,4: -.73(.70) 2,5: 4.23(1.72)* 2,6: 1.37(.99) 3,4: -3.61(1.22)* 3,5: 1.34(1.99) 3,6: -1.52(1.41) 4,5: 4.95(1.77)* 4,6: 2.09(1.08) 5,6: -2.86(1.91)
	Mother	1826	31.7	44.88 (.39)	
	Father	238	4.1	41.99 (.1.13)	
	Relative/Another family	819	14.2	45.60 (.58)	
	Hostel/Boarding	98	1.8	40.65 (1.72)	
	Older sibling	329	5.6	43.51 (.86)	
English	Both parents	2431	42.9	36.07 (.33)	1,2: 2.94 (.48)* 1,3: 3.70(1.06)* 1,4: 3.03(.64)* 1,5: 7.40(1.58)* 1,6: 4.64(.92)* 2,3: .76(1.07) 2,4: .08(.66) 2,5: 4.46(1.59)* 2,6: 1.69(.94) 3,4: -.67(1.15) 3,5: 3.70(1.85)* 3,6: .93(1.33) 4,5: 4.37(1.65)* 4,6: 1.61(1.03) 5,6: -2.77(1.78)
	Mother	1788	31.4	33.13 (.36)	
	Father	233	4.2	32.37 (1.06)	
	Relative/Another family	778	14.1	33.04 (.53)	
	Hostel/Boarding	99	1.8	28.67 (1.20)	
	Older sibling	317	5.6	31.43 (.80)	

** Significant mean differences*

School Environment

School environment pertains to what happens inside and outside the classroom. The following factors will be treated as school environment: absenteeism, pupils perception about schooling, reasons for missing school, repetition, giving homework, who helps the pupil with homework, means of travel to school, time taken to school, and participation in school activities

Absenteeism

Pupils miss lessons for various reasons. The main reason advanced for missing school was illness (45.5 %). Other reasons were attending funeral/wedding (6.0 %), illness of a family

member (4.1 %), working (2.8 %) and bad weather (2.5%). The number of days pupils missed classes were related to performance as shown in Table 4.10.

Table 4.10: Number of School Days Missed by Pupils' and their Performance

Number of School Days Missed		n	%	Mean (SE)	Diff (SE)
Mathematics	0 to 5 days	4149	88.8	30.86(.27)	1,2: 4.53(.96)* 1,3: 5.24(1.37)* 2,3: .71(1.63)
	6 to 10 days	354	7.6	26.33(.94)	
	11 or more days	168	3.6	25.62(1.39)	
Setswana	0 to 5 days	4179	89.3	45.93(.26)	1,2: 3.70(.94)* 1,3: 6.34(1.35)* 2,3: 2.64(1.60)
	6 to 10 days	342	7.3	42.23(.91)	
	11 or more days	161	3.4	39.59(1.43)	
English	0 to 5 days	4082	89.0	34.57(.25)	1,2: 1.48(.90) 1,3: 4.78(1.26)* 2,3: 3.30(1.51)*
	6 to 10 days	341	7.4	33.10(.93)	
	11 or more days	166	3.6	29.80(1.34)	

** Significant mean differences*

The majority (89 %) of the pupils missed school at most 5 days. Pupils who missed school days for 11 or more days had the lowest mean scores. Generally, pupils who missed school five days or less performed significantly better. Missing school results in low performance as pupils would not have participated in the learning process.

Pupils' Perception about Schooling

Table 4.11 shows the pupils' perception about schooling and their performance. Majority of pupils responded positively to all the statements. 'I like to go to school' had the highest frequency of about 97% and the least was 'I have many friends at school' with a frequency of about 58%. Pupils with positive perception performed significantly better than their counterparts in all the subjects.

Table 4.11: Pupils Perception about Schooling and Performance

Pupils Perceptions		Yes			No			Mean Diff	t-value	df	Sig.(2-tailed)
		n	%	Mean	n	%	Mean				
I like to go to school	Mathematics	5565	97.0	30.90(.23)	174	3.0	17.87(1.04)	13.03	9.89	5737	.00
	Setswana	5608	97.0	46.01(.22)	173	3.0	32.86(1.28)	13.15	10.29	5779	.00
	English	5489	97.1	34.29(.21)	164	2.9	24.39(1.06)	9.90	8.07	5651	.00
I enjoy learning at school	Mathematics	5220	91.5	31.24(.24)	486	8.5	22.87(.62)	8.37	10.30	5704	.00
	Setswana	5245	91.4	46.13(.23)	496	8.6	39.72(.68)	6.41	8.19	5739	.00
	English	5130	91.4	34.61(.22)	480	8.6	27.52(.51)	7.09	9.58	5608	.00
I like my teacher	Mathematics	5362	93.6	30.89(.24)	365	6.4	24.20(.85)	6.69	7.19	5725	.00
	Setswana	5401	93.8	45.95(.23)	360	6.2	39.31(.93)	6.65	7.34	5759	.00
	English	5275	93.7	34.28(.22)	356	6.3	29.01(.79)	5.28	6.20	5629	.00
I learn a lot at school	Mathematics	4945	87.1	31.41(.25)	732	12.9	24.75(.53)	6.67	9.83	5675	.00
	Setswana	4956	86.8	46.33(.24)	752	13.2	40.84(.57)	5.49	8.44	5706	.00
	English	4850	86.9	34.79(.23)	728	13.1	28.66(.44)	6.14	9.99	5576	.00
I have many friends at school	Mathematics	3330	59.0	29.51(.31)	2315	41.0	32.07(.34)	-2.56	-5.48	5643	.00
	Setswana	3337	58.8	43.58(.29)	2343	41.2	48.48(.34)	-4.90	-10.99	5678	.00
	English	3281	59.1	33.25(.28)	2267	40.9	35.00(.32)	-1.75	-4.11	5546	.00
I do not like to go to school	Mathematics	1473	26.5	21.79(.35)	4088	73.5	33.94(.27)	-12.15	-24.28	5559	.00
	Setswana	1487	26.6	37.62(.38)	4106	73.4	48.73(.26)	-11.12	-23.02	5591	.00
	English	1442	26.4	26.14(.29)	4022	73.6	36.99(.25)	-10.85	-23.76	5462	.00

Pupils with positive perception were performing significantly better than those with low perception in all the subjects. Further analysis by sex showed that girls with positive perception perform significantly better than boys with the same perception as shown in Table 4.12.

Table 4.12: Pupils' Positive Perception about Schooling by Sex and Performance

Pupils' Perceptions		Girls			Boys			Mean Diff	t-value	df	Sig.(2-tailed)
		n	%	Mean	n	%	Mean				
I like to go to school	Mathematics	2730	49.1	32.45(.33)	2829	50.9	29.41(.32)	3.04	6.62	5557	.00
	Setswana	2747	49.0	49.30(.31)	2856	51.0	42.85(.31)	6.45	14.87	5601	.00
	English	2689	49.0	36.69(.30)	2794	51.0	31.96(.28)	4.73	11.41	5481	.00
I enjoy learning at school	Mathematics	2571	49.3	32.95(.34)	2644	50.7	29.59(.34)	3.36	7.00	5213	.00
	Setswana	2581	49.3	49.64(.32)	2660	50.8	42.74(.32)	6.90	15.20	5239	.00
	English	2524	49.2	37.17(.32)	2601	50.8	32.11(.30)	5.06	11.58	5123	.00
I like my teacher	Mathematics	2679	50.0	32.37(.34)	2675	50.0	29.43(.33)	2.94	6.26	5352	.00
	Setswana	2700	50.1	49.19(.31)	2694	50.0	42.74(.32)	6.45	14.60	5392	.00
	English	2635	50.0	36.72(.31)	2633	50.0	31.84(.29)	4.88	11.51	5266	.00
I learn a lot at school	Mathematics	2459	49.8	33.12(.35)	2479	50.2	29.75(.35)	3.37	6.79	4936	.00
	Setswana	2465	49.8	49.78(.33)	2485	50.2	42.92(.33)	6.86	14.71	4948	.00
	English	2413	49.8	37.30(.33)	2431	50.2	32.29(.31)	5.01	11.08	4842	.00
I have many friends at school	Mathematics	1455	43.8	30.79(.48)	1870	56.3	28.54(.41)	2.45	3.61	3323	.00
	Setswana	1463	43.9	46.67(.43)	1870	56.1	41.20(.38)	5.47	9.56	3331	.00
	English	1445	44.1	35.53(.43)	1831	55.9	31.45(.36)	4.08	7.36	3274	.00
I do not like to go to school	Mathematics	2042	50.0	35.49(.38)	2041	50.0	32.39(.39)	3.10	5.69	4081	.00
	Setswana	2053	50.0	51.96(.35)	2049	50.0	45.51(.36)	6.45	12.85	4100	.00
	English	2015	50.2	39.48(.36)	2002	49.8	34.48(.35)	5.00	10.02	4015	.00

Number of Years Pupils Spent in each Standard (Grade)

Table 4.13 shows that quite a few pupils, on average 0.6%, skip a grade each year. These are naturally intelligent pupils who deserve accelerated promotion to the next level. Skipping a grade is in line with recommendation 23 of the Revised National Policy on Education which

requires thorough consultation with the class teacher, remedial teacher, psychologists and the parent.

Table 4.13: Percentage of Pupils Who Spent Various Years in each Standard (Grade)

Number of Years Spent in a Standard	Percentage of Pupils			
	Standard 1	Standard 2	Standard 3	Standard Four
0 years/Never	0.6	0.6	.05	0.6
1 year	82.8	86.5	85.8	80.7
2 years	12.4	8.3	8.5	13.3
3 years	0.4	0.3	0.9	0.2
4 years	0.0	0.0	0.0	0.8
5 years	0.0	0.0	0.0	0.0

A small percentage, 0.8%, spent four years in Standard Four. This is a serious concern because it shows that such pupils were just pushed through the system without attaining minimum expected competency. This is supported by evidence from Education Statistics which shows the highest number of repeaters in Standard Four than any other grade since 1995 to 2004 (Education Statistics, 2006).

Performance of repeaters compared to non-repeaters shows significant differences with the repeaters performing lower in all the subjects at each grade (Table 4.14). Due to the low performance they exhibit, it is suggested that different teaching strategies should be employed and more remedial lessons given in an attempt to improve their performance.

Table 4.14: Performance of Repeaters at each Standard (Grade)

Standards		Non-Repeating Pupils			Repeating Pupils			Mean Diff	t-value	df	Sig.(2-tailed)
		n	%	Mean	n	%	Mean				
Standard 1	Mathematics	4941	86.5	31.70(.25)	766	13.5	22.03(.53)	9.67	14.62	5705	.00
	Setswana	4982	86.6	46.62(.24)	767	13.4	38.03(.56)	8.57	13.40	5747	.00
	English	4904	86.8	34.90(.23)	744	13.2	27.27(.46)	7.63	12.61	5646	.00
Standard 2	Mathematics	5159	90.8	31.19(.24)	519	9.2	23.21(.65)	7.98	10.08	5676	.00
	Setswana	5198	90.9	46.23(.23)	518	9.1	38.02(.68)	8.22	10.73	5714	.00
	English	5115	90.9	34.70(.22)	509	9.1	26.19(.55)	8.51	11.85	5622	.00
Standard 3	Mathematics	5125	90.3	31.02(.25)	549	9.7	25.26(.63)	5.76	7.42	5672	.00
	Setswana	5153	90.2	46.24(.23)	561	9.8	38.67(.65)	7.57	10.24	5712	.00
	English	5071	90.2	34.62(.22)	549	9.8	27.73(.50)	6.89	9.89	5618	.00
Standard Four	Mathematics	4817	85.0	31.30(.25)	849	15.0	26.03(.50)	5.26	8.20	5664	.00
	Setswana	4843	84.9	46.56(.24)	863	15.1	39.46(.52)	7.10	11.60	5704	.00
	English	4776	85.2	34.95(.23)	831	14.8	28.27(.42)	6.68	11.47	5605	.00

Table 4.15 shows the performance of male repeaters compared to female repeaters. Boys repeaters account for 60% while girls account for only 40%. Girls repeaters performed significantly better than boys with the exception of Mathematics where performance was the same.

Table 4.15: Performance of Repeaters by Sex

Subjects	Female			Male			Mean Diff	t-value	df	Sig.(2-tailed)
	n	%	Mean	n	%	Mean				
Mathematics	338	39.9	26.83(.81)	510	60.1	25.54(.64)	1.29	1.26	846	.21
Setswana	339	39.3	42.71(.79)	523	60.7	37.35(.67)	5.36	5.12	860	.00
English	331	39.9	30.20(.72)	500	60.1	27.00(.50)	3.20	3.79	829	.00

Homework

Classroom instruction time is limited and there are a lot of competing subjects. To try and finish the syllabus, pupils have to do some of the work at home. Pupils indicated that the frequency of giving homework was minimal as shown in Table 4.16.

Table 4.16: Frequency of Giving Homework

Frequency of Giving Homework	Percentage of Students		
	Mathematics	Setswana	English
Never	12.0	21.2	24.4
Once a week	28.7	41.5	38.3
At least twice a week	54.3	31.6	31.6

Pupils were getting most assignments from Mathematics and least from English. Table 4.17 shows performance in the three subjects with regard to frequency of giving homework. Pupils who were given homework performed significantly better than those who were never given homework in all the three subjects. On the other hand, pupils who indicated that they were given homework at least twice a week performed significantly better than those given homework *once a week* only in Mathematics.

Table 4.17: Frequency of Giving Homework by Teachers and Performance by Pupils in each of the Three Subjects

Frequency of Giving Homework		n	%	Mean (SE)	Diff (SE)
Mathematics	Never	721	12.8	23.37(.59)	1,2: -5.46(.75)*
	Once a week	1714	30.4	28.84(.39)	1,3: -9.65(.70)*
	At least twice a week	3194	56.7	33.02(.31)	2,3: -4.19(.51)*
Setswana	Never	1459	25.7	43.59 (.45)	1,2: -2.31(.56)*
	Once a week	2312	40.8	45.90 (.34)	1,3: -3.24(.58)*
	At least twice a week	1897	33.5	46.83 (.38)	2,3: -.93(.52)
English	Never	1246	22.7	31.09(.40)	1,2: -3.35(.54)*
	Once a week	2442	44.5	34.43(.32)	1,3: -4.40(.58)*
	At least twice a week	1794	32.7	35.48(.39)	2,3: -1.05(.48)

** Significant mean differences*

Who Helps with Homework

Pupils' learning is not the responsibility of the classroom teacher only. When pupils are given homework, parents/guardians staying with the pupils should make an effort to help them do their homework. The majority of pupils (at least 88%) indicated that someone helps them with homework, while less than 12% indicated that none helps them as indicated in Table 4.18.

Table 4.18: Helping with Homework and Pupils' Performance

Subjects	Yes			No			Mean Diff	t-value	df	Sig. (2-tailed)
	n	%	Mean	n	%	Mean				
Mathematics	5223	88.7	30.77	664	11.3	26.59	4.18	5.89	5885	0.00
Setswana	5284	89.1	45.93	648	10.9	41.11	4.82	6.96	5930	0.00
English	5176	89.2	34.46	627	10.8	29.58	4.88	7.43	5801	0.00

Pupils who were helped to do homework at home performed significantly better in all the subjects than those who were not. This shows that learning by the pupils should be a shared responsibility between the school and parents.

Though some homework was given and someone assisted pupils doing it, pupils cited various reasons why they failed to do the homework. Table 4.19 shows the frequency of reasons for not doing homework by the pupils.

Table 4.19: Reasons for not doing Homework

Reasons for Failing to do Homework	Percentage of Pupils	
	Yes	No
Look after young ones	34.6	58.1
Helping mother	44.0	48.0
Helping father	31.7	59.0
Watching TV/Video	30.5	60.8
Listening to radio	29.4	60.9
Playing with friends	46.3	45.6

The most common reasons for not doing homework were playing with friends and helping mother. Other reasons appear more or less at the same frequency.

Means of Travel to School

The majority of pupils walk to school (81.5%) while around 13.6% reach school by means of bus or car. An insignificant number (0.8%) use bicycles as shown in Table 4.20. Pupils who walk to school performed significantly better in all the subjects than those who ride on bicycles.

Pupils who go to school by car or bus, performed significantly better in all the subjects than those who walk or ride on bicycle. There are a few pupils who ride on bicycles or travel by bus/car compared to those who walk. Therefore the results should be interpreted with caution. But these few could be children from well off families with conducive home environment for learning.

Table 4.20: Means to School by Pupils and Their Performance in each of the Three Subjects

Mode of Transport		n	%	Mean (SE)	Diff (SE)
Mathematics	Walk	4977	81.5	17.38 (.14)	1,2: 9.34 (1.50)* 1,3: -6.96 (.39)* 1,4: 3.18 (1.05)* 2,3: -16.30 (1.54)* 2,4: -6.16 (1.82)* 3,4: 10.14 (1.10)*
	Bicycle	45	.08	8.04 (1.10)	
	Bus/Car	873	14.6	24.34 (.42)	
	Other	93	1.6	14.20 (.99)	
Setswana	Walk	5068	81.5	22.50 (.12)	1,2: 8.55 (1.21)* 1,3: -2.74 (.33)* 1,4: 4.34 (.87)* 2,3: -11.29 (1.24)* 2,4: -4.21 (1.48)* 3,4: 7.08 (.91)*
	Bicycle	47	0.8	13.96 (1.01)	
	Bus/Car	734	14.6	25.24 (.29)	
	Other	92	1.6	18.16 (.89)	
English	Walk	4892	81.2	16.06 (.10)	1,2: 6.13 (1.09)* 1,3: -7.42 (.28)* 1,4: 2.70 (.77)* 2,3: -13.54 (1.11)* 2,4: -3.42 (1.33)* 3,4: 10.12 (.81)*
	Bicycle	46	0.8	9.93 (.54)	
	Bus/Car	782	14.7	23.48 (.33)	
	Other	92	1.6	13.36 (.69)	

** Significant mean differences*

Time Taken to Reach School

The time taken by pupils to reach school is as shown in the Table 4.21. Most of the pupils (86.2%) take less than 30 minutes to reach school, whilst 13% take 30 or more minutes to reach school every day.

As seen from Table 4.21 pupils who took more than 60 minutes to reach school performed significantly lower in Mathematics than those who took 10 minutes to reach school. Generally, the time taken to reach school does not affect pupils' performance.

Table 4.21: Time Taken to Reach School and Pupils' Performance

Time Taken to Reach School		n	%	Mean (SE)	Diff (SE)
Mathematics	Less than 10 minutes	2468	41.9	18.48 (.21)	1,2: .26 (.32) 1,3: .14 (.43) 1,4: .95 (53) 1,5: 2.12 (.60)* 2,3: -.12 (.44) 2,4: .69 (.55) 2,5: 1.86 (.62) 3,4: .81 (.62) 3,5: 1.99 (.68) 4,5: 1.17 (.75)
	Between 10 and 20 minutes	1875	31.8	18.22 (.24)	
	Between 20 and 30 minutes	770	13.1	18.34 (.39)	
	Between 30 and 60 minutes	446	7.6	17.53 (.49)	
	More than 60 minutes	333	5.7	16.36 (.53)	
Setswana	Less than 10 minutes	2470	41.8	22.83 (.17)	1,2: .03 (.26) 1,3: .46 (.34) 1,4: .62 (.43) 1,5: .84 (.49) 2,3: .01 (.35) 2,4: .58 (.44) 2,5: .81 (.50) 3,4: .57 (.49) 3,5: .80 (.55) 4,5: .23 (.60)
	Between 10 and 20 minutes	1890	31.8	22.80 (.19)	
	Between 20 and 30 minutes	786	13.0	22.78 (.30)	
	Between 30 and 60 minutes	456	7.5	22.21 (.39)	
	More than 60 minutes	333	5.6	21.99 (.44)	
English	Less than 10 minutes	2422	41.7	17.09 (.16)	1,2: .27 (.24) 1,3: -.36 (.32) 1,4: .35 (.40) 1,5: 1.01 (.46) 2,3: -.63 (.33) 2,4: .07 (.41) 2,5: .74 (.47) 3,4: .70 (.46) 3,5: 1.37 (.51) 4,5: .67 (.57)
	Between 10 and 20 minutes	1817	31.8	16.82 (.18)	
	Between 20 and 30 minutes	786	13.1	17.45 (.29)	
	Between 30 and 60 minutes	455	7.6	16.75 (.38)	
	More than 60 minutes	326	5.6	16.08 (.40)	

** Significant mean differences*

Participation in School Activities

Co-curricular activities form an important part of the school curriculum. Participation in extra activities helps learners develop affective skills, team work and socialisation. Table 4.22 shows pupils' participation in school activities and their performance.

Table 4.22: Participation in School Activities and Pupils' Performance

Participation in School Activities	Yes		No		Mean Diff	t-value	df	Sig.(2-tailed)
	n	Mean	n	Mean				
Mathematics	3216	30.84(.31)	2651	29.85(.32)	.98	2.17	5865	.03
Setswana	3210	45.28(.29)	2702	45.78(.32)	-.50	-1.15	5910	.25
English	3117	33.97(.28)	2664	33.95(.30)	.03	.06	5779	.95

About 54% of the pupils reported that they participated in school activities, whilst about 46% did not participate in school activities. However, participation in school activities is not related to performance.

Summary

The sample was made of 6131 pupils, of these, 51.4% were boys while 48.4% were girls, an indication that girls may not be disadvantaged with respect to access at primary school.

The ages for the Standard Four pupils ranged from eight years to above fourteen years with 46.6% and 26.0% of the pupils aged 10 and 11years respectively. This is consistent with the policy of starting primary school at age six. The average age for girls was 11 while that of boys was 12 years showing that boys start school later than girls. Pupils aged 8 - 10 years performed significantly better that those aged 11 and above in all subjects showing that pupils perform better at a young age.

Pre-school is not compulsory and is offered by private individuals or institutions. Parents pay for this service. Majority, 59.0%, of the pupils did not attend pre-school while 40.4% attended pre-school. Pupils who attended pre-school performed significantly better than those who did not. This could be an indicator that the Primary Department should start exploring recommendations 9 and 11 of the RNPE, 1994.

Pupils need to do school work both at school and at home. As such, teachers should give pupils homework frequently. Pupils who were given homework performed better than those who were never given homework. However, as the frequency of homework increased, it tended not to have any impact on the performance. This could be due to the fact that as more and more homework was given, pupils tended not to have enough time to do it every day, as quite a number of pupils were also engaged in home chores after school, particularly in rural areas.

The greater the number of books a pupil has at home was found to positively affect performance. Books are a source of vital information. Only a few pupils (7.4%) go to the library frequently and surprisingly, they do not perform well as expected. Rather those who go to the library sometimes performed significantly better in all the subjects.

Pupils who had meals either sometimes or always performed significantly better than those who did not have a meal at all at either time of the day. Further investigations need to be done to understand why pupils don't take their ration during daytime.

In this study, pupils who spoke English at home performed better than those who did not speak English at home at all, in all the subjects. Parents should encourage their pupils to speak English at home since the language is used as a medium of instruction from Standard Two.

Policy Implications

1. Since younger pupils performed significantly better than the older ones, the starting school policy should be revised with the view to lower the age entrance for government schools. Maybe this will result in higher percentage pass rate and more pupils reaching competency levels. This will be in line with the recommendation 16 (b) for entry age for private schools.

2. The policy of pre-schooling should be fast tracked since it has been established that those who attended pre-school performed significantly better than those who did not attend pre-school. At the moment, pre-schooling is not compulsory and particularly such schools are concentrated in towns and big villages where they are run commercially. Even the curriculum and teacher qualification are not standardised. In remote areas, it is difficult to find a pre-school. As such, pupils growing up in remote areas are disadvantaged from the onset, and this could be difficult to make up for by providing equal resources at subsequent levels.

3. Hostels provide good accommodation for the pupils but the pupils residing in them performed the worst. More research should be done to find out why this is the case.

4. Schools should devote some time for pupils to go to the library as this was found to be positively associated with performance. Consequently, the option of creating the post of librarian should be explored. In the meantime, teachers should be trained on library studies so that they help the pupils meaningfully when they are at the library.

5. Government has a clear policy on feeding primary school pupils during the day. Further investigations needs to be instituted to find out why some schools do not feed their pupils during the day as it is mandatory to do so.

6. Since there are many subjects competing for limited time, teachers should give pupils a lot of homework to be assisted by parents. School management should devise a system of monitoring pupils' assistance by parents.

7. The school feeding programme should be strengthened such that food is available on daily basis.

5 TEACHER BACKGROUND VARIABLES AND PUPILS' PERFORMANCE

Teachers play an important role in the teaching-learning process. The modern teacher acts as a facilitator and has to motivate pupils to learn. A well trained teacher has to be able to identify pupils who need remediation and special needs. As such, teacher training and their preparedness to teach are of utmost importance in pupil achievement. The following discussion concentrates on the teachers' background in relation to pupils' performance.

Teacher Characteristics

Teacher's characteristics being discussed are sex, age and teaching experience.

Teacher's Sex

A total of 577 teachers completed the questionnaire and amongst them, 74.5% were females and only 25.5% were males. It was observed that pupils taught by female teachers out-numbered those taught by male teachers in all the three subjects. The performance of the pupils was related to the sex of the teachers as shown in Table 5.1

Table 5.1: The Sex of the Teacher and Pupils' Performance

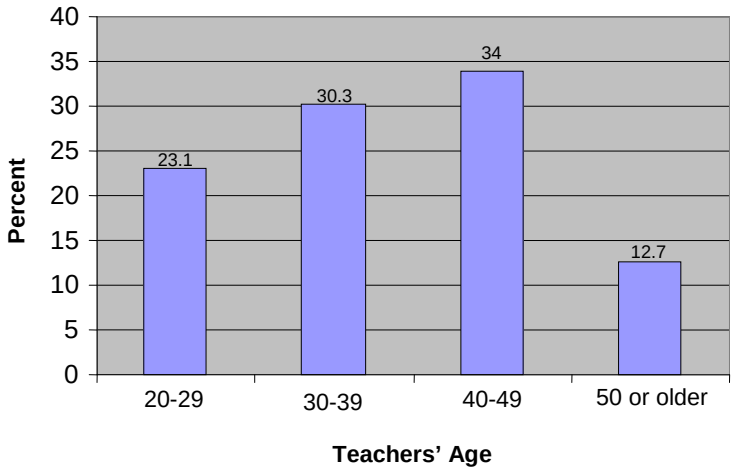
Subject	Female			Male			Mean Diff	t-value	df	Sig. (2-tailed)
	n	%	Mean	n	%	Mean				
Mathematics	3745	76.3	30.74(.28)	1161	23.7	29.22(.55)	1.52	2.78	4904	.01
Setswana	3416	74.5	46.26(.29)	1169	25.5	42.99(.49)	3.27	5.76	4583	.00
English	3419	72.2	34.69(.27)	1320	27.9	31.65(.44)	3.04	5.93	4737	.00

Pupils taught by female teachers performed significantly higher in all the subjects than those taught by male teachers.

Teachers' Age

Teachers' ages were found to be varied, cutting across the continuum, from as young as 20years to 50 years or older. Figure 5.1 shows the age distribution of teachers.

Figure 5.1: Age of Standard Four Teachers



The majority of teachers were found to fall in the age category of 40 - 49, constituting 34%, followed by 30 - 39, constituting 30.3%. The least were those teachers 50 or above. The highly experienced group was the smallest because some might have retired, promoted to non-teaching positions such as School Heads, education officers, lecturers and changing jobs. Table 5.2 presents performance of pupils taught by teachers of different age groups.

Table 5.2: Teacher's Age and Pupils' Performance

Teacher's Age		n	%	Mean (SE)	Diff (SE)
Mathematics	20 to 29	1065	21.7	29.21(15.97)	1,2: -1.11(.70) 1,3: -.47(.68) 1,4: -4.84(.86)* 2,3: .64(.62) 2,4: -3.74(.81)* 3,4: -4.37(.79)*
	30 to 39	1473	30.0	30.32(17.59)	
	40 to 49	1683	34.3	29.68(17.53)	
	50 or older	685	14.0	34.05(19.28)	
Setswana	20 to 29	881	19.2	43.72(16.58)	1,2: -1.96(.73)* 1,3: -2.01(.70)* 1,4: -2.70(.87)* 2,3: -.05(.61) 2,4: -.74(.81) 3,4: -.69(.78)
	30 to 39	1348	29.4	45.68(17.06)	
	40 to 49	1711	37.3	45.73(17.18)	
	50 or older	645	14.1	46.42(15.59)	
English	20 to 29	1197	25.3	31.16(14.33)	1,2: -3.40(.63)* 1,3: -3.86(.61)* 1,4: -3.40(.76)* 2,3: -.46(.59) 2,4: .00(.75) 3,4: .46(.73)
	30 to 39	1351	28.5	34.56(16.37)	
	40 to 49	1523	32.1	35.02(16.35)	
	50 or older	668	14.1	34.56(15.83)	

** Significant mean differences*

Pupils taught Mathematics by teachers who are 50 years or older performed significantly better than those taught by younger teachers whilst pupils taught Setswana and English by teachers above 30 years performed significantly better than those taught by teachers younger

than 30 years. It would appear therefore that older teachers have more experience and are able to guide their pupils better.

Teaching Experience

Overall Teaching Experience

Experience is important in life, and this is not exception in teaching. Table 5.3 shows pupils' performance and teachers' experience. The majority of pupils in all the three subjects were taught by teachers with the least experience. In Mathematics, pupils taught by teachers with 10 years experience performed just as well as pupils taught by teachers with 26 or more years. Pupils taught by teachers with five years or less experience performed just as well as pupils taught by teachers with 16 - 25 years of experience. The relationship between the teacher's experience and pupil's performance in Mathematics is therefore not linear.

In Setswana, pupils taught by teachers with five years or less of experience performed as well as pupils taught by teachers with 11 - 15 years of experience. Otherwise, pupil performance tended to improve, though insignificantly with teacher experience.

The lowest performing pupils in English are those taught by teachers with five or less years of experience. However, pupils taught by teachers with six to ten years of experience performed as well as pupils taught by teachers with 21 - 25 years of experience. In general, 6 - 10 years of teaching experience results in the highest performance by pupils.

Table 5.3: Overall Teaching Experience and its Impact on Pupils' Performance

Teaching Experience		n	%	Mean (SE)	Diff (SE)
Mathematics	0 to 5 years	1051	22.52	28.64 (.50)	1,2: -6.68 (.94)* 1,3: 1.10 (.78) 1,4: -.65 (.79) 1,5: -.98 (.82) 1,6: -8.61 (.97)* 2,3: 7.78 (.95)* 2,4: 6.03 (.96)* 2,5: 5.70 (.99)* 2,6: -1.93 (1.11) 3,4: -1.75 (.81)* 3,5: -2.08 (.84)* 3,6: -9.71 (.98)* 4,5: -.33 (.85) 4,6: -7.96 (.99)* 5,6: -7.63 (1.02)*
	6 to 10 years	509	10.91	35.32 (.85)	
	11 to 15 years	954	20.44	27.54 (.52)	
	16 to 20 years	898	19.24	29.29 (.59)	
	21 to 25 years	789	16.91	29.62 (.66)	
	26 or more years	466	9.99	37.25 (.85)	
Setswana	0 to 5 years	906	16.26	43.54 (.57)	1,2: -3.30 (.93)* 1,3: -.32 (.77) 1,4: -2.39 (.85)* 1,5: -3.42 (.83)* 1,6: -3.42 (.95)* 2,3: 2.98 (.91)* 2,4: .91 (.98) 2,5: -.12 (.96) 2,6: -.13 (1.07) 3,4: -2.07 (.83)* 3,5: -3.10 (.81)* 3,6: -3.11 (.94)* 4,5: -1.03 (.88) 4,6: -1.04 (1.00) 5,6: -.00 (.98)
	6 to 10 years	524	9.40	46.84 (.72)	
	11 to 15 years	1012	18.16	43.86 (.53)	
	16 to 20 years	693	12.44	45.93 (.64)	
	21 to 25 years	771	13.84	46.96 (.64)	
	26 or more years	478	8.58	46.97 (.70)	
English	0 to 5 years	1188	26.2	30.27 (.42)	1,2: -5.96 (.76)* 1,3: -3.90 (.71)* 1,4: -3.89 (.77)* 1,5: -6.29 (.72)* 1,6: -3.14 (.97)* 2,3: 2.06 (.81)* 2,4: 2.07 (.86)* 2,5: -.33 (.82) 2,6: 2.83 (1.04)* 3,4: .01 (.82) 3,5: -2.39 (.78)* 3,6: .77 (1.06) 4,5: -2.39 (.83)* 4,6: .76 (1.06) 5,6: 3.15 (1.02)*
	6 to 10 years	689	15.2	36.23 (.60)	
	11 to 15 years	848	18.7	34.17 (.57)	
	16 to 20 years	660	14.5	34.16 (.60)	
	21 to 25 years	811	17.9	36.56 (.63)	
	26 or more years	341	7.5	33.41 (.78)	

** Significant mean differences*

Teaching Experience in the Same School

Table 5.4 shows performance of pupils who were taught by teachers who have been teaching in the same school for different years. The majority of the pupils were taught by teachers with five or less years in the same school. For Mathematics, they constituted 64.17%, for Setswana they were 59.5% while for English they were 68.3%. In Mathematics, pupils taught by teachers with 16 or more years of experience in the same school performed significantly lower than pupils taught by teachers with fewer years of experience. Otherwise pupils taught by teachers with 6 to 15 years in the same school performed better than pupils taught by teachers with five or fewer years in the same school.

In Setswana, the lowest performance was from pupils taught by teachers who had five or fewer years in the same school. Pupils whose teachers had 6 to 10 years performed significantly higher than pupils taught by teachers with higher experience in the same school.

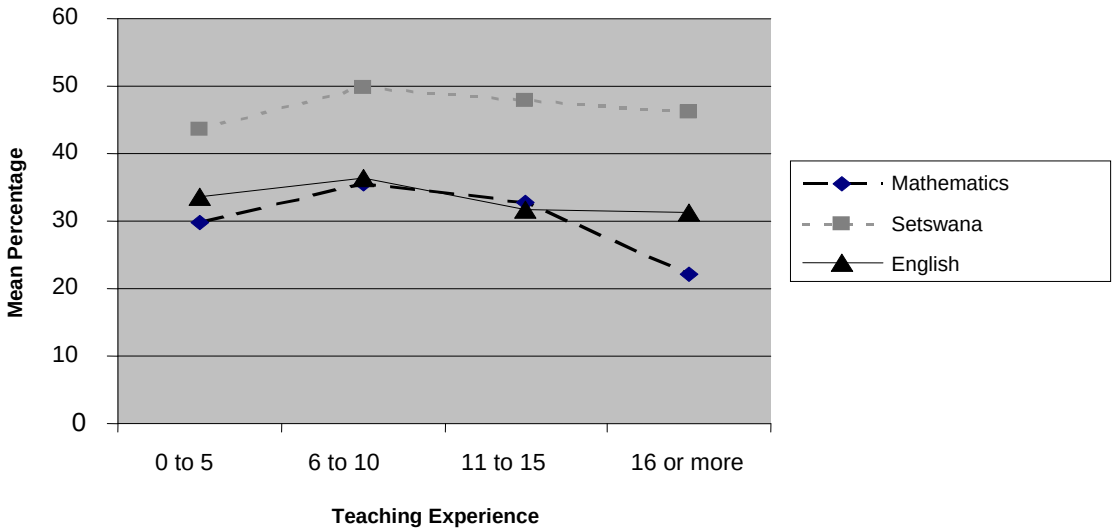
Table 5.4: Teaching Experience in the Same School and Pupils' Performance

Teaching Experience in the Same		n	%	Mean (SE)	Diff (SE)
Mathematics	0 to 5 years	2832	64.17	29.85 (.33)	1,2: -5.65 (.64)* 1,3: -2.91 (1.31)* 1,4: 7.70 (.92)* 2,3: 2.75 (1.39) 2,4: 13.35 (1.03)* 3,4: 10.61 (1.53)*
	6 to 10 years	985	22.32	35.50 (.58)	
	11 to 15 years	188	4.26	32.76 (1.39)	
	16 or more years	408	9.25	22.15 (.64)	
Setswana	0 to 5 years	2428	59.51	43.56 (.34)	1,2: -6.25 (.62)* 1,3: -4.21 (.90)* 1,4: -2.68 (1.07)* 2,3: 2.04 (.98)* 2,4: 3.58 (1.15)* 3,4: 1.54 (1.32)
	6 to 10 years	994	24.36	49.81 (.52)	
	11 to 15 years	395	9.68	47.77 (.84)	
	16 or more years	263	6.45	46.24 (1.01)	
English	0 to 5 years	2981	68.3	33.56 (.30)	1,2: -2.74 (.59)* 1,3: 1.82 (.97) 1,4: 2.18 (1.42) 2,3: 4.56 (1.06)* 2,4: 4.92 (1.49)* 3,4: .36 (1.68)
	6 to 10 years	958	21.9	36.29 (.52)	
	11 to 15 years	297	6.8	31.74 (.81)	
	16 or more years	131	3.0	31.37 (1.27)	

** Significant mean differences*

After ten years of teaching experience in the same school, performance of pupils taught by such teachers declined. Figure 5.2 shows this decline clearly.

Figure 5.2: Pupils' Performance and Teachers' Experience in the Same School



Standard Four Teaching Experience

The majority of pupils in all subjects were taught by teachers who had 5 or less years teaching experience in Standard Four. Table 5.5 shows performance of pupils taught by teachers of varying Standard Four teaching experiences. It was observed that the more years one has been teaching Standard Four the higher the performance of the pupils. Pupils taught by teachers with more experience teaching Standard Four were performing significantly better, in all the subjects, than pupils taught by teachers with less experience of teaching Standard Four. To illustrate this point, let's take Setswana as an example. For 0 - 5 years, mean performance was 45.18, but for the next 6 - 10 experience mean performance was 50.84, then rose to 59.70 as experience also increased.

Table 5.5: Number of Years of Teaching Standard Four and Pupils' Performance

Number of Years of Teaching Standard Four		n	%	Mean (SE)	Diff (SE)
Mathematics	0 to 5 years	3974	93.3	29.85 (.27)	1,2: -10.33 (1.10)*
	6 to 10 years	266	6.2	40.18 (1.22)	1,3: -27.53 (3.81)*
	11 or more years	21	0.5	57.38 (3.82)	2,3: -17.20 (3.94)*
Setswana	0 to 5 years	3426	86.2	45.18 (.29)	1,2: -5.65 (1.02)*
	6 to 10 years	292	7.8	50.84 (.97)	1,3: -14.51 (2.48)*
	11 or more years	46	1.2	59.70 (2.04)	2,3: -8.86 (2.65)*
English	0 to 5 years	3778	93.7	33.76 (.26)	1,2: -6.50 (1.09)*
	6 to 10 years	233	5.8	40.26 (1.10)	1,3: -32.42 (3.44)*
	11 or more years	22	0.5	66.18 (2.91)	2,3: -25.92 (3.58)*

** Significant mean differences*

However, such conclusions should be made cautiously bearing in mind the few numbers of pupils that were taught particularly by those teachers with 11 or more years teaching experience in Standard Four.

Classroom Instruction

The activities inside the classroom are important for pupils' achievement. The classroom environment should therefore be favourable for both the teacher and the pupils for effective learning to take place. Issues that will be discussed under classroom instruction include language used for instruction, sharing a classroom, teaching aids availability, assessment and factors leading to poor performance.

Language Used for Instruction

English is used as a medium of instruction in Government primary schools from Standard Two, as per the requirement of The Ten-Year Basic Education Programme Curriculum Blueprint (2007, page 17). Setswana is the only subject not taught in English. Despite that, some teachers still use local language(s) to teach.

Table 5.6: Language Used for Instruction and Pupils' Performance

Subjects	Local Language			English			Mean Diff	t-value	df	Sig.(2-tailed)
	n	%	Mean	n	%	Mean				
Mathematics	59	1.26	21.84(1.62)	4606	98.74	30.45(.26)	-8.61	-3.76	4663	.00
Setswana	651	14.87	48.40(.70)	3727	85.13	44.81(.27)	3.58	5.00	4376	.00
English	40	0.88	21.65(1.23)	4489	99.12	34.06(.24)	-12.41	-4.94	4527	.00

A large proportion of pupils (>98%) were taught both Mathematics and English using English as a medium of instruction. Pupils taught Mathematics and English in English performed significantly better than those who were taught using Mother tongue/Local language. Thus teachers should refrain from teaching Mathematics and English using local language(s).

Sharing a Classroom with other Pupils

According to the Central Statistics Office (Education Statistics, 2004), there is a serious deficit of 651 classrooms in primary schools. This literally means that some pupils are either taught outside under a tree or share a classroom with others. It was found, as indicated in Table 5.9, that 28.70% of pupils were taught Mathematics by teachers who shared a classroom while 33.37% were taught Setswana by teachers who shared a classroom.

Table 5.7: Sharing a Classroom with other Pupils and Performance

Subjects	Yes			No			Mean Diff	t-value	df	Sig. (2-tailed)
	n	%	Mean	n	%	Mean				
Mathematics	1408	28.70	28.72(.44)	3498	71.30	31.05(.30)	-2.33	4.21	4904	.00
Setswana	1530	33.37	44.86(.43)	3055	66.63	45.71(.30)	-.85	1.61	4583	.12
English	1421	29.99	32.05(.37)	3318	70.01	34.62(.29)	-2.57	5.12	4737	.00

Pupils who did not share a classroom performed significantly better than those who shared a classroom in Mathematics and English. Performance of the pupils in Setswana was the same for the two groups even though those who did not share a classroom had a slightly higher mean. Thus sharing of a classroom affects pupils' performance negatively.

Frequency of Testing and Pupils' Performance

Teachers were requested to indicate the frequency of assessing the pupils at Standard Four. The responses of the teachers were related to the performance of the pupils as shown in Table 5.8 and Figure 5.3.

Table 5.8: Frequency of Assessment of Learning Achievement and Pupils' Performance

Frequency of Assessment		n	%	Mean (SE)	Diff (SE)
Mathematics	Once per term	104	2.1	20.99 (1.29)	1,2: -8.73 (1.80)* 1,3: -11.26 (1.80)* 1,4: -13.21 (1.87)* 1,5: -8.31 (1.74)* 2,3: -2.53 (.82)* 2,4: -4.48 (.95)* 2,5: .42 (.67) 3,4: -1.95 (.96)* 3,5: 2.95 (.68)* 4,5: 4.90 (.84)*
	Two or three times per term	920	18.9	29.73 (.54)	
	Two or three times per month	889	18.3	32.25 (.61)	
	Once or more times a week	527	10.8	34.20 (.91)	
	Daily	2428	49.9	29.30 (.34)	
Setswana	Once per term	83	1.8	41.20 (1.95)	1,2: -4.46 (1.93)* 1,3: -5.70 (1.94)* 1,4: -3.33 (1.98) 1,5: -3.93 (1.88) * 2,3: -1.24 (.82) 2,4: 1.13 (.91) 2,5: .52 (.67) 3,4: 2.37 (.92)* 3,5: 1.77 (.69)* 4,5: -.60 (.80)
	Two or three times per term	875	19.2	45.66 (.54)	
	Two or three times per month	828	18.2	46.91 (.59)	
	Once or more times a week	561	12.3	44.53 (.73)	
	Daily	2206	48.5	45.14 (.36)	
English	Once per term	103	2.2	26.60 (1.15)	1,2: -6.69 (1.62)* 1,3: -10.67 (1.62)* 1,4: -7.77 (1.69)* 1,5: -5.66 (1.57)* 2,3: -3.98 (.72)* 2,4: -1.08 (.88) 2,5: 1.02 (.61) 3,4: 2.90 (.88)* 3,5: 5.01 (.61)* 4,5: 2.11 (.79)*
	Two or three times per term	937	20.1	33.29 (.48)	
	Two or three times per month	950	20.4	37.27 (.59)	
	Once or more times a week	475	10.2	34.37 (.78)	
	Daily	2202	47.2	32.27 (.31)	

** Significant mean differences*

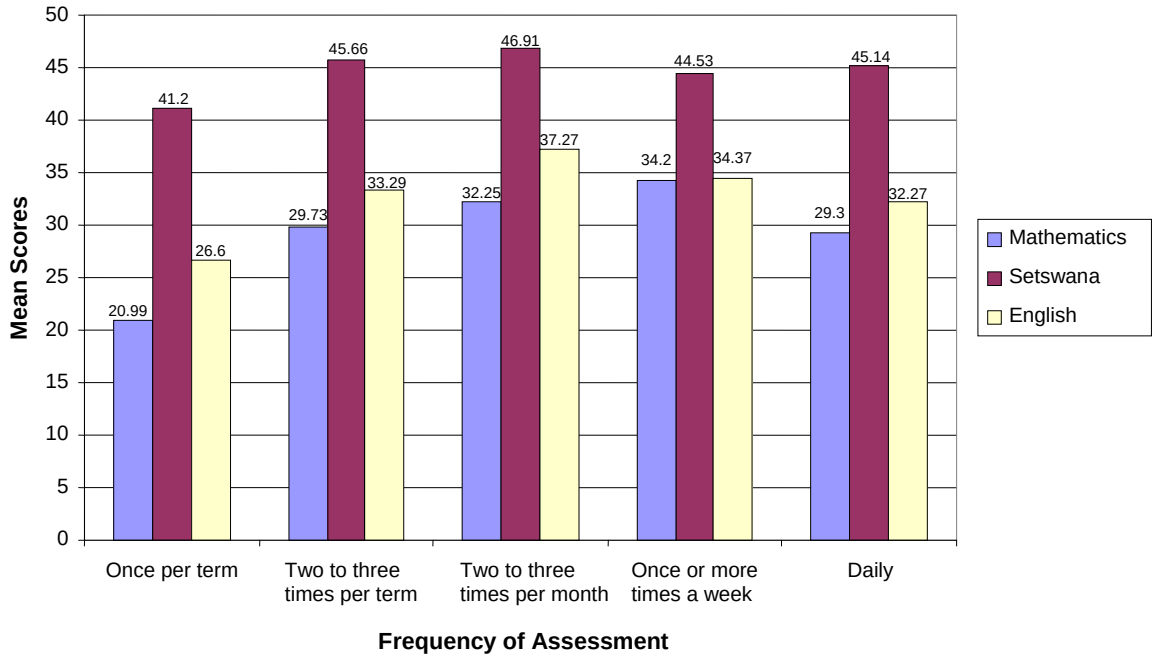
Over 47% of the pupils were assessed *daily* on each subject, followed by pupils who were assessed *two or three times per school term or a month*. In Mathematics, pupils who were assessed *one or more times a week* performed the highest, followed by those assessed *two or three times per month*. Pupils assessed once per term obtained the least mean scores. The data suggest at least a weekly test, but not testing on a daily basis.

Pupils assessed in Setswana *two or three times per term* performed at the same level as pupils assessed *two or three times per month* or *more frequently*. The lowest performance was from pupils assessed *once per term*.

In English, pupils who performed significantly lower than all other groups when assessed once per term while those assessed two to three times per month performed significantly higher than all other groups.

Testing two or three times a month is associated with the best performance in the languages, but Mathematics performance is better associated with one or more times per week.

Figure 5.3: Frequency of Assessment of Learning Achievement and Pupils' Performance



Assessment Methods and Pupils' Performance

Teachers were requested to indicate the type of assessment method that they frequently use to assess learning achievement of their Standard Four pupils. The responses of the teachers were related to the performance of the pupils as shown in Table 5.9. All Standard Four pupils are taught by teachers who use teacher made tests and examinations as well as classroom work for the pupils. Pupils who are assessed by teachers using externally developed tests and examinations performed significantly better than those who did not, except in Setswana. About 72% of the pupils are taught by teachers who use oral examinations as an assessment method. Oral examinations seem to have an effect on pupils' performance in all the subjects.

Almost all teachers use observation of pupils' participation and homework or assignments as forms of assessing pupils. Performance of those pupils taught by teachers who use these assessment methods and those who do not should be interpreted cautiously due to the small percentages of pupils involved.

A high proportion (about 63%) of pupils is assessed through projects or craft work and this method does not seem to have any effect on pupils' performance.

Table 5.9: Assessment Method and Pupils' Performance

Assessment Method		Yes			No			Mean Diff	t-value	df	Sig. (2-tailed)
		n	%	Mean	n	%	Mean				
Teachers made tests and examinations	Mathematics	4771	100	30.25 (.25)	0	0	.	.	.	.	.
	Setswana	4534	100	45.41 (.25)	0	0	.	.	.	.	.
	English	4684	100	33.80 (.23)	0	0	.	.	.	.	.
Externally developed standardized tests and examinations	Mathematics	3754	79.8	30.78 (.29)	948	20.2	29.40 (.57)	1.38	2.16	4700	.03
	Setswana	3486	79.6	45.70 (.28)	893	20.4	44.64 (.57)	1.06	1.69	4377	.09
	English	3291	75.2	34.22 (.28)	1086	24.8	32.96 (.47)	1.26	2.26	4375	.02
Oral examination of pupils	Mathematics	3407	72.8	30.59 (.30)	1271	27.2	29.94 (.48)	.65	1.13	4676	.26
	Setswana	3075	72.0	45.14 (.31)	1194	28.0	46.41 (.48)	-1.27	-2.21	4267	.03
	English	3143	72.8	34.27 (.29)	1173	27.2	34.27 (.44)	.00	.01	4314	.99
Observation of pupil participation in the class	Mathematics	4713	99.4	30.36 (.26)	30	.6	29.00 (2.93)	1.36	.42	4741	.67
	Setswana	4469	99.3	45.55 (.25)	30	.7	42.00 (3.52)	3.55	1.15	4497	.25
	English	4624	99.4	33.99 (.23)	30	.6	26.73 (2.00)	7.26	2.49	4652	.01
Classroom work of the pupils	Mathematics	4738	100	30.35 (.255)	0	0	.	.	.	.	.
	Setswana	4500	100	45.49 (.25)	0	0	.	.	.	.	.
	English	4649	100	33.83 (.23)	0	0	.	.	.	.	.
Homework or assignments	Mathematics	4674	98.6	30.25 (.26)	64	1.4	37.06 (2.55)	-6.80	-3.09	4736	.00
	Setswana	4479	99.5	45.53 (.25)	21	.5	36.29 (3.59)	9.25	2.52	4498	.01
	English	4606	99.1	33.76 (.23)	43	.9	46.65 (3.67)	-12.89	-5.32	4647	.00
Projects or craft work	Mathematics	2906	62.6	30.70 (.34)	1733	37.4	29.93 (.39)	.77	1.44	4637	.15
	Setswana	3057	69.5	45.70 (.30)	1344	30.5	45.21 (.46)	.49	.90	4399	.37
	English	2895	66.9	33.28 (.29)	1434	33.1	34.59 (.42)	-1.31	-2.57	4327	.01

Factors Responsible for Poor Performance and Pupils' Performance

Teachers were requested to indicate the extent to which some factors affect Standard Four pupils' performance. The responses of the teachers were related to the performance of the pupils as presented in Table 5.10.

Table 5.10: Factors Responsible for Poor Performance and Pupils' Performance

Factors Responsible for Poor Performance			n	%	Mean (SE)	Diff (SE)
Automatic Promotion	Mathematics	Not at all	630	13.2	27.46 (.78)	1,2: -2.67 (.79)* 1,3: -3.63 (.78)* 2,3: -.96 (.54)
		To some extent	2004	41.8	30.13 (.38)	
		To a large extent	2156	45.0	31.09 (.36)	
	Setswana	Not at all	532	11.8	44.48 (.77)	1,2: -.86 (.81) 1,3: -1.54 (.83) 2,3: -.68 (.54)
		To some extent	2130	47.3	45.34 (.37)	
		To a large extent	1838	40.8	46.02 (.38)	
	English	Not at all	690	14.9	32.48 (.67)	1,2: -1.85 (.70)* 1,3: -1.22 (.69) 2,3: .63 (.50)
		To some extent	1792	38.8	34.33 (.37)	
		To a large extent	2140	46.3	33.70 (.33)	
Loaded Curriculum	Mathematics	Not at all	190	3.9	47.07 (1.94)	1,2: 17.57 (1.32)* 1,3: 17.26 (1.28)* 2,3: -.31 (.53)
		To some extent	1549	31.6	29.50 (.42)	
		To a large extent	3167	64.6	29.81 (.30)	
	Setswana	Not at all	182	4.0	48.54 (1.39)	1,2: 3.14 (1.32)* 1,3: 3.29 (1.28)* 2,3: .15 (.54)
		To some extent	1421	31.0	45.40 (.44)	
		To a large extent	2982	65.0	45.25 (.31)	
	English	Not at all	158	3.3	49.53 (1.68)	1,2: 16.87 (1.32)* 1,3: 15.98 (1.27)* 2,3: -.91 (.52)
		To some extent	1252	26.4	32.65 (.42)	
		To a large extent	3329	70.2	33.56 (.27)	
Parental Indifference	Mathematics	Not at all	242	4.9	39.52 (1.37)	1,2: 7.71 (1.18)* 1,3: 11.27 (1.17)* 2,3: 3.57 (.51)*
		To some extent	2174	44.3	31.81 (.38)	
		To a large extent	2490	50.8	28.24 (.34)	
	Setswana	Not at all	207	4.5	51.10 (1.14)	1,2: 4.21 (1.21)* 1,3: 7.71 (1.22)* 2,3: 3.50 (.51)*
		To some extent	2207	48.1	46.89 (.36)	
		To a large extent	2171	47.4	43.39 (.36)	
	English	Not at all	104	2.2	39.42 (2.15)	1,2: 2.28 (1.56) 1,3: 8.70 (1.56)* 2,3: 6.14 (.46)*
		To some extent	2166	45.7	37.14 (.35)	
		To a large extent	2469	52.1	30.73 (.29)	
Socio-economic status of the pupils	Mathematics	Not at all	122	2.5	48.76 (1.82)	1,2: 18.16 (1.60)* 1,3: 19.66 (1.61)* 2,3: 1.50 (.50)*
		To some extent	2592	52.8	30.60 (.34)	
		To a large extent	2192	44.7	29.10 (.37)	
	Setswana	Not at all	63	1.4	48.63 (1.86)	1,2: 2.67 (2.14) 1,3: 4.04 (2.15) 2,3: 1.36 (.51)*
		To some extent	2590	56.5	45.96 (.33)	
		To a large extent	1932	42.1	44.60 (.39)	
	English	Not at all	90	1.9	51.93 (1.89)	1,2: 17.40 (1.68)* 1,3: 19.54 (1.68)* 2,3: 2.14 (.46)*
		To some extent	2391	50.5	34.54 (.33)	
		To a large extent	2258	47.6	32.40 (.32)	
Family Problems	Mathematics	Not at all	77	1.6	32.45 (1.75)	1,2: .30 (2.03) 1,3: 3.54 (2.02) 2,3: 3.24 (.51)*
		To some extent	2145	43.7	32.15 (.39)	
		To a large extent	2684	54.7	28.91 (.33)	
	Setswana	Not at all	81	1.8	51.38 (1.29)	1,2: 5.94 (1.90)* 1,3: 6.17 (1.90)* 2,3: .23 (.50)
		To some extent	2089	45.6	45.44 (.37)	
		To a large extent	2415	52.7	45.21 (.34)	
	English	Not at all	78	1.6	40.36 (2.11)	1,2: 6.40 (1.83)* 1,3: 6.80 (1.82)* 2,3: .40 (.47)
		To some extent	2045	43.2	33.96 (.35)	
		To a large extent	2616	55.2	33.56 (.31)	

** Significant mean differences*

Continued on the next page…

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Table 5.10: Factors Responsible for Poor Performance and Pupils' Performance

Factors Responsible for Poor Performance			n	%	Mean (SE)	Diff (SE)
Orphaned Children	Mathematics	Not at all	99	2.0	35.22 (1.65)	1,2: 3.58 (1.78)* 1,3: 7.63 (1.81)* 2,3: 4.05 (.53)*
		To some extent	3195	65.1	31.64 (.31)	
		To a large extent	1612	32.9	27.59 (.44)	
	Setswana	Not at all	93	2.0	47.01 (1.42)	1,2: .85 (1.77) 1,3: 3.15 (1.80) 2,3: 2.31 (.53)*
		To some extent	2986	65.1	46.16 (.31)	
		To a large extent	1506	32.8	43.86 (.44)	
	English	Not at all	98	2.1	41.80 (1.67)	1,2: 7.29 (1.62)* 1,3: 9.81 (1.64)* 2,3: 2.52 (.49)*
		To some extent	3128	66.0	34.50 (.29)	
		To a large extent	1513	31.9	31.98 (.40)	
Lack of remedial teaching	Mathematics	Not at all	447	9.2	33.16 (.87)	1,2: 2.41 (.90)* 1,3: 3.90 (.93)* 2,3: 1.50 (.54)*
		To some extent	2671	54.8	30.75 (.36)	
		To a large extent	1758	36.1	29.25 (.38)	
	Setswana	Not at all	406	8.9	46.87 (.87)	1,2: 1.22 (.90) 1,3: 2.12 (.94)* 2,3: .90 (.54)
		To some extent	2578	56.6	45.65 (.33)	
		To a large extent	1571	34.5	44.75 (.42)	
	English	Not at all	418	8.9	32.93 (.69)	1,2: -.49 (.83) 1,3: -2.16 (.88)* 2,3: -1.67 (.51)*
		To some extent	2796	59.4	33.42 (.30)	
		To a large extent	1495	31.7	35.09 (.43)	
Lack of teaching skills	Mathematics	Not at all	1129	23.0	28.49 (.53)	1,2: -3.33 (.65)* 1,3: -1.36 (.67)* 2,3: 1.97 (.57)*
		To some extent	2094	42.7	31.82 (.39)	
		To a large extent	1683	34.3	29.85 (.41)	
	Setswana	Not at all	1016	22.2	45.38 (.54)	1,2: -.83 (.64) 1,3: .96 (.68) 2,3: 1.79 (.57)*
		To some extent	2034	44.4	46.21 (.36)	
		To a large extent	1535	33.5	44.42 (.44)	
	English	Not at all	1015	21.4	32.87 (.48)	1,2: -.36 (.84) 1,3: -2.44 (.00)* 2,3: -2.08 (.00)*
		To some extent	2142	45.2	33.23 (.33)	
		To a large extent	1582	33.4	35.31 (.42)	
Language of instruction	Mathematics	Not at all	349	7.1	38.51 (1.04)	1,2: 6.39 (.99)* 1,3: 11.22 (.99)* 2,3: 4.83 (.51)
		To some extent	2334	47.6	32.12 (.36)	
		To a large extent	2223	45.3	27.28 (.35)	
	Setswana	Not at all	286	6.2	50.03 (1.01)	1,2: 3.21 (1.05)* 1,3: 6.90 (1.06)* 2,3: 3.69 (.51)*
		To some extent	2313	50.4	46.82 (.34)	
		To a large extent	1986	43.3	43.13 .38	
	English	Not at all	214	4.5	39.77 (1.26)	1,2: 4.33 (1.13)* 1,3: 8.02 (1.12)* 2,3: 3.69 (.47)*
		To some extent	2235	47.2	35.43 (.34)	
		To a large extent	2290	48.3	31.75 (.32)	

** Significant mean differences*

About 12% of the pupils are taught by teachers who indicated that automatic promotion does not affect pupils' performance. However their pupils obtained the lowest mean scores in all the subjects. One would have expected that pupils taught by these teachers would perform better.

Family problems, socio-economic status, parental indifference, loaded curriculum, language of instruction and orphaned children have a negative impact on performance compared to other factors. Pupils taught by teachers who indicated that a particular factor does not affect pupils' performance performed significantly better than all other groups even though the numbers are small. This could be an indication that the recommendation of up to 12.5% repetition is not yielding positive results as such should be revisited in view to replace it with achievement of minimum competency.

About 96% of the pupils are taught by teachers who are affected by the loaded curriculum and their pupils obtained significantly lower scores than those whose teachers said they are not affected. This points out that the syllabus should be reviewed to find out if the content commensurate with time and resources available. Majority of the pupils (about 96%) are taught by teachers who are affected by parental indifference and these pupils performed significantly lower than those taught by teachers not affected by parental indifference. This shows the importance of parent-teacher collaboration in the education of the child.

Majority of the pupils, 97%, are taught by teachers who indicated that the socio-economic background of the pupils affect their performance and they obtained the lowest mean scores. Family problems affect performance of almost 98% of the pupils as indicated by their teachers. These pupils obtained the lowest mean scores. Majority of the pupils (98%) are taught by teachers who indicated that the orphanage of the pupils affected performance negatively. Pupils whose teachers indicated this to be a problem performed significantly lower than the rest. These social problems call for strengthening of the guidance and counselling programme.

Majority of the pupils are taught by teachers who indicated that language of instruction affects pupils' performance and their pupils performed significantly lower than the pupils taught by teachers who indicated that language of instruction does not affect them. Majority of pupils are taught by teachers who indicated that lack of remedial teaching affected their pupils' performance. Pupils whose teachers indicated that lack remedial teaching affected pupils to a large extent obtained the lowest mean scores except in English.

Majority of pupils are taught by teachers who indicated that lack of teaching skills affected pupils' performance. The extent of lack of teaching skills as reported by teachers affected pupils' performance differently in the three subjects.

Resources

Resources are vital in that they enable the work of the teacher to be easily accomplished. In this section the following resources are discussed: facilities available in classrooms including electricity, accessibility of classrooms to children with special needs, learning materials/textbooks availability and accessibility to various school equipments

Teaching Guides and Pupils' Performance

The provision of physical resources, textbooks and exercise books is a necessity but not a sufficient condition for effective instruction. Teachers need extra help in the form of teachers' guides, particularly that there are still untrained teachers in the system. The official record for untrained teachers is around 7% (National Development Plan 9; 2004/09).

According to Table 5.11, about half of pupils were taught by teachers who did not have teacher's guides for the three subjects. Performance of the pupils did not differ whether the teachers had a teachers' guide or not for all the subjects. This could be indicative that teachers are capable of handling the syllabus well. Pupils taught by teachers who indicated that the teachers' guides' contents were appropriate performed significantly better in Mathematics and English. This shows that relevant materials add value to learning.

Table 5.11: Teaching Guides and Pupils' Performance

Teaching Guide		Yes			No			Mean Diff	t-value	df	Sig.(2-tailed)
		n	%	Mean	n	%	Mean				
Availability of teaching guides	Mathematics	2615	53.8	29.93(.36)	2244	46.2	30.89(.35)	-.96	1.90	4857	.06
	Setswana	1884	41.1	45.94(.39)	2701	58.9	45.07(.32)	.87	1.72	4583	.09
	English	2890	61.0	33.99.29)	1849	49.0	33.63(.37)	.36	.77	4737	.44
Appropriateness of T/G content	Mathematics	2617	56.6	31.11(.36)	2006	43.4	29.73(.38)	1.39	2.65	4621	.01
	Setswana	1532	37.3	45.66(.44)	2580	62.7	46.04(.33)	-.39	.71	4110	.48
	English	1865	44.5	35.55(.38)	2323	55.5	33.67(.32)	1.87	3.78	4186	.00

Learning Aids Availability and Pupils' Performance

Teaching is not only confined to lecturing by the teacher followed by pupils reading from the text books. A number of instructional strategies have evolved that take into consideration the significant role played by the learner in the learning process. Provision of teaching aids is of vital importance particularly to pupils at primary schools. Table 5.12 shows learning aids available for use during instruction and how they relate to the learning process. Most schools had chalk available but a few indicated that this important resource was not always available. The absence of chalk was significantly associated with performance of the pupils in English only. Similarly, absence of teacher-made wall-charts did significantly affect performance of pupils negatively except in Setswana.

The use of learning aids is offered as a course at Colleges of Education in Botswana so that teachers do not depend entirely on commercially produced learning aids, but rather improvise. They have to be innovative in their teaching so that they use various sources of teaching aids from locally available materials.

Table 5.12: Availability of Learning Aids and Pupils' Performance

Learning Materials		Yes			No			Mean Diff	t-value	df	Sig.(2-tailed)
		n	%	Mean	n	%	Mean				
Chalk	Mathematics	4791	97.7	30.36(.25)	115	2.3	31.03(1.68)	-.66	.40	4904	.69
	Setswana	4314	94.1	45.37(.26)	271	5.9	46.23(.95)	-.86	.81	4583	.42
	English	4468	94.3	34.05(.24)	271	5.7	30.49(.75)	3.56	3.59	4737	.00
Teacher-made wall chart	Mathematics	4096	83.5	31.01(.28)	810	16.5	27.17(.56)	3.84	5.71	4904	.00
	Setswana	3868	84.4	45.34(.27)	717	15.6	45.85(.60)	-.51	.75	4583	.46
	English	3892	82.1	34.38(.26)	847	17.9	31.41(.51)	2.97	4.95	4737	.00
Pupil-made wall chart	Mathematics	3771	77.2	30.81(.28)	1114	22.8	29.14(.55)	1.67	2.80	4883	.01
	Setswana	3331	73.0	45.63(.29)	1234	27.0	45.11(.47)	.53	.94	4563	.35
	English	3568	75.6	34.35(.27)	1151	24.4	32.48(.47)	1.88	3.49	4717	.00
Commercial-made wall chart	Mathematics	1598	32.7	33.32(.48)	3290	67.3	28.98(.29)	4.35	8.18	4886	.00
	Setswana	1423	31.2	46.73(.46)	3144	68.8	44.82(.30)	1.91	3.55	4565	.00
	English	1405	30.0	35.77(.46)	3282	70.0	32.89(.26)	2.88	5.75	4685	.00
Learning aids from environment	Mathematics	4208	86.2	30.32(.27)	673	13.8	30.64(.70)	-.32	.44	4879	.66
	Setswana	4016	88.1	45.04(.27)	544	11.9	48.11(.69)	-3.07	4.00	4558	.00
	English	3889	82.6	33.86(.26)	825	17.5	33.66(.53)	.20	.34	4712	.74

Pupils who were encouraged to make their own wall charts performed significantly better in Mathematics and English. Commercial made charts also made a significant difference in performance of the pupils in all the three subjects. Learning aids from the environment made a significant difference in pupils' performance for Setswana only. Generally, teaching-aids had an effect on pupils' performance; whether teacher-made, commercial or pupil-made. Teaching aids assist pupils' comprehension of the concept presented to them since they are able to visualize.

Facilities Available in the Classroom and Pupils' Performance

Most of the facilities were available in schools although the ideal situation was for each school to have them all. For example, Table 5.13 shows that pupils taught in classrooms with chalkboards were more than 90% for all the three subjects. About 25% of the pupils attended

schools which did not have pupils' desks and about 50% of the pupils did not have storage facilities. Pupils without desks could be using laps for writing.

Table 5.13: Facilities Available in a Classroom and Pupils' Performance

Facilities Available		Yes			No			Mean Diff	t-value	df	Sig.(2-tailed)
		n	%	Mean	n	%	Mean				
Chalkboard	Mathematics	4885	99.57	30.42(.25)	21	0.43	21.98(3.28)	8.43	2.20	4904	.03
	Setswana	4564	99.54	45.46(.25	21	0.46	38.57(4.40)	6.88	1.87	4583	.06
	English	4361	92.02	34.37(.24)	378	7.98	27.78(.61)	6.60	7.80	4737	.00
Teacher's chair	Mathematics	4545	93.04	30.49(.26)	340	6.96	29.61(.81)	.88	.89	4883	.37
	Setswana	4166	91.26	45.55(.26)	399	8.74	44.91(.83)	.64	.73	4563	.47
	English	4510	95.57	34.09(.24)	209	4.43	29.75(.93)	4.34	3.87	4717	.00
Teacher's table	Mathematics	4556	93.27	30.56.26)	329	6.73	28.67(.91)	1.89	1.88	4883	.06
	Setswana	4147	90.84	45.68(.26)	418	9.16	43.58(.81)	2.10	2.44	4563	.02
	English	4050	85.82	34.36(.25)	669	14.18	31.06(.55)	3.30	5.00	4717	.00
Pupils' desks	Mathematics	3552	74.09	31.45(.31)	1242	25.91	28.17(.44)	3.28	5.67	4792	.00
	Setswana	3313	75.43	45.94(.29)	1079	24.57	44.76(.51)	1.18	2.00	4390	.05
	English	3555	76.82	35.04(.28)	1073	23.18	30.71(.41)	4.33	7.86	4626	.00
Pupils' chairs	Mathematics	4470	92.68	30.57(.26)	353	7.32	29.17(.85)	1.40	1.45	4821	.15
	Setswana	4128	93.39	45.68(.26)	292	6.61	44.13(.91)	1.55	1.52	4418	.13
	English	4330	93.00	34.05(.24)	326	7.00	32.55(.80)	1.50	1.64	4654	.10
Storage cupboards	Mathematics	2557	53.34	31.55(.36)	2237	46.66	29.37(.36)	2.18	4.28	4792	.00
	Setswana	2253	49.98	46.30(.36)	2255	50.02	44.80(.35)	1.50	3.00	4506	.00
	English	2451	52.72	35.83(.35)	2198	47.28	31.88(.30)	3.96	8.51	4627	.00

The number of pupils taught by teachers in classrooms without chalkboards was so insignificant for Mathematics and Setswana, therefore any statistical significant differences or lack of, would not yield any valid inferences. The number of pupils indicates that this could be a single school But, for English, those pupils taught by teachers in classrooms with chalkboards performed significantly better (34.37) than those who were taught in classes with no chalkboards (27.78). So writing on the board helps pupils to conceptualise ideas better. Chalk and chalkboards are primary learning aids as such they should always be availed.

It was found that pupils who were taught by teachers who had chairs in their classrooms

performed significantly better in English than those who were taught by teachers who did not have chairs However, pupils taught by teachers who had tables in their classrooms performed significantly better in English and Setswana than their counterparts.

Pupils need to be seated comfortably on desks and chairs for maximum concentration and effective learning to take place. Results in the table partly support the above statement. Pupils taught in classrooms with desks performed significantly better than their counterparts in Mathematics and English. There was no difference in performance between pupils taught in classrooms without chairs and those taught in classrooms with chairs in all the subjects. Cross tabulation between pupils having chairs and those having tables indicates that on average about 250 pupils do not have both tables and chairs. However, the shortage of pupils' and teachers' chairs as well as teachers' tables contradicts government statistics (MOE Statistics, 2006 indicates oversupply of these). This could mean that there is inequitable distribution of resources where in some areas they lie idle whereas in other areas they are in dire shortage (MOE Statistics, 2006). The suggestion is to have a thorough countrywide inventory to identify those in oversupply or deficit.

Another facility of importance in the classroom is storage space. Almost half of the pupils were taught by teachers who did not have enough storage space. All those pupils in schools with enough storage space performed significantly better than those who were in schools that did not have enough storage space.

Availability of Electricity in a Classroom and Pupils' Performance

A student-centred approach requires resources to be available and accessible for meaningful learning. One such resource is the provision of electricity in schools. It was found that more than half of the pupils were in schools that did not have electricity as presented in Table 5.14. Pupils in schools with electricity performed significantly better in all the subjects than pupils in schools without electricity.

Table 5.14: Availability of Electricity in a Classroom and Pupils' Performance

Subjects	Yes			No			Mean Diff	t-value	df	Sig. (2-tailed)
	n	%	Mean	n	%	Mean				
Mathematics	2083	42.46	33.98(.42)	2823	57.54	27.72(.30)	6.26	12.56	4904	.00
Setswana	1966	42.88	46.48(.38)	2619	57.12	44.63(.33)	1.85	3.68	4583	.00
English	2106	44.44	38.01(.38)	2633	55.56	30.52(.27)	7.48	16.59	4737	.00

Accessibility of Classrooms to Special Needs Pupils and their Performance

No child should be segregated against either due to his/her physical or mental ability. For such a policy to be effectively implemented, provisions have to be made which include accessible classrooms. Table 5.15 shows that the majority of pupils (at least 80%) were taught in classrooms without access for special needs pupils.

Table 5.15: Easy Accessibility of a Classroom to Special Needs Children and Pupils' Performance

Subjects	Yes			No			Mean Diff	t-value	df	Sig. (2-tailed)
	n	%	Mean	n	%	Mean				
Mathematics	901	18.37	31.15(.64)	4005	81.63	30.21(.27)	.95	1.46	4904	.14
Setswana	869	18.95	45.09(.57)	3716	81.05	45.50(.28)	-.42	.66	4583	.51
English	879	18.55	34.13(.56)	3860	81.45	33.78(.25)	.34	.57	4737	.57

Performance between pupils taught in classrooms with access for special needs pupils and those taught in classrooms without was not significantly different. Information from the Table 5.15 only addresses the performance of those pupils taught by teachers who indicated that their classrooms were accessible/inaccessible to special needs pupils not that the performance is for the special needs versus non-special needs pupils.

Availability of Pupils' Exercise Books and Pupils' Performance

Pupil's exercise book is one of the most important resources in learning. Unlike other learning resources, it cannot be shared. Therefore it has to be issued on one-to-one basis. Exercise books are mostly used for writing during class and for homework assignments. The teachers then mark and provide feedback to pupils with Teachers were asked to indicate whether their

pupils have exercise books to write on and the responses were then related to pupils' performance. Table 5.16 shows the results.

Table 5.16: Availability of Exercise Books and Pupils' Performance

Subjects	Yes			No			Mean Diff	t-value	df	Sig. (2-tailed)
	n	%	Mean	n	%	Mean				
Mathematics	4613	94.0	30.31.26)	293	6.0	31.44(.91)	1.13	1.07	4904	.28
Setswana	4132	90.1	45.18(.27)	453	9.9	47.66(.69	2.49	2.99	4583	.00
English	4365	92.1	34.06(.24)	374	7.9	31.39(.69)	2.67	3.13	4737	.00

Between 90% and 94% of the pupils had exercise books as indicated by teachers while 6% to 10% had no exercise books. In Mathematics pupils whose teachers said they had exercise books performed at the same level like those who had no exercise books. In Setswana, pupils whose teachers indicated that they did not have exercise books performed significantly better than those who had exercise books. In English, pupils whose teachers indicated that they have exercise books performed significantly better than those who did not have. It was expected that pupils who had exercise books should do better than those without. Contrary, in Setswana, this was not the case. This needs further investigation.

Access to Equipment

The policy of settlement is such that every settlement with people more than 500 should be declared a village and provided with all social amenities such as clinic, school, tribal offices, etc. However, it takes time for other services to be provided such as electricity, telecommunications, tarred roads, and drainage systems. Electricity is important to facilitate learning. For example, computers can be installed, photocopying and duplicating machines can be used with ease.

Teachers were asked to indicate whether they have access to the following equipments in their school: duplicating machine, photocopier, computer and typewriter. The accessibility to this equipment ranged from about 7% for the typewriter to 34% for the photocopier which shows that the majority of the pupils are taught by teachers who do not have access to these equipments. The teachers responses were then related to pupils' performance and the results are presented in Table 5.17.

Table 5.17: Access to Equipment by the Teacher and Pupils' Performance

Access to Equipment		Yes			No			Mean Diff	t-value	df	Sig. (2-tailed)
		n	%	Mean	n	%	Mean				
Duplicating machine say something about this technology	Mathematics	422	8.9	38.03(1.09)	4343	91	29.73(.26)	8.31	9.34	4763	.00
	Setswana	468	10.5	47.28.77)	3993	89	45.25(.27)	2.03	2.46	4459	.01
	English	407	8.9	41.55.96)	4192	91	33.18(.24)	8.37	10.24	4597	.00
Photocopier	Mathematics	1487	30.7	32.68(.48)	3360	69	29.43(.29)	3.25	5.97	4845	.00
	Setswana	1537	34.0	45.92(.43)	2987	66	45.29(.31)	.63	1.19	4522	.63
	English	1518	32.4	36.63(.45)	3162	67	32.61(.27)	4.02	8.14	4678	.00
Computer	Mathematics	1320	27.2	33.33(.53)	3533	72	29.29(.28)	4.05	7.18	4851	.00
	Setswana	1204	26.4	46.13(.48)	3356	73	45.20(.29)	.93	1.65	4558	.10
	English	1255	26.8	36.38(.49)	3431	73	32.97(.26)	3.41	6.53	4684	.00
Typewriter an obsolete tech	Mathematics	317	6.6	36.06(1.31)	4484	93	29.96(.26)	6.11	6.00	4799	.00
	Setswana	367	8.4	44.48(.89)	4027	91	45.28(.27)	.80	.87	4392	.38
	English	304	6.6	39.53(1.17)	4328	93	33.43(.24)	6.09	6.48	4630	.00

Pupils whose teachers had access to these equipments performed significantly better than those who did not have access. The exception to this is in Setswana for the photocopier, computer and typewriter where pupils are performing at the same level. Comparison between the School Head and the teachers with regards to access to equipment shows that about 20% of the pupils are in schools where the School Head had the duplicating equipment always available while about 10% of the pupils are taught by teachers who had access to the equipment. About 37% of the pupils are in schools where the School Head had a computer always available but 26% of the pupils are taught by teachers who have access to computers. It can be observed that even though the equipment may be available, the teachers may not have access to it, sometimes the reason being that they are few. It would be advisable to have

both School Heads and staff readily access these equipments as they impact positively on pupils' performance. It should also be borne in mind that these equipments except for the typewriter need electricity and that the School Heads of 54% of the pupils indicated that electricity is always available whilst the School Heads of 28% of the pupils reported that electricity was not available.

Number of Textbooks in Standard Four

Text books are valuable resources for both teachers and pupils as they provide information which both can refer to. Teachers were asked to indicate the number of books available for the Standard Four pupils in the following areas; Numeracy, reading books in English, reading books in home language and General Studies (health, science). The number of text books available was classified into the following categories: 0 to 10 textbooks, 11 to 20 text books, 21 to 30 text books and 31 or more text books. The teachers responses were then related to pupils' performance and the results are presented in Tables 5.18 to 5.19. The tables on Reading books in English and General Studies (health, science) are not presented as the trend is the same as for Table 5.19.

Table 5.18: Number of Textbooks Available in Numeracy and Pupils' Performance

Number of Textbooks Available		n	%	Mean (SE)	Diff (SE)
Mathematics	0 to 10 textbooks	1460	36.7	29.84(.43)	1,2: 1.34(.73) 1,3: -.57(.81) 1,4: -4.37(.76)* 2,3: -1.91(.87) 2,4: -5.70(.83)* 3,4: -3.80(.90)*
	11 to 20 textbooks	974	24.5	28.51(.52)	
	21 to 30 textbooks	701	17.6	30.41(.76)	
	31 or more textbooks	842	21.2	34.21(.64)	
Setswana	0 to 10 textbooks	1048	32.8	46.90(.49)	1,2: 1.22(.76) 1,3: 5.05(.85)* 1,4: 2.41(.80)* 2,3: 3.83(.88)* 2,4: 1.20(.84) 3,4: -2.64(.92)*
	11 to 20 textbooks	856	26.8	45.68(.59)	
	21 to 30 textbooks	588	18.4	41.85(.68)	
	31 or more textbooks	702	22.0	44.49(.62)	
English	0 to 10 textbooks	1115	32.4	33.50(.45)	1,2: -.55(.69) 1,3: 1.42(.72) 1,4: .59(.75) 2,3: 1.97(.76) 2,4: 1.14(.78) 3,4: -.83(.81)
	11 to 20 textbooks	901	26.2	34.05(.52)	
	21 to 30 textbooks	750	21.8	32.08(.60)	
	31 or more textbooks	674	19.6	32.91(.55)	

** Significant mean differences*

On average 34% of the pupils are in schools which have 10 or less textbooks in Numeracy available, while 21% of pupils are in schools with 31 or more textbooks. In Mathematics pupils whose teachers indicated that they had 31 or more textbooks in Numeracy performed

significantly better than all other groups. This is true as more textbooks available means the pupils will not share as such they are given the opportunity to study at their own pace.

Numeracy books do not have any effect on performance in English. This could be due to the fact that they are not relevant to the subjects.

Table 5.19: Number of Textbooks Available Written in Home Language and Pupils' Performance

Number of Textbooks Available		n	%	Mean (SE)	Diff (SE)
Mathematics	0 to 10 textbooks	1236	37.6	30.20(.50)	1,2: 1.30(.82) 1,3: 2.75(.74)* 1,4: -6.85(.94)* 2,3: 1.45(.86) 2,4: -8.15(1.04)* 3,4: -9.60(.98)*
	11 to 20 textbooks	675	20.5	28.90(.64)	
	21 to 30 textbooks	927	28.2	27.45(.55)	
	31 or more textbooks	449	13.7	37.05(.81)	
Setswana	0 to 10 textbooks	949	30.1	46.01(.55)	1,2: 1.15(.81) 1,3: 2.94(.77)* 1,4: -5.75(.88)* 2,3: 1.79(.82)* 2,4: -6.90(.92)* 3,4: -8.69(.89)*
	11 to 20 textbooks	754	23.9	44.86(.61)	
	21 to 30 textbooks	887	28.1	43.07(.56)	
	31 or more textbooks	561	17.8	51.76(.66)	
English	0 to 10 textbooks	909	31.0	34.14(.52)	1,2: .50(.74) 1,3: 4.10(.68)* 1,4: -.78(.85) 2,3: 3.60(.74)* 2,4: -1.28(.90) 3,4: -4.88(.84)*
	11 to 20 textbooks	662	22.5	33.65(.55)	
	21 to 30 textbooks	925	31.5	30.05(.46)	
	31 or more textbooks	440	15.0	34.93(.67)	

** Significant mean differences*

In Mathematics and Setswana, pupils whose teachers indicated that they had 31 or more textbooks available for reading in home language performed significantly better than those having less than 10 textbooks. In English pupils whose teachers indicated that they had 31 or more textbooks available for reading in home language performed significantly better than those with 21 to 30 textbooks. Home language is having a positive effect on learning especially in Mathematics and Setswana. It was also found that the more textbooks available in English (reading) and General Studies the better the performance in all the subjects.

The general trend from the availability of textbooks shows that having 31or more textbooks is desirable for learning. Class sizes range from 40 - 45 and as such the pupils are forced to work in pairs if textbooks are not enough for each pupil.

Teachers' Access to Professional Facilities

A teacher is a valuable resource that passes on knowledge and values to the pupils. Teachers motivate pupils to do well in their studies, as such they must have access to a lot of information to equip them with relevant up-to-date information. Teachers were asked to indicate whether they have access to the following professional facilities: Teacher Resource Centre, Library, Teacher College of Education and others. The responses were then related to pupils' performance and the results are presented in Table 5.20.

Table 5.20: Teachers' Access to Professional Facilities and Pupils' Performance

Teachers' Access to Professional Facilities		Yes			No			Mean Diff	t-value	df	Sig. (2-tailed)
		n	%	Mean	n	%	Mean				
Teacher Resource Centre	Mathematics	1989	41.0	31.91 (.41)	2858	59.0	29.22 (.32)	2.67	5.26	4845	.00
	Setswana	1893	42.3	46.42 (.40)	2578	57.7	44.60 (.33)	1.83	3.58	4469	.00
	English	1733	38.4	37.42 (.43)	2781	62.0	31.87 (.27)	5.56	11.54	4512	.00
Library	Mathematics	3197	65.9	32.28 (.33)	1654	34.1	26.61 (.37)	5.67	10.80	4849	.00
	Setswana	3137	69.2	46.21 (.30)	1394	30.8	43.59 (.44)	2.62	4.85	4529	.00
	English	3072	65.6	35.88 (.30)	1612	34.4	30.03 (.33)	5.85	12.15	4682	.00
Teacher College of Education	Mathematics	1452	30.3	33.19 (.48)	3336	69.7	28.77 (.29)	4.42	8.17	4786	.00
	Setswana	1449	32.9	48.11 (.44)	2951	67.1	43.83 (.31)	4.28	7.97	4398	.00
	English	1393	30.1	37.13 (.46)	3234	69.9	32.42 (.27)	4.71	9.30	4625	.00

Pupils whose teachers have access to the professional facilities performed significantly better than those whose teachers did not have access to the facilities. It is more likely that teachers use these facilities to obtain information. About 58% and 31% of the pupils were taught by teachers who did not have access to Teacher Resource Centre and library respectively. Since these facilities have a positive effect on performance it would be advisable to have these in schools.

School Supervision

Schools have to be managed efficiently and effectively in order to achieve their mandate. In this section lesson observation, school inspection and teachers' absenteeism will be discussed.

Frequency of Lesson Observation by Supervisors

The overall aim of schools is to enable pupils to achieve their maximum potential in the curriculum offered and this is achieved through teachers as they help the pupils in the learning process. The teachers too should be monitored and evaluated in their duties so as to check whether they are meeting the goals of the school. During the monitoring and evaluation of the teachers, their strengths and weaknesses are identified so that corrective action can be implemented.

Teachers were asked to indicate the frequency at which supervisors observe their lessons and this was related to performance of the pupils. The results are shown in Table 5.21.

Table 5.21: Frequency of Lesson Observation by Supervisors and Pupils' Performance

Frequency of Lesson Observation by Supervisors		n	%	Mean (SE)	Diff (SE)
Mathematics	Not at all	63	1.3	31.06 (2.08)	1,2: 5.24 (2.42)* 1,3: 1.69 (2.36) 1,4: .23 (2.22) 2,3: -3.56 (1.29)* 2,4: -5.01 (1.03)* 3,4: -1.46 (.88)
	Once a year	313	6.4	25.81 (.88)	
	Twice a year	443	9.0	29.37 (.82)	
	At least three times a year	4087	83.3	30.83 (.28)	
Setswana	Not at all	62	1.4	44.55 (2.06)	1,2: 2.85 (2.37) 1,3: -.33 (2.26) 1,4: -1.23 (2.15) 2,3: -3.18 (1.27)* 2,4: -4.08 (1.07)* 3,4: -.90 (.79)
	Once a year	264	5.8	41.70 (.99)	
	Twice a year	523	11.4	44.88 (.76)	
	At least three times a year	3736	81.5	45.78 (.28)	
English	Not at all	81	1.7	31.51 (1.34)	1,2: 2.45 (1.97) 1,3: -3.68 (2.10) 1,4: -2.69 (1.78) 2,3: -6.13 (1.45)* 2,4: -5.13 (.93)* 3,4: -1.00 (1.17)
	Once a year	312	6.6	29.06 (.71)	
	Twice a year	192	4.1	35.19 (1.18)	
	At least three times a year	4154	87.7	34.19 (.25)	

** Significant mean differences*

At least 81% of the pupils were taught by teachers who were observed by their supervisors at least three times a year, while 1% was taught by teachers who were never observed. This proportion is too small for comparison reasons. Pupils whose lessons were observed by

supervisors at least twice a year performed significantly better than those whose teachers were observed once a year, in all the subjects. Generally, it can be seen that more observations lead to better performance of the pupils. Therefore observations should be done systematically and evaluated such that they add value to the teacher as such it is ideal for every teacher to be observed.

Frequency of Lesson Observation by School Inspectors

Inspection involves gathering evidence in order to provide information on how well a school is performing. The meetings with the School Heads and the staff, after inspection provides feed back as such guidance to support improvements can be discussed.

Teachers were asked to indicate when their lessons were last observed by a school inspector and their responses were related to pupils' performance. The results are presented in Table 5.22.

Table 5.22: Last Lesson Observation by School Inspectors and Pupils' Performance

Last Lesson Observation by School Inspectors		n	%	Mean (SE)	Diff (SE)
Mathematics	This year (2007)	900	18.6	30.10 (.60)	1,2: .13 (.81) 1,3: -1.80 (.73)* 1,4: 1.55 (.71)* 2,3: -1.93 (.74)* 2,4: 1.42 (.72)* 3,4: 3.35 (.62)*
	Last year (2006)	883	18.3	29.97 (.53)	
	Earlier than last year (2006)	1425	29.5	31.90 (.45)	
	Not at all	1628	33.7	28.55 (.44)	
Setswana	This year (2007)	870	19.2	44.77 (.61)	1,2: -1.38 (.78) 1,3: -2.65 (.72)* 1,4: 2.01 (.74)* 2,3: -1.28 (.69) 2,4: 3.39 (.72)* 3,4: 4.67 (.65)*
	Last year (2006)	980	21.6	46.15 (.50)	
	Earlier than last year (2006)	1463	32.2	47.43 (.43)	
	Not at all	1229	27.7	42.76 (.48)	
English	This year (2007)	900	19.3	32.78 (.54)	1,2: -2.90 (.68)* 1,3: -2.73 (.70)* 1,4: 1.79 (.66)* 2,3: .17 (.65) 2,4: 4.69 (.61)* 3,4: 4.52 (.62)*
	Last year (2006)	1202	25.7	35.68 (.47)	
	Earlier than last year (2006)	1113	23.8	35.51 (.47)	
	Not at all	1453	31.1	30.99 (.38)	

** Significant mean differences*

Inspections vary by subject, but generally about 19% of the pupils were taught by teachers who were inspected in 2007 while about 31% were taught by teachers who were never inspected.

Pupils whose teachers were never inspected performed the worst in all the three subjects. Pupils whose teachers were inspected earlier than 2006 performed significantly better than all other groups in all subjects. It is observed that inspection impacts positively on performance and results are more pronounced after two years of inspection.

Teacher Absenteeism

Teachers play an important role in the learning process. Teachers were asked to indicate the number of school days they missed in a term. The responses were grouped into the following categories: 0 to 5 days, 6 to 10 days, 11 or more days. The responses in the various categories were related to pupils' performance and the results are shown in Table 5.23.

Table 5.23: Number of School Days Missed and Pupils' Performance

Number of School Days Missed		n	%	Mean (SE)	Diff (SE)
Mathematics	0 to 5 days	2946	74.4	30.78(.34)	1,2: 3.86(.81)*
	6 to 10 days	571	14.4	26.92(.67)	1,3: 3.15(.90)*
	11 or more days	441	11.1	27.63(.72)	2,3: -.71(1.12)
Setswana	0 to 5 days	2937	80.0	44.70(.31)	1,2: .76(.89)
	6 to 10 days	405	11.0	43.95(.90)	1,3: 1.65(.97)
	11 or more days	330	9.0	43.05(.92)	2,3: .89(1.24)
English	0 to 5 days	3161	80.0	34.08(.28)	1,2: 1.26(.83)
	6 to 10 days	414	10.5	32.82(.80)	1,3: 4.89(.86)*
	11 or more days	378	9.6	29.19(.71)	2,3: 3.63(1.13)*

** Significant mean differences*

More than 75% of the pupils were taught by teachers who missed school for 5 days or less. Generally, the more days of teacher absenteeism the lower the performance of pupils, except in Setswana. This signifies the importance of the presence of teacher in the classroom. Teachers miss school for various reasons. It is suggested that whenever a teacher is absent an assistant teacher should take over.

Teaching Conditions

The welfare of the teacher is very important as it could determine their productivity at work. The following will be discussed: time taken to travel to school, changing careers if opportunity arises, activities the teacher spent time on during and after school hours.

Time Taken to Travel to School by the Teacher and Pupil Performance

The time taken to reach school is dependent on the distance to school. Teachers were asked to indicate how much time they take to reach school. The time taken was classified into the following categories: 1 to 15 minutes, 16 to 30 minutes, 31 or more minutes. These travelling times were then related to pupils' performance and the results are presented in Table 5.24.

Table 5.24: Time Taken to Travel to School and Pupils' Performance

Time Taken to Travel to School		n	%	Mean (SE)	Diff (SE)
Mathematics	1 to 15 minutes	2888	59.9	29.39(.32)	1,2: -4.65(.59)*
	16 to 30 minutes	1275	26.4	34.04(.52)	1,3: 1.10(.75)
	31 or more minutes	659	13.7	28.29(.58)	2,3: 5.75(.84)*
Setswana	1 to 15 minutes	2621	60.2	44.75(.33)	1,2: -2.52(.60)*
	16 to 30 minutes	1102	25.3	47.27(.52)	1,3: .51(.75)
	31 or more minutes	629	14.5	44.24(.64)	2,3: 3.03(.84)*
English	1 to 15 minutes	3032	65.6	32.81(.28)	1,2: -3.93(.56)*
	16 to 30 minutes	1057	22.9	36.74(.52)	1,3: -.04(.74)
	31 or more minutes	536	11.5	32.85(.62)	2,3: 3.90(.84)*

** Significant mean differences*

Most teachers take 15 minutes or less to reach school showing that they live within the vicinity of the school. Pupils whose teachers travel between 16 to 30 minutes performed significantly better than all other groups in all the subjects. These results are puzzling as generally it is expected that the shorter the time the better the performance, as the teacher would have not been exhausted by travelling. Maybe there are other factors at play not related to time travelled for example the teachers' passion for work, state of health, means of travel.

Does Teachers' Travelling Time affect Teaching

Teachers were asked to indicate the extent to which travelling time to school affect their teaching and the responses were then related to pupil's performance as shown in Table 5.25.

Table 5.25: Teachers' Travelling Time and Pupils' Performance

Does Teachers' Travelling Time affect Teaching		n	%	Mean (SE)	Diff (SE)
Mathematics	Not at all	3429	69.9	30.97 (.31)	1,2: 2.48 (.63)*
	To a small extent	998	20.3	28.49 (.53)	1,3: .83 (.86)
	To a large extent	479	9.8	30.13 (.75)	2,3: -1.64 (.97)
Setswana	Not at all	3192	69.6	45.37 (.30)	1,2: .28 (.61)
	To a small extent	997	21.7	45.09 (.53)	1,3: -1.35 (.90)
	To a large extent	396	8.6	46.72 (.74)	2,3: -1.63 (1.00)
English	Not at all	3398	72.2	33.30 (.27)	1,2: .76 (.59)
	To a small extent	880	18.7	32.54 (.47)	1,3: -6.43 (.81)*
	To a large extent	426	9.1	39.73 (.87)	2,3: -7.19 (.93)*

** Significant mean differences*

About 70% of the pupils are taught by teachers who said that travelling time to school does not affect their teaching whilst 9% are taught by teachers who indicated that travelling time affects their teaching.

In Setswana, pupils' performance is not affected by teachers' travelling time. In Mathematics pupils who are taught by teachers who are not affected by travelling time performed significantly better than those pupils who are taught by teachers affected by travelling time to a small extent. The performance of other groups is the same. In English pupils who are taught by teachers who are affected by travelling time to a large extent performed significantly better than all other groups. This significant difference could have been introduced by a large error margin. As stated earlier travelling time could not be the only factor here.

Changing Careers

People change careers for various reasons such as pursuing further studies, change of environment, looking for challenging opportunities. Teachers were asked to indicate whether they would change to another career if an opportunity arose. The responses were then related to pupil's performance and the results are presented in Table 5.26.

Table 5.26: Changing Careers and Pupils' Performance

Subject	Yes			No			Mean Diff	t-value	df	Sig. (2-tailed)
	n	%	Mean	n	%	Mean				
Mathematics	2833	58.2	28.97 (.31)	2037	41.8	32.43 (.41)	-3.46	-6.81	4868	.00
Setswana	2534	55.7	44.70 (.33)	2016	44.3	46.41 (.38)	-1.71	-3.41	4548	.00
English	2864	61.3	32.69 (.28)	1806	38.7	35.76 (.40)	-3.26	-6.89	4668	.00

On average, about 58% of the pupils are taught by teachers who would change careers if an opportunity arose, while 42% of the pupils are taught by teachers who would not change their career. These proportions are similar to those of MLA Study of 2001. Pupils who are taught by teachers who would not change careers performed significantly better than those taught by teachers who would like to change careers. This could be due to the fact that these teachers have lost interest in the teaching profession. Due to high percentages of teachers who would like to change careers more research is needed to find out why they want to change careers.

A cross tabulation of type of school and teachers' likelihood to change careers, Table 5.27, shows that the highest percentage of teachers are those from Government-subsidised schools (67%) followed by public or Government schools (58%) while those from private or non-government schools would not want to change their career. Teachers in private schools do not want to change their career. This could be due to favourable working conditions.

Table 5.27: Type of School and Opportunity to Change Careers

Would you Change the Career	School Type			
	Public/Government	Private/ non-government	Government subsidised	Total
Yes	281 (58.2%)	0 (0%)	20(66.7%)	301(57.6%)
No	202 (41.8%)	10 (100%)	10 (33.3%)	222(42.4%)
Total	**483 (100%)**	**10 (100%)**	**30(100%)**	**523 (100%)**

Time Spent on Other School Activities

Teachers are also involved in other school activities. Teachers were asked to indicate whether they spend time on any of the following activities during and after school hours: administration, preparation for lessons, correcting/marking pupils' exercises, extra-curricular activities, remedial teaching, meeting with School Heads and other teachers, further studies for self -

development and private tutoring. The responses were then related to pupils' performance as shown in Tables 5.28 and 5.29.

Table 5.28: Time Spent on Other School Activities During School Hours and Pupils' Performance

Time Spent on Other School Activities During School Hours		Yes			No			Mean Diff	t-value	df	Sig.(2-tailed)
		n	%	Mean	n	%	Mean				
Administration	Mathematics	2366	48.4	29.97 (.37)	2522	51.6	30.81 (.34)	-.84	-1.67	4886	.09
	Setswana	2323	54.4	45.55 (.36)	2198	48.6	44.97 (.35)	.58	1.16	4519	.25
	English	2316	49.4	33.55 (.33)	2374	50.6	33.78 (.32)	-.23	-.49	4688	.62
Preparation for lessons	Mathematics	1507	31.1	30.70 (.51)	3346	68.9	30.17 (.28)	.53	.97	4851	.33
	Setswana	1578	34.6	43.83 (.44)	2989	65.4	46.25 (.30)	-2.42	-4.64	4565	.00
	English	1645	34.8	32.19 (.40)	3076	65.2	34.78 (.28)	-2.59	-5.35	4719	.00
Correcting/ Marking pupil exercises	Mathematics	4390	91.0	30.25 (.27)	436	9.0	30.21 (.74)	.05	.05	4824	.96
	Setswana	4112	89.7	45.42 (.27)	473	10.3	45.43 (.70)	-.01	-.01	4583	.99
	English	4357	91.9	33.46 (.24)	382	8.1	38.31 (.91)	-4.86	-5.76	4737	.00
Extra-curricular activities (sport, drama, choir, etc.)	Mathematics	2410	49.9	30.06 (.36)	2423	51.1	30.69 (.35)	-.63	-1.24	4831	.22
	Setswana	2193	48.2	45.40 (.37)	2354	51.8	45.59 (.34)	-.19	-.38	4545	.71
	English	2302	49.0	33.14 (.33)	2399	51.0	34.69 (.33)	-1.55	-3.34	4699	.00

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Table 5.28: Time Spent on Other School Activities during School Hours and Pupils' Performance

Time spent on Other School Activities during School Hours		Yes			No			Mean Diff	t-value	df	Sig.(2-tailed)
		n	%	Mean	n	%	Mean				
Remedial Teaching	Mathematics	4091	84.6	30.16 (.27)	746	15.4	31.36 (.66)	-1.20	-1.72	4835	.09
	Setswana	3744	82.9	45.53 (.28)	774	17.1	44.73 (.59)	.79	1.19	4516	.23
	English	4039	86.5	33.52 (.25)	631	13.5	35.15 (.69)	-1.63	-2.41	4668	.02
Meetings with School Heads and other teachers	Mathematics	3884	80.6	30.13 (.28)	932	19.4	30.75 (.55)	-.62	-.97	4814	.33
	Setswana	3646	80.4	45.58 (.28)	889	19.6	44.71 (.56)	.87	1.38	4533	.17
	English	3938	84.1	33.38 (.25)	746	15.9	35.49 (.64)	-2.11	-3.35	4682	.00
Further studies for self-development	Mathematics	502	10.2	28.53 (.92)	4404	89.8	30.59 (.26)	-2.07	-2.50	4904	.01
	Setswana	373	8.1	42.48 (.89)	4212	91.9	45.68 (.26)	-3.20	-3.53	4583	.00
	English	392	8.3	31.45 (.81)	4347	91.7	34.06 (.24)	-2.61	-3.12	4737	.00
Private Tutoring	Mathematics	90	1.8	23.15 (1.78)	4785	98.2	30.55 (.25)	-7.40	-3.97	4873	.00
	Setswana	59	1.3	37.56 (2.40)	4463	98.7	45.49 (.25)	-7.93	-3.60	4520	.00
	English	86	1.8	25.74 (1.44)	4621	98.2	34.05 (.23)	-8.31	-4.82	4705	.00

Teachers' participation in administration does not affect pupil's performance. Teachers' participation on extra-curricular activities does not affect performance except for English were pupils whose teachers do not participate in extra-curricular activities performed significantly better than those whose teachers participated. Could be that extra-curricular activities take much of the teachers' time such that they do not have enough time to prepare for the lessons effectively.

Lesson preparations require time and effort so that the teacher carefully plans the content and methods or various approaches that will be used to effectively deliver to the pupils. About 34% of the pupils are taught by teachers who prepare for lessons during school hours. In English and Setswana pupils taught by teachers who prepare for lessons during school hours obtained

significantly lower mean scores than those whose teachers did not prepare for lessons during school hours. Teachers who prepare for lessons during school hours probably do not have enough time to effectively plan these lessons. Careful monitoring and evaluation should be done on lesson planning.

Less than 10% of the teachers further their studies for self development during school hours. Pupils who are taught by teachers who do not further their studies for self development performed significantly better than those who are taught by teachers who further their studies in all the subjects. This could mean that these teachers spend most of the time doing their private studies than preparing for lessons. Though self-development is good, it should not be done during school hours as it takes away teachers' time thus impinging negatively on pupils' performance.

Pupils who are taught by teachers who are not involved in private tutoring during school hours performed significantly better in all the subjects compared to those whose teachers are involved in private tutoring. Teachers who are engaged in private studies and private tutoring during school hours should seek permission from their supervisors so that their capability to do both activities is assessed. It should be noted that the proportion of teachers engaged in these two activities is small, therefore the significant difference could be due to large random errors.

One way for the teacher to evaluate that learning has occurred is to mark pupils' exercises so that appropriate feedback can be provided to the pupils. About 90% of the pupils are taught by teachers who correct pupils' exercises during school hours. Correcting or marking pupils exercises during school hours does not have any effect on performance except for English were pupils whose teachers correct their exercises during school hours performed significantly lower than those whose teachers did not correct their exercises.

Remedial teaching is done to provide help to pupils who have not adequately mastered the objectives of the lesson or topic. About 85% of the pupils are taught by teachers who carry out remedial teaching during school hours. Remedial teaching does not have any significant effect on the performance of the pupils. Several questions could be asked, for example, is it the students who are not coping with the information or is it the teachers who are not using different strategies to help the pupils understand? It is suggested that teachers should be equipped with skills on remedial teaching.

The school administration and staff should hold meetings to evaluate how the teachers are performing and also how the school is being run. It is at these meetings that valuable information is shared and the school can evaluate whether it is meeting its goals. About 82% of the pupils are taught by teachers who attend these meetings during school hours. Attendance to these meetings does not have any significant effect on pupil's performance except for English.

Time Spent on Other School Activities after School Hours

Table 5.29: Time Spent on Other School Activities after School Hours and Pupils' Performance

Time Spent on Other School Activities after School Hours		Yes			No			Mean Diff	t-value	df	Sig.(2-tailed)
		n	%	Mean (SE)	n	%	Mean (SE)				
Administration	Mathematics	2926	62.4	30.96 (.33)	1760	37.6	29.89 (.42)	1.07	2.01	4684	.05
	Setswana	2780	63.7	46.27 (.32)	1585	36.3	44.87 (.43)	1.41	2.66	4363	.01
	English	2769	61.7	34.92 (.31)	1721	38.3	32.18 (.36)	2.74	5.66	4488	.00
Preparation for lessons	Mathematics	4747	98.8	30.20 (.25)	56	1.2	49.82 (3.32)	-19.63	-8.38	4801	.00
	Setswana	4358	97.2	45.67 (.25)	124	2.8	43.60 (1.49)	2.07	1.36	4480	.18
	English	4394	94.8	33.89 (.24)	242	5.2	34.87 (1.13)	-.97	-.93	4634	.36
Correcting/ Marking pupil exercises	Mathematics	4685	97.5	30.44 (.25)	118	2.5	29.79 (2.36)	.65	.40	4801	.69
	Setswana	4459	99.5	45.64 (.25)	23	0.5	39.57 (3.33)	6.08	1.73	4480	.08
	English	4580	98.8	33.73 (.23)	56	1.2	51.11 (3.06)	-17.37	-8.17	4634	.00
Extra-curricular activities (sport, drama, choir, etc.)	Mathematics	3795	79.5	30.16 (.28)	976	20.5	31.91 (.61)	-1.75	-2.79	4769	.01
	Setswana	4166	96.3	45.61 (.26)	161	3.7	42.65 (1.43)	2.97	2.20	4325	.03
	English	4403	95.6	33.81 (.24)	202	4.4	32.09 (1.32)	1.72	1.52	4603	.13

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Table 5.29: Time Spent on Other School Activities after School Hours and Pupils' Performance

Time Spent on Other School Activities after School Hours		Yes			No			Mean Diff	t-value	df	Sig.(2-tailed)
		n	%	Mean	n	%	Mean				
Remedial Teaching	Mathematics	4175	86.9	30.35 (.27)	628	13.1	30.93 (.80)	-.58	-.77	4801	.44
	Setswana	3397	76.9	45.85 (.28)	1020	23.1	45.43 (.55)	.42	.70	4415	.49
	English	3646	79.2	33.81 (.26)	958	20.8	34.75 (.56)	-.95	-1.63	4602	.10
Meetings with School Heads and other teachers	Mathematics	2426	51.3	30.52 (.37)	2303	48.7	29.95 (.35)	.58	1.13	4727	.26
	Setswana	3884	86.7	45.89 (.27)	598	13.3	43.82 (.71)	2.06	2.80	4480	.01
	English	4009	86.5	33.88 (.25)	627	13.5	34.38 (.71)	-.50	-.73	4634	.47
Further studies for self-development	Mathematics	1222	25.9	28.60 (.51)	3489	74.1	30.96 (.30)	-2.36	-4.05	4709	.00
	Setswana	2065	46.4	46.77 (.36)	2385	53.6	44.59 (.35)	2.18	4.33	4448	.00
	English	2019	43.9	34.21 (.36)	2580	56.1	33.45 (.31)	.76	1.61	4597	.11
Private Tutoring	Mathematics	1222	25.9	28.60 (.51)	3489	74.1	30.96 (.30)	-2.36	-4.05	4709	.00
	Setswana	966	21.8	44.00 (.54)	3458	78.2	45.98 (.29)	-1.98	-3.25	4422	.00
	English	1083	23.5	32.22 (.46)	3520	76.5	34.47 (.27)	-2.26	-4.09	4601	.00

Pupils whose teachers are involved in the school administration after school hours performed significantly better than those whose teachers do not participate in school administration. The percentage of teachers who further their studies for self-development after school hours varies between 25.9% for Mathematics to 46.4% for Setswana. In Mathematics pupils who are taught by teachers who further their studies for self-development after school hours obtained significantly lower mean scores than those whose teachers did not further their studies. However, the opposite is true for pupils' performance in Setswana. The dilemma here is that in one subject professional self-development of the teacher impacts positively on pupils' performance while on the other subject it impacts negatively. The question asked here is that could it be related to the nature or demands of the subject? The government policy on professional self development allows the teacher to request for permission from their

supervisors to study relevant courses. The relevancy of the courses should be scrutinised as sometimes the courses could be professional but not adding value to the content the teachers are transferring to the pupils.

About 24% of the pupils are taught by teachers who do private tutoring after school hours. Pupils who are taught by teachers tutoring privately obtained significantly lower mean scores than those whose teachers were not involved in private tutoring outside school hours. Private tutoring whether done during or after school hours affects pupils' performance negatively. The policy on private tutoring or teaching allows teachers who have been granted permission by their supervisors to teach in private schools. It is suggested that the supervisors should monitor the performance of the teacher closely so that the situation should not compromise the teacher's quality of work.

Majority of the pupils are taught by teachers who participate in extra-curricular activities after school hours. In Mathematics pupils who are taught by teachers who participated in extra-curricular activities after school hours obtained significantly lower mean scores than those whose teachers did not participate, whereas in Setswana pupils taught by teachers who participate in extra-curricular activities performed significantly better than those whose teachers did not participate. Extra-curricular activities are supposed to develop individuals mentally, physically and socially thus contributing to a healthy person. When teachers and pupils are healthy, the expectation is that they will perform better. Since the effects of extra-curricular activities are different for the different subjects they should be studied carefully to see which ones suit which subject the best as the end result is to see the performance of the pupils improving.

More that 97% of the pupils are taught by teachers who prepare for lessons after school hours. Surprisingly, pupils' performance is not affected by the teachers' preparation of lessons after school hours except for Mathematics. This result should be interpreted cautiously due to the small numbers of pupils involved (1%). It is advisable that lesson plans should be carefully structured so that the teachers can easily evaluate themselves as preparation without good results could be indicating some problems encountered by the teachers, as such needing guidance.

About 96% of the pupils are taught by teachers who correct or mark their exercises after school hours. Correcting or marking pupils' exercises after school hours does not have any

significant effect on performance except for English. This result should be interpreted cautiously due to small numbers. As correcting pupils exercises is important for providing valuable feedback, the exercises should be structured such that they measure the important aspects of the content learnt to the required standard so as to have a positive correlation between marking exercises and pupils' performance.

Generally, it is observed that private tutoring and furthering studies for self development affects pupils' performance negatively whether done during or after school hours. Participation of teacher in administration of the school after school hours has a positive effect on pupils' performance.

Summary

A total of 577 teachers completed the questionnaire and amongst them, 74.5% were females and only 25.5% were males. Pupils taught by female teachers performed significantly higher in all the subjects than those taught by male teachers.

The majority of teachers were found to fall in the age category of 40 - 49, constituting 34%, followed by 30 - 39, constituting 30.3%. The least were those teachers 50 or above. Pupils who performed significantly better were those taught by teachers who are 50 years or older in Mathematics and teachers above 30 years in Setswana and English.

The majority of the pupils were taught by teachers with five or less years teaching in the same school. Pupils whose teachers had 6 to 10 years teaching experience in the same school performed significantly better than all other groups. Pupils taught by teachers with more experience teaching Standard Four were performing significantly better, in all the subjects, than pupils taught by teachers with less experience of teaching Standard Four.

About 30% of the pupils were taught by teachers who share classrooms. Pupils who did not share a classroom performed significantly better than those who shared a classroom. Thus sharing of a classroom affects pupils' performance negatively.

Majority of the pupils (about 50%) are taught by teachers who test them on daily basis. Testing two or three times a month is associated with the best performance in the languages, but Mathematics performance is better associated with one or more times per week.

All Standard Four pupils are taught by teachers who use teacher made tests and examinations as well as classroom work for the pupils. Pupils who are assessed by teachers using externally developed tests and examinations performed significantly better than those who did not except in Setswana. About 72% of the pupils are taught by teachers who use oral examinations as assessment method. Oral examinations seem to have an effect on pupils' performance in all the subjects.

Social factors like family problems, orphanage, socio-economic status, as well as parental indifference, and pedagogical factors such as remedial instruction, loaded curriculum, language of instruction affected pupils' performance to a large extent.

In Mathematics pupils whose teachers indicated that they had 31 or more text books in Numeracy performed significantly better than all other groups. Home language is having a positive effect on learning especially in Mathematics and Setswana.

More than 75% of the pupils were taught by teachers who missed school for 5 days or less. Generally, the more days of teacher absenteeism the lower the performance of pupils. This signifies the importance of the presence of teacher in the classroom. Teachers miss school for various reasons. It is suggested that whenever a teacher is absent an assistant teacher should take over.

A large proportion of pupils (>98 %) were taught both Mathematics and English using English and these pupils performed significantly better than those who were taught using Mother tongue/Local language.

About half of pupils were taught by teachers who did not have teacher's guides for the three subjects and this did not affect pupils' performance in all the subjects. Pupils taught by teachers who indicated that the teachers' guides' contents were appropriate performed significantly better in Mathematics and English. This shows that relevant materials add value to learning. Generally, teaching-aids had an effect on pupils' performance; whether teacher-made, commercial or pupil- made. Teaching aids assist pupils' comprehension of the concept presented to them since they are able to visualize. In Mathematics and Setswana, pupils whose teachers indicated that they had 31 or more textbooks available for reading in home language performed significantly better than those having less than 10 textbooks.

The general trend from the availability of textbooks shows that having 31or more textbooks is desirable for learning. Class sizes range from 40 - 45 and as such the pupils are forced to work in pairs if textbooks are not enough for each pupil.

Pupils having desks performed significantly better than those without. It was found that pupils who were taught by teachers who had chairs in their classrooms performed significantly better in English than those who were taught by teachers who did not have chairs Similarly pupils taught by teachers who had tables in their classrooms performed significantly better in English and Setswana than their counterparts.

More than half (about 56%) of the pupils were in schools that did not have electricity. Pupils in

schools with electricity performed significantly better in all the subjects than pupils in schools without electricity.

Majority of pupils (at least 80%) were taught in classrooms without access to resources for special needs pupils. This disadvantages those pupils who are physically challenged.

The accessibility of equipment such as duplicating machine, photocopier, computer and typewriter, ranged from about 7% for the typewriter to 34% for the photocopier. This implies that he majority of the pupils are taught by teachers who do not have access to these equipments. Pupils whose teachers had access to these equipments performed significantly better than those who did not have access. It would be advisable that staff readily access these equipments as they impact positively on pupils' performance.

Pupils whose teachers have access to the professional facilities such as resource centre and library, performed significantly better than those whose teachers did not have access to the facilities. It is more likely that teachers use these facilities to obtain information. Since these facilities have a positive effect on performance it would be advisable to have these in schools. Pupils whose lessons were observed by supervisors at least twice a year performed significantly better than those whose teachers were observed once a year, in all the subjects. Generally, it can be seen that more observations lead to better performance of the pupils. Therefore observations should be done systematically and evaluated such that they add value to the teacher as such it is ideal for every teacher to be observed.

Pupils whose teachers were never inspected performed the worst in all the three subjects. Pupils whose teachers were inspected earlier than 2006 performed significantly better than all other groups in all subjects. It is observed that inspection impacts positively on performance and results are more pronounced after two years of inspection.

Most teachers take 15 minutes or less to reach school showing that they live within the vicinity of the school. Pupils whose teachers travel between 16 to 30 minutes performed significantly better than all other groups in all the subjects.

On average, about 58% of the pupils are taught by teachers who would change careers if an opportunity arose, while 42% of the pupils are taught by teachers who would not change their career. Pupils who are taught by teachers who would not change careers performed

significantly better than those taught by teachers who would like to change careers. Due to high percentages of teachers who would like to change careers more research is needed to find out why they want to change careers.

About 85% of the pupils are taught by teachers who carry out remedial teaching during school hours. Remedial teaching does not have any significant effect on the performance of the pupils. It is suggested that teachers should be equipped with skills on remedial teaching.

Pupils taught by teachers who do private studies and private tutoring performed significantly lower. This could mean that these teachers spend most of the time on their private chores than preparing for lessons. Though self-development is good, this points to the fact that teachers need to be sent full time for studies.

Engagement in professional development after hours generally did not add value to pupils' performance. This could be due to the fact that some of the courses studied are irrelevant to their work.

Private tutoring whether done during or after school hours affects pupils' performance negatively. It is suggested that the supervisors should monitor the performance of the teacher closely so that the situation should not compromise the teacher's quality of work.

Policy Implications

1. Remedial teaching is an important instructional strategy to cater for the slow learners since the rate of learning differs from one pupil to another. As such teachers should be equipped with such skills to effectively impart knowledge and skills to the pupils.

2. Though the intention of private tutoring is to empower teachers, it seems not to be fulfilling its intended objectives as it impacts negatively on pupils' performance. This has to be reviewed with the view to infuse monitoring mechanisms. Government should also consider sending teachers for full-time study for those who are naturally unable to cope with double load of working and studying simultaneously.

3. External inspection by Ministry of Education and Skills Development officials is extremely important for the improvement of the education system. Hence regular visits to schools should be undertaken. Likewise, internal supervision is also important. As one of their duties, School Heads should make it a procedure to visit classes to assist teachers with instructional leadership and delivery of content. The Government's aim should be to motivate and retain teachers in the field who would apply themselves to the fullest. This involves working on improving conditions of service and the work environment which could lead to the required job satisfaction.

4. The policy of using English as a medium of instruction should be enforced by school supervisors, as some of the teachers were discovered to be still using local languages when teaching Mathematics and English and this had a negative effect on the performance of pupils.

5. The government of Botswana should make concerted effort to address the issue of resources in primary schools, such as classroom shortage, shortage of furniture, provision of electricity and so on. These have been observed to affect pupils' performance negatively. this will be in line with the vision of becoming an educated and informed nation

6. Student-centred learning irrefutably aids pupils to learn for understanding. This involves long life learning where pupils are thrown in the deep end. This should be adopted wholesome in the instruction process. To facilitate this, the government has to ensure that

enabling environment is cultivated, such as manageable class sizes, provision of resources, remedial teaching etc.

7. Moderate pupils' assessment is desirable, teachers should be encouraged to assess pupils often to improve performance and give feedback. Different assessment methods should be adopted to accommodate diverse pupils' abilities.

8. School and home background factors impact negatively on pupils' performance. There must be a school based guidance and counselling programme for pupils who are academically, socially and economically affected by these factors.

6 SCHOOL BACKGROUND VARIABLE AND PUPILS' PERFORMANCE

The sample was made up of 103 schools out of the total number of 737 primary schools in Botswana, thus representing 14% of the schools. The School Head completed the school questionnaire on behalf of the school, which required the description of the school environment, including the role of the School Head, pupils' behaviour, the teachers and resources. Ninety four questionnaires were returned out of the expected 103.

School Background

School Location

The School Head was requested to indicate the location of the school by locality; urban, semi-urban, rural or remote rural. Urban centre are towns and semi-urban is made of major villages across the country. Rural settlements are those that are usually not very far from semi-urban centres, while remote rural are hamlets or mostly small settlements. The responses of the School Heads were related to the performance of the pupils as shown in Table 6.1. The performance of pupils by location is similar in the three subjects. The urban schools perform significantly better in each subject than pupils' in the other locations. It is only in Mathematics where the difference in performance of urban and semi-urban pupils is not statistically significant.

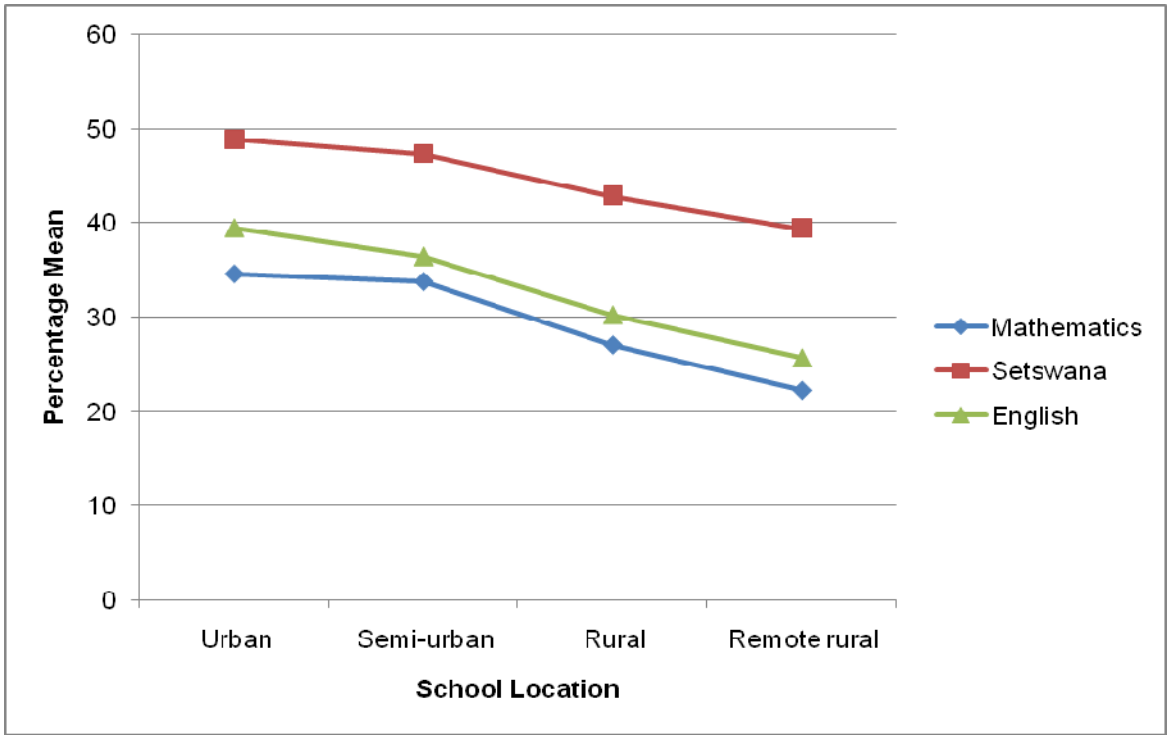
Table 6.1: School Location and Pupils' Performance

School Location		n	%	Mean (SE)	Diff (SE)
Mathematics	Urban	1413	25.3	34.59(.48)	1,2: .81 (.65), 1.3: 7.55(.59)* 1,4: 12.34(.69)* 2.3: 6.74(.61)* 2,4: 11.53(.71)* 3.4: 4.79(.65)*
	Semi-urban	1252	22.4	33.78(.51)	
	Rural	1905	34.1	27.05(.37)	
	Remote rural	1024	18.3	22.22(.45)	
Setswana	Urban	1364	24.4	48.90(.44)	1,2: 1.58 (.64)* 1.3: 6.02(.59)* 1,4: 9.50(.69)* 2.3: 4.44(.60)* 2,4: 7.92(.70)* 3.4: 3.48(.65)*
	Semi-urban	1281	22.8	47.32(.46)	
	Rural	1959	34.9	42.88(.39)	
	Remote rural	1004	17.9	39.40(.53)	
English	Urban	1347	24.1	39.45(.46)	1,2: 3.02 (.57)* 1.3: 9.20(.52)* 1,4: 13.75(.62)* 2.3: 6.18(.52)* 2,4: 10.73(.62)* 3.4: 4.55(.58)*
	Semi-urban	1305	23.3	36.43(.44)	
	Rural	1978	35.4	30.25(.30)	
	Remote rural	962	17.2	25.70(36)	

** Significant mean differences*

The means drop gradually from urban to remote rural schools in the three subjects. This is shown in Figure 6.1. Generally, all these means are rather too low, an indication that the pupils have not reached the proficiency level in the three subjects.

Figure 6.1: School Location and Pupils' Performance (English, Mathematics, Setswana)



Similar results were also found by MLA 2001 study, which showed that urban and semi-urban schools perform significantly better that their counterparts from rural schools in Literacy in Setswana and English, Numeracy and Life Skills. The TIMSS 2003 study also yielded similar results for Mathematics and Science at Form One.

The country is divided into six (6) educational regions. Some of these regions have a high proportion of either urban or rural schools as shown on Table 6.2. The West and Central South regions do not have any urban schools in the sample used. The South Central and North regions have nine urban schools between them, whereas the South and Central North have only five schools between them. Geographical regions with a higher proportion of urban schools perform significantly better than regions with higher proportion of rural schools (refer to Table 6.1).

Number of Schools by Location

Table 6.2: Number of Schools in a Location by Region

Region	Number of Schools in a Location by Region				
	Urban	Semi-urban	Rural	Remote Rural	Total
Central North	3	3	3	3	**12**
North	4	1	5	2	**12**
South Central	5	6	7	6	**24**
South	2	1	9	7	**19**
Central South	0	7	7	3	**17**
West	0	0	2	8	**10**
Total	**14**	**18**	**33**	**29**	**94**

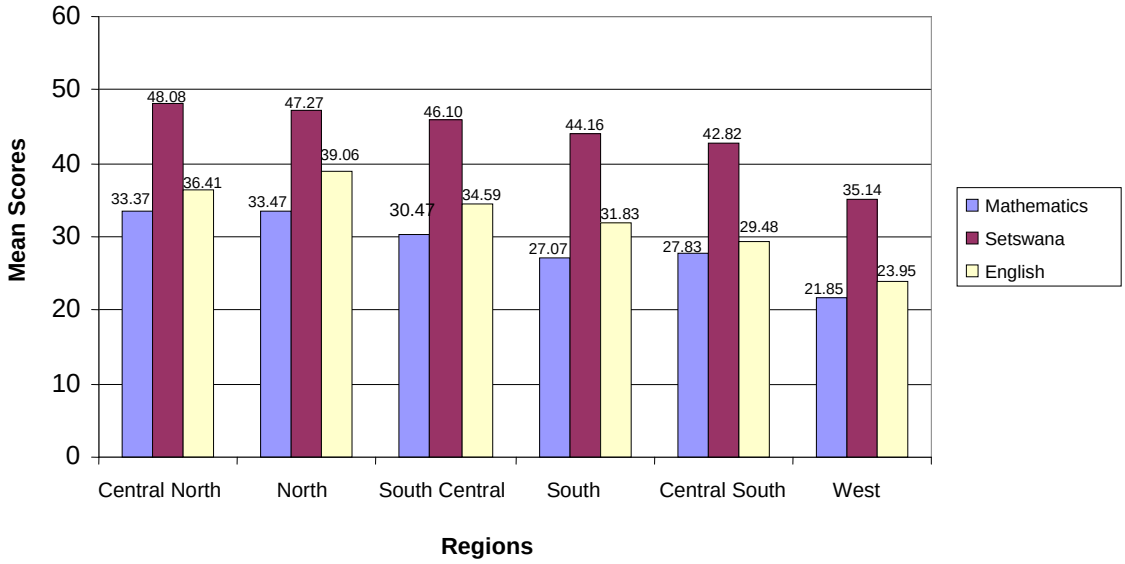
Table 6.2 shows that the Central North and North regions performed significantly better in all the three subjects. The South Central expected to do better than all other regions since it has more urban and semi-urban schools. The West region has the lowest mean scores in the three subjects (see Figure 6.2).

Table 6.3: *Educational Region and Pupils' Performance*

Educational Region		n	%	Mean (SE)	Diff (SE)
Mathematics	Central North	917	16.4	33.37(.57)	1,2: -.10(.85) 1,3: 2.90(.73) * 1,4: 6.30(.82)* 1,5: 5.54(.75)* 1,6: 11.52(1.00)* 2,3: 3.00(.78)* 2,4: 6.40(.86)* 2,5: 5.64(.80)* 2,6: 11.63(1.04)* 3,4: 3.40(.75)* 3,5: 2.64(.67)* 3,6: 8.62(.93)* 4,5: -.76(.77), 4,6: 5.23(.1.02)* 5,6: 5.99(.96)*
	North	744	13.3	33.47(.69)	
	South central	1423	25.4	30.47(.46)	
	South	846	15.1	27.07(.60)	
	Central south	1231	22.0	27.83(.47)	
	West	433	1.74	21.85(.73)	
Setswana	Central North	978	17.4	48.08(.51)	1,2: .81 (.82)* 1,3: 1.99(.70)* 1,4: 3.92(.77)* 1,5: 5.26(.72)* 1,6: 12.94(.97)* 2,3: -1.18(.77) 2,4: 3.12(.83)* 2,5: 4.45(.79)* 2,6: 12.13(1.02)* 3,4: 3.48(.65)* 3,5: 3.21(.66)* 3,6: 10.95(.93)* 4,5: 1.33(.73) 4,6: 9.01(.98)* 5,6: 7.68(.94)*
	North	709	12.6	47.27(.64)	
	South central	1365	24.3	46.10(.44)	
	South	918	13.4	44.16 (.57)	
	Central south	1213	21.6	42.82 (.49)	
	West	425	7.6	35.14 (.77)	
English	Central North	861	15.4	36.41(.52)	1,2: -2.64(.73)* 1,3: 1.83(.65) * 1,4: 4.58(.71)* 1,5: 6.93(.66)* 1,6: 12.46(.88)* 2,3: -4.47(.66) 2,4: 7.23(.73)* 2,5: 9.58(.68)* 2,6: 15.10(.89)* 3,4: 2.76(.64)* 3,5: 5.10(.59)* 3,6: 10.63(.82)* 4,5: 2.35(.66)* 4,6: 7.88(.87)* 5,6: 5.53(.83)*
	North	796	14.2	39.06(.62)	
	South central	1388	24.8	34.59(.43)	
	South	891	15.9	31.83(.48)	
	Central south	1222	21.9	29.48(.38)	
	West	434	7.8	23.95(.52)	

** Significant mean differences*

Figure 6.2: Educational Region and Pupils' Performance



All regions are staffed with qualified teachers, and the infrastructure is supposed to be the same for all primary schools in Botswana. What is it that is lacking that disadvantages regions such as the West? From the parental questionnaire, it was established that rural parents are less educated than urban parents. From Table 6.3 it has been established that the worst performing regions (West and Central North) have more rural schools than any other region. This factor of parental education has been proven in this report to impinge negatively on pupils' performance at Standard Four.

Availability of Resources by School Location and Pupils' *Performance*

Primary schools in Botswana are supposed to be provided with similar infrastructure in terms of classrooms, kitchen, staffrooms etc. These resources are generally available, but services, facilities and educational equipments are not always available in rural and remote rural settings. Table 6.3 shows the availability of these resources by school location. Services and facilities closely related to performance such as electricity, computers, telephones, duplicating machines and books are scarce in rural settings.

Table 6.4: Percentages of Resources Available in Different School Locations

Resources Available		School Location			
		Urban (%)	Semi-urban (%)	Rural (%)	Remote Rural (%)
Feeding Program	Not available	3.7	7.9	0	0
	Sometimes available	40.2	25.6	32.9	53.1
	Always available	56.0	66.5	67.1	46.9
Book loan service	Not available	74.7	85.5	77.9	42.1
	Sometimes available	0.1	2.7	19.0	22.4
	Always available	25.2	11.9	3.1	35.5
Water	Not available	0	0	0	3.5
	Sometimes available	9.9	8.1	36.5	21.7
	Always available	90.1	91.9	63.5	74.8
Electricity	Not available	0	13.7	28.2	81.7
	Sometimes available	4.7	16.1	30.1	18.3
	Always available	95.3	70.2	41.7	0
Typewriter	Not available	69.7	87.3	93.7	97.8
	Sometimes available	19.6	5.8	2.1	0
	Always available	10.8	6.9	4.2	2.2
Duplicating machine	Not available	56.4	29.4	76.1	91.9
	Sometimes available	13.9	32.3	7.4	8.1
	Always available	29.7	38.3	16.5	0
Radio	Not available	23.8	16.8	25.9	39.1
	Sometimes available	18.2	28.4	26.0	35.5
	Always available	57.9	54.8	48.1	25.3
Telephone	Not available	0	0	10.8	60.3
	Sometimes available	0	8.1	23.9	13.4
	Always available	100	91.9	65.3	26.3
Computer	Not available	37.6	29.7	66.9	95.4
	Sometimes available	4.7	20.6	1.1	0
	Always available	57.7	49.7	32.0	4.6
School garden	Not available	6.8	16.7	14.5	38.4
	Sometimes available	21.4	10.7	17.8	16.4
	Always available	71.8	72.6	67.7	45.2
Television	Not available	6.8	12.1	29.6	64.7
	Sometimes available	15.1	8.6	17.7	15.9
	Always available	78.0	79.3	52.7	19.4

It could be argued that the lack of these services and facilities hampers education and learning in Botswana rural primary schools. It therefore needs to be emphasised that for educational equity, equality and access, rural primary schools needs to be resourced like urban schools.

School Type and Pupils' Performance

There were three categories of school type, these being Public/Government, Private/Non-government and Government-Subsidized. Ninety three percent (93%) of the Standard Four pupils in the study come from Public schools and the rest come from Private and Government-Aided schools. The School Head was requested to classify their schools into three categories, namely public/government, private/non government and government subsidized. The responses of the School Heads were related to pupils performance as shown in Table 6.5 Pupils' from Private schools perform significantly better than pupils' from the other school types in all the three subjects. The mean score in English language and Mathematics is more than double that of pupils' from public schools. These private schools are known as English Medium schools and there is strong emphasis in the use of English in these schools. Private schools are also better resourced (Table 6.6) in terms of facilities and qualified teachers. Three public schools reported that they have between 1 to 3 unqualified teachers, whereas no private school had unqualified teachers.

Table 6.5: School Type and Pupils' Performance

School Type		n	%	Mean (SE)	Diff (SE)
Mathematics	Public	1413	30.9	28.71(.23)	1,2: -33.65(1.45)*
	Private	1252	27.4	62.36(1.65)	1.3: -.85(.99)
	Government-subsidized	1905	41.7	29.56(.96)	2.3: 32.80(1.72)*
Setswana	Public	1364	29.6	44.53(.23)	1,2: -6.70(1.76)*
	Private	1281	27.8	51.22(1.65)	1.3: -1.85(1.05)
	Government-subsidized	1959	42.5	46.38(1.06)	2.3: 4.84(2.02)*
English	Public	5183	92.8	31.93(.20)	1,2: -32.35(1.26)*
	Private	137	2.5	64.28(1.15)	1.3: -8.34(.92)*
	Government-subsidized	265	4.7	40.26(1.17)	2.3: 24.03(1.53)*

** Significant mean differences*

In Setswana and Mathematics, public schools are comparable to the government subsidized schools. It is worth noting that government subsidized schools are actually public schools as public funds support more than 95% of their activities.

Further analysis by cross tabulation (Table 6.6) indicates that most resources are available in private schools as compared to public primary schools. Resources that are highly positively

correlated with performance such as computers, books and electricity are 100% available in private primary schools.

Table 6.6: Resources by School Types

Resources	Public/Government			Private/Non-government		
	Not Available (%)	Sometimes Available (%)	Always Available (%)	Not Available (%)	Sometimes Available (%)	Always Available (%)
Feeding Program	0	39.0	61.0	100	0	0
Book Loan Service	74.2	12.0	13.9	0	0	100
Water	0.6	21.8	77.5	0	0	100
Electricity	28.7	20.3	51.0	0	0	100
Typewriter	89.2	4.7	6.1	81.8	0	18.2
Duplicating Machine	63.9	16.2	19.9	0	0	100
Radio	27.4	23.9	48.7	0	35.0	65.0
Telephone	15.0	13.0	72.1	0	0	100
Computer	58.2	6.7	35.1	0	0	100
School garden	16.7	18.0	65.3	46.7	0	53.3
Television	26.0	13.0	61.0	46.7	0	53.3

Residential Arrangement of Boarding and Non-Boarding Facilities

The School Heads were requested to indicate whether their schools are day only, boarding only or day and boarding school. Table 6.7 shows the results of such responses and pupils' performance.

Table 6.7: *Residential Arrangement and Pupils' Performance*

Subjects	Day Pupils Only		Day And Boarding		mean Diff	t-value	Df	Sig. (2-tailed)
	n	mean	n	Mean				
Mathematics	5365	29.71	214	25.92	3.79	3.11	5577	.00
Setswana	5398	44.80	195	42.53	2.27	1.83	5591	.07
English	5379	33.26	198	29.81	3.45	3.09	5575	.00

Table 6.7 shows that the means for day pupils are slightly higher than those for the day and boarding pupils. These means are statistically significant for Mathematics and English. In this sample of schools there were no boarding only primary schools. Most boarding primary schools are found in the rural and remote rural location of the country. These boarding facilities are used by pupils who usually come from outside the village. These pupils are mostly

Remote Area Dwellers, popularly known as the RADs. The District Council Policy is to build hostels for these children or pupils so that they are encouraged to attend school. These results are consistent with what was found earlier on performance by school location. It was found that rural and remote rural schools perform significantly lower than urban and semi-urban schools.

Type of School Shift and Pupils' Performance

The School Head was requested to indicate whether the school day has single, double, triple or overlapping shifts. There were only single and double shift schools in the sample. The double shift schools usually do not have enough rooms to accommodate all pupils at the same time. Table 6.8 shows the results of such responses and pupils' performance.

Table 6.8: Type of School Shift and Pupils' Performance

Subjects	Single Shift		Double Shift		Mean Diff	t-value	df	Sig. (2-tailed)
	n	Mean	n	Mean				
Mathematics	4048	29.79	1414	29.72	.78	.14	5460	.89
Setswana	3937	44.30	1541	46.39	-2.08	-4.08	5476	.00
English	3907	33.33	1555	33.25	.08	.18	5460	.86

The type of school shift does not seem to impact severely on the performance of pupils in all the three subjects. It is only in Setswana where double shift pupils perform significantly better than the single shift pupils. It is encouraging to note that most pupils in Botswana primary schools attend single shift schools. Most pupils in Botswana's primary schools attend single shift schools signifying good achievement in terms of classroom provision.

School Enrolment

Standard Four Enrolment and Pupils' Performance

School Heads indicated the total enrolment in Standard Four, which ranged from 7 to 551, the average school enrolment at Standard Four was 96 pupils. This number would translate into two or three classes. Schools were categorized into three different groups according to total enrolment indicated by each school. Enrolment in Standard Four was related to pupils' performance. The results are presented in Table 6.9.

Table 6.9: Standard Four Enrolment and Pupils' Performance

Standard Four Enrolment		n	%	Mean (SE)	Diff (SE)
Mathematics	100 or less	3527	63.0	30.01(.30)	1,2: 1.06(.50)
	101 to 200	1847	33.0	28.94(.38)	1,3: 1.82(1.23)
	201 or more	220	3.9	28.18(1.37)	2,3: .76(1.25)
Setswana	100 or less	3426	61.0	44.49(.29)	1,2: -.61(.48)
	101 to 200	1966	35.1	45.10(.37)	1,3: -.83(1.19)
	201 or more	216	3.9	45.32(1.42)	2,3: -.23(1.22)
English	100 or less	3385	60.5	32.62(.26)	1,2: -1.67(.44)*
	101 to 200	1988	35.6	34.29(.35)	1,3: 2.33(1.08)*
	201 or more	219	3.9	30.29(1.04)	2,3: 4.00(1.10)*

** Significant mean differences*

Most Standard Four pupils (61 - 63%) are found in schools with a Standard Four enrolment of 100 pupils or less. From the data, an average school would have about three Standard Four classes. A normal class in Botswana primary school has a pupils' population of between 35 and 40. There seems to be no significant difference in performance by the number of pupils in a school in Mathematics and Setswana. In English pupils' in schools with enrolment of 101 to 200 perform significantly better than those from schools with a Standard Four enrolment of less than a 100 and those from schools with an enrolment of more than 201.

Number of Standard Four Classes

The number of Standard Four classes in a school does not seem to be a significant factor in the performance of pupils as shown in Table 6.10. It is only in English that pupils from schools with four classes of Standard Four performed significantly better than from other schools with different number of classes. Large schools and small schools perform relatively similar in the three subjects of the study. It is only in English that the mean for schools with four Standard Four classes had a larger mean, which is statistically significant larger than the mean scores of pupils with different number of classes.

Table 6.10: Number of Standard Four Classes and Pupils' Performance

Number of Standard Four Classes		n	%	Mean (SE)	Diff (SE)
Mathematics	One	660	11.9	27.33(.66)	1,2: -3.68(.80)* 1,3: -2.17(.81)* 1,4: -2.05(.83)* 1,5: -.43(1.23) 2,3: 1.51(.61)* 2,4: 1.63(.64)* 2,5: 3.26(1.11) 3,4: .12(.65) 3,5: 1.75(1.12) 4,5: 1.62(1.13)
	Two	1650	29.7	31.01(.49)	
	Three	1620	29.2	29.50(.40)	
	Four	1331	23.9	29.38(.46)	
	Five	289	5.2	27.75(.84)	
Setswana	One	637	11.4	43.86(.69)	1,2: -.80(.80) 1,3: -.71(.79) 1,4: 1.00(.81) 1,5: -2.32(1.21) 2,3: .09(.60) 2,4: -.20(.61), 2,5: .-1.52(1.09) 3,4: -.29(.61) 3,5: -1.61(1.09) 4,5: -1.32(1.10)
	Two	1580	28.4	44.66(.45)	
	Three	1611	28.9	44.57(.40)	
	Four	1452	26.1	44.86(.45)	
	Five	285	5.1	46.18(.93)	
English	One	653	11.8	31.70(.55)	1,2: -1.21(.72) 1,3: -.57(.72) 1,4: -3.37(.73)* 1,5: -.29(1.09) 2.3: .64(55) 2,4: -2.16(.57)* 2,5: .92(.99) 3,4: -2.79(.65)* 3,5: .28(.98) 4,5: 3.08(.99)*
	Two	1514	27.3	32.90(.43)	
	Three	1624	29.3	32.27(.35)	
	Four	1470	26.5	35.06(.43)	
	Five	289	5.2	31.99(.77)	

** Significant mean differences*

Number of Standard Four Classes and Pupils' Performance

The schools were collapsed into two categories, that is, those with 1 to 3 classes and those with 4 classes or more. It is assumed that small to medium school should have at most three streams at each grade level. A large school would have four or more streams at each grade level. An independent sample t-test analysis was run on the data set to compare between small and large schools in the three subjects. The results of this analysis are as shown in Table 6.11.

Table 6.11: Number of Standard Four Classes and Pupils' Performance

Subject	1 to 3 Classes		4 Classes or More		Mean Diff	t-value	Df	Sig. (2-tailed)
	n	Mean	n	Mean				
Mathematics	4658	29.77	936	28.67	1.10	1.75	5592	.08
Setswana	4613	44.66	995	45.09	-.43	-.72	5606	.47
English	4583	32.58	1009	35.59	-3.01	-5.62	5590	.00

Pupils who attend large schools performed significantly better than smaller schools only in English. For the other two subjects, the size of the school does not have any impact on performance. One would have expected smaller schools to have performed a little better because of their manageable size which would make the school administration easier unless these small schools are in remote areas with a lot of factors working against them.

School Total Enrolment and Pupils' Performance

The total enrolment of a school is determined by the school location. Urban and Semi urban schools are usually very large whereas rural schools are relatively small schools. Most of the Standard Four pupils (about 38%) attend schools which are relatively small, with an enrolment of just under 500 pupils. Table 6.12 shows that pupils from large schools (with pupils' population in excess of 700) have large means in all the subjects. It could be speculated that these large schools are from urban or large centres which have been found to perform better than schools from rural areas. This good performance has been attributed to availability of educational and other facilities and services (Table 6.6).

Table 6.12: Total Enrolment of the School and Pupils' Performance

Total Enrolment of the School		n	%	Mean (SE)	Diff (SE)
Mathematics	500 or less Pupils	2124	39.5	29.47(.42)	1,2: 1.42(.57)*
	500 - 700 Pupils	1646	30.6	27.98(.40)	1,3: -.83(.58)
	More than 700 Pupils	1607	29.8	30.30(.41)	2,3: -2.32(.61)*
Setswana	500 or less Pupils	2042	37.8	44.05(.39)	1,2: .93(.56)
	500 - 700 Pupils	1630	30.2	43.12(.41)	1,3: -2.06(.55)*
	More than 700 Pupils	1727	32.0	46.11(.40)	2,3: -2.99(.58)*
English	500 or less Pupils	1980	36.8	32.29(.36)	1,2: 1.12(.51)*
	500 - 700 Pupils	1652	30.7	31.17(.36)	1,3: -3.14(.51)*
	More than 700 Pupils	1749	32.5	35.42(.38)	2,3: -4.25(.53)*

** Significant mean differences*

School Head Background

Age of the School Head

The School Head was requested to provide his or her age. This response was then related to the performance of the pupils. Table 6.13 shows these results. From Table 6.13 it is evident

that the majority (about 90%) of pupils attend schools which are headed by School Heads aged between 40 to 59 years. Younger School Heads are very few in Botswana primary schools. Pupils that attend schools that are headed by younger School Heads perform significantly better than pupils that attend schools that are headed by older School Heads in Setswana. The proportion of pupils who attend schools headed younger School Heads is very small, therefore this results should be interpreted with caution.

Table 6.13: Age of the School Head and Pupils' Performance

Age of the School Head		n	%	Mean (SE)	Diff (SE)
Mathematics	30 to 39	52	.9	29.52(2.44)	1,2: 1.42(.2.45) 1,3: -.75(2.44) 1,4: -2.77(2.55) 2,3: -2.17(.50)* 2,4: -4.19(.89)* 3.4: -2.03(.87)*
	40 to 49	2183	38.7	28.10(.36)	
	50 to 59	2887	51.1	30.26(.32)	
	60 or older	472	8.4	32.29(95)	
Setswana	30 to 39	51	.9	50.86(2.91)	1,2: 7.74(.2.40)* 1,3: 5.31(2.39)* 1,4: 4.67(2.50) 2,3: -2.42(.48)* 2,4: -3.06(.88)* 3,4: -.64(.85)
	40 to 49	2115	37.7	43.13(.36)	
	50 to 59	2988	53.3	45.55(.31)	
	60 or older	454	8.1	46.19(.79)	
English	30 to 39	50	.9	34.44(1.78)	1,2: 2.90(.2.20) 1,3: .72(2.20) 1,4: -2.11(2.29) 2,3: -2.18(.44)* 2,4: -5.01(.78)* 3,4: -2.83(.76)*
	40 to 49	2165	38.7	31.54(.31	
	50 to 59	2902	51.9	33.72(.29)	
	60 or older	475	8.5	36.55(.87)	

** Significant mean differences*

Sex of the School Head and Pupils' Performance

Independent samples t-tests were run on the achievement data for the three subjects by sex of the School Head. Pupils who attend schools that are headed by female School Heads obtained significantly higher mean scores in all the three subjects as shown in Table 6.14.

Table 6.14: The t-test Values for the Sex of the School Head and Pupils' Performance

Subject	Female		Male		Mean Diff	t-value	df	Sig. (2-tailed)
	n	Mean	n	Mean				
Mathematics	3662	30.54	1932	27.77	2.77	5.65	5592	.00
Setswana	3738	45.78	1870	42.64	3.14	6.55	5606	.00
English	3683	33.97	1909	31.49	2.49	5.72	5590	.00

Generally there are more pupils in schools headed by females than males at Standard Four or in primary schools. This number is almost double for all the three subjects. Reasons why pupils who attend schools headed by females perform better are unclear, could it be that young children feel more secure around a motherly figure and then this translates to better performance?

Academic Qualification of the School Head

School Heads were asked to indicate their highest level of academic qualification. The results of this response were related to the pupils' performance, and are shown in Table 6.15. The academic qualification of the School Head does have an influence on pupils' performance at Standard Four in all the three subjects. The mean scores for pupils' who are headed by School Heads with a secondary education and university degree are slightly higher except for Setswana. These are expected results, as one would expect a School Head who had gone up the education ladder to directly impact positively on performance.

Table 6.15: Academic Qualification of the School Head and Pupils' Performance

Academic Qualification of the School Head		n	%	Mean (SE)	Diff (SE)
Mathematics	Primary Education	860	15.4	28.32(.57)	1,2: -1.47(.68)*
	Secondary Education	2655	47.5	29.79(.32)	1,3: -3.01(.73)*
	University Education	1626	29.1	31.33(.48)	2,3: -1.54(.55)*
Setswana	Primary Education	912	16.3	46.30(.57)	1,2: -4.70(.59)*
	Secondary Education	2689	4.8	44.36(.32)	1,3: -1.35(.64)*
	University Education	1555	27.8	44.50(.43)	2,3: -.88(.49)
English	Primary Education	930	16.7	32.63(.50)	1,2: 1.95(.65)*
	Secondary Education	2725	48.9	33.10(.29)	1,3: 1.80(.71)*
	University Education	1546	27.7	33.97(.42)	2,3: -.15(.54)

** Significant mean differences*

Teacher Qualifications

Teachers with Primary and Secondary Teaching Qualification and Pupils' Performance

The School Head was asked to indicate the qualifications of teachers in the school. The qualifications were teaching at primary, secondary school teacher or unqualified as a teacher. The responses were related to the pupils' performance and this is shown in Table 6.16.

Primary Teaching Qualification

The number of teachers with Primary teaching certificate was grouped into the following categories: 0 - 10, 11 - 20, 21 and above.

Schools where the majority of the teachers possess a primary teaching certificate performed significantly better than those with less than ten teachers in the school holding a primary teaching certificate. The majority of Standard Four pupils are taught by teachers who possess a teaching certificate.

Table 6.16 Number of Teachers with Primary Teaching Certificate and Pupils' Performance

Subject	No of Teachers	n	%	Mean (SE)	Diff (SE)
Mathematics	0 - 10	702	12.9	25.90(.62)	1,2:-5.21(.76)*
	11 - 20	2156	39.6	31.11(.42)	1,3:-3.40(.74)*
	21 and above	2588	47.5	29.30(.31)	2,3: 1.81(.51)*
Setswana	0 - 10	683	12.5	43.04(.67)	1,2: -1.81(.75)
	11 - 20	2073	37.9	44.84(.38)	1,3: -1.94(.73)*
	21 and above	2705	49.5	44.97(.32)	2,3: -.13(.49)
English	0 - 10	732	13.4	29.45(.49)	1,2: -3.98(.67)*
	11 - 20	1983	35.4	33.44(.37)	1,3: -4.44(.64)*
	21 and above	2731	50.1	33.89(.29)	2,3: -.45(.46)

** Significant mean differences*

Secondary Teaching Qualification

There are few pupils taught by teachers in primary schools who possess a secondary teaching certificate. Only about 20% of Standard Four pupils attend schools where there are three or more teachers who hold a secondary teaching certificate. Pupils from schools with more teachers with secondary teaching certificate perform significantly better than those from schools with fewer teachers holding such a qualification.

Table 6.17: Number of Teachers with Secondary Teaching Certificate and Pupils' Performance

	No. of Teachers	n	%	Mean (SE)	Diff (SE)
Mathematics	0 - 2	1329	65.5	31.27(.46)	1,2: 6.00(.91)*
	3 - 4	498	24.5	25.27(.66)	1,3: -19.82(1.30)*
	5 and above	203	10.0	51.09(1.67)	2,3: -25.82(1.43)*
Setswana	0 - 2	1316	64.4	47.17(.46)	1,2: 4.87(.83)*
	3 - 4	567	27.7	42.30(.68)	1,3: -2.86(1.37)*
	5 and above	162	7.9	50.02(1.18)	2,3: -7.73(1.46)*
English	0 - 2	1265	62.0	34.09(.43)	1,2: 2.58(.77)*
	3 - 4	570	27.9	31.51(.57)	1,3: -19.52(1.16)*
	5 and above	204	10.0	53.61(1.36)	2,3: -22.10(1.25)*

** Significant mean differences*

Unqualified Teachers

School Head had to indicate the number of unqualified teachers in the school. Schools were categorised into those with no unqualified, and 1 to 3 unqualified teachers. The results are shown in Table 6.18.

Table 6.18: Number of Pupils in Schools with Unqualified and Qualified Teachers and Pupils' Performance

Subjects	Qualified Teachers		1 - 3 Unqualified Teachers		Mean Diff	t-value	Df	Sig. (2-tailed)
	n	Mean	n	Mean				
Mathematics	1741	33.10	154	25.11	8.00	5.18	1893	.00 *
Setswana	1682	47.06	151	44.52	2.55	1.80	1831	.07
English	1738	36.80	154	31.84	4.95	3.48	1890	.00*

Generally, schools where there are no unqualified teachers perform significantly better than those where there are 1 to 3 unqualified teachers. Teacher qualification is very vital to pupils understanding and learning of subject content. An unqualified teacher does not possess pedagogical skills or teaching methods especially in handling young children.

Standard Four Teachers with Primary and Secondary Teaching Qualification and Pupils' Performance

The School Head was asked to indicate the qualifications of Standard Four teachers. These qualifications were teaching at primary or secondary. The responses were related to the pupils' performance, and are shown in Table 6.19. Pupils taught in schools where there is a large number of Standard Four teachers with a primary teaching qualification do not perform significantly better than those taught in schools where there are fewer teachers in Standard Four with a primary teaching qualification.

Table 6.19: Standard Four Teachers with Primary Teaching Certificate (PTC) and Pupils' Performance

Subjects	Std 4 Teachers with no PTC		Std 4 Teachers with PTC		Mean Diff	t-value	df	Sig. (2-tailed)
	n	Mean	n	Mean				
Mathematics	1036	32.13	1813	27.99	4.14	5.96	2847	.00
Setswana	972	44.14	1934	44.06	.07	.11	2904	.91
English	1040	33.73	1953	32.54	1.19	1.96	2991	.05

Teachers with secondary teaching certificate and taking Standard Four pupils do not seem to impact positively on their performance in the three subjects. Pupils taught by these teachers perform significantly lower than those taught by teachers with no such a certificate. These teachers with no secondary teaching certificate could be primary teaching certificate holders.

Table 6.20: Standard Four Teachers with Secondary Teaching Certificate (STC) and Pupils' Performance

Subjects	STD 4 Teachers with no STC		STD 4 Teachers with STC		Mean Diff	t-value	df	Sig. (2-tailed)
	n	Mean	n	Mean				
Mathematics	1266	33.67	408	26.08	7.59	7.91	1672	.00
Setswana	1227	48.37	406	44.20	4.17	4.54	1631	.00

Number of Years the School Head has been in the School

School Heads were asked to indicate the number of years they had been in the school. The number of years ranged from 0 to 16. The schools were then grouped into three categories, on the basis of the number of years the School Head has been in the school. Performance of the pupils was then related to the length of stay of the School Head.

It is evident from Table 6.21 that the number of years in one school is positively associated with better performance by pupils. Pupils in schools where the School Heads had been in the school for five years or less perform significantly lower in all subjects than those in schools where the School Head had been in the school for over five years. This could be explained by the fact that as the School Head becomes experienced and understands the school culture better. This seems to be a very long time for a School Head to have an impact on pupils' performance. Keeping a School Head in one school longer than ten years does not have any additional impact on the performance of the pupils as such transfer should be effected every 10 years of stay.

Table 6.21: Number of Years the School Head has been in the School and Pupils' Performance

Number of Years the School Head has been in the School		n	%	Mean (SE)	Diff (SE)
Mathematics	5 or less	3229	57.7	27.86(.30)	1,2: -3.65(.53)*
	6 to 10	1597	28.5	31.51(.44)	1,3: -4.98(.70)*
	11 or more	768	13.7	32.84(.69)	2,3: -1.33(.76)
Setswana	5 or less	3215	57.7	43.23(.30)	1,2: -3.43(.52)*
	6 to 10	1568	27.9	46.65(.44)	1,3: -3.73(.66)*
	11 or more	825	14.7	46.96(.59)	2,3: -.31(.73)
English	5 or less	3133	56.0	30.97(.55)	1,2: -4.63(.47)*
	6 to 10	1648	29.5	35.60(.43)	1,3: -5.46(.60)*
	11 or more	811	14.5	36.43(.35)	2,3: -.83(.66)

** Significant mean differences*

Number of Years the School Head has been in Other Schools and Pupils' Performance

A similar question was asked the School Head on how long she/he has been heading other schools. The responses of the School Heads were related to pupils' performance as shown in Table 6.22. The results show that pupils' attending school where the School Head has 6 to 10

years experience in other schools performed significantly better than the other groups in all the subjects.

Table 6.22: Number of Years in Other Schools and Pupils' Performance

Number of Years in Other Schools		n	%	Mean (SE)	Diff (SE)
Mathematics	5 or less	1662	29.7	27.66(.39)	1,2: -6.15(.87)*
	6 to 10	527	9.4	33.80(.72)	1,3: -2.22(.52)*
	11 or more	3405	60.9	29.87(.31)	2,3: 3.93(.80)*
Setswana	5 or less	1636	29.2	44.27(.43)	1,2: -3.41(.86)*
	6 to 10	511	9.1	47.68(.70)	1,3: -.25(.51)
	11 or more	3461	61.7	44.52(.39)	2,3: 3.16(.80)*
English	5 or less	1633	29.2	31.95(.37)	1,2: -4.56(.74)*
	6 to 10	585	10.5	36.52(.64)	1,3: -1.15(.47)*
	11 or more	3374	60.3	33.10(.27)	2,3: 3.41(.69)*

** Significant mean differences*

Total Number of Years as School Head

The total number of years of experience as School Head was compared to performance of the pupils. The results are shown in Table 6.23. School Heads who have 11 to 15 years of experience have a significant impact on pupils' performance than all other categories. After which the performance declines. Generally, the number of years as a School Head is positively correlated to performance in all the three subjects.

Table 6.23: Total Number of Years the School Head has been holding the position and Pupils' Performance

Total Number of Years the School Head has been holding the Position		n	%	Mean (SE)	Diff (SE)
Mathematics	5 or less years	641	20.7	26.29(.61)	1,2: -.60(.84) 1,3: -9.30(.98)* 1,4: -3.95(.81)* 2,3: -8.70(.92)* 2,4: -3.35(.74)* 3,4: 5.35(.90)*
	6 - 10 years	901	29.1	26.89(.52)	
	11 - 15 years	477	15.4	35.59(.78)	
	16 or more years	1072	34.7	30.24(.52)	
Setswana	5 or less years	638	21.0	42.61(.64)	1,2: -.06(.87) 1,3: -8.32(1.01)* 1,4: -3.21(.83)* 2,3: -8.26(.95)* 2,4: -3.15(.76)* 3,4: 5.11(.92)*
	6 - 10 years	866	28.5	42.67(.58)	
	11 - 15 years	472	15.5	50.93(.74)	
	16 or more years	1060	34.9	45.82(.51)	
English	5 or less years	619	20.1	29.35(.51)	1,2: -2.81(.79)* 1,3: -9.07(.93)* 1,4: -4.79(.76)* 2,3: -6.26(.86)* 2,4: -1.97(.68)* 3,4: 4.28(.84)*
	6 - 10 years	903	29.3	32.16(.53)	
	11 - 15 years	474	15.4	38.42(.72)	
	16 or more years	1089	35.3	34.14(.47)	

** Significant mean differences*

Number of Years of Professional Training in Teaching Methods

The School Head was requested to supply information on the number of years he/she trained in teaching methods. These teaching methods are usually acquired during the training for a teaching qualification. The number of years would usually be the same as those a teacher took to complete his/her teaching certificate programme. The results of this response and pupils performance were recorded in Table 6.24.

Table 6.24: Number of Years of Professional Training in Teaching Methods and Pupils' Performance

Number of Years of Professional Training in Teaching Methods		n	%	Mean (SE)	Diff (SE)
Mathematics	1 Year	726	16.8	30.54(.64)	1,2: -.07(.75) 1,3: -.98(1.03) 1,4: 1.26(.97) 2,3: -.91(.86) 2,4:1.34(.80) 3,4: 2.24(1.06)*
	2 Years	2463	56.9	30.62(.35)	
	3 Years	514	11.9	31.52(.72)	
	4 Years	623	14.4	29.28(.80)	
Setswana	1 Year	805	18.3	45.98(.57)	1,2: .57(.68) 1,3: -2.23(.94)* 1,4:5.37(.90)* 2,3: -2.80(.81)* 2,4:4.79(.76)* 3,4:-.60(1.00)*
	2 Years	2474	56.4	45.40(.34)	
	3 Years	508	11.6	48.20(.72)	
	4 Years	600	13.7	40.61(.66)	
English	1 Year	805	14.6	33.75(.51)	1,2: .16(.63) 1,3: -2.33(.87)* 1,4:2.65(.66)* 2,3: -2.48(.75)* 2,4:2.49(.48)* 3,4: 4.97(.77)*
	2 Years	2466	44.6	33.60(.32)	
	3 Years	514	9.3	36.08(.72)	
	4 Years	1744	31.5	31.10(.35)	

** Significant mean differences*

The number of years of professional training in teaching methods in Mathematics does not have any influence on pupils' performance in the subject. But professional training in teaching methods in Setswana and English does have a significant influence in performance. Those teachers who have three years of professional training in teaching methods their pupils are performing significantly better in Setswana and English. The primary teaching Diploma course has duration of three years, this could be that School Heads do have a teaching Diploma certificate. The lowest teaching primary qualification is Primary Teaching Certificate (PTC); most of these School Heads are being upgraded to the Diploma certificate. It is most likely that a majority of primary School Heads hold a Primary Teaching Certificate which has duration of two years, as evident in Table 6.24.

Number of Years of Professional Training in Administration and Management and Pupils' Performance

The School Heads were requested to indicate the number of years they trained in school administration and management. Table 6.25 shows the results of the School Head response linked to pupils' performance.

Table 6.25: Number of Years of Professional Training in Administration and Management and Pupils' Performance

Number of Years of Professional Training in Administration and Management		n	%	Mean (SE)	Diff (SE)
Mathematics	1 Year	2215	66.8	32.02(.38)	1,2: 2.88(.79)* 1,3: 5.82(1.12)* 1,4: .45(1.31) 2,3: 2.95(1.26)* 2,4: -2.42(1.43) 3,4: -5.37(1.64)*
	2 Years	668	19.8	29.15(.72)	
	3 Years	290	8.6	26.20(1.05)	
	4 Years	204	6.0	31.57(1.16)	
Setswana	1 Year	2230	66.3	47.01(.35)	1,2: 3.46(.74)* 1,3: 7.66(1.04)* 1,4: 2.04(1.23) 2,3: 4.20(1.17)* 2,4: -1.43(1.34) 3,4: -5.63(1.53)*
	2 Years	647	19.2	43.55(.63)	
	3 Years	288	8.6	39.35(1.09)	
	4 Years	198	5.9	44.98(1.15)	
English	1 Year	2201	40.4	35.68(.35)	1,2: 2.59(.66)* 1,3: 7.88(.96)* 1,4: 4.50(.46)* 2,3: 5.29(1.07)* 2,4: 1.91(.66)* 3,4: -3.37(.96)*
	2 Years	722	13.3	33.09(.61)	
	3 Years	290	5.3	27.81(.79)	
	4 Years	2229	40.9	31.18(.30)	

** Significant mean differences*

School Heads who have at least one year (twelve months) training in school administration and management have their pupils' performing significantly higher in all the three subjects than the rest of the School Heads with more years training in school administration and management.

Number of Years of Professional Training in Guidance and Counselling and Pupils' Performance

The School Heads were also requested to indicate the number of years they trained in Guidance and Counselling. Table 6.26 shows the results of the School Head response linked to pupils' performance. Number of years of professional training in guidance and counselling had only two groups, being 1 year and 4 years. The number of pupils who attend schools where the School Head did some training for 4 years in guidance and counselling is substantially small. The mean for Mathematics and English for those pupils whose School

Heads have more experience in guidance and counselling are significantly greater than for pupils whose School Heads have less experience in guidance and counselling.

Table 6.26: Number of Years of Professional Training in Guidance and Counselling and Pupils' Performance

Subjects	1 Year		4 Years		Mean Diff	t-value	df	Sig.(2-tailed)
	n	Mean	n	Mean				
Mathematics	2453	29.44(.35)	225	33.93(1.64)	-4.49	-3.59	2676	.00
Setswana	2397	44.89(.34)	206	40.50(1.06)	4.39	3.64	2601	.00
English	2458	33.71(.32)	228	36.52(1.35)	-2.81	-2.50	2684	.01

Staffing

Attendance of External In-service by Teachers and Pupils' Performance

The School Heads were asked to indicate the teachers' attendance of external in-service workshops. The results of these responses and pupils performance are reported in Table 6.27.

Table 6.27: Attendance of External In-service Training by Teachers and Pupils' Performance

Attendance of External In-service Training by Teachers		n	%	Mean (SE)	Diff (SE)
Mathematics	Hardly/Not at all	819	15.5	29.53(.61)	1,2: -.12(.67)
	Sometimes	4187	79.4	29.64(.27)	1,3: 4.55(1.24)*
	Always	266	5.0	24.98(.98)	2,3: 4.66(1.11)*
Setswana	Hardly/Not at all	813	15.6	44.98(.60)	1,2: .42(.65)
	Sometimes	4172	79.9	44.56(.26)	1,3: 5.71(1.26)*
	Always	235	4.5	39.28(1.15)	2,3: 5.28(1.14)*
English	Hardly/Not at all	4922	94.6	32.94(.22)	Only two categories
	Sometimes	280	5.4	29.54(.78)	

** Significant mean differences*

External in-service training by the teachers in a school does not seem to impact positively on pupils' performance. Students taught by teachers who do not or hardly attend in-service training perform significantly better than those who attend this form of training.

The School Head was also asked to indicate attendance of school-based in-service training by teachers in their school. The results of these responses and students performance are presented in Table 6.28.

Table 6.28: Attendance of School Based In-service Training by Teachers and Pupils' Performance

Attendance of School Based In-service Training by Teachers		n	%	Mean (SE)	Diff (SE)
Mathematics	Hardly/Not at all	64	1.2	47.71(2.42)	1,2: 19.53(2.19)*
	Sometimes	2956	5.7	28.18(.30)	1,3: 14.71(2.20)*
	Always	2124	41.2	33.00(.40)	2,3: -4.82(.49)*
Setswana	Hardly/Not at all	64	1.2	55.78(2.01)	1,2: 11.47(2.12)*
	Sometimes	3016	58.3	44.32(.31)	1,3: 9.45(2.13)*
	Always	2089	40.4	46.33(.37)	2,3: -2.01(.48)*
English	Sometimes	2987	58.0	31.75(.26)	Only two categories
	Always	2159	41.9	36.57(.37)	

** Significant mean differences*

In-service training by the teachers in a school does not seem to impact positively on pupils' performance. Pupils taught by teachers who hardly attend school-based in-service training perform significantly better than those who attend this form of training. It would seem that in-service training provided to the teachers does not seem to be appropriate. It could be that some of these teachers spend more time away from school such that their pupils miss out on some lessons. One would expect in-service training to enhance performance.

Rate of Teachers Absenteeism in the whole School and Pupils' Performance

The School Heads were asked to indicate the level of teacher absenteeism in the whole school and also for the Standard Four classes. The results are presented in Tables 6.29 and 6.30.

Table 6.29: Rate of Teachers Absenteeism in the Whole School and Pupils' Performance

Rate of Teachers Absenteeism in the Whole School		n	%	Mean (SE)	Diff (SE)
Mathematics	Hardly/Not at all	1167	21.6	36.74(.58)	1,2: 8.60(.57)*
	Sometimes	3830	70.8	28.14(.27)	1,3: 13.19(.97)*
	Always	414	7.7	23.55(.69)	2,3: 4.59(.88)*
Setswana	Hardly/Not at all	1079	19.9	47.68(.50)	1,2: 3.41(.58)*
	Sometimes	3942	72.6	44.28(.27)	1,3: 5.48(.98)*
	Always	406	7.5	42.21(.84)	2,3: 2.07(.88)*
English	Hardly/Not at all	1048	19.4	37.88(.54)	1,2: 5.64(.53)*
	Sometimes	3953	73.1	32.24(.24)	1,3: 6.96(.89)*
	Always	410	7.6	30.92(.73)	2,3: 1.32(.80)

** Significant mean differences*

Teacher absenteeism impacts negatively on pupils' performance in the three subjects. Pupils' who attend schools where teachers never absent themselves perform significantly better than those pupils who attend schools where teachers absent themselves from schools often. It is worth noting that even if a teacher is "sometimes" absent from the class, the performance of the pupils is greatly affected. This is different from a similar study (TIMSS 2003) conducted on Form One students where there was no difference in performance amongst the three categories. This could indicate that young pupils require a lot of attention and guidance.

Rate of Teachers Absenteeism in Standard Four and Pupils' Performance

Table 6.30: Rate of Teachers Absenteeism in Standard Four and Pupils' Performance

Rate of Teachers Absenteeism in Standard Four		n	%	Mean (SE)	Diff (SE)
Mathematics	Hardly/Not at all	2287	41.9	32.19(.39)	1,2: 4.61(.48)*
	Sometimes	3037	55.7	27.57(.30)	1,3: 4.46(1.56)*
	Always	130	2.4	27.73(1.21)	2,3: -.16(1.55)
Setswana	Hardly/Not at all	2274	42.1	45.37(.35)	1,2: 1.59(.47)*
	Sometimes	3002	55.6	43.78(.31)	1,3: -3.53(1.54)*
	Always	128	2.4	48.91(1.46)	2,3: -5.13(1.53)*
English	Hardly/Not at all	2186	40.4	34.26(.34)	1,2: 2.44(.43)*
	Sometimes	3093	57.2	31.82(.27)	1,3: -3.69(1.39)*
	Always	130	2.4	37.95(1.41)	2,3: -6.14(1.38)*

** Significant mean differences*

A different pattern is observed for the teacher absenteeism in Standard Four. Mathematics performance is significantly affected by teacher absenteeism. For the two languages, the means of pupils whose teachers absent themselves from school are higher. This is a strange pattern, however, the number of pupils taught by such teachers is relatively small, which could be a potential source of error hence this data should be read with caution.

School Facilities

Availability of Special Rooms in the School and Pupils' Performance

The School Heads were requested to indicate the number of special rooms in their school. The result of this response is found in Table 6.31. The results of pupils performance in relation to availability of Special rooms is presented in Table 6.31.

Table 6.31: Availability of Special Rooms in the School and Pupils' Performance

Availability of Special Rooms		Yes			No			Mean Diff	t-value	df	Sig. (2-tailed)
		n	%	Mean	n	%	Mean				
Staff room	Mathematics	3978	33.0	30.32	1406	33.9	27.39	2.93	5.39	5382	.00
	Setswana	4005	33.3	45.45	1399	33.7	42.30	3.15	5.99	5402	.00
	English	4045	33.6	34.07	1343	32.4	30.04	4.03	8.28	5386	.00
Special rooms	Mathematics	137	37.1	62.36	5251	33.2	28.71	33.65	23.20	5386	.00
	Setswana	95	25.7	51.22	5308	33.6	44.48	6.75	3.84	5401	.00
	English	137	37.1	64.28	5252	33.2	32.28	32.00	25.08	5387	.00
Workshop rooms	Mathematics	464	35.0	32.96	4924	33.1	29.24	3.72	4.37	5386	.00
	Setswana	408	30.8	45.67	4995	33.6	44.51	1.16	1.33	5401	.18
	English	453	34.2	37.32	4936	33.2	32.71	4.62	6.06	5387	.00
Libraries	Mathematics	1625	34.2	33.49	3709	32.9	27.92	5.57	10.77	5332	.00
	Setswana	1562	32.9	45.74	3787	33.6	44.29	1.45	2.84	5347	.01
	English	1562	32.9	37.53	3773	33.5	31.28	6.25	13.53	5333	.00
Store rooms	Mathematics	4599	85.7	30.51	769	14.3	23.65	6.87	10.12	5366	.00
	Setswana	4540	84.4	45.34	842	15.6	40.47	4.86	7.68	5380	.00
	English	4583	85.4	33.83	784	14.6	28.91	4.92	8.22	5365	.00
Boarding facilities	Mathematics	170	3.2	24.50	5218	97.0	29.73	5.23	3.82	5386	.00
	Setswana	152	2.8	39.54	5251	97.2	44.74	5.20	3.73	5401	.00
	English	156	2.9	28.08	5233	97.1	33.24	5.17	4.09	5387	.00

These special rooms included a library, a workshop, a staff room and many others. Pupils from schools with these types of special rooms perform significantly better than pupils from

schools without these facilities. Provision of boarding facilities is to be negatively related to performance, this may not be true as boarding schools are found in rural areas. Remote rural schools have been found to perform poorly in all the subjects (refer to Figure 6.1). School facilities are an important factor that correlates positively with performance. Urban schools are well resourced and this has been found to correlate positively with pupils' performance.

Ventilation and Light in the Classroom and Pupils' Performance

The School Head was requested to indicate whether there was enough ventilation and light in the class room. The responses of the School Head were related to the performance of the pupils. The results are shown in Table 6.32.

Table 6.32: Ventilation and Light in the Classroom and Pupils' Performance

Ventilation and Light in the Classroom			n	%	Mean (SE)	Diff (SE)
Ventilation allowed in classroom	Mathematics	None at all	23	.4	12.83(1.56)	1,2: -13.65(3.69)*
		Inadequate	697	12.6	26.47(.56)	1,3: -17.27(3.64)*
		Adequate	4830	81.0	30.09(.26)	2,3: -3.62(.71)*
	Setswana	None at all	23	.4	32.78(2.70)	1,2: -11.52(3.59)*
		Inadequate	692	12.4	44.30(.65)	1,3: -12.00(3.54)*
		Adequate	4850	87.2	44.78(.24)	2,3: -.48(.69)
	English	None at all	23	.4	19.74(1.81)	1,2: -12.22(3.28)*
		Inadequate	639	11.5	31.96(.57)	1,3: -13.57(3.23)*
		Adequate	4888	88.1	33.31(.22)	2,3: -1.36(.65)*
Light allowed in classroom	Mathematics	None at all	134	2.4	22.36(1.37)	1,2: -4.91(1.63)*
		Inadequate	809	14.6	27.27(.54)	1,3: -7.82(1.53)*
		Adequate	4607	83.0	30.18(.26)	2,3: -2.91(.67)*
	Setswana	None at all	131	2.4	41.39(1.67)	1,2: -3.13(1.60)
		Inadequate	802	14.4	44.52(.59)	1,3: -3.40(1.50)
		Adequate	4632	83.2	44.79(.25)	2,3: -.27(.65)
	English	None at all	134	2.4	26.87(1.06)	1,2: -4.28(1.45)*
		Inadequate	752	13.5	31.14(.51)	1,3: -6.73(1.36)*
		Adequate	4664	84.0	33.60(.23)	2,3: -2.46(.61)*

** Significant mean differences*

Class rooms which are well ventilated and allow enough light should provide a conducive environment for learning. Pupils in schools where class rooms are well ventilated and lit

performed significantly better in all the three subjects than those whose class rooms are not well ventilated and does not allow enough day light. It is worth noting that pupils whose class rooms are not well ventilated and not well lit are very few. Primary school class rooms are built by local authorities, and these class rooms are almost standard across the country.

Adequacy of Facilities and Pupils' Performance

The School Head was requested to indicate whether the school has certain facilities or not. Aside from teaching facilities, the local authorities have to provide primary schools with other facilities such as playgrounds, sports equipment and land for agricultural projects. The responses of the School Head were related to the performance of the pupils. The results of such responses and pupils' performance are shown in Table 6.33.

Table 6.33: Adequacy of Facilities and Pupils' Performance

Adequacy of Facilities			n	%	Mean (SE)	Diff (SE)
Playing grounds	Mathematics	Not available	765	14.0	25.42(.58)	1,2: -4.29(.72)*
		Inadequate	2484	45.5	29.71(.36)	1,3: -5.17(.73)*
		Adequate	2207	40.5	30.60(.37)	2,3: -.89(.51)
	Setswana	Not available	736	13.4	40.98(.62)	1,2: -4.00(.71)*
		Inadequate	2502	45.7	44.98(.35)	1,3: -4.41(.72)*
		Adequate	2237	40.9	45.39(.35)	2,3: -.41(.49)
	English	Not available	689	12.6	29.65(.56)	1,2: -2.83(.66)*
		Inadequate	2532	46.4	32.49(.31)	1,3: -4.99(.67)*
		Adequate	2237	40.9	34.64(.33)	2,3: -2.15(.45)*
Sport equipment	Mathematics	Not available	792	12.9	27.33(.55)	1,2: -1.32(.67)*
		Inadequate	3987	64.8	28.64(.26)	1,3: -12.11(.94)*
		Adequate	585	9.5	39.43(.93)	2,3: -10.79(.76)*
	Setswana	Not available	785	14.6	44.76(.60)	1,2: .37(.66)
		Inadequate	4073	75.7	44.39(.27)	1,3: -2.79(.95)*
		Adequate	525	9.8	47.55(.74)	2,3: -3.16(.78)*
	English	Not available	696	12.9	32.46(.54)	1,2: .43(.63)
		Inadequate	4045	75.9	32.03(.23)	1,3: -9.08(.84)*
		Adequate	623	11.6	41.54(.80)	2,3: -9.51(.66)*
Agricultural land	Mathematics	Not available	1798	32.9	30.78(.44)	1,2: 2.66(.58)*
		Inadequate	1797	33.0	28.11(.40)	1,3: .65(.58)
		Adequate	1861	34.1	30.13(.39)	2,3: -2.02(.58)*
	Setswana	Not available	1788	32.7	45.13(.39)	1,2: 1.36(.56)*
		Inadequate	1850	33.8	43.77(.40)	1,3: -.12(.56)
		Adequate	1833	33.5	45.25(.40)	2,3: -1.48(.56)*
	English	Not available	1775	32.5	34.35(.39)	1,2: 1.96(.52)*
		Inadequate	1852	33.9	32.39(.36)	1,3: 1.37(.52)*
		Adequate	1827	33.5	32.98(.35)	2,3: -.59(.51)

** Significant mean differences*

Pupils from schools that have enough playing grounds and sports equipment perform significantly better than those from schools that do not have these facilities. Enough land for Agriculture does not seem to impact seriously on the learning of Standard Four pupils. Most of such schools with enough facilities are in towns and major villages, and earlier on it was reported that these schools perform better than rural schools.

Availability of Services and Amenities and Pupils' Performance

The School Head had to indicate the presence or absence thereof of some services and amenities in the school. A majority of such services and amenities are expected to be present in most primary schools. The results are presented in Table 6.34.

School Feeding Program

Almost all government schools have a permanent feeding program. Pupils are fed one meal per day. Pupils in private schools on the other hand do bring their meals to school. Pupils from schools where there is a feeding program do perform significantly lower than those where there is no such a system. An analysis of the data indicated that all government primary schools do have a feeding program even though some indicated that this program is sometimes available. This could be that sometimes primary schools do run out of water, wood or even food, and the head teacher could have indicated and sometimes available for such reasons. On the other hand, no private primary school in the sample had a feeding program.

Book Loan Scheme

Schools where there is a book loan scheme perform significantly better than where such a service does not exist (refer to table 6.6). Books as a source of information are positively correlated to performance. In TIMSS 2003 study, performance of the Form One students progressively increased with the number of books in the home.

Water, Electricity, Typewriters, Duplicating Machines, Radio, Telephone, Computers and Television

The presence of all these services and amenities significantly influence pupils' performance in the three subjects. These amenities enhance learning as some could be used in teaching and learning. The presence of water in the school will enable food for the pupils to be prepared and electricity allows sufficient lighting and the use of modern teaching aids such as computers.

Table 6.34: Availability of Services and Amenities and Pupils' Performance

Availability of Services and Amenities			n	%	Mean (SE)	Diff (SE)
School feeding program	Mathematics	Not available	137	2.56	62.36(1.65)	1,2: 36.77(1.46)*
		Sometimes available	2066	38.6	25.60(.33)	1,3: 31.64(1.45)*
		Always available	3150	58.9	30.72(.31)	2,3: -5.12(.47)*
	Setswana	Not available	95	1.8	51.22(1.65)	1,2: 8.46(1.77)*
		Sometimes available	2046	38.1	42.76(.36)	1,3: 5.69(1.75)*
		Always available	3232	60.2	45.53(.30)	2,3: -2.77(.48)*
	English	Not available	137	2.6	64.28(1.15)	1,2: 34.92(1.28)*
		Sometimes available	1966	36.7	29.36(.29)	1,3: 30.32(1.27)*
		Always available	3250	60.7	33.96(.27)	2,3: -4.60(.41)*
Book loan service	Mathematics	Not available	3505	71.6	28.00(.28)	1,2: -1.47(.78)
		Sometimes available	582	11.9	29.45(.72)	1,3: -6.84(.68)*
		Always available	809	16.5	34.84(.75)	2,3: -5.37(.94)*
	Setswana	Not available	3501	71.2	44.24(.29)	1,2: -1.13(.73)
		Sometimes available	655	13.3	45.37(.68)	1,3: -1.70(.68)*
		Always available	760	5.5	45.94(.61)	2,3: -.57(.91)
	English	Not available	3568	72.6	32.19(.25)	1,2: 1.93(.71)*
		Sometimes available	540	11.0	30.26(.57)	1,3: -7.09(.60)*
		Always available	810	16.5	39.27(.67)	2,3: -9.02(.86)*
Water	Mathematics	Not available	33	0.6	28.48(1.88)	1,2: 2.50(3.07)
		Sometimes available	1195	21.6	25.98(.46)	1,3: -2.21(3.04)
		Always available	4298	77.8	30.69(.27)	2,3: -4.71(.57)*
	Setswana	Not available	32	0.6	50.75(2.42)	1,2: 9.03(3.02)*
		Sometimes available	1175	21.2	41.72(.48)	1,3: 5.22(2.99)
		Always available	4334	78.2	45.54(.26)	2,3: -3.81(.55)*
	English	Not available	33	0.6	31.82(1.85)	1,2: 3.48(2.70)
		Sometimes available	1161	21.0	28.34(.36)	1,3: -2.64(2.67)
		Always available	4332	78.4	34.46(.24)	2,3: -6.12(.51)*

** Significant mean differences*

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Table 6.34: Availability of Services and Amenities and Pupils' Performance

Availability of Services and Amenities			n	%	Mean (SE)	Diff (SE)
Electricity	Mathematics	Not available	1542	28.5	25.03(.39)	1,2: .40(.70)
		Sometimes available	939	17.3	24.63(.49)	1,3: -8.47(.54)*
		Always available	2935	54.2	33.49(.34)	2,3: -8.87(.64)*
	Setswana	Not available	1519	28.0	41.96(.45)	1,2: .64(.68)
		Sometimes available	998	18.4	41.32(.51)	1,3: -5.34(.53)*
		Always available	2918	53.7	47.29(.31)	2,3: -5.97(.61)*
	English	Not available	1499	27.7	28.71(.33)	1,2: .04(.61)
		Sometimes available	1017	18.8	28.67(.39)	1,3: -8.24(.48)*
		Always available	2900	53.6	36.94(.31)	2,3: -8.28(.55)*
Typewriters	Mathematics	Not available	4749	87.1	28.41(.25)	1,2: -9.91(.93)*
		Sometimes available	372	6.8	38.32(.83)	1,3: -7.48(.99)*
		Always available	333	6.1	35.90(.88)	2,3: 2.42(1.30)
	Setswana	Not available	4794	87.6	43.85(.25)	1,2: -6.16(.93)*
		Sometimes available	348	6.4	50.02(.84)	1,3: -8.26(.96)*
		Always available	328	6.0	52.12(.86)	2,3: -2.10(1.29)
	English	Not available	4748	87.0	31.85(.22)	1,2: -11.91(.81)*
		Sometimes available	376	6.9	43.76(.89)	1,3: -7.65(.86)*
		Always available	332	6.1	39.50(.89)	2,3: 4.26(1.14)*

** Significant mean differences*

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Table 6.34: Availability of Services and Amenities and Pupils' Performance

Availability of Services and Amenities			n	%	Mean (SE)	Diff (SE)
Radio	Mathematics	Not available	1441	26.8	27.18(.44)	1,2: -2.79(.64)*
		Sometimes available	1515	28.2	29.96(.46)	1,3: -3.18(.58)*
		Always available	2415	45.0	30.35(.36)	2,3: -.39(.57)
	Setswana	Not available	1391	26.2	42.56(.46)	1,2: -2.69(.64)*
		Sometimes available	1469	27.6	45.26(.45)	1,3: -2.50(.57)*
		Always available	2460	46.2	45.07(.34)	2,3: .19(.56)
	English	Not available	1367	25.8	30.43(.38)	1,2: -3.53(.59)*
		Sometimes available	1394	26.3	33.95(.44)	1,3: -3.21(.52)*
		Always available	2544	48.0	33.64(.31)	2,3: .32(.51)
Telephone	Mathematics	Not available	853	15.4	23.88(.51)	1,2: -.89(.88)
		Sometimes available	705	12.8	24.77(.60)	1,3: -7.75(.65)*
		Always available	3970	71.8	31.64(.28)	2,3: -6.87(.70)*
	Setswana	Not available	838	15.2	40.72(.60)	1,2: -.65(.87)
		Sometimes available	685	12.4	41.37(.63)	1,3: -5.32(.64)*
		Always available	4020	72.5	46.04(.26)	2,3: -4.67(.69)*
	English	Not available	794	14.3	26.98(.40)	1,2: -1.12(.78)
		Sometimes available	704	12.7	28.11(.46)	1,3: -8.19(.59)*
		Always available	4052	73.0	35.17(.25)	2,3: -7.06(.62)*
Computer	Mathematics	Not available	3111	56.1	24.65(.27)	1,2: -6.05(.95)*
		Sometimes available	340	6.1	30.71(.79)	1,3: -12.02(.47)*
		Always available	2099	37.8	36.67(.41)	2,3: -5.96(.97)*
	Setswana	Not available	3157	56.7	42.07(.30)	1,2: -5.27(.95)*
		Sometimes available	343	6.2	47.34(.90)	1,3: -6.13(.47)*
		Always available	2065	37.1	48.20(.36)	2,3: -.86(.97)
	English	Not available	3123	56.3	28.82(.23)	1,2: -6.47(.83)*
		Sometimes available	345	6.2	35.29(.79)	1,3: -10.34(.42)*
		Always available	2082	37.5	39.16(.38)	2,3: -3.87(.85)*

** Significant mean differences*

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Table 6.34: Availability of Services and Amenities and Pupils' Performance

Availability of Services and Amenities			n	%	Mean (SE)	Diff (SE)
School garden	Mathematics	Not available	1055	19.0	29.23(.56)	1,2: 3.07(.78)*
		Sometimes available	935	16.9	26.16(.54)	1,3: -1.33(.61)
		Always available	3560	64.1	30.56(.29)	2,3: -4.40(.64)*
	Setswana	Not available	1006	18.1	44.12(.53)	1,2: 1.45(.77)
		Sometimes available	924	16.6	42.67(.59)	1,3: -1.21(.60)
		Always available	3635	65.3	45.33(.28)	2,3: -2.66(.62)*
	English	Not available	959	17.3	32.90(.53)	1,2: 3.06(.71)*
		Sometimes available	933	16.8	29.83(.45)	1,3: -1.09(.56)
		Always available	3658	65.9	33.99(.26)	2,3: -4.15(.57)*
Television	Mathematics	Not available	1430	25.8	27.18(.46)	1,2: -2.51(.75)*
		Sometimes available	857	15.4	29.68(.60)	1,3: -3.41(.55)*
		Always available	3263	58.8	30.59(.31)	2,3: -.90(.67)
	Setswana	Not available	1386	24.9	42.35(.47)	1,2: -3.56(.72)*
		Sometimes available	924	16.6	45.91(.59)	1,3: -2.95(.54)*
		Always available	3255	58.5	45.30(.29)	2,3: .61(.63)
	English	Not available	1454	26.2	29.83(.39)	1,2: -4.63(.67)*
		Sometimes available	814	14.7	34.46(.56)	1,3: -4.39(.48)*
		Always available	3282	59.1	34.21(.27)	2,3: .25(.60)

** Significant mean differences*

Number of Classes by Standard (Grade)

The School Head provided information on the number of classes by Standard *(Grade)*. The results are shown in Table 6.35. The number, n, indicates the total number of pupils who attend schools where there are 1, 2, 3, and so on, number of classes per Standard *(Grade)* or level. Most pupils come from schools where there are 2 to 3 classes per level.

Table 6.35: *Number of Classes by Standard (Grade)*

No. Of Classes	STD 1		STD 2		STD 3		STD 4		STD 5		STD 6		STD 7	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
1	654	11.8	1263	22.7	1200	21.9	1013	18.3	923	16.7	986	17.9	839	15.1
2	1449	26.1	2118	38.1	2516	45.9	2092	37.8	1655	30.0	1380	25.0	1752	31.5
3	1892	34.1	1491	26.8	1361	24.9	1483	26.8	2515	45.6	2354	42.7	1840	33.1
4	1426	25.7	683	12.3	399	7.3	946	17.1	422	7.7	661	12.0	1124	20.2
5	134	2.4	-	-	-	-	-	-	-	-	134	2.4	-	-
Total	**5555**		**5555**		**5476**		**5534**		**5515**		**5515**		**5555**	

Availability of Toilets

The School Head provided information on the number of toilets the school has. The results are shown in Table 6.36. From the sampled schools no pupils are taught by teachers who use bucket toilets, and only 0.7% of the pupils in the sampled schools are reported to be still using bucket toilets. Majority of the pupils are in school with flushing toilets. This is very encouraging as the use of a flush toilet means there is a reliable source of water and school hygiene is improved.

Table 6.36: *Availability of Toilets*

Number of Toilets		Flushing Toilets (%)	Ventilated Pit Latrine (%)	Unventilated Pit Latrine (%)	Bucket Toilets (%)
Teacher	11 or more	4.6	0.0	0.0	0.0
	6 - 10	13.1	0.1	0.0	0.0
	1 - 5	56.5	17.7	1.6	0.0
	0	4.2	26.2	33.8	34.2
Pupil	11 or more	45.5	11.9	2.2	0.0
	6 - 10	9.8	13.1	1.8	0.7
	1 - 5	3.5	8.7	5.8	0.0
	0	4.8	19.1	28.8	29.5

Health, Safety and Security

The School Head provided information on the state of the school environment. Aspects included distance to school by both teachers and pupils.

Average Distance to School by Pupils and Pupils' Performance

The School Head was requested to provide the average distance from school for pupils. The results of his/her response and pupils' performance are shown in Table 6.37(a).

Table 6.37(a): Average Distance to School by Pupils and Pupils' Performance

Average Distance to School by Pupils		n	%	Mean (SE)	Diff (SE)
Mathematics	Below 1 km	1494	29.8	29.21(.45)	1,2: -.52(.85), 1,3: -1.31(.76) 1,4: -4.79(.95)* 2,3: -.79(.71) 2,4:-4.27(.92)* 3,4:-.48(1.03)*
	1 to 3 km	2223	44.4	29.74(.36)	
	4 to 5 km	845	16.9	30.53(.65)	
	Above 5 km	447	8.9	34.00(.97)	
Setswana	Below 1 km	1457	28.9	44.32(.47)	1,2: -.78(.60) 1,3: 1.54(.74) 1,4:-3.06(.87)* 2,3:-2.31(.69)* 2,4:-2.28(.83)* 3,4:-4.59(.96)*
	1 to 3 km	2266	45.1	45.10(.35)	
	4 to 5 km	802	15.9	42.78(.59)	
	Above 5 km	503	10.0	47.38(.72)	
English	Below 1 km	1464	29.2	31.42(.36)	1,2:-2.50(.52)* 1,3: -1.79(.67) 1,4: -5.12(.79)* 2,3: .71(.63) 2,4:-2.62(.75)* 3,4:-3.32(.86)*
	1 to 3 km	2177	43.5	33.92(.34)	
	4 to 5 km	843	16.8	33.21(.57)	
	Above 5 km	525	10.5	36.53(.75)	

** Significant mean differences*

The majority (43%) of the pupils stay 1 to 3 km away from the school. Those pupils who stay more than 5 km from school perform significantly better than all the other groups. This is surprising as, one would expect pupils who walk long distances from school to perform significantly lower than those who stay nearer to the school. However, the number of those who stay more than 5km from school is relatively small compared to other groups hence the results should be interpreted with caution. A cross tabulation on school type and distance from school revealed that none of the pupils from private schools come from less than 4 km away from their school, and one half of those come from more than 5 km away from their schools. These pupils are mostly transported by their parents or they travel to school by private school buses or taxis. This could explain why this group of pupils perform significantly higher than all the other pupils.

It was found earlier on that private schools perform significantly higher than government schools as such the pupils staying more than 5 km from school are likely to comprise of mostly private school pupils. Tables 6.37(b) and 6.37(c) confirm this.

Table 6.37(b): School Type and Average Distance for Pupils (Mathematics)

School Type	Average Distance to School for the Majority of Pupils				Total
	Below 1 km	1 to 3 km	4 to 5 km	Above 5 km	
Public/Government	1479	1966	734	382	**4561**
Private/Non-government	0	0	72	65	**137**
Government-Subsidized	15	250	39	0	**304**
Total	**1494**	**2216**	**845**	**447**	**5002**

All pupils from private schools travel at least 4 km from school. These pupils have the higher mean scores in all the three subjects. Even though these pupils are few, it would seem that the further away a pupil is from school, the better their performance. A similar pattern is observed for the other two subjects.

Table 6.37(c): School Type and Average Distance for Mathematics Teachers

School Type	Average Distance to School for the Majority of Teachers				Total
	Below 1 km	1 to 3 km	4 to 5 km	Above 5 km	
Public/Government	2627	1128	614	355	**4724**
Private/Non-government	0	72	0	65	**137**
Government-Subsidized	18	264	0	22	**304**
Total	**2645**	**1464**	**614**	**442**	**5165**

Teachers from private schools travel at least a distance of over 1 km from school. A similar trend is also observed here that pupils taught by these teachers perform significantly better than the rest, refer to Table 6.38. The contribution to the mean by pupils from private schools is large because even though they are few, they make the overall performance of this group significantly better.

Average Distance to School by Teachers and Pupils' Performance

The School Head was requested to provide the average distance from school for majority of the pupils and teachers. The results of his/her response and pupils' performance are shown in Table 6.38.

Table 6.38: Average Distance to School by Teachers and Pupils' Performance

Average Distance to School by Teachers		n	%	Mean (SE)	Diff (SE)
Mathematics	Below 1 km	2652	51.3	27.03(.32)	1,2: -5.64(.57)* 1,3: -4.98(.78)* 1,4: -5.32(.90)* 2,3: .67(.84) 2,4: .33(.95) 3,4: -.34(1.09)
	1 to 3 km	1464	28.3	32.67(.48)	
	4 to 5 km	614	11.9	32.00(.71)	
	Above 5 km	442	8.5	32.34(.96)	
Setswana	Below 1 km	2634	50.7	42.62(.33)	1,2: -4.37(.55)* 1,3: -2.05(.76) 1,4: -3.53(.83)* 2,3: 2.31(.81)* 2,4: .84(.88) 3,4: -1.48(1.03)
	1 to 3 km	1471	28.3	46.99(.44)	
	4 to 5 km	603	11.6	44.67(.66)	
	Above 5 km	485	9.3	46.15(.71)	
English	Below 1 km	2610	50.5	29.65(.26)	1,2: -7.31(.49)* 1,3: -4.96(.68)* 1,4: -7.70(.74)* 2,3: 2.35(.73)* 2,4: -.38(.78) 3,4: -2.74(.91)*
	1 to 3 km	1450	28.1	36.96(.45)	
	4 to 5 km	609	11.8	34.61(.60)	
	Above 5 km	500	9.7	37.34(.77)	

** Significant mean differences*

At least 50% of the primary school teachers stay closer to the school parameter fence. The pupils taught by teachers who stay more than 1km from school perform significantly better than those pupils taught by teachers who stay close to the school.

Distance to the Nearest Medical Facility and Pupils' Performance

The School Head was requested to provide the distance from the school to the nearest medical facility. The results of his/her response and pupils' performance are shown in Table 6.39.

Table 6.39: Distance to the Nearest Medical Facility and Pupils' Performance

Distance to the Nearest Medical Facility		n	%	Mean (SE)	Diff (SE)
Mathematics	Below 1 km	3644	67.8	28.01(.27)	1,2: -6.98(.55)* 1,3: .01(1.27) 1,4: 1.69(1.34) 2,3: 6.99(1.32)* 2,4: 8.67(1.38)* 3,4: 1.68(1.80)
	1 to 3 km	1358	25.3	34.99(.55)	
	4 to 5 km	196	3.6	28.00(1.09)	
	Above 5 km	175	3.3	26.32(1.14)	
Setswana	Below 1 km	3735	69.3	44.36(.28)	1,2: -1.51(.55) 1,3: -.42(1.24) 1,4: 1.87(1.32) 2,3: 1.09(1.30) 2,4: 3.38(1.37)* 3,4: 2.30(1.77)
	1 to 3 km	1289	23.9	45.87(.47)	
	4 to 5 km	196	3.6	44.79(1.21)	
	Above 5 km	172	3.2	42.49(1.28)	
English	Below 1 km	3688	68.6	31.80(.24)	1,2: -6.19(.50)* 1,3: -.95(1.02) 1,4: 3.33(1.19)* 2,3: 5.24(1.08)* 2,4: 9.52(1.23) 3,4: 4.28(1.52)*
	1 to 3 km	1269	23.6	37.99(.52)	
	4 to 5 km	243	4.5	32.75(.90)	
	Above 5 km	174	3.2	28.47(.95)	

** Significant mean differences*

The distance of the medical facility from school does not have a significant influence on performance. It is only in Mathematics performance where the distance influence performance, that is pupils from schools which are 1 to 3 km from their homes perform significantly higher than all other groups.

Distance to the Nearest Security Facility and Pupils' Performance

The School Head was requested to indicate how far the school is from a security facility like a police station. The results of this analysis are presented in Table 6.40.

Table 6.40: Distance to the Nearest Security Facility by Teachers and Pupils' Performance

Distance to the Nearest Security Facility by Teachers		n	%	Mean (SE)	Diff (SE)
Mathematics	Below 1 km	1188	22.6	27.19(.48)	1,2: -5.61(.63)* 1,3: -10.68(1.02)* 1,4: 1.78(.65) 2,3: 5.07(.97)* 2,4: 7.39(.57)* 3,4: 12.46(.99)*
	1 to 3 km	2044	38.9	32.80(.40)	
	4 to 5 km	370	7.0	37.87(1.07)	
	Above 5 km	1657	31.5	25.41(.39)	
Setswana	Below 1 km	1214	23.0	43.08(.49)	1,2: -3.96(.60)* 1,3: -5.64(1.01)* 1,4: 1.78(.63)* 2,3: -1.68(.97) 2,4: 5.74(.55)* 3,4: 7.42(.98)*
	1 to 3 km	2072	39.3	47.04(.37)	
	4 to 5 km	350	6.6	48.73(.85)	
	Above 5 km	1642	31.1	41.31(.41)	
English	Below 1 km	1180	22.4	31.28(.41)	1,2: -5.10(.54)* 1,3: -8.75(.85)* 1,4: 3.43(.57)* 2,3: -3.65(.80)* 2,4: 8.52(.50)* 3,4: 12.18(.82)*
	1 to 3 km	2057	39.1	36.37(.36)	
	4 to 5 km	419	8.0	40.03(.90)	
	Above 5 km	1601	30.5	27.85(.30)	

** Significant mean differences*

Pupils whose school is over 5 km from a security facility perform significantly lower than those who stay close to a police station. These schools may be those that are in rural areas where police station are usually far away.

Safety of School Environment and Pupils' Performance

The School Head was requested to indicate how safe the school environment is. Young children want to feel secure not only in a learning environment, but in everyday life interaction with other people. Table 6.41 shows that learners perceive the learning environment not safe, performance is compromised. An insecure school environment will impact negatively on teaching, hence the poor performance by the pupils.

Table 6.41: Safety of School Environment and Pupils' Performance

Safety of School Environment		n	%	Mean (SE)	Diff (SE)
Mathematics	Poor	1133	20.1	24.19(.47)	1,2: -4.66(.60)*
	Fair	2822	50.1	28.85(.31)	1,3: -10.47(.67)*
	Good	1595	28.3	34.66(.48)	2,3: -5.81(.54)*
Setswana	Poor	1179	21.2	41.45(.51)	1,2: -2.39(.58)*
	Fair	2792	50.2	43.84(.31)	1,3: -7.06(.64)*
	Good	1594	28.6	48.51(.42)	2,3: -5,67(.53)*
English	Poor	1134	20.4	29.29(.40)	1,2: -2.15(.53)*
	Fair	2752	49.6	31.44(26)	1,3: -9.15(.58)*
	Good	1664	29.9	38.44(.44)	2,3: -7.00(.47)*

** Significant mean differences*

Availability of Security and Safety Facilities and Pupils' Performance

The School Head was requested to indicate whether the school has security and safety facilities. The School Head was to indicate the state in which these facilities are in. The responses of the School Head were related to the performance of the pupils. The results are shown in Table 6.42.

Table 6.42: Availability of Security and Safety Facilities and Pupils' Performance

Availability of Security and Safety Facilities			n	%	Mean (SE)	Diff (SE)
Boundary Wall/Fence	Mathematics	Not at all	743	13.4	31.59(.59)	1,2: 1.36(.93) 1,3: 3.60(.72)* 1,4: .46(.79) 2,3: 2.24(.76) 2,4: -.90(.82) 3,4: -3.14(.57)*
		Poor	666	12.0	30.24(.60)	
		Fair	2684	48.4	27.99(.32)	
		Good	1457	26.3	31.13(.54)	
	Setswana	Not at all	734	13.2	46.61(.60)	1,2: -1.15(.91) 1,3: 2.18(.70)* 1,4: 3.85(.77)* 2,3: 3.33(.74)* 2,4: 4.99(.90)* 3,4: 1.67(.55)*
		Poor	641	11.5	47.76(.63)	
		Fair	2750	49.4	44.43(.32)	
		Good	1440	25.9	42.77(.46)	
	English	Not at all	738	13.3	35.78(.55)	1,2: -.13(.84) 1,3: 4.86(.64)* 1,4: 1.23(.69) 2,3: 4.99(.69)* 2,4: 1.36(.73) 3,4: -3.63(.49)*
		Poor	615	11.1	35.91(.60)	
		Fair	2691	48.5	30.92(.26)	
		Good	1506	27.1	34.54(.47)	
Security Guard/Service	Mathematics	Not at all	586	10.9	26.95(.63)	1,2: 1.94(.89)* 1,3: -.84(.78) 1,4: -9.88(.83)* 2,3: -2.77(.65)* 2,4: -11.82(.70)* 3,4: -9.05(.57)*
		Poor	981	18.4	25.02(.47)	
		Fair	2342	43.9	27.79(.34)	
		Good	1430	26.8	36.83(.52)	
	Setswana	Not at all	579	10.8	44.09(.69)	1,2: 2.22(.89)* 1,3: -.33(.78) 1,4: -3.39(.83)* 2,3: -2.55(.65)* 2,4: -5.61(.70)* 3,4: -3.06(.56)*
		Poor	954	17.8	41.87(.53)	
		Fair	2398	44.7	44.42(.35)	
		Good	1434	26.7	47.48(.44)	
	English	Not at all	528	9.9	30.40(.57)	1,2: .74(.83) 1,3: -1.68(.73)* 1,4: -7.73(.77)* 2,3:-2.42(.59)* 2,4: -8.46(.64)* 3,4: -6.04(.50)*
		Poor	899	16.8	29.67(.43)	
		Fair	2469	46.2	32.08(.29)	
		Good	1444	27.0	38.13(.47)	

** Significant mean differences*

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Table 6.42: Availability of Security and Safety Facilities and Pupils' Performance

Availability of Security and Safety Facilities			n	%	Mean (SE)	Diff (SE)
Fire extinguisher	Mathematics	Not at all	3048	56.3	27.18(.30)	1,2: -4.11(.68)* 1,3: -3.63(.55)* 1,4: -21.86(1.21)* 2,3: .48(.76) 2,4: -17.74(1.32)* 3,4: -18.22(1.26)*
		Poor	791	14.6	31.30(.61)	
		Fair	1361	25.2	30.82(.45)	
		Good	210	3.9	49.04(1.80)	
	Setswana	Not at all	3063	56.5	43.26(.31)	1,2: -3.60(.65)* 1,3: -3.49(.55)* 1,4: -1.01(1.34) 2,3: .11(.74) 2,4: 2.60(1.43) 3,4: 2.49(1.39)
		Poor	865	15.9	46.86(.55)	
		Fair	1330	24.5	46.75(.45)	
		Good	167	3.1	44.26(1.41)	
	English	Not at all	3006	55.6	31.00(.27)	1,2: -4.17(.57)* 1,3: -2.57(.50)* 1,4: -20.24(1.07)* 2,3: 1.60(.65) 2,4: -16.07(1.15)* 3,4: -17.67(1.12)*
		Poor	918	16.9	35.18(.48)	
		Fair	1277	23.6	33.58(.40)	
		Good	210	3.9	51.25(1.55)	
First-Aid box	Mathematics	Not at all	1905	34.6	30.02(.38)	1,2: 2.11(.55)* 1,3: 4.19(.63)* 1,4: -12.96(.85)* 2,3: 2.08(.63)* 2,4: -15.06(.85)* 3,4: -17.14(.90)*
		Poor	1924	34.9	27.92(.38)	
		Fair	1176	21.4	25.83(.46)	
		Good	501	9.1	42.98(.98)	
	Setswana	Not at all	1864	33.8	44.91(.39)	1,2: .21(.55) 1,3: 2.34(.62)* 1,4: -4.05(.88)* 2,3: 2.13(.61)* 2,4: -4.26(.88)* 3,4: -6.39(.92)*
		Poor	1960	35.5	44.70(.39)	
		Fair	1238	22.4	42.57(.47)	
		Good	458	8.3	48.96(.78)	
	English	Not at all	1843	33.5	33.93(.36)	1,2: 2.84(.49)* 1,3: 3.55(.56)* 1,4: -10.09(.76)* 2,3: .71(.55) 2,4: -12.93(.75)* 3,4: -13.64(.80)*
		Poor	1971	35.8	31.10(.31)	
		Fair	1190	21.6	30.38(.41)	
		Good	501	9.1	44.02(.87)	

** Significant mean differences*

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Table 6.42: Availability of Security and Safety Facilities and Pupils' Performance

Availability of Security and Safety Facilities			n	%	Mean (SE)	Diff (SE)
Alarm system	Mathematics	Not at all	3936	71.9	27.80(.26)	1,2: .22(.64) 1,3: -5.70(.97)* 1,4: -21.04(.86)* 2,3: -5.92(1.10)* 2,4: -21.26(1.00)* 3,4: -15.34(1.24)*
		Poor	813	14.9	27.59(.58)	
		Fair	314	5.7	33.50(.87)	
		Good	411	7.5	48.84(1.02)	
	Setswana	Not at all	4013	71.0	43.98(.27)	1,2: .75(.65) 1,3: -5.21(.98)* 1,4: -8.72(.92)* 2,3: -5.95(1.12)* 2,4: -9.46(1.06)* 3,4: -3.51(1.29)*
		Poor	795	14.5	43.24(.63)	
		Fair	315	5.7	49.19(.81)	
		Good	366	6.7	52.70(.86)	
	English	Not at all	4012	73.3	32.04(.23)	1,2: 1.17(.58) 1,3: -4.79(.87)* 1,4: -17.41(.84)* 2,3: -5.96(.99)* 2,4: -18.59(.96)* 3,4: -12.62(1.16)*
		Poor	798	14.6	30.86(.50)	
		Fair	317	6.3	36.83(.87)	
		Good	345	6.3	49.45(1.03)	

** Significant mean differences*

Boundary wall or fence around the school premises does not have any influence on the performance of Standard Four pupils in all the three subjects. A good number of schools do have a fence which is also in fair or good condition. The security system of a school plays a vital role in the safety of the school environment. It was found earlier on that an unsafe school environment is not conducive to the learning of pupils. Schools with good security services are safer and the results in Table 6.42 show that these schools also perform significantly better in the three subjects. The availability of a fire extinguisher forms a part of the safely of the school environment. This facility is also linked to better performance by the pupils. First Aid box and the availability of an alarm system are also positively related to pupils' performance.

Vandalism in the School and Pupils' Performance

The School Head was requested to indicate the rate of incidents of vandalism in his/her school. Table 6.43 shows the results of such responses and pupils' performance. In the 2003 TIMSS report, only 3.59% of Form One students attended schools where vandalism never occurred. This would mean that in 2003, close to 96% of Form One students attended schools where vandalism was a problem. About 42% of Standard Four pupils in Botswana attend schools where vandalism is not a daily occurrence. One is therefore bound to believe that vandalism is more rampant with mature students in secondary schools than young ones in primary schools. Actually senior secondary schools do experience a lot of vandalism that even

political leadership is taking a serious stance on this issue. This vandalism is in the form of burning laboratories, hostels and even classrooms.

Table 6.43: Vandalism in the School and Pupils' Performance

Vandalism in the School		n	%	Mean (SE)	Diff (SE)
Mathematics	Not at all	2168	41.7	32.64(.40)	1,2: 5.19(.51)*
	Rare	2508	48.3	27.44(.34)	1,3: 4.83(.86)*
	Frequent	518	10.0	27.80(.68)	2,3: -.36(.84)
Setswana	Not at all	2249	43.2	45.86(.37)	1,2: 2.14(.50)*
	Rare	2452	47.0	43.73(.34)	1,3: 3.01(.83)*
	Frequent	511	9.8	42.86(.74)	2,3: .87(.83)
English	Not at all	2251	43.3	34.74(.34)	1,2: 2.80(.45)*
	Rare	2430	46.8	31.94(.31)	1,3: 3.01(.76)*
	Frequent	513	9.8	31.73(.61)	2,3: .21(.75)

** Significant mean differences*

For all the three subjects, it is clear that vandalism does impinge on the learning and performance of the learners. Pupils from schools where vandalism is rampant or frequent do perform significantly lower than those where the rate of vandalism is non-existent or very low. Vandalism is one of the factors that determine the school's safety environment.

Figure 6.3: Frequency of Vandalism at Standard Four and Pupil Performance

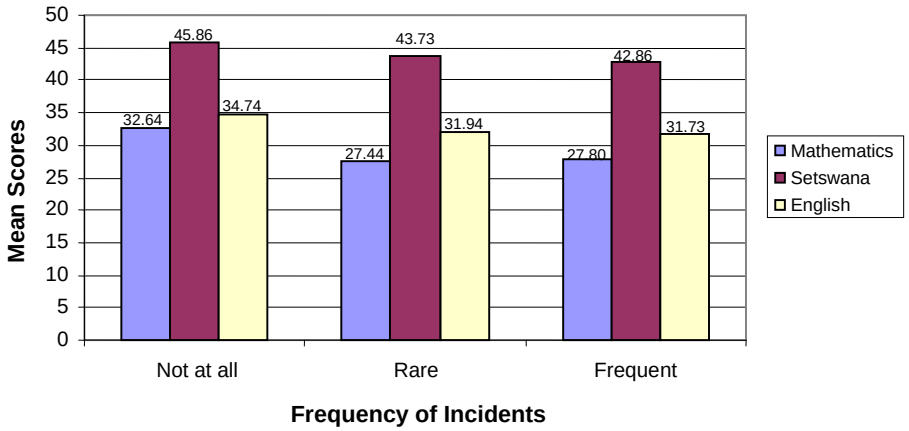
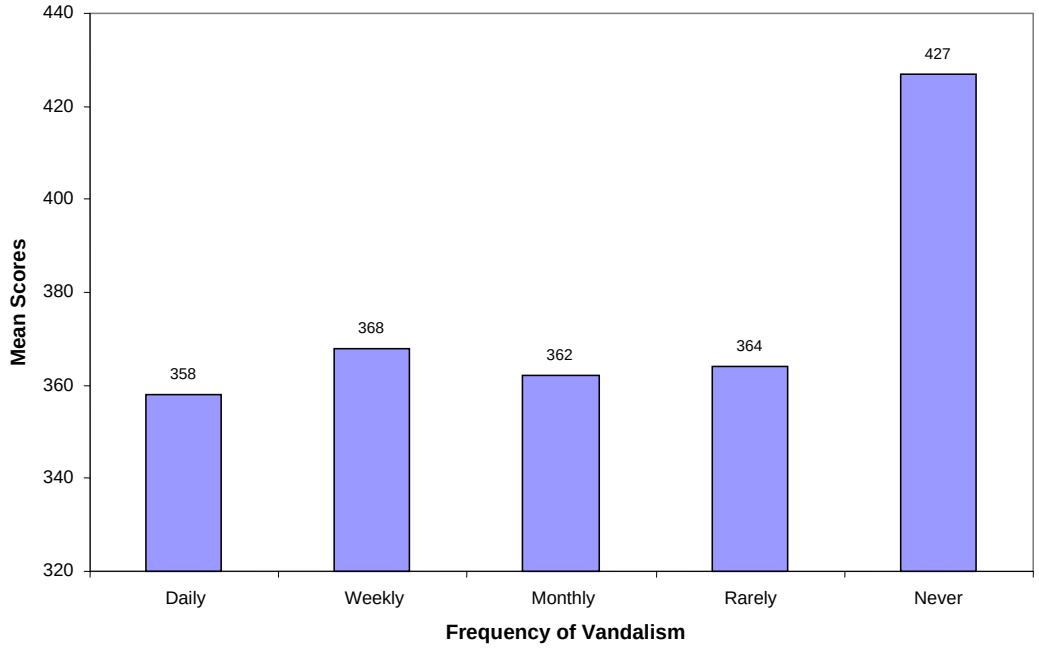


Figure 6.3 shows that as the rate of vandalism declines pupils performance is enhanced. The TIMSS 2003 report also showed a similar pattern as shown in figure 6.4 for Mathematics.

Figure 6.4: Frequency of Vandalism at Form One and Pupils' Performance



The TIMSS 2003 results show a similar pattern in that even the slightest occurrence of vandalism has a profound impact on pupils' performance.

Physical Abuse of Teachers in the School and Pupils' Performance

The School Head was requested to indicate the occurrence of physical abuse of teachers in his/her school. The School Head was expected to select from four options of *not at all*, *rare*, *infrequent* and *frequent*. There were no responses for options of *infrequent* and *frequent* of physical abuse of teachers in the primary schools. The options rare and frequent were collapsed to rare and this applies to subsequent sections. Table 6.44 shows the results of such responses and pupils' performance. The results indicate that the cases of abuse of teachers in Botswana primary schools are very rare. About 17% of pupils come from schools were the School Heads say that this occurrence happens rarely. An ideal situation is where teacher abuse does not occur at all as this would make the school environment safer.

Table 6.44: *Physical Abuse of Teachers in the School and Pupils' Performance*

Subjects	Not at all			Rare			Mean Diff	t-value	Df	Sig.(2-tailed)
	n	%	Mean	n	%	Mean				
Mathematics	4522	83.1	30.02	901	16.6	27.29	2.73	4.29	5421	.00
Setswana	4467	82.1	44.46	972	17.9	45.88	-1.42	2.37	5437	.02
English	4503	83.1	33.07	918	16.9	34.03	-.96	1.71	5419	.09

An independent sample t-test indicates that schools where teacher abuse never occurs perform better in Mathematics but the opposite is true for Setswana.

Physical Abuse of Pupils in the School and Pupils' Performance

The School Head was requested to indicate the incidences of physical abuse of pupils in the school. Table 6.45 shows the results of such responses and pupils' performance.

Table 6.45: Incidents of Physical Abuse of Pupils and Pupils' Performance

Incidents of Physical Abuse of Pupils		n	%	Mean (SE)	Diff (SE)
Mathematics	Not at all	2357	43.5	28.62(.36)	1,2:- 2.00(.48)*
	Rare	2927	54.0	30.61(.32)	1,3: 4.89(1.52)*
	Frequent	139	2.6	23.73(1.21)	2,3: 6.89(1.52)*
Setswana	Not at all	2362	43.4	43.22(1.35)	1,2: -2.80(.47)*
	Rare	2861	52.6	46.02(.32)	1,3: -.45(1.20)
	Frequent	216	4.0	43.67(1.11)	2,3: 2.36(1.19)
English	Not at all	2456	45.3	31.96(.31)	1,2: -2.40(.43)*
	Rare	2750	50.7	34.36(.30)	1,3: -1.46(1.10)
	Frequent	215	4.0	33.41(.90)	2,3: .94(1.10)

** Significant mean differences*

It is important to note that, in all the subjects, schools where physical abuse is rare have a high mean score than schools where physical abuse of pupils does not occur at all or it is frequent. In most cases, this mean is statistically significant to other means. Young children feel insecure when threatened with physical abuse. The question did not probe who abuses these children, but it would not matter whether the abuse is perpetrated by other children or teachers, the effect would be the same, performance would be compromised. The TIMSS 2003 report findings confirm that where Form One students are exposed to physical injury in the school, their mean was found to be significantly lower than where physical injury to students never occurs.

Incidents of Pupils Abuse by Teachers and Pupils' Performance

The School Head was requested to indicate the incidents of pupils' abuse by teachers in the last two years. It is encouraging that the rate of pupils' abuse is low (3%). From Table 6.46, it is evident that abuse of pupils by teachers does not influence performance in any negative way.

Table 6.46: *Incidents of Pupils Abuse by Teachers and Pupils' Performance*

Subjects	Yes			No			Mean Diff	t-value	df	Sig. (2-tailed)
	n	%	Mean	n	%	Mean				
Mathematics	155	3.0	29.08	5253	97.0	29.75	-.67	.47	5406	.64
Setswana	156	2.9	45.21	5267	97.1	44.80	.41	.30	5421	.77
English	156	2.9	31.68	5252	97.1	33.33	-1.65	1.31	5406	.19

The Use of Drugs in the School and Pupil' Performance

The School Head was requested to indicate the incidents of drug use by pupils in the school. Table 6.47 shows the results of such responses and pupils' performance.

Table 6.47: *Incidents of Drugs Use and Pupils' Performance*

Incidents of Drugs Use		n	%	Mean (SE)	Diff (SE)
Mathematics	Not at all	3856	72.3	31.32(.29)	1,2: 5.69(.54)*
	Rare	1396	26.1	25.63(.44)	1,3: 9.70(1.94)*
	Frequent	82	1.5	21.63(1.45)	2,3: 4.01(1.98)*
Setswana	Not at all	3895	72.8	45.34(.27)	1,2: 2.96(.53)*
	Rare	1375	25.7	42.38(.47)	1,3: .71(1.89)
	Frequent	82	1.5	44.63(1.94)	2,3: -2.25(1.92)
English	Not at all	3935	74.8	34.54(.26)	1,2: 5.50(.48)*
	Rare	1376	25.8	29.04(.35)	1,3: 1.40(3.35)
	Frequent	21	0.4	33.14(2.76)	2,3: -4.11(3.37)

** Significant mean differences*

The use of drugs in a school setting should not be tolerated. Incidents of drug abuse by school children have been reported in Botswana schools. It is apparently clear from Table 6.40 that drug use in primary schools in Botswana does occur. This use of drugs has a negative impact on the performance of pupils.

Sexual Abuse of Pupils and Pupils' Performance

The School Head was requested to indicate the incidents of sexual abuse of pupils in the school. Table 6.48 shows the results of such responses and pupils' performance. A substantial percentage (60%) of Standard Four pupils attends schools where sexual abuse does not occur at all. About 6% of Standard Four pupils attend schools where sexual abuse is frequent. For all the three subjects, sexual abuse impact negatively on performance. Pupils from schools where the incidents of sexual abuse are frequent perform significantly lower than those where this form of abuse is rare or does not occur at all.

Table 6.48: *Sexual Abuse of Pupils and Pupils' Performance*

Sexual Abuse of Pupils		n	%	Mean (SE)	Diff (SE)
Mathematics	Not at all	3237	59.8	29.25(.30)	1,2: -1.74(.51)*
	Rare	1864	34.4	30.99(.43)	1,3: 4.96(1.04)*
	Frequent	312	5.8	24.29(.82)	2,3: 6.71(1.07)*
Setswana	Not at all	3318	61.1	44.67(.30)	1,2: -.32(.50)
	Rare	1802	33.2	44.98(.39)	1,3: 3.24(1.01)*
	Frequent	309	5.7	41.43(.99)	2,3: 3.55(1.04)*
English	Not at all	3402	62.8	33.07(.27)	1,2: -.92(.46)
	Rare	1762	32.6	33.99(.37)	1,3: 4.78(1.02)*
	Frequent	249	4.6	28.29(.78)	2,3: 5.70(1.05)*

** Significant mean differences*

Sexual Abuse of Teachers and Pupils' Performance

The School Head was requested to indicate the incidents of sexual abuse of teachers in the school. Table 6.49 shows the results of such responses and pupils' performance. Pupils from schools where teachers are not exposed to sexual abuse perform significantly better than those pupils whose teachers are rarely exposed to sexual harassment in all the three subjects.

Table 6.49: *Sexual Abuse of Teachers and Pupils' Performance*

Subjects	Not at all		Rare		Mean Diff	t-value	df	Sig. (2-tailed)
	n	Mean	n	Mean				
Mathematics	5269	29.91	161	22.28	7.64	5.46	5428	.00
Setswana	5283	44.77	163	42.01	2.76	2.05	5444	.04
English	5326	33.36	102	27.29	6.07	3.92	5426	.00

Abduction of Pupils and Pupils' Performance

The School Head was requested to indicate the incidents of abduction of pupils in the school. Table 6.50 shows the results of such responses and pupils' performance. Abduction is not a normal occurrence in primary schools in Botswana. Only 2% of pupils attend schools where abduction cases are frequent. Abduction of pupils has a negative influence on their performance. Schools where abduction does occur may not be safe schools, and school safety is a factor that correlates positively to performance.

Table 6.50: *Abduction of Pupils and Pupils' Performance*

Abduction of Pupils		n	%	Mean (SE)	Diff (SE)
Mathematics	Not at all	4377	93.0	29.53(.26)	1,2: 8.29(1.16)*
	Rare	231	4.9	21.24(.88)	1,3: .61(1.77)
	Frequent	97	2.1	28.92(1.67)	2,3: -7.68(2.09)*
Setswana	Not at all	4397	93.1	44.53(.26)	1,2: 3.96(1.15)*
	Rare	229	4.8	40.57(1.01)	1,3: 3.91(1.74)*
	Frequent	97	2.1	40.62(1.76)	2,3: -.05(2.05)
English	Not at all	4435	94.3	33.25(.24)	1,2: 5.74(1.21)*
	Rare	172	3.7	27.51(.89)	1,3: .84(1.59)
	Frequent	97	2.1	32.41(1.16)	2,3: -4.90(1.97)*

** Significant mean differences*

Pupils' social behaviour impacts on the learning of Mathematics, Setswana and English. Social behaviours that are not culturally accepted do impact negatively on performance. Use of drugs, physical abuse, vandalism, theft and sexual abuse all impact negatively on performance. All these factors do not provide a conducive environment for learning.

School Funding

School Fees as a Source of School Funding and Pupils' Performance

School Heads were requested to indicate the source of funding for their schools e.g., school fees, community levies, government grants, donor funds, NGO's. They were also to provide information on the level of funding, as either, medium or low. Provision of Education at public primary schools is free. Private schools charge school fees. In some cases schools would request for donations from the private sector for some projects. Table 6.51 shows levels of school fees funding and pupils' performance.

Table 6.51: Level of School Fees and Pupils' Performance

Level of School Fees		n	%	Mean (SE)	Diff (SE)
Mathematics	Low	2119	73.6	29.35(.36)	1,2: -1.18(.93)
	Medium	466	16.2	30.53(1.02)	1,3: -10.53(1.13)*
	High	295	10.2	39.88(1.29)	2,3: -9.35(1.35)*
Setswana	Low	2164	75.4	45.28(.36)	1,2: 1.86(.89)*
	Medium	436	15.2	43.42(.88)	1,3: -2.56(1.10)*
	High	270	9.4	47.84(.97)	2,3: -4.42(1.32)*
English	Low	2235	76.3	32.87(.31)	1,2: -2.13(.82)*
	Medium	461	15.7	35.00(.87)	1,3: -11.08(1.10)*
	High	232	11.0	43.95(1.32)	2,3: -8.95(1.28)*

** Significant mean differences*

Schools that rely very much on school fees as a form of funding perform significantly better than those which do not rely on this form of funding. Most such schools are private schools.

Level of Community Levies as a Source of School Funding and Pupils' Performance

Both public schools and private schools request for funds from parents for school projects. These funds are collected through Parent Teachers Associations (PTA). PTA also organise fund raising activities to generate more money. Table 6.52 shows the level of funding through community levies and pupils performance.

Table 6.52: Level of Community Levies and Pupils' Performance

Level of Community Levies		n	%	Mean (SE)	Diff (SE)
Mathematics	Low	2276	55.2	27.38(.35)	1,2: -3.67(.56)*
	Medium	1711	41.5	31.05(.45)	1,3: -10.83(1.53)*
	High	139	3.4	38.21(1.29)	2,3: -7.16(1.54)*
Setswana	Low	2220	54.9	43.31(.37)	1,2: -2.16(.54)*
	Medium	1747	42.6	45.47(.40)	1,3: -8.83(1.49)*
	High	137	3.3	52.13(1.25)	2,3: -6.66(1.51)*
English	Low	2254	54.7	30.58(.30)	1,2: -4.00(.48)*
	Medium	1733	42.0	34.58(.39)	1,3: -10.69(1.33)*
	High	137	3.3	41.27(1.28)	2,3: -6.69(1.34)*

** Significant mean differences*

Schools that charge high community levies perform significantly better in all the three subjects. These are likely to be private primary schools. The number of pupils attending these schools is very low, therefore these results must be interpreted with caution.

School Governance and Management

The school system in Botswana is such that public schools are managed by the Ministry of Education and Skills Development through the School Head. Most private schools are controlled by Board of governors but the day to day administration is left to the principal.

The School Head was requested to indicate who has the responsibility of governing the school.

School Inspection and Supervision

The Last Visit to the School by School Inspector and Pupils' Performance

The School Head was requested to indicate the last time a school inspector visited the school. Table 6.53 shows the results of such responses and pupils' performance.

Table 6.53: The Last Visit to the School by School Inspector and Pupils' Performance

Last Visit to the School by School Inspector		n	%	Mean (SE)	Diff (SE)
Mathematics	1 Year ago	825	15.7	29.95(.56)	1,2: 1.37(.78) 1,3: 1.14(.80) 1,4: -.51(.73) 2,3: -.23(.71) 2,4: -1.87(.63)* 3,4: -1.64(.66)*
	2 Years ago	1346	25.7	28.59(.49)	
	3 Years ago	1152	21.9	28.82(.49)	
	4 Years and over	1916	36.6	30.46(.42)	
Setswana	1 Year ago	884	16.8	47.90(.57)	1,2: 4.28(.73)* 1,3: 4.18(.76)* 1,4: 3.54(.69)* 2,3: -.10(.66) 2,4: -.74(.60) 3,4: -.64(.64)
	2 Years ago	1379	26.2	43.62(.44)	
	3 Years ago	1152	21.9	43.72(.51)	
	4 Years and over	1848	35.1	44.36(.40)	
English	1 Year ago	906	17.3	36.81(.54)	1,2: 5.05(.66)* 1,3: 5.28(.69)* 1,4: 3.83(.62)* 2,3: -.23(.62) 2,4: -1.22(.55)* 3,4: -1.45(.58)*
	2 Years ago	1352	25.8	31.76(.43)	
	3 Years ago	1112	21.2	31.54(.45)	
	4 Years and over	1872	35.7	32.98(.35)	

** Significant mean differences*

The time lapse between school visits by school inspectors has a slight impact on pupils' performance. Pupils from schools which were visited by the school inspector recently perform significantly better than those who were visited two years or more ago. It is only for Mathematics where such visits by the school inspector do not seem to have any impact on pupils' performance. Remote schools are not disadvantaged when it comes to the number of visits by the school inspectors. A further analysis indicated that four urban, zero semi-urban, four rural and six remote rural schools received a visit by the school inspector in the previous year.

Number of Visits by School Inspectors and Pupils' Performance

The number of visits to school by inspectors may provide some indication of the support teachers are getting from their supervisors. Such visits are meant to assist School Heads and teachers to manage the school or to assist teachers on pedagogical issues. Table 6.54 shows the purpose of visits in the previous year their frequency and pupils' performance.

Table 6.54: School Inspection Visits and Pupils' Performance

School Inspection Visits			n	%	Mean (SE)	Diff (SE)
Visit for inspection	Mathematics	No visits	1501	34.1	29.73(.45)	1,2:1.27(.54)* 1,3: -3.96(1.81)* 1,4: 2.17(1.06)* 2,3: -5.23(1.79)* 2,4: .90(1.03) 3,4: 6.13(2.01)*
		1 - 2 visits	2515	57.1	28.46(.33)	
		3 - 4 visits	90	2.0	33.69(1.89)	
		More than 4 visits	295	6.7	27.55(.87)	
	Setswana	No visits	1453	33.1	44.51(.45)	1,2: .16(.55) 1,3: .29(1.97) 1,4: -3.29(1.06)* 2,3: .13(1.95) 2,4: -3.45(1.02)* 3,4: -3.58(2.15)
		1 - 2 visits	2572	58.5	44.34(.33)	
		3 - 4 visits	75	1.7	44.21(1.97)	
		More than 4 visits	295	6.7	47.80(.93)	
	English	No visits	1464	33.6	34.90(.42)	1,2: 3.24(.49)* 1,3: -3.91(2.03) 1,4: 2.30(.96)* 2,3: -7.15(2.01)* 2,4: -.95(.93) 3,4: 6.20(2.18)*
		1 - 2 visits	2536	58.3	31.66(.29)	
		3 - 4 visits	57	1.3	38.81(1.74)	
		More than 4 visits	295	6.8	32.60(.76)	
Visit to discuss teaching	Mathematics	No visits	1477	34.4	28.45(.42)	1,2: -1.61(.56)* 1,3: .94(1.17) 1,4: 1.24(1.15) 2,3: 2.55(1.14)* 2,4: 2.85(1.12)* 3,4: .30(1.52)
		1 - 2 visits	2328	54.3	30.06(.36)	
		3 - 4 visits	238	5.5	27.51(1.02)	
		More than 4 visits	246	5.7	27.21(1.06)	
	Setswana	No visits	1453	33.4	43.21(.44)	1,2: -2.66(.55)* 1,3: 1.91(1.19) 1,4: -2.50(1.14)* 2,3: 4.57(1.16)* 2,4: .16(1.11) 3,4: -4.41(1.53)*
		1 - 2 visits	2430	55.9	45.87(.33)	
		3 - 4 visits	222	5.1	41.30(1.08)	
		More than 4 visits	246	5.6	45.71(1.06)	
	English	No visits	1494	34.7	32.21(.37)	1,2: -1.67(.49)* 1,3: 2.15(1.11) 1,4: -.44(1.03) 2,3: 3.82(1.09)* 2,4: 1.23(1.00) 3,4: -2.59(1.41)
		1 - 2 visits	2362	54.9	33.89(.32)	
		3 - 4 visits	204	4.7	30.07(.89)	
		More than 4 visits	246	5.7	32.66(.83)	
Visit for providing guidance to teachers	Mathematics	No visits	1686	36.1	30.13(.43)	1,2: .29(.55) 1,3: 4.43(.78)* 1,4: 3.17(1.06)* 2,3: 4.14(.76)* 2,4: 2.88(1.04)* 3,4: -1.26(1.18)
		1 - 2 visits	2066	44.2	29.84(.36)	
		3 - 4 visits	627	13.4	25.70(.62)	
		More than 4 visits	293	6.3	26.96(.96)	
	Setswana	No visits	1710	36.1	43.67(.40)	1,2: -3.20(.54)* 1,3: 2.00(.78)* 1,4: -1.56(.97) 2,3: 5.19(.76)* 2,4: 1.64(.95) 3,4: -3.55(1.10)*
		1 - 2 visits	2040	43.1	46.86(.37)	
		3 - 4 visits	625	13.2	41.67(.66)	
		More than 4 visits	356	7.5	45.22(.87)	
	English	No visits	1664	35.5	34.14(.39)	1,2: .49(.50) 1,3: 5.20(.70)* 1,4: .36(.86) 2,3: 4.71(.68)* 2,4: -.14(.85) 3,4: -4.84(.98)*
		1 - 2 visits	2013	42.9	33.65(.34)	
		3 - 4 visits	641	13.7	28.94(.49)	
		More than 4 visits	373	8.0	33.79(.69)	

** Significant mean differences*

Continued on next page…

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Table 6.54: School Inspection Visits and Pupils' Performance

School Inspection Visits			n	%	Mean (SE)	Diff (SE)
Visit to assess teachers	Mathematics	No visits	1955	35.3	29.41(.39)	1,2: .27(.53) 1,3: -.47(1.11) 1,4: 1.86(1.05) 2,3: -.74(1.10) 2,4: 1.59(1.05) 3,4: 2.33(1.43)
		1 - 2 visits	2032	36.6	29.14(.37)	
		3 - 4 visits	261	4.7	29.88(1.02)	
		More than 4 visits	295	5.3	27.55(.87)	
	Setswana	No visits	1901	41.3	44.16(.39)	1,2: -.98(.53) 1,3: .26(1.00) 1,4: -3.64(1.05)* 2,3: 1.24(1.00) 2,4: -2.66(1.04)* 3,4: -3.90(1.34)*
		1 - 2 visits	2084	45.3	45.14(.36)	
		3 - 4 visits	324	7.0	43.90(.88)	
		More than 4 visits	295	6.4	47.80(.93)	
	English	No visits	1914	42.0	34.29(.36)	1,2: 1.83(.48)* 1,3: 2.11(.93)* 1,4: 1.68(.95) 2,3: .28(.93) 2,4: -.15(.94) 3,4: -.43(1.23)
		1 - 2 visits	2045	45.4	32.45(.33)	
		3 - 4 visits	307	6.8	32.18(.74)	
		More than 4 visits	295	6.6	32.60(.76)	
Visit to assess pupils	Mathematics	No visits	2185	47.8	29.29(.37)	1,2: .33(.53) 1,3: -.78(1.06) 1,4: 1.74(1.04) 2,3: -1.10(1.07) 2,4: 1.41(1.05) 3,4: 2.52(1.40)
		1 - 2 visits	1807	39.5	28.97(.39)	
		3 - 4 visits	283	6.2	30.07(.98)	
		More than 4 visits	295	6.5	27.55(.87)	
	Setswana	No visits	2195	47.4	44.28(.37)	1,2: -86(.53) 1,3: .21(.96) 1,4:-3.52(1.03)* 2,3: 1.07(.98) 2,4: -2.66(1.05)* 3,4: -3.73(1.32)*
		1 - 2 visits	1795	38.8	45.13(.39)	
		3 - 4 visits	346	7.5	44.07(.85)	
		More than 4 visits	295	6.4	47.80(.93)	
	English	No visits	2211	48.2	34.37(.34)	1,2: 2.49(.48)* 1,3: 1.69(.89) 1,4: 1.76(.94) 2,3: -.80(.91) 2,4: -.73(.95) 3,4: .07(1.21)
		1 - 2 visits	1753	38.2	31.87(.35)	
		3 - 4 visits	329	7.2	32.67(.72)	
		More than 4 visits	295	6.4	32.60(.76)	

** Significant mean differences*

Majority of schools have been visited at most twice. Pupils whose schools have been visited by an inspection team more than twice in the previous year is very small. There is no clear association pattern on the impact of these visits on the performance of pupils. The number of visits to provide guidance and counselling to the school does not seem to have any significant impact on performance of Standard Four pupils in English and Mathematics. Performance drops when the school is visited more often. It is only for Setswana that such visits seem to have a positive impact on performance.

Summary

School location has a major influence on pupils' performance. Pupils in rural schools perform significantly lower than their counterparts in urban schools. Private schools perform far much better than government schools; this could be that these schools are more resourced compared to government schools. Government schools should benchmark with these school. Pupils taught by a female teacher or who attend a school whose head teacher is a female perform better. Factors that influence these results must be investigated further. The impact School Heads make on performance seems to be realised after 6 to 11 years in a school. Therefore policy of transferring School Heads should take cognisance of this factor. The academic qualification of the School Heads and the teacher has a significant influence on performance. The Ministry of Education and skills development should make it a policy that all primary school teachers should be upgraded to Degree level.

Policy Implications

1. Schools should be adequately resourced both in terms of qualified personnel and teaching materials and infrastructure.

2. All teachers at all levels should have a Degree qualification.

3. All schools need to be provided with facilities and infrastructure since the absence of these impacts negatively on performance.

4. Discipline needs to be strengthened in schools to curb problems of vandalism, drug abuse and general misconduct of students.

5. Teacher absenteeism is a serious factor that impact negatively on performance. There should be contingency planning for teachers who may not report for duty for valid reasons. If resources allow, a possibility to have an assistant teacher per level could be explored.

6. Computers have been emphasized in the learning of Mathematics and Science and the development of a technically oriented society. Adequate computers, need to be supplied and teachers need to be trained effectively in this area.

7 PARENTAL BACKGROUND VARIABLES AND PUPILS' PERFORMANCE

The pupils were given the parent questionnaire to take to their parents to fill. The pupils were to return the questionnaire to the school coordinator who then sent it to the Botswana Examinations Council (BEC). The parents were defined as the biological parents or adults that are responsible for the pupils' upbringing. However, since the questionnaires were completed at home it is possible that in some cases someone other than the parent could have completed the questionnaire. Despite this possible contamination, the parental background was basically clean, thus providing vital holistic picture of the environment the child lives in.

The parent questionnaire elicited information from a variety of factors such as, age, sex, marital status, educational status, relationship to the child, educational perceptions about their children, household sizes, amenities possessed etc. The questionnaire consisted of questions once used in previous studies like Monitoring of Learning Achievement (MLA) and Trends in Mathematics and Science Study (TIMSS).

In 1999 Botswana participated in the MLA study, the objective of which was to assess the level of attainment of Standard Four pupils in Numeracy, Literacy in English, Literacy in Setswana and Life Skills. The study also gathered a lot of background information on factors that affect the learning of the pupils. All the instruments were in Setswana except for the Literacy in English. Some comparisons of the MLA findings will be made with the current study to check if there are trends that could have developed within the eight years, as it is targeting the same age group.

In some cases the total percentages may not add up to 100 due to missing data. The information on parents is linked to the pupils performance as such those pupils whose parents did not complete the questionnaire could not be linked. Thus, though overall 5562 parents responded, for the merged parent and pupil achievement data we have 5399 for Setswana, 5365 for Mathematics and 5276 for English. These slight differences range from 2.9% to 5.1% which doesn't alter the overall pattern of responses that much.

Characteristics of Parents

In order to know the characteristics of parents the following information was solicited from them: relationship with pupil, marital status, age and highest educational level reached. The discussions that follow will relate these factors to pupils' performance.

Relationship to Pupils

Out of the parents who responded 55.6% were mothers, 32.5% guardians, 9.5% fathers, 1.5% non-relative guardians and 0.9% did not show their relationship with the child. Table 7.1 shows the relationship of the respondent to the pupils, who participated in the current study.

Table 7.1: Relationship of Respondents to Pupils

Relationship	Parents in 2007 Standard Four Study (%)
Mother	55.6
Father	9.5
Guardian	32.5
Non - relative guardian	1.5
Omitted	0.9

Compared to MLA study, the percentages of pupils with mothers and fathers in the current study have dropped whilst the guardians have increased, to double the number in MLA. This suggests that more and more pupils are now staying with relatives who are not their parents. The non-relative guardian has increased slightly. One speculation of this finding is the current pandemic, HIV/AIDS, which could have resulted in a lot of orphans as stated in National Development Plan 9 (NDP9, 2003)

> "*Crude death rate rose between 1991 and 2001, reversing the decreasing trend recorded between 1981 and 1991, due to the HIV/AIDS pandemic."* p.11.

NDP 9 also affirms that Botswana's population is affected by a decline in fertility rate, increase in mortality rate and a decline in life expectancy. The high percentage of mothers responding in both studies suggests that either the children stay in homes with single mothers or mothers are more actively involved in educational activities of their children than the fathers.

Performance of the pupils by parental relationship was determined and the results are presented in Table 7.2.

Table 7.2: Performance of the Pupils by Parental Relationship

Parental Relationship		n	%	Mean (SE)	Diff (SE)
Mathematics	Father	519	9.8	36.41 (.81)	1,2: 5.43 (.82)* 1,3: 8.14 (.86)* 1,4: 8.62 (2.03)* 2,3: 2.71 (.52)* 2,4: 3.19 (1.91) 3,4: .48 (1.93)
	Mother	2980	56.0	30.98 (.32)	
	Guardian	1737	32.7	28.27 (.40)	
	Non-Relative Guardian	83	1.6	27.79 (2.03)	
Setswana	Father	486	9.1	48.09 (.75)	1,2: 1.53 (.82) 1,3: 3.79 (.86)* 1,4: 7.87 (1.99)* 2,3: 2.26 (.50)* 2,4: 6.35 (1.86)* 3,4: 4.09 (1.88)*
	Mother	3009	56.2	46.56 (.31)	
	Guardian	1774	33.1	44.30 (.40)	
	Non-Relative Guardian	83	1.6	40.22 (.23)	
English	Father	505	9.7	40.39 (.79)	1,2: 5.67 (.74)* 1,3: 8.91 (.78)* 1,4: 13.67 (1.88)* 2,3: 3.24 (.47)* 2,4: 8.00 (1.78)* 3,4: 4.76 (1.79)*
	Mother	2940	56.2	34.72 (.29)	
	Guardian	1709	32.7	31.49 (.34)	
	Non-Relative Guardian	77	1.5	26.73 (1.24)	

** Significant mean differences*

In Mathematics pupils whose questionnaires were filled by the fathers performed significantly better than all the other groups. The pupils whose mothers are respondents performed significantly better than those of guardians. However, there is no significant difference in the performance between pupils whose respondents are mothers and non-relative guardians, and those who are guardians and non-relative guardians. A similar trend was observed for the other subjects.

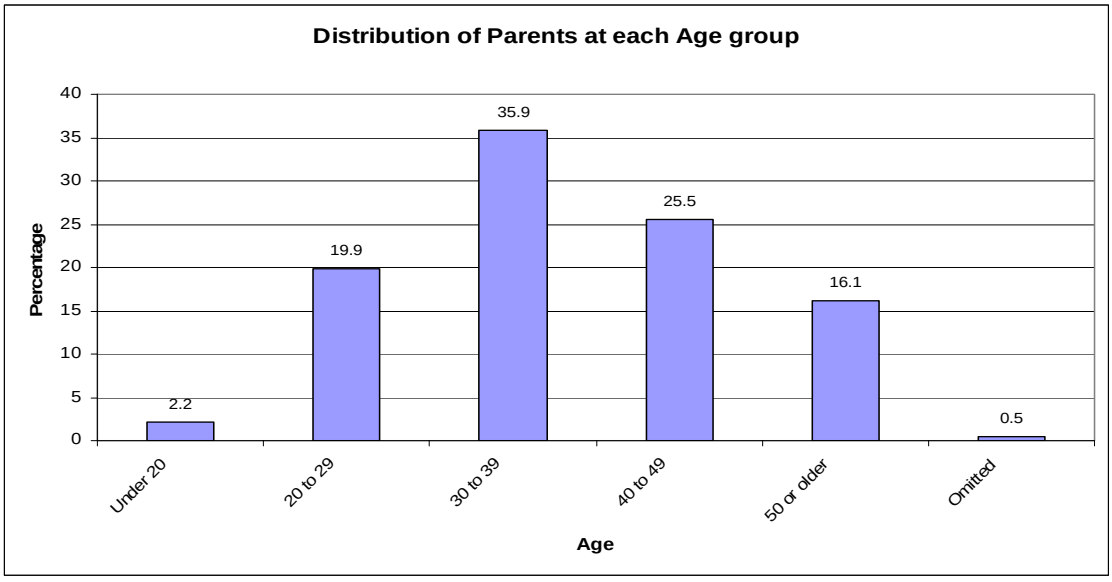
In all the subjects the scores obtained by pupils when respondents were fathers are higher than all the groups whilst that of pupils whose respondents were non-relative guardians are the lowest. The TIMSS 2003 also found that where respondents were non-relative guardians, the pupils performed the lowest in Science and Mathematics at Form One level. May be non-relative guardians do not provide a conducive environment for learning or the pupils are affected somehow by not staying with parents. If so, counselling services should be strengthened so that these children value the importance of education in their lives as they are the future leaders. If these children are not provided with the necessary assistance then the nation of being a compassionate, just and caring, moral and tolerant nation will not be achieved. Though the proportion of pupils under the care of non-relative guardians is small,

more research is needed on this group so as to find out why they are underperforming so that appropriate interventions could be implemented.

Parental Age and Performance

Parents were asked to indicate the age category they fall into and the age distribution is shown in Figure 7.1.

Figure 7.1: Percentage of Parents by Parental Age Group



Most parents are aged 30-39 (35.9%) and the least age category is under 20's (2.2%). Taking into consideration that the majority of the Standard Four pupils are between 9 and10 years, early parenthood is observed here as some parents had these pupils at the age of 20 or 21. The extreme parental age of below 20 is noted either reflecting falsehood in the data or an exceptional age for parenthood. MLA did not use the same age categories as this study but the distribution was similar with most parents in 31- 40 years followed by 41-50 years. The relationship between parental age and pupil performance is presented in Table 7.3.

Table 7.3: Parental Age and Pupils' Performance

Parental Age		n	%	Mean (SE)	Diff (SE)
Mathematics	Under 20	117	2.2	26.07 (1.46)	1,2: -2.03 (1.68) 1,3: -5.95 (1.64)* 1,4: -6.10 (1.66)* 1,5: -2.70 (1.70) 2,3: -3.92 (0.66)* 2,4: -4.07 (0.70)* 2,5: -0.66 (0.79) 3,4: -0.15(0.61) 3,5: 3.25 (0.71)* 4,5: 3.40 (0.75)*
	20 - 29	1074	20.2	28.10 (0.47)	
	30 - 39	1918	36.0	32.02 (0.41)	
	40 - 49	1365	25.2	32.17 (0.49)	
	50 or older	863	16.3	28.76 (0.57)	
Setswana	Under 20	120	2.2	44.30 (1.44)	1,2: 0.82 (1.61) 1,3: -2.91 (1.58) 1,4: -2.43 (1.59) 1,5: -0.46 (1.63) 2,3: -3.72 (0.64)* 2,4: -3.25 (0.68)* 2,5: -1.27 (0.76) 3,4: 0.48 (0.59) 3,5: 2.45 (0.68)* 4,5: 1.97 (0.73)*
	20 - 29	1085	20.2	43.48 (0.50)	
	30 - 39	1934	35.9	47.21 (0.39)	
	40 - 49	1355	25.6	46.73 (0.45)	
	50 or older	876	16.2	44.76 (0.57)	
English	Under 20	118	2.2	31.80 (1.28)	1,2: 0.93 (1.50) 1,3: -3.81 (1.47)* 1,4: -4.13 (1.49)* 1,5: -0.47 (1.52) 2,3: -4.74 (0.60)* 2,4: -5.06 (0.64)* 2,5: -1.39 (0.72) 3,4: -0.32 (0.55) 3,5: 3.35 (0.64)* 4,5: 3.67 (0.68) *
	20 - 29	1034	19.7	30.87 (0.41)	
	30 - 39	1892	36.1	35.61 (0.37)	
	40 - 49	1350	25.7	35.93 (0.46)	
	50 or older	854	16.3	32.26 (0.49)	

** Significant mean differences*

Pupils whose parents are aged 30 - 49 performed significantly better than pupils whose parents are younger or over 49 in all subjects. In all subjects, there was no significant difference in the performance of the pupils whose parents are in the following categories; under 20, 20 - 29 or over 49. It is possible that young and older parents may not provide the stimulating environments that foster the learning of these subjects.

Marital Status of the Respondents and Pupils' Performance

Parents were asked their marital status which was then related to their children's performance. Table below shows the marital status of the respondents compared to MLA study.

Table 7.4: Marital Status of Parents in Standard Four and MLA Studies

Marital Status	Std 4 Study %	MLA Study %
Single	56.2	38.2
Married	30.1	37.8
Cohabiting	6.1	14.2
Divorced/separated/widowed	7.0	9.8
Omitted	0.6	-

The percentage of single parents has increased by 18% compared to MLA whilst the percentage of married and cohabiting respondents has decreased by 7.8% and 8.2% respectively. This may be suggesting that parents have changed the traditional mindset of attaching value to marriage thus preferring to stay single. The traditional belief of marriage was that the man provides for the family while the woman stays at home to take care of the children. Nowadays with the empowerment of women, majority are educated and working, the roles are changing; as Meekers (1993:35) quoted by Mokomane (2005) stated that:

> *In traditional bridewealth marriages, husbands have authority; husbands expect their wives to be obedient, and tend to make claims on their wives' labor and income… Hence, women's desire to gain status through economic independence is often a source of conflict within the union. In an attempt to avoid such conflicts a growing group of women now try to escape male control by steering clear from bridewealth, marriages … Rather than contracting a formal marriage, these women prefer unmarried cohabitation or prefer to have lovers who do not live with them because this allows them to maintain liberty.*

According to Central Statistics Office (CSO, 2004) the overall decline in the proportion of married males between 1981 and 2001 was 27.3% while that of married females was 23.6%. Other factors which affected marriage were cited as labour migration, religion and education. The marital status of the parents was related to pupils' performance as shown in Table 7.5.

Table 7.5: Parental Marital Status and Pupils' Performance

Parental Marital Status		n	%	Mean (SE)	Diff (SE)
Mathematics	Single	3018	56.6	29.11 (.30)	1,2: -5.58 (0.53)* 1,3: 4.49 (0.98)* 1,4: -1.31 (0.94) 2,3: 10.07 (1.02)* 2,4: 4.27 (0.98)* 3,4: -5.80 (1.28)*
	Married	1601	30.0	34.70 (.46)	
	Cohabiting	339	6.4	24.63 (.84)	
	Divorced/separated/ widowed	375	7.0	30.42 (.87)	
Setswana	Single	3070	57.2	44.94 (.30)	1,2: -3.68 (0.52)* 1,3: 3.65 (0.96)* 1,4: -0.79 (0.91) 2,3: 7.33 (1.00)* 2,4: 2.89 (0.96)* 3,4: -4.43 (1.25)*
	Married	1584	29.5	48.62 (.42)	
	Cohabiting	336	6.3	41.29 (.90)	
	Divorced/separated/ widowed	376	7.0	45.72 (.87)	
English	Single	2944	56.1	32.32 (.27)	1,2: -6.22 (0.48)* 1,3: 3.86 (0.90)* 1,4: -1.94 (0.84) 2,3: 10.08 (0.93)* 2,4: 4.27 (0.88)* 3,4: -5.80 (1.16)*
	Married	1605	30.6	38.53 (.43)	
	Cohabiting	325	6.2	28.46 (.72)	
	Divorced/separated/ widowed	370	7.1	34.26 (.80)	

** Significant mean differences*

Pupils with married parents performed significantly better in all the three subjects. This signifies the importance of both parents contributing to the learning of the child is observed here. TIMSS 2003 and MLA also observed that children with married parents performed better than those with single parents. Performance of pupils with single parents was at the same level as pupils with divorced, separated or widowed parents except for English in which pupils staying with divorced, separated or widowed parents performed significantly better than those of single or cohabiting parents. Pupils with cohabiting parents obtained the lowest. The observed decline in marriage disadvantages the pupils as observed that those from married parents performed the best.

Educational Levels of the Parents

The educational levels of the parents are shown in Table 7.6.

Table 7.6: Educational Levels of Fathers and Mothers for Standard Four and MLA Studies

Educational Level	Standard Four Study				MLA Study	
	Father		Mother		Father	Mother
	n	%	n	%	%	%
Never attended school	1149	20.7	899	16.2	29.7	18.6
Did not complete Primary Education	509	9.2	668	12.0	17.3	17.0
Completed Primary Education	752	13.5	1393	25.0	24.6	34.3
Completed Secondary Education	878	15.8	1654	29.7	16.8	21.4
Completed Post Secondary Education	507	9.1	549	9.9	11.7	8.7
I do not know	1187	21.3	163	2.9	-	-
Omitted	580	10.4	236	12.0	-	-

The percentages of fathers who never attended school is higher than of mothers. This was the same was also found in MLA study. Generally, the percentage of mothers who completed primary education, secondary education and post-secondary education is higher than that of fathers. The same trend was observed for the MLA Study, except that the percentage of fathers who completed post-secondary was more than that of mothers.

A cross tabulation of school location and parental levels of education (Tables 7.7 and 7.8) shows that most of the parents who never attended school are found in remote rural and rural areas while those who completed post secondary education are found in urban and semi-urban areas. This is because most jobs are found in urban areas compared to rural areas.

Generally, mothers even though they had completed secondary education are still found more in rural and remote rural areas compared to the fathers. This could be due to the traditional set up where men could look for employment in urban areas to fend for the family.

Table 7.7: Cross Tabulation of School Location and Fathers Educational Level

	Fathers Educational Level						
School Location	**Never Attended School**	**Did not Complete Primary Education**	**Completed Primary Education**	**Completed Secondary Education**	**Completed Post-Secondary Education**	**I do not Know**	**Total**
Urban	117	73	182	353	200	197	**1122**
Semi-Urban	201	106	168	182	145	245	**1047**
Rural	329	176	205	175	66	440	**1391**
Remote Rural	382	99	83	58	19	175	**816**
Total	**1029**	**454**	**638**	**768**	**430**	**1057**	**4379**

Table 7.8: Cross Tabulation of School Location and Mothers Educational Level

	Mothers Educational Level						
School Location	**Never Attended School**	**Did not Complete Primary Education**	**Completed Primary Education**	**Completed Secondary Education**	**Completed Post-Secondary Education**	**I do not Know**	**Total**
Urban	59	91	269	507	237	24	**1187**
Semi-Urban	104	114	331	399	148	47	**1143**
Rural	237	229	486	432	75	50	**1509**
Remote Rural	383	164	145	106	21	26	**845**
Total	**783**	**598**	**1231**	**1444**	**481**	**147**	**4684**

The educational levels of both the father and mother were related to the performance of pupils as shown in Tables 7.9 and 7.10.

About 20% of the parents have never attended school and with Botswana College of Distance and Open Learning (BOCODOL) in place, ways should be devised to encourage parents to enrol to improve their level of education to be able guide their children better and help in attaining the of vision 2016 aspiration of being an educated and informed nation.

Table 7.9: Fathers' Education and Pupils' Performance

Father's Educational Level		n	%	Mean (SE)	Diff (SE)
Mathematics	Never attended school	1111	23.2	24.96 (0.45)	1,2: - 3.01 (0.90)* 1,3: - 6.47 (0.79)* 1,4: - 9.43 (0.76)* 1,5: - 18.31 (0.90)* 1,6: - 2.93 (0.70)* 2,3: - 3.45 (0.97)* 2,4: - 6.42 (0.95)* 2,5: - 15.30 (1.06)* 2,6: - 0.09 (0.90) 3,4: - 2.97 (0.84)* 3,5: - 11.85 (0.97)* 3,6: - 3.54 (0.79)* 4,5: - 8.88 (0.94)* 4,6: - 6.51 (0.75)* 5,6: - 15.38 (0.90)*
	Did not complete primary education	484	10.1	27.97 (0.76)	
	Completed primary education	726	15.1	31.42 (0.61)	
	Completed secondary education	843	17.6	34.39 (0.61)	
	Completed post secondary education	488	10.2	43.27 (0.88)	
	I do not know	1143	23.4	27.89 (0.47)	
Setswana	Never attended school	1124	23.3	41.79 (0.50)	1,2: -1.30 (0.89) 1,3: -4.49 (0.78)* 1,4: -7.16 (0.75)* 1,5: -11.87 (0.92)* 1,6: -3.11 (0.69)* 2,3: -3.18 (0.96)* 2,4: -5.86 (0.93)* 2,5: -10.57 (1.07)* 2,6: -1.81 (0.88)* 3,4: -2.68 (0.83)* 3,5: -7.38 (0.99)* 3,6: 1.38 (0.77) 4,5: -4.71 (0.96)* 4,6: 4.05 (0.74)* 5,6: 8.76 (0.91)*
	Did not complete primary education	494	10.2	43.10 (0.78)	
	Completed primary education	739	15.3	46.28 (0.59)	
	Completed secondary education	851	17.6	48.96 (0.57)	
	Completed post secondary education	449	9.3	53.67 (0.72)	
	I do not know	1169	24.2	44.91 (0.47)	
English	Never attended school	1106	23.5	28.45 (0.38)	1,2: -2.58 (0.79)* 1,3: -4.77 (0.69)* 1,4: -9.60 (0.67)* 1,5: -20.61(0.79)* 1,6:-3.24 (0.62)* 2,3: -2.19 (0.86)* 2,4: -7.01 (0.83)* 2,5: -18.03 (0.93)* 2,6: -0.66 (0.79) 3,4: -4.82 (0.74)* 3,5: -15.84 (0.85)* 3,6: 1.53 (0.70)* 4,5: -11.02 (0.83)* 4,6: 6.35 (0.67)* 5,6: 17.37 (0.79)*
	Did not complete primary education	486	10.3	31.03 (0.64)	
	Completed primary education	714	15.1	33.22 (0.51)	
	Completed secondary education	822	17.4	38.05 (0.57)	
	Completed post secondary education	484	10.3	49.06 (0.84)	
	I do not know	1102	23.4	31.69 (0.40)	

** Significant mean differences*

The findings show that pupils whose parents attained higher levels of education performed significantly better than pupils whose parents attained lower levels of education in all subjects. Figure 7.4 shows this graphically using Mathematics as an example. The figures also show that when fathers have completed secondary education or lower, the performance of the pupils in all the subjects is slightly better than when it is the mothers with the same level of education. But once mothers complete post-secondary education the performance of the pupils is better in all subjects, than for pupils whose fathers have completed post-secondary education.

The exception to this is in Setswana where pupils whose fathers did not complete primary education performed at the same level as those whose fathers never attended school. The

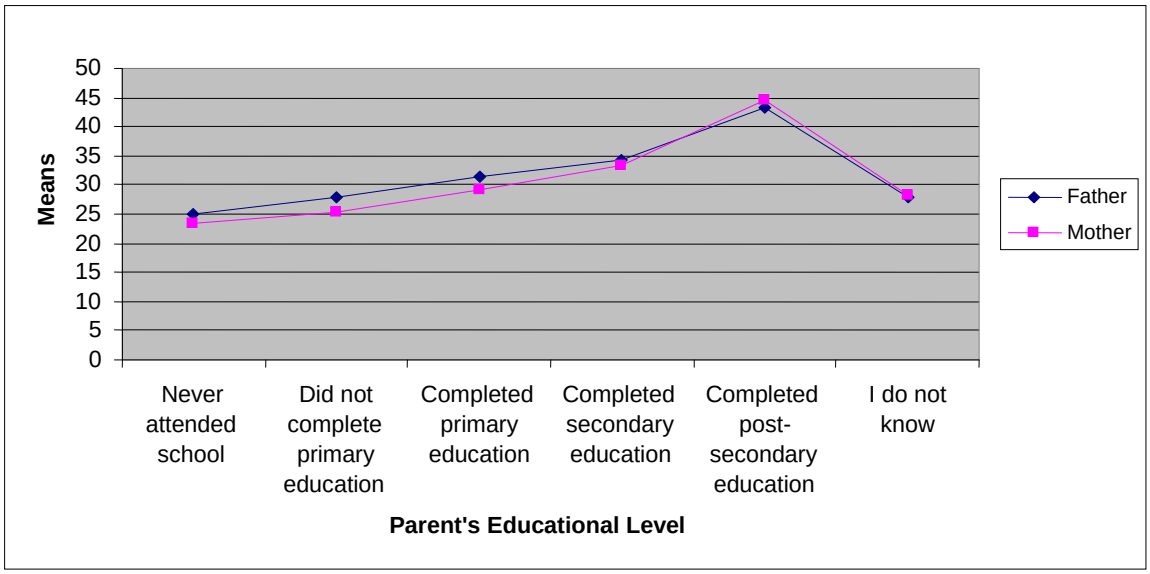
same findings were obtained in MLA. Thus the educational level of the parents has a positive effect on the performance of the child.

Table 7.10: Mother's Education and Pupils' Performance

Mother's Educational Level		n	%	Mean (SE)	Diff (SE)
Mathematics	Never attended school	883	17.2	23.48 (0.49)	1,2: -1.99 (0.85)* 1,3: -5.74 (0.71)* 1,4: -9.82 (0.69)* 1,5: -20.98 (0.90)* 1,6: -4.61 (1.41)* 2,3: -3.75 (0.78)* 2,4: -7.83 (0.76)* 2,5: -18.99 (0.96)* 2,6; -2.62 (1.45) 3,4: -4.08 (0.61)* 3,5: -15.25 (0.84)* 3,6: -1.13 (1.37) 4,5: -11.16 (0.83)* 4,6: 5.21 (1.36)* 5,6: 16.37(1.48)*
	Did not complete primary education	644	12.5	25.47 (0.64)	
	Completed primary education	1341	26.1	29.22 (0.44)	
	Completed secondary education	1588	30.9	33.30 (0.43)	
	Completed post secondary education	523	10.2	44.46 (0.82)	
	I do not know	159	3.1	28.09 (1.18)	
Setswana	Never attended school	874	16.9	40.80 (0.58)	1,2: -0.72 (0.84) 1,3: -4.22(0.71)* 1,4: -7.75(0.68)* 1,5: -13.41 (0.91)* 1,6: -2.28 (1.40) 2,3: -3.50 (0.78)* 2,4: -7.03 (0.76)* 2,5: -12.69 (0.97)* 2,6: -1.56 (1.43) 3,4: -3.53 (0.60)* 3,5: -9.19 (0.85)* 3,6: 1.94 (1.36) 4,5: -5.66 (0.83)* 4,6: 5.47 (1.35)* 5,6: 11.13 (1.48)*
	Did not complete primary education	649	12.6	41.52 (0.66)	
	Completed primary education	1370	26.5	45.02 (0.44)	
	Completed secondary education	1615	31.2	48.55 (0.40)	
	Completed post secondary education	501	9.7	54.21 (0.67)	
	I do not know	161	3.1	43.08 (1.23)	
English	Never attended school	851	16.9	26.86 (0.39)	1,2: -2.18 (0.74)* 1,3: - 4.86 (0.62)* 1,4: - 9.94 (0.60)* 1,5: - 23.48 (0.78)* 1,6: - 3.80 (1.23) 2,3: - 2.68 (0.69)* 2,4: - 7.76 (0.67)* 2,5: - 21.29 (0.84)* 2,6: - 1.61 (1.27) 3,4: - 5.08 (0.53)* 3,5: - 18.62 (0.73)* 3,6: 1.06 (1.20) 4,5: - 13.54 (0.71)* 4,6: 6.14 (1.20)* 5,6: 19.68 (1.29)*
	Did not complete primary education	634	12.6	29.04 (0.53)	
	Completed primary education	1332	26.4	31.72 (0.36)	
	Completed secondary education	1551	30.7	36.80 (0.39)	
	Completed post secondary education	527	10.4	50.34 (0.77)	
	I do not know	851	16.9	26.86 (0.39)	

** Significant mean differences*

Figure7.4: Parents Educational Level and Pupils Performance in Mathematics



Social Challenges for the Home

Parents face some challenges at home as such the following challenges and their effects on pupils performance will be discussed: total number of people living in the house, type of house parents live in, goods and services, amenities possessed by parents, parents main sources of income, working people in the family, expenses for the Standard Four pupils and what the pupils do after school hours.

Type of House Parents Live In

The type of house a family lives in is often regarded as an indicator of the socio-economic status of the family. Parents were asked to indicate the type of house they lived in and this was related to the performance of their children. The results are shown in Table 7.11.

Table 7.11: Performance of Pupils Against Type of House They Live In

Type of House		n	%	Mean	Diff (SE)
Mathematics	Hut or mud house	1387	26.2	23.64 (0.40)	1,2: -3.83 (1.16)*
	Semi permanent/ wooden house	245	4.6	27.46 (1.07)	1,3: -9.80 (.53)*
	Permanent or stone/ brick house	3663	69.2	33.44 (0.29)	2,3: -5.98 (1.11)*
Setswana	Hut or mud house	1393	26.1	40.54 (0.45)	1,2: -2.29 (1.14)*
	Semi permanent/ wooden house	245	4.6	42.82 (1.12)	1,3: -7.53 (.52)*
	Permanent or stone/brick house	3690	69.3	48.1 (0.27)	2,3: -5.23 (1.09)*
English	Hut or mud house	1363	26,2	26.93 (0.31)	1,2: -2.79 (1.03)*
	Semi permanent/ wooden house	247	4.7	29.72 (0.80)	1,3: -10.26 (.48)*
	Permanent or stone/brick house	3597	69.1	37.19 (0.27)	2,3: -2.46 (.98)*

** Significant mean differences*

Most pupils, 69%, live in permanent, stone or brick houses followed by 26% who live in huts or mud houses and 5% who live in semi- permanent or wooden houses. Pupils living in permanent or stone/brick houses performed significantly better than those living in semi permanent and mud houses in all the three subjects. Pupils living in semi / permanent houses performed significantly better than those living in mud houses in all subjects. This shows that pupils' dwellings are positively related to performance. This factor is related to the socio-economic status of the family. The TIMSS 2003 study on the Form One students also found the same results.

A cross tabulation of the type of house the parents live in and educational levels of fathers and mothers (Table 7.12 and 7.13) were performed and the results show that the higher the educational level reached, the better the structure of the house they live in.

Table 7.12: Type of House and Father's Educational Level Reached

Type of house	Father's Educational Level						Total
	Never Attended School	Did not Complete Primary Education	Completed Primary Education	Completed Secondary Education	Completed Post-Secondary Education	I do not Know	
Hut or Mud house	541	163	142	83	20	334	**1283**
Semi-permanent or Wooden house	59	33	36	26	5	65	**224**
Permanent or Stone/Brick house	538	308	569	758	481	776	**3430**
Total	**1138**	**504**	**747**	**867**	**506**	**1175**	**4937**

Table 7.13: Type of House and Mother's Educational Level Reached

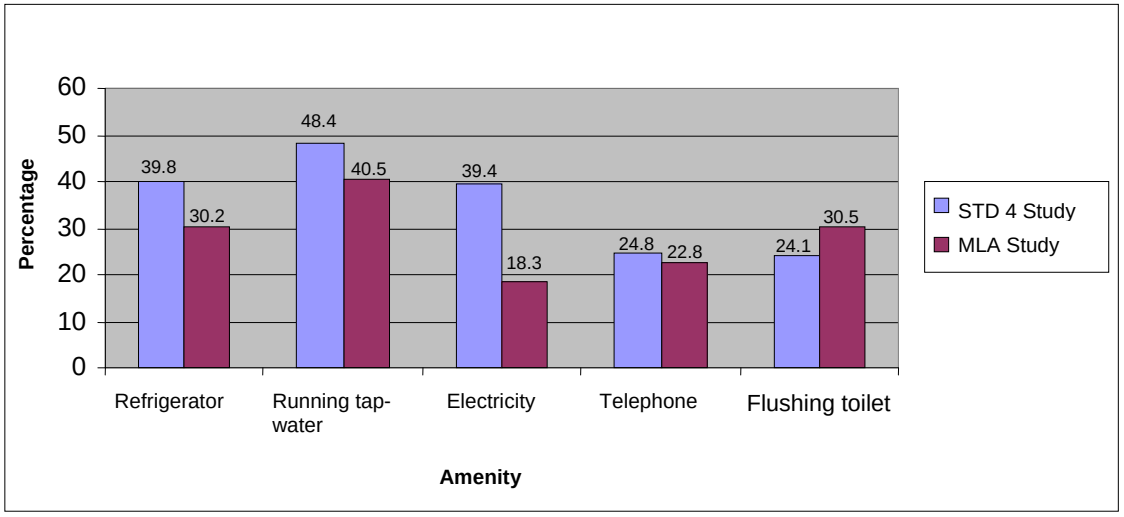
Type of house	Mother's Educational Level						Total
	Never Attended School	Did not Complete Primary Education	Completed Primary Education	Completed Secondary Education	Completed Post-Secondary Education	I do not Know	
Hut or Mud house	512	234	349	226	9	48	**1378**
Semi-permanent or Wooden house	64	41	70	47	7	13	**242**
Permanent or Stone/Brick house	313	382	958	1371	532	96	**3652**
Total	**889**	**657**	**1377**	**1644**	**548**	**157**	**5272**

Various Goods and Services Possessed by Parents

Parents were asked whether the houses they live in have the following amenities: refrigerator, running tap water, electricity, telephone and flushing toilet. The possession of these amenities was compared with those of MLA study as shown in Figure 7.5.

Generally, the parents for the Standard Four pupils have a higher possession of various amenities compared to MLA pupils with the greatest percentage increase being in the electricity supply and the decrease being in flushing toilets. This is in line with NDP 9 whereby the National Water Master Plan and the rural electrification programme are now reaching villages or rural areas. As resources to villages are improved, there is gradual transformation of settlements from rural to semi-urban status. This change in status is due to the effect of economic developments in the people living in these areas.

Figure 7.5: Household Amenities Possessed by Standard Four Parents Compared to MLA Parents



The possession of these amenities was then related to pupils' performance and the results are presented in Table 7.14. Pupils who stay in houses having the amenities performed significantly better in all the three subjects than those who do not have. Pupils who have water in the house spent no time collecting it compared to those who do not. They are therefore likely to utilise the time studying.

When electricity is available in the house it becomes easy to use unlike firewood which has to be collected from far. Electricity is convenient for studying at night hence the higher performance of those who have it. Thus the various amenities contribute positively to the learning of the child as they offer a supportive environment for learning. TIMSS 2003 and MLA echoed the same conclusion.

Table 7.14: Household Amenities and pupils' Performance

Household Amenities		Yes			No			Mean Diff	t-value	df	Sig. (2tailed)
		n	%	Mean	n	%	Mean				
Refrigerator	Mathematics	2116	40.2	37.14 (.39)	3145	59.8	26.21 (.28)	10.93	23.57	5259	.00
	Setswana	2121	40.1	50.24 (.35)	3170	59.9	42.88 (.30)	7.36	16.00	5289	.00
	English	2087	40.4	41.56 (.37)	3082	59.6	29.05 (.22)	12.51	30.75	5167	.00
Running Tap-water	Mathematics	2573	49.1	35.08 (.36)	2671	50.9	26.19 (.30)	8.90	19.19	5242	.00
	Setswana	2597	49.2	48.76 (.32)	2678	50.8	42.87 (.32)	5.90	12.95	5273	.00
	English	2562	49.7	39.06 (.33)	2593	50.3	29.16 (.25)	9.90	24.02	5153	.00
Electricity	Mathematics	2107	40.1	37.22 (.39)	3148	59.9	26.15 (.28)	11.07	23.86	5253	.00
	Setswana	2106	39.8	50.49 (.35)	3180	60.2	42.77 (.30)	7.71	16.77	5284	.00
	English	2073	40.1	41.69 (.37)	3091	59.9	29.04 (.22)	12.64	31.00	5162	.00
Telephone	Mathematics	1336	25.8	36.45 (.50)	3846	74.2	28.43 (.27)	8.02	14.89	5180	.00
	Setswana	1318	25.3	49.61 (.45)	3892	74.7	44.49 (.27)	5.12	9.65	5208	.00
	English	1305	25.6	40.68 (.48)	3784	74.4	31.68 (.23)	9.00	18.62	5087	.00
Flushing toilet	Mathematics	1291	24.8	40.72 (.51)	3912	75.2	27.23 (.25)	13.50	25.68	5201	.00
	Setswana	1268	24.2	51.92 (.45)	3967	75.8	43.85 (.26)	8.08	15.24	5233	.00
	English	1256	24.6	45.89 (.49)	3856	75.4	30.23 (.21)	15.67	34.23	5110	.00

Cross tabulations between type of house pupil live in and (i) amenities possessed by parents, (ii) main sources of income are presented in Tables 7.15 and 7.16.

Table 7.15: Type of House Pupil Live In and Amenities Possessed by Parents

Type of House	Amenities									
	Refrigerator		Running Tap Water		Electricity		Telephone		Flushing Toilet	
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Hut or mud house	45	1368	159	1257	49	1361	82	1325	12	1392
Semi or permanent house	27	223	69	178	23	220	30	211	12	232
Permanent or stone/brick house	2124	1610	2432	1285	2107	1632	1253	2417	1310	2385
Total	**2196**	**3210**	**2660**	**2720**	**2179**	**3213**	**1365**	**3953**	**1334**	**4009**

Table 7.16: Type of House Pupil Live In and Main Sources of Income for the Parents

Type of House	Main Sources of Income									
	Salary/Wage/ Pension		Sale of Livestock		Sale of Produce		Own Business		Public Support	
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Hut or mud house	266	1106	237	1133	228	1130	127	1239	328	1032
Semi or permanent house	74	165	52	180	27	203	41	192	35	196
Permanent or stone/brick house	2034	1597	749	2648	428	2942	814	26	405	2953
Total	**2374**	**2868**	**1038**	**3961**	**683**	**4275**	**982**	**4068**	**768**	**4181**

Generally, majority of the amenities are available in permanent or stone brick houses. This is possible as majority of the parents who live in these houses depend on salary/wage/pension and have achieved higher education, as such besides affording, they also know the importance of these services to their lives. It is encouraging to see that these amenities are also trickling in hut or mud houses.

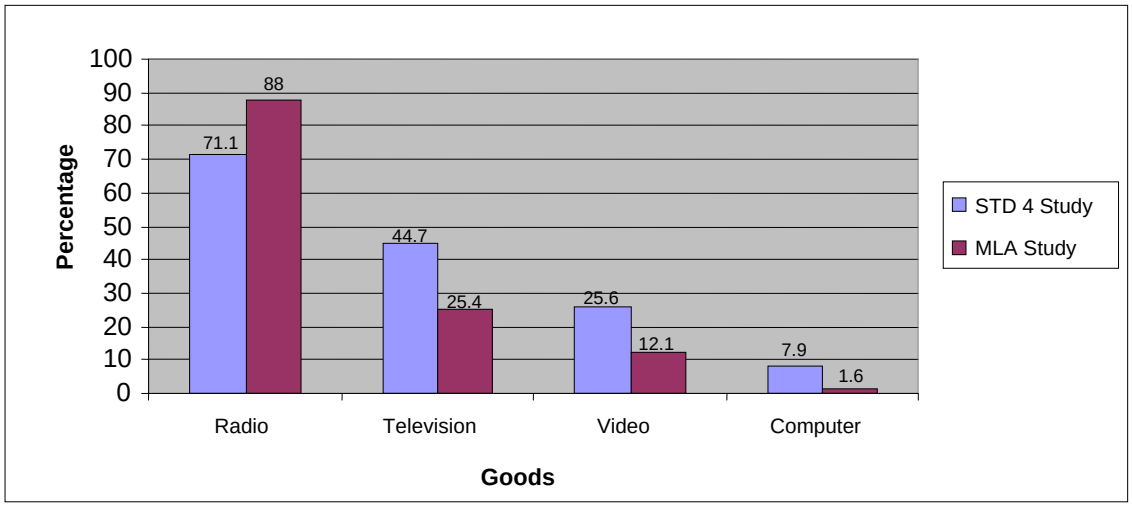
Possession of Radio, Television, Video and Computer

Parents were asked whether they possess the following goods: radio, television, video and computer. The possession of these goods was compared with those of MLA study as shown in Figure 7.6.

Generally, the parents possess various goods. The advent of television, which provides audio visual information, has sidelined reliance on the radio. Computers are slowly increasing as we

are in the information era. With computers a lot of information can be accessed from the internet (if connected) thus having the library at home.

Figure 7.6: Various Goods Possessed by Parents



The possession of these goods was then related to pupil performance. The results are presented in Table 7.17.

In all the three subjects, pupils whose parents possess these goods perform significantly better than those who do not have the goods. The same trend was observed in MLA and TIMSS 2003.

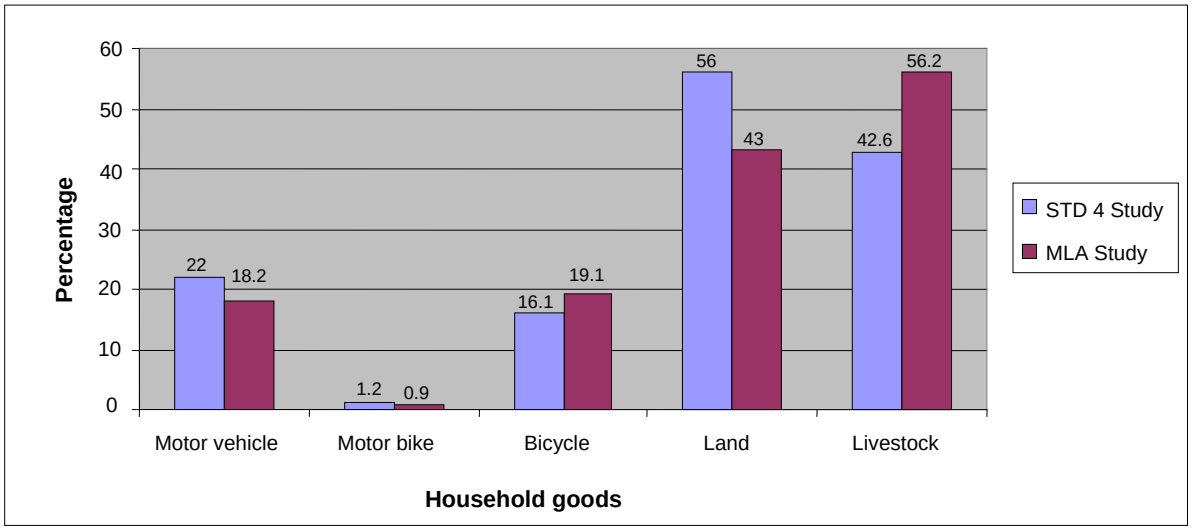
Table 7.17: Household Goods and Pupils' Performance

Household Goods		Yes			No			Mean Diff	t-value	df	Sig.(2-tailed)
		n	%	Mean	n	%	Mean				
Radio	Mathematics	3793	71.6	32.67 (.28)	1507	28.4	25.40 (.41)	7.27	14.04	5298	.00
	Setswana	3829	71.8	47.24 (.27)	1506	28.2	42.30 (.44)	4.94	9.76	5333	.00
	English	3743	71.8	36.00 (.26)	1469	28.2	29.23 (.35)	6.77	14.35	5210	.00
Television	Mathematics	2394	45.5	36.11 (.36)	2863	54.5	25.97 (.29)	10.14	22.03	5255	.00
	Setswana	2388	45.2	49.75 (.33)	2899	54.8	42.61 (.31)	7.14	15.73	5285	.00
	English	2350	45.5	40.32 (.35)	2818	54.5	28.97 (.23)	11.36	27.84	5166	.00
Video	Mathematics	1377	26.6	37.72 (.49)	3799	73.4	27.90 (.26)	9.82	18.60	5174	.00
	Setswana	1354	26.0	50.43 (.44)	3849	74.0	44.11 (.27)	6.33	12.09	5201	.00
	English	1345	26.4	42.51 (.48)	3742	73.6	30.96 (.22)	11.55	24.60	5085	.00
Computer	Mathematics	431	8.4	43.97 (.94)	4706	91.6	29.30 (.24)	14.67	17.26	5135	.00
	Setswana	390	7.6	52.69 (.78)	4772	92.4	45.22 (.24)	7.47	8.49	5160	.00
	English	418	8.3	49.97 (.89)	4625	91.7	32.56 (.21)	17.41	22.93	5041	.00

Possession of Motor Vehicle, Motorbike, Bicycle, Land and Livestock

Parents were asked whether they own the following: motor vehicle, motorbike, bicycle, land and livestock. The possession of these goods and livestock was compared with those of MLA study as shown in Figure 7.7. Compared to MLA there has been a decrease in ownership of livestock and bicycles. On the other hand, there is an increase in owning land, motor vehicles and motor bikes.

Figure 7.7: Parental Possession of Means of Travel, Land and Livestock



The responses of whether parents own these goods or not were related to pupils' performance as shown in Table 7.18. Pupils whose parents own motor vehicles performed significantly better in all the three subjects than those whose parents do not have motor vehicles. The possession of motor bikes and land does not affect performance in all the three subjects. These are items that can be owned by parents of various socio-economic statuses. In TIMSS 2003 the same findings were obtained for the possession of motor vehicle and land. Pupils whose parents own livestock performed significantly better than those whose parents do not have.

The conclusion that can be drawn from the two studies is that motor vehicles contributes to the socio-economic status of the parents and positively relates to pupils achievement whereas land does not.

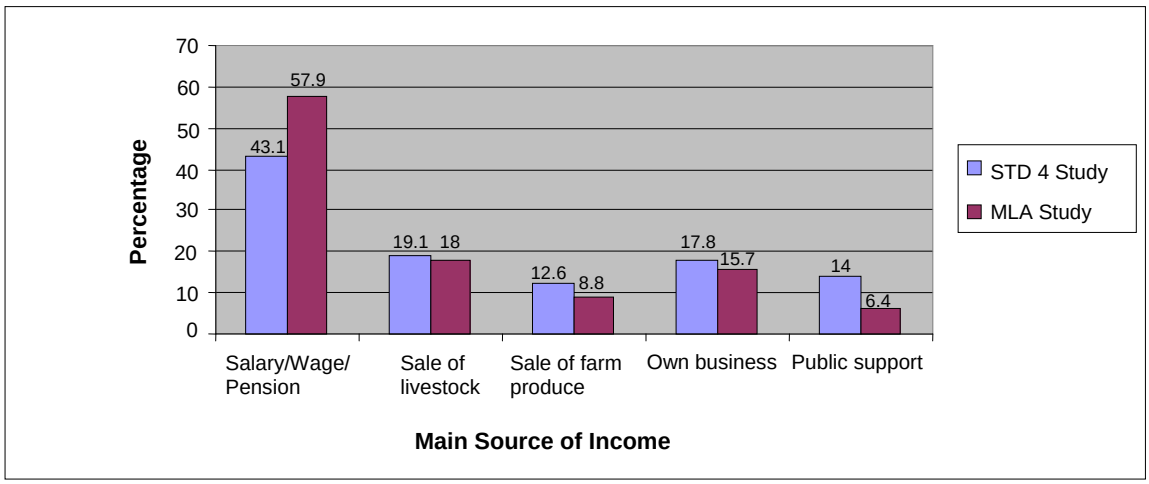
Table 7.18: Parental Possession of Means of Travel, Land, Livestock and Pupils' Performance

Parental Possession		Yes			No			Mean Diff	t-value	df	Sig.(2-tailed)
		n	%	Mean	n	%	Mean				
Motor vehicle	Mathematics	1173	22.6	38.73 (.56)	4026	77.4	28.15 (.25)	10.58	18.98	5197	.00
	Setswana	1153	22.0	50.59 (.47)	4077	88.0	44.41 (.26)	6.18	11.15	5228	.00
	English	1158	22.7	42.98 (.52)	3952	77.3	31.42 (.22)	11.56	23.30	5108	.00
Motor bike	Mathematics	65	1.3	33.77 (2.33)	4969	98.7	30.37 (.25)	3.40	1.57	5032	.12
	Setswana	58	0.1	47.83 (2.07)	5004	99.9	45.64 (.24)	2.19	.98	5060	.33
	English	63	1.3	35.37 (2.25)	4881	98.7	33.73 (.22)	1.63	.83	4942	.41
Bicycle	Mathematics	857	16.9	32.77 (.63)	4217	83.1	29.89 (.26)	2.88	4.45	5072	.00
	Setswana	855	16.8	46.28 (.56)	4251	83.2	45.50 (.26)	.78	1.24	5102	.21
	English	862	17.3	35.52 (.56)	4123	82.7	33.34 (.24)	2.18	3.77	4983	.00
Land	Mathematics	2993	57.8	30.83 (.32)	2186	42.2	30.12 (.37)	.71	1.45	5177	.71
	Setswana	3058	58.7	46.02 (.30)	2154	41.3	45.44 (.37)	.57	1.21	5210	.23
	English	2954	58.0	.34.03 (29)	2136	42.0	33.80 (.34)	.23	.53	5088	.60
Livestock	Mathematics	2271	44.0	31.29 (.36)	2892	56.0	29.92 (.32)	1.37	2.81	5161	.01
	Setswana	2318	44.6	46.26 (.35)	2874	55.4	45.34 (.31)	.91	1.94	5190	.05
	English	2255	44.5	34.29 (.33)	2811	55.5	33.61 (.29)	.67	1.53	5064	.13

Parental Source of Income

Parents were asked to indicate their main sources of income. The sources of income were compared with those of MLA as shown in Figure 7.8.

Figure 7.8: Main Source of Income and Pupils' Performance



The percentage of pupils whose parents do not depend on salary as a source of income has increased. Thus jobs seem to be less available. Concurrently, the percentage of pupils whose parents depend on social services has increased. These are likely to be parents who can neither get jobs nor own business.

The responses on the main source of income were related to pupils' performance as shown in Table 7.19. Pupils whose parents depend on salary/wage/pension and have their own businesses as a source of income are performing significantly better in the three subjects. There is no significant difference in performance in the three subjects for pupils whose parents depend on sale of livestock. Livestock is likely to be owned across socio-economic class and therefore it is not a defining variable of pupil learning. Pupils whose parents do not depend on sale of farm produce and social service performed significantly better than pupils whose parents depend on these. Such parents are likely to depend on salaries and therefore, be in a better position to support the learning of their children. On main sources of income and pupils performance the findings are the same as those of TIMSS 2003 study except for owning a business in which pupils whose parents did not depend on business income performed significantly better.

Table 7.19: Parental Sources of Income and Pupils' Performance

Parental Source of Income		Yes			No			Mean Diff	t-value	df	Sig.(2-tailed)
		n	%	Mean	n	%	Mean				
Salary	Mathematics	2301	45.0	34.75 (.38)	2810	55.0	27.28 (.30)	7.47	15.65	5109	.00
	Setswana	2322	45.1	48.53 (.34)	2822	54.9	43.58 (.31)	4.95	10.66	5142	.00
	English	2251	44.9	38.71 (.36)	2762	55.1	30.22 (.25)	8.49	19.95	5011	.00
Sale of livestock	Mathematics	1008	20.7	30.23 (.54)	3871	79.3	30.39 (.28)	-.16	-.25	4877	.80
	Setswana	1039	21.1	45.73 (.52)	3874	78.9	45.70 (.27)	.03	.05	4911	.96
	English	1007	21.1	33.01 (.46)	3773	78.9	33.74 (.25)	-.73	-1.34	4778	.18
Sale of farm produce	Mathematics	677	14.0	28.31 (.61)	4165	86.0	30.65 (.27)	-2.34	-3.27	4840	.00
	Setswana	686	14.1	44.29 (.63)	4192	85.9	45.88 (.26)	-1.59	-2.30	4876	.02
	English	666	14.0	30.48 (.52)	4079	86.0	34.00 (.24)	-3.52	-5.52	4743	.00
My own business	Mathematics	957	19.4	32.94 (.57)	3969	80.6	29.80 (.27)	3.14	5.06	4924	.00
	Setswana	954	19.2	47.18 (.51)	4005	80.8	45.38 (.27)	1.80	2.99	4957	.00
	English	936	19.4	36.33 (.51)	3896	80.6	33.08 (.25)	3.26	5.82	4830	.00
Public support	Mathematics	768	15.9	26.64 (.57)	4063	84.1	30.95 (.27)	-4.32	-6.40	4829	.00
	Setswana	769	15.8	43.42 (.60)	4095	84.2	46.06 (.26)	-2.64	-4.02	4862	.00
	English	742	15.7	30.08 (.49)	3991	84.3	34.14 (.25)	-4.06	-6.67	4731	.00

Number of People Who Live in a House and Pupils' Performance

Parents were asked to indicate the total number of people who lived in the houses. The number of people living in a house was then classified into the following categories: 2 people, 3 to 4, 5 to 7 and 8 to 13 people. Those who indicated more than 14 people living in the same house were few hence excluded from analysis. These categories were then related to pupils' performance and the results are shown in Table 7.20.

Table 7.20: Number of People Living in a House and Pupils' Performance

Number of People		n	%	Mean (SE)	Diff (SE)
Mathematics	2 people	91	1.8	34.27 (1.88)	1,2: .24(1.89) 1,3: 2.70(1.84) 1,4: 6.01(1.86)* 2,3: 2.46(.65)* 2,4: 5.77(.69)* 3,4: 3.31(.56)*
	3 to 4 people	999	20.0	34.02 (.57)	
	5 to 7 people	2265	45.4	31.57(.37	
	8 to 13 people	1635	32.8	28.25 (.40)	
Setswana	2 people	91	1.8	49.82 (1.80)	1,2: 1.13(1.83) 1.3: 3.40(1.79) 1,4: 5.55(1.80)* 2,3: 2.27(.64)* 2.4: 4.42).67)* 3,4: 2.15(.54)*
	3 to 4 people	90	19.7	48.69 (.53)	
	5 to 7 people	2275	45.3	46.42 (.35)	
	8 to 13 people	1665	33.2	44.27 (.41)	
English	2 people	81	1.7	39.75 (1.88)	1,2: 1.32(1.79) 1,3: 4.65(1.75)* 1,4: 8.74(1.76)* 2,3: 3.32(.59)* 2,4: 7.42(.63)* 3,4: 4.10(.51)*
	3 to 4 people	986	20.1	38.43 (.55)	
	5 to 7 people	2226	45.4	35.11 (.34)	
	8 to 13 people	1615	32.9	31.01 (.33)	

** Significant mean differences*

The largest percentage of pupils lived in houses with 5 - 7 people; followed by 8 - 13, then 3 - 4 and the least being 2 people. This trend was also observed in TIMSS 2003 study. In all the subjects pupils who live in houses where there are two people (students and parent) performed significantly better than those who lived in houses with 8 - 13 people.

Pupils who live in houses where there are 3 - 4 people performed significantly better than those living with 5 - 7 and 8 - 13 people. Likewise pupils living in houses where there are 5 - 7 people performed significantly better than those living in houses with 8 - 13 people. This is applicable to all the subjects. Thus it can be seen that the higher the number of people living in the house the lower the performance of the pupils. When people are many in the house, the child is not provided with the attention or help they need which might improve their learning, that is, learning in a crowded house does not provide a conducive learning environment. Downey, 1995 summarises that

> "one explanation, resource dilution, posits that parents have finite levels of resources (time, energy, money, etc.) and that these resources are diluted among children as sibship size increases." p. 746.

Working People in a Family and Pupils' Performance

Parents were asked to indicate whether the father, mother and various children were working in the family. The results are presented in Table 7.21, and compared with those of MLA study.

Table 7.21: Percentage of Working People in the Family

People Working	Standard Four Study %	MLA Study %
Father	32.2	43.0
Mother	29.8	47.8
Child1	20.9	12.9
Child 2	14.4	8.9
Child 3	9.5	3.9
Child 4	6.3	3.4

It is mostly fathers who are working (32.2%), unlike in the MLA study where mothers are 47.8%. The percentage of working fathers and mothers has decreased by 10.8 and 18% respectively. Compared to MLA the percentage of working children in the families has increased which could be indicative of children taking responsibilities of the family.

The family working status was then related to pupils' performance as shown in Table 7.22. The results show that pupils whose fathers and mothers are working performed significantly better in all the subjects than those whose parents are not working. However, there is no significant difference in performance whether the various children are working or not. Various questions can be asked here; what is the role of the various working children in the family, do they have the welfare of other siblings, or what type of work are they involved in?

Table 7.22: Family Working Status and Pupils' Performance

Family Working Status		Yes			No			Mean Diff	t-value	df	Sig.(2-tailed)
		n	%	Mean	n	%	Mean				
Father	Mathematics	1725	35.1	34.67 (.43)	3192	64.9	28.22 (.29)	6.45	12.66	4915	.00
	Setswana	1710	34.6	48.58 (.40)	3230	65.4	44.18 (.30)	4.40	8.76	4938	.00
	English	1692	35.1	38.57 (.42)	3129	64.9	31.43 (.25)	7.14	15.49	4819	.00
Mother	Mathematics	1597	31.4	34.88 (.45)	3496	68.6	28.40 (.28)	6.47	12.59	5091	.00
	Setswana	1597	31.2	49.31 (.40)	3524	68.8	44.07 (.29)	5.24	10.43	5119	.00
	English	1548	30.9	39.60 (.43)	3451	69.0	31.44 (.24)	8.16	17.59	4997	.00
Child 1	Mathematics	1112	22.7	30.54 (.49)	3777	77.3	30.17 (.29)	.37	.63	4887	.53
	Setswana	1147	23.3	46.46 (.48)	3738	75.8	45.40 (.28)	1.06	1.86	4927	.06
	English	1098	22.9	34.18 (.42)	3696	77.1	33.42 (.26)	.76	1.44	4792	.15
Child 2	Mathematics	769	16.0	30.43 (.59)	4032	83.9	30.22 (.27)	.21	.31	4799	.76
	Setswana	788	16.3	46.14 (.59)	4054	83.7	45.50 (.27)	.65	.99	4840	.32
	English	761	16.2	34.42 (.53)	3943	83.8	33.41 (.45)	1.01	1.67	4702	.10
Child 3	Mathematics	501	10.7	30.71 (.74)	4173	89.3	30.15 (.27)	.56	.69	4672	.49
	Setswana	519	10.9	45.72 (.74)	4202	89.0	45.56 (.26)	.15	.20	4719	.84
	English	506	11.0	34.04 (.64)	4076	88.9	33.45 (.24)	.59	.82	4580	.41
Child 4	Mathematics	334	7.3	31.05 (.88)	4215	92.7	30.04 (.27)	1.01	1.04	4547	.30
	Setswana	348	7.6	46.67 (.84)	4245	92.4	45.50 (.26)	1.16	1.24	4591	.22
	English	332	7.5	34.30 (.77)	4119	92.5	33.34 (.24)	.96	1.10	4449	.27

Expenses for the Standard Four Pupils

Parents were asked to indicate whether they spend money on the following: school fees, transportation, books, school uniform and other costs. These responses were then related to pupils' performance and the results are presented in Table 7.23.

Table 7.23: Money Spent on Various Items and Pupils' Performance

Money Spent on Various Items		Yes			No			Mean Diff	t-value	df	Sig. (2-tailed)
		n	%	Mean	n	%	Mean				
School fees	Mathematics	2214	43.4	32.99 (.38)	2948	57.1	28.77 (.31)	4.22	8.72	5160	.00
	Setswana	2196	42.3	47.67 (.35)	2993	57.7	44.50 (.31)	3.17	6.74	5187	.00
	English	2176	42.9	36.45 (.35)	2890	57.0	32.11 (.27)	4.34	9.93	5064	.00
Transportation	Mathematics	815	16.2	39.07 (.67)	4230	83.8	28.95 (.25)	10.12	15.62	5043	.00
	Setswana	777	15.3	50.31 (.56)	4289	84.7	45.00 (26)	5.31	8.18	5064	.00
	English	801	16.2	44.58 (.64)	4143	83.8	31.95 (.22)	12.63	22.01	4942	.00
Books	Mathematics	1585	31.3	34.84 (.44)	3481	68.7	28.63 (.29)	6.21	12.01	5064	.00
	Setswana	1625	31.9	49.10 (.39)	3468	68.1	44.30 (.29)	4.80	9.59	5091	.00
	English	1632	32.8	39.37 (.42)	3339	67.2	31.42 (.25)	7.96	17.37	4969	.00
School uniform	Mathematics	4532	85.9	31.85 (.26)	741	14.1	23.30 (.55)	8.55	12.64	5271	.00
	Setswana	4564	86.1	46.88 (.24)	739	13.9	39.76 (.64)	7.12	10.83	5301	.00
	English	4476	86.4	35.26 (.24)	706	13.6	26.94 (.44)	8.31	13.37	5180	.00
Other costs	Mathematics	3016	73.7	31.22 (.32)	1075	26.3	28.79 (.52)	2.43	3.96	4089	.00
	Setswana	3039	73.8	46.27 (.31)	1081	26.2	44.09 (.52)	2.17	3.64	4118	.00
	English	2956	73.9	34.39 (.29)	1043	26.1	32.02 (.46)	2.37	4.27	3997	.00

The majority of pupils have parents who do not spend money on books and transportation. The less expenses on transport is justified because most pupils stay within a distance of less than 2km from school and could easily walk. About 43% of pupils have parents who said that they spend money on school fees. This could be parents who send their children to English medium schools which in the study are referred to as private schools. Primary school education is free. Parents pay kitchen hands, which some might interpret as school fees.

In all the items where the parents spend money, their children are performing significantly better. It could be that spending something on the child makes parents to be interested in

knowing what the child does at school, thus participating in the child's learning leading to improved performance.

Parents' Affordability of Costs for Standard Four Pupils

Parents were asked to indicate whether their children ever stayed at home because they could not afford any expenses on the children's education. The responses were then related to performance and Table 7.24 shows the results.

Table 7.24: Pupils in Standard Four Stayed at Home Because Parents Could not Afford Costs

Subject	Yes			No			Mean Diff	t-value	df	Sig. (2-tailed)
	n	%	Mean	n	%	Mean				
Mathematics	291	5.5	26.35 (.95)	4997	94.5	30.86 (.25)	-4.52	-4.33	5286	.00
Setswana	291	5.5	42.90 (.97)	5033	94.5	46.02 (.24)	-3.12	-3.09	5322	.00
English	285	5.5	29.05 (.80)	4914	94.5	34.39 (.22)	-5.34	-5.64	5197	.00

When the child stays at home it means they miss out and if it continues the child's performance will be affected. It is not surprising to observe that pupils who missed school obtained lower mean scores compared to those who never miss school, in all the subjects. The importance of regular school attendance is observed here. Government has put measures in place to help destitute and orphans so that children in these families are not disadvantaged. Despite government efforts it is puzzling to see about 6% of the pupils staying at home because their parents could not afford costs. This requires strengthening of the implementation and close monitoring of government programmes such as social services and guidance and counselling in schools so that children from disadvantaged families could fully benefit from these.

Help Provided to Various Family Members by the Child

Parents were asked to indicate the frequency in which the pupils help various family members in household chores. The responses were then related to pupil performance and the results are presented in Table 7.25.

Table 7.25: What Pupils do After School Hours and Pupils' Performance

Help Provided by the Child			n	%	Mean (SE)	Diff (SE)
Helps look after younger brothers and sisters	Mathematics	Regularly	821	16.3	28.91 (.58)	1,2: -1.04 (.70)
		Sometimes	2288	45.4	29.96 (.35)	1,3: -2.85 (.72)*
		Not at all	1926	38.3	31.76 (.41)	2,3: -1.80 (.53)*
	Setswana	Regularly	829	16.4	45.44 (.60)	1,2: .31 (.69)
		Sometimes	2303	45.4	45.13 (.35)	1,3: -1.01 (.70)
		Not at all	1937	38.2	46.46 (.38)	2,3: -1.32 (.52)*
	English	Regularly	815	16.5	31.47 (.50)	1,2: -1.87 (.63)*
		Sometimes	2254	45.6	33.34 (.32)	1,3: -4.01 (.65)*
		Not at all	1877	37.9	35.48 (.38)	2,3: -2.14 (.48)*
Helps mother with her work	Mathematics	Regularly	1239	23.9	27.62 (.46)	1,2: -3.85 (.58)*
		Sometimes	3176	61.1	31.47 (.31)	1,3: -3.97 (.79)*
		Not at all	779	14.9	31.58 (.64)	2,3: -.11 (.69)
	Setswana	Regularly	1256	24.1	44.05 (.48)	1,2: -2.59 (.56)*
		Sometimes	3171	60.8	46.64 (.29)	1,3: -1.34 (.76)
		Not at all	791	15.2	45.39 (.61)	2,3: 1.25 (.67)
	English	Regularly	1204	23.6	31.01 (.40)	1,2: -4.01 (.53)*
		Sometimes	3112	61.0	35.01 (.29)	1,3: -3.99 (.71)*
		Not at all	785	15.4	34.99 (.56)	2,3: .02 (.62)
Helps father with his work	Mathematics	Regularly	539	11.2	25.91 (.69)	1,2: -4.74 (.86)*
		Sometimes	1658	34.4	30.65 (.44)	1,3: -5.52 (.82)*
		Not at all	2619	54.4	31.43 (.34)	2,3: -.78 (.54)
	Setswana	Regularly	553	11.4	42.63 (.76)	1,2: -2.75 (.83)*
		Sometimes	1647	34.0	45.39 (.42)	1,3: -3.98 (.79)*
		Not at all	2639	54.5	46.61 (.32)	2,3: -1.23 (.53)*
	English	Regularly	532	11.3	29.86 (.62)	1,2: -3.95 (.78)*
		Sometimes	1611	34.1	33.81 (.40)	1,3: -4.97 (.74)*
		Not at all	2580	54.6	34.83 (.30)	2,3: -1.02 (.49)*

** Significant mean differences*

In all three subjects, pupils who helped their family members regularly obtained the lowest mean scores. In the case of mothers, performance between helping sometimes and not at all is not significantly different indicating that the work given is higher and does not take much of their study time.

Generally, it can be concluded that pupils who never helped various family members performed better than all other groups. TIMSS 2003 also had the same findings except that helping the mothers did not affect performance. It appears that helping various family members takes away time for pupils to study or maybe they become tired during the process such that they can't concentrate on their studies afterwards. The compromise could be to regulate the help required.

Home Support for Learning

A supportive learning environment is good for the pupils as it encourages them to work harder in their studies. To find out how supportive the home environment is for learning the following were solicited from parents: number of school going children in the house, language spoken at home, number of children in the house with different educational levels, parents participation in school activities, discussion of school work with child and parents perceptions on their children's education. These factors were related to pupils' performance.

Participation of Parents in Children's Learning Activities

The responsibility of the children's learning is for both the teacher and the parent, that is the parent should know what the child does at school, likewise the teacher should know what the child does at home, to contribute effectively to the learning of the child.

Parents were asked to indicate the extent to which they participate in their children's school activities, discussing pupils' progress with class teacher and discussing school work with the child. The relationship between participation of parents in the children's educational activities and achievement of the pupils is shown in Tables 7.26 to 7.28.

Table 7.26: Parental Participation in School Activities and Pupils' Performance

Parental Participation in School Activities		n	%	Mean (SE)	Diff (SE)
Mathematics	Regularly	1813	34.3	32.90 (.41)	1,2: 2.34 (.52)*
	Sometimes	2798	52.8	30.57 (.33)	1,3: 8.24 (.77)*
	Not at all	692	13.1	24.66 (.59)	2,3: 5.90 (.73)*
Setswana	Regularly	1815	34.0	47.74 (.39)	1,2: 1.95 (.50)*
	Sometimes	2824	52.9	45.79 (.31)	1,3: 6.49 (.74)*
	Not at all	695	13.0	41.25 (.64)	2,3: 4.54 (.71)*
English	Regularly	1782	34.2	36.48 (.39)	1,2: 2.57 (.47)*
	Sometimes	2742	52.6	33.91 (.29)	1,3: 7.55 (.69)*
	Not at all	689	13.2	28.93 (.51)	2,3: 4.98 (.66)*

** Significant mean differences*

Most pupils have parents who participate in school activities "sometimes" (53%), followed by those who participate "regularly" (34%) and those who do not participate at all (13%). Pupils whose parents participate regularly in school activities performed significantly better than all the other groups, followed by pupils whose parents participate sometimes and lastly those whose parents do not participate at all. For all the three subjects, the participation of parents in school activities has a positive relationship with performance of the children. Similar results were observed for TIMSS 2003, for Science. Participation of the parents helps both the teachers and the parents to be aware of the strengths and weaknesses of their children; as such weaknesses can be addressed early leading to improved performance.

Table7.27: Discussing the Child's Progress with the Class Teacher and Pupils' Performance

Discussion of Child's Progress with the Class Teacher		n	%	Mean (SE)	Diff (SE)
Mathematics	Regularly	1000	18.8	33.97 (.59)	1,2: 2.42 (.62)*
	Sometimes	3112	58.6	31.54 (.31)	1,3: 8.71 (.73)*
	Not at all	1195	22.5	25.25 (.46)	2,3: 6.29 (.58)*
Setswana	Regularly	987	18.5	47.73 (.55)	1,2: .89 (.61)
	Sometimes	3140	58.8	46.84 (.29)	1,3: 5.99 (.71)*
	Not at all	1213	22.7	41.74 (.49)	2,3: 5.10 (.56)*
English	Regularly	1001	19.2	38.44 (.55)	1,2: 3.69 (.56)*
	Sometimes	3031	58.1	34.75 (.28)	1,3: 9.69 (.66)*
	Not at all	1186	22.7	28.75 (.22)	2,3: 6.00 (.52)*

** Significant mean differences*

The majority of pupils have parents who discuss their school progress with the class teacher sometimes (about 58%) followed by those who never (23%) and lastly regularly (19%). Generally, discussing the pupils' progress with the teacher has a positive impact on pupil performance.

The same findings were observed in TIMSS 2003. The mere fact that the parent is concerned with the learning of the child to the extent of going to discuss with the teacher may be sufficient influence for the child to work harder. Ways should be devised to make the parents aware of the importance of monitoring the child's progress with the teacher.

Table 7.28: Discussing Schoolwork with Child and Pupils' Performance

Discussion of Schoolwork with Child		n	%	Mean (SE)	Diff (SE)
Mathematics	Regularly	2992	56.1	33.30 (.33)	1,2: 5.43 (.49)*
	Sometimes	2003	37.6	27.87 (.36)	1,3: 10.25 (.98)*
	Not at all	338	6.3	23.04 (.84)	2,3: 4.83 (1.00)*
Setswana	Regularly	3016	56.2	47.95 (.30)	1,2: 4.15 (.48)*
	Sometimes	2011	37.5	43.79 (.36)	1,3: 8.47 (.95)*
	Not at all	340	6.3	39.48 (.94)	2,3: 4.31 (.97)*
English	Regularly	2961	56.4	37.07 (.30)	1,2: 6.26 (.44)*
	Sometimes	1944	37.0	30.80 (.30)	1,3: 9.74 (.87)*
	Not at all	342	6.5	27032 (.67)	2,3: 3.48 (.89)*

** Significant mean differences*

The majority of the pupils have parents who discuss school work with them regularly (56%) and sometimes (37%). Pupils whose parents discuss school work with them regularly performed significantly better than all the other groups. This shows the importance of parental involvement in the child's education. The same findings were observed in TIMSS 2003.

Who Helps the Child with Schoolwork

In the African context a child belongs to all, that is, everyone has the responsibility in grooming the child to a responsible person. Parents were asked to indicate the extent to which various individuals help their children in their school work. The frequency of helping was then related to the performance of the children and the results are shown in Table 7.29.

Table7.29: Frequency of Help and Pupils' Performance

Frequency of Help Provided to the Pupil			n	%	Mean (SE)	Diff (SE)
Myself	Mathematics	Regularly	2293	45.7	34.11 (.37)	1,2: 5.23 (.53)*
		Sometimes	1950	38.9	28.88 (.38)	1,3: 8.53 (.71)*
		Not at all	775	15.4	25.58 (.57)	2,3: 3.30 (.72)*
	Setswana	Regularly	2311	42.8	48.86 (.34)	1,2: 4.64 (.51)*
		Sometimes	1958	36.3	44.22 (.38)	1,3: 7.18 (.69)*
		Not at all	778	14.4	41.68 (.61)	2,3: 2.54 (.70)*
	English	Regularly	2264	45.9	37.82 (.35)	1,2: 5.43 (.48)*
		Sometimes	1900	38.6	32.38 (.34)	1,3: 9.58 (.64)*
		Not at all	762	15.5	28.24 (.43)	2,3: 4.15 (.66)*
Spouse	Mathematics	Regularly	475	11.7	36.18 (.86)	1,2: 3.38 (.95)*
		Sometimes	1091	26.8	32.80 (.55)	1,3: 7.67 (.86)*
		Not at all	2507	61.6	28.51 (.33)	2,3: 4.29 (.63)*
	Setswana	Regularly	463	8.6	49.05 (.77)	1,2: 2.01 (.93)*
		Sometimes	1073	19.9	47.05 (.51)	1,3: 4.70 (.85)*
		Not at all	2549	47.2	44.36 (.33)	2,3: 2.69 (.61)*
	English	Regularly	468	11.8	39.97 (.79)	1,2: 4.06 (.84)*
		Sometimes	1059	26.7	35.91 (.52)	1,3: 8.37 (.77)*
		Not at all	2443	61.5	31.60 (.28)	2,3: 4.31 (.56)*
Child's sister	Mathematics	Regularly	1153	26.1	29.58 (.48)	1,2: -.62 (.67)
		Sometimes	1721	39.0	30.20 (.42)	1,3: -.77 (.67)
		Not at all	1538	34.9	30.35 (.45)	2,3: -.14 (.60)
	Setswana	Regularly	1194	22.1	45.55 (.48)	1,2: .33 (.63)
		Sometimes	1728	32.0	45.22 (.39)	1,3: .35 (.65)
		Not at all	1516	28.1	45.20 (.44)	2,3: .03 (.59)
	English	Regularly	1157	26.8	33.23 (.44)	1,2: .04 (.58)
		Sometimes	1669	38.7	33.19 (3.7)	1,3: -.28 (.60)
		Not at all	1490	34.5	33.51 (.41)	2,3: -.32 (.54)
Child's brother	Mathematics	Regularly	836	19.5	29.61 (.56)	1,2: -.34 (.74)
		Sometimes	1505	35.1	29.95 (.44)	1,3: -.65 (.71)
		Not at all	1939	45.3	30.26 (.26)	2,3: -.31 (.59)
	Setswana	Regularly	864	16.0	45.91 (.55)	1,2: .43 (.72)
		Sometimes	1512	28.0	45.47 (.43)	1,3: .89 (.69)
		Not at all	1935	35.8	45.04 (.39)	2,3: .43 (.58)
	English	Regularly	826	19.7	33.63 (.50)	1,2: -.46 (.66)
		Sometimes	1473	35.2	33.17 (.39)	1,3: .40 (.63)
		Not at all	1888	45.1	33.23 (.36)	2,3: -.06 (.53)

** Significant mean differences*

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Table7.29: Frequency of Help and Pupils' Performance

Frequency of Help Provided to the Pupil			n	%	Mean (SE)	Diff (SE)
Other family member	Mathematics	Regularly	551	24.9	31.72 (.74)	1,2: 1.01 (.82)
		Sometimes	2207	48.7	30.71 (.36)	1,3: 2.26 (.84)*
		Not at all	1772	39.1	29.46 (.42)	2,3: 1.25 (.55)*
	Setswana	Regularly	559	10.4	46.33 (.69)	1,2: .21 (.79)
		Sometimes	2223	41.2	46.12 (.35)	1,3: 1.68 (.81)*
		Not at all	1772	32.8	44.65 (.41)	2,3: 1.46 (.53)*
	English	Regularly	543	12.3	35.00 (.67)	1,2: .74 (.74)
		Sometimes	2139	48.3	34.26 (.33)	1,3: 2.57 (.75)*
		Not at all	1745	39.4	32.43 (.36)	2,3: 1.84 (.49)*
Friends or Neighbours	Mathematics	Regularly	300	6.8	30.12 (.94)	1,2: -1.16 (1.08)
		Sometimes	1696	38.5	31.27 (.41)	1,3: .50 (1.06)
		Not at all	2408	54.6	29.62 (.36)	2,3: 1.66 (.55)*
	Setswana	Regularly	300	5.6	45.92 (.95)	1,2: -1.09 (1.05)
		Sometimes	1720	31.9	47.01 (.40)	1,3: 1.55 (1.03)
		Not at all	2410	44.6	44.37 (.34)	2,3: 2.64 (.53)*
	English	Regularly	282	6.5	33.39 (.86)	1,2: -1.06 (.98)
		Sometimes	1649	38.3	34.45 (.37)	1,3: .64 (.96)
		Not at all	2373	55.1	32.75 (.32)	2,3: 1.70 (.49)*

** Significant mean differences*

Generally, pupils are helped in their school work though the frequency varies for the different individuals as shown in Table 7.29.

The percentage of pupils whose parents help them regularly is (43%) whilst those helped sometimes is at (36%). Pupils who are helped regularly by the respondents have significantly higher mean scores than those who are helped sometimes and those who do not receive help at all in the three subjects. Thus the more frequently a child received parental help, the better the performance of the pupil. The pattern is the same whether the help is provided by either of the parents.

The children's brothers and sisters do help with school work regularly and sometimes but this does not contribute to significant variation in the performance of the pupil by frequency of help in all the three subjects.

Family members do help the children sometimes (41%) and regularly (10%). Pupils who are not helped at all by family members performed significantly lower than those who are helped regularly or sometimes in the three subjects.

Friends or neighbours do help the children sometimes (32%). The relationship between frequency of help by friends or neighbours and pupil performance is not linear. Pupils helped by friends or neighbours sometimes perform significantly better than those who never receive help from them in all the three subjects. There is no significant difference in performance for pupils whose neighbours provide help "regularly" and those whose neighbours help sometimes. There is also no significant variance in performance of pupils helped regularly by neighbours and those not helped at all.

Parents' Perception of their Children's Education

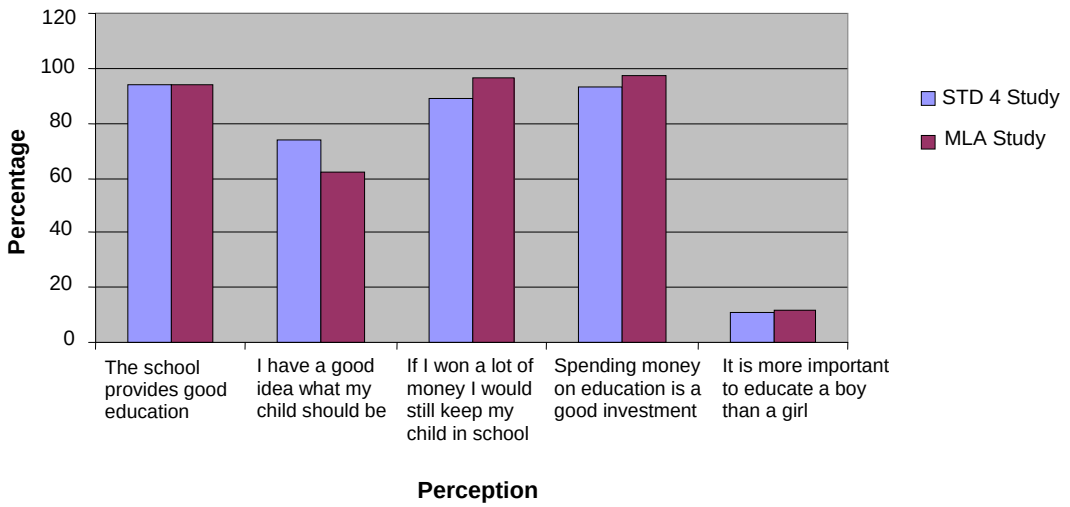
The parents perceptions in the value of education regarding their children could be used as an indicator of the guidance the parent provide to the child.

Parents were asked whether they agree or disagree with the following statements:

- The school provides good education for the child
- They have a good idea of what the child should become
- If they won a lot of money they would still keep the child in school
- Spending money on education is a good investment
- It is more important to educate a boy than a girl

The results of parents' perceptions on their children's education were compared to those of MLA as shown in Figure 7.9.

Figure 7.9: Parents Perception of their Children's Education



Generally, pupils stay with parents who see the school as providing good education for their children and would keep their children in school even if they could win a lot of money. They see education as an investment. Most parents (86%) disagree with the belief that it is important to educate a boy child than a girl child. The same trend was observed in MLA, though the percentages in the current study are slightly lower. Performance of the pupils by parental perceptions is presented in Table 7.30.

In the three subjects pupils whose parents disagreed with the statement: It is more important to educate a boy than a girl performed significantly better than those whose parents affirmed. Pupils whose parents agreed with the other statements performed significantly better in all the subjects than pupils whose parents disagreed with the statements. The same trend was observed in TIMSS 2003 for Mathematics. Thus, the more positive the perceptions of the parents, the better the performance of the pupils.

Table 7.30: Parents Perceptions on the Value of Education for their Children

Parents Perceptions on the Value of Education for their Children		Agree			Disagree			Mean Diff	t-value	df	Sig. (2-tailed)
		n	%	Mean	n	%	Mean				
The school provides good education for my child	Mathematics	5039	95.1	30.97 (.25)	262	4.9	23.96 (.91)	7.01	6.40	5299	.00
	Setswana	5067	94.9	46.20 (.24)	268	5.0	39.78 (.96)	6.43	6.13	5333	.00
	English	4957	95.1	34.39 (.22)	255	4.9	28.42 (.81)	5.97	5.98	5210	.00
I have a good idea of what my child should become	Mathematics	3965	76.1	31.24 (.27)	1244	23.9	28.46 (.50)	2.78	4.93	5207	.00
	Setswana	3976	75.9	46.72 (.27)	1264	24.1	43.07 (.48)	3.65	6.73	5238	.00
	English	3844	75.1	34.65 (.25)	1275	24.9	32.22 (.43)	2.43	4.82	5117	.00
If I won a lot of money I would still keep my child in school	Mathematics	4759	90.6	30.91 (.25)	491	9.4	27.57 (.76)	3.35	4.07	5248	.00
	Setswana	4787	90.6	46.17 (.24)	494	9.4	42.48 (.76)	3.70	4.66	5279	.00
	English	4683	90.8	34.34 (.23)	475	9.2	31.28 (.67)	3.06	4.08	5156	.00
Spending money on education is a good investment	Mathematics	5009	95.5	30.75 (.25)	237	4.5	27.37 (1.06)	3.38	2.93	5244	.00
	Setswana	5028	95.4	46.02 (.24)	245	4.6	41.44 (1.04)	4.58	4.17	5271	.00
	English	4913	95.4	34.24 (.22)	239	4.6	30.85 (.87)	3.39	3.27	5150	.00
It is more important to educate a boy than a girl	Mathematics	615	11.8	25.86 (.64)	4609	88.2	31.18 (.26)	-5.32	-7.17	5222	.00
	Setswana	612	11.7	42.61 (.67)	4640	88.3	46.21 (.25)	-3.60	-4.99	5250	.00
	English	601	11.7	29.76 (.54)	4529	88.3	34.62 (.24)	-4.86	-7.21	5128	.00

** Significant mean differences*

Language Spoken at Home and Pupils' Performance

The parents were asked to indicate the frequency with which they speak English and mother tongue or local language at home. The frequencies were then related to pupils' performance and the results are shown in Table 7.31.

Table 7.31: Language Spoken at Home and Pupils' Performance

Language Spoken at Home			n	%	Mean (SE)	Diff (SE)
English	Mathematics	Always	166	3.4	42.72 (1.70)	1,2: 7.67 (1.33)*
		Sometimes	2463	51.2	35.06 (.35)	1,3: 17.27 (1.34)*
		Not at all	2185	45.4	25.45 (.33)	2,3: 9.60 (.49)*
	Setswana	Always	128	2.6	50.17 (1.45)	1,2: .60 (1.48)
		Sometimes	2506	51.8	49.57 (.32)	1,3: 8.48 (1.48)*
		Not at all	2202	45.4	41.69 (.36)	2,3: 7.88 (.48)*
	English	Always	168	3.6	49.12 (1.47)	1,2: 10.49 (1.18)*
		Sometimes	2405	50.9	38.63 (.33)	1,3: 20.54 (1.18)*
		Not at all	2155	45.6	28.58 (.27)	2,3: 10.04 (.44)*
Mother tongue/local language	Mathematics	Always	4808	92.0	30.24 (.25)	1,2: -6.77 (1.01)*
		Sometimes	311	6.0	37.01 (1.17)	1,3: 1.54 (1.70)
		Not at all	106	2.0	28.69 (1.66)	2,3: 8.32 (1.94)*
	Setswana	Always	4883	92.9	45.82 (.24)	1,2: -2.22 (1.05)*
		Sometimes	269	5.1	48.04 (.98)	1,3: 4.54 (1.67)*
		Not at all	103	2.0	41.28 (1.68)	2,3: 6.76 (1.94)*
	English	Always	4732	92.2	33.48 (.22)	1,2: -9.88 (.93)*
		Sometimes	295	5.7	43.36 (1.12)	1,3: 1.18 (1.51)
		Not at all	106	2.1	32.30 (.22)	2,3: 11.06 (1.75)*

** Significant mean differences*

Very few pupils live in homes where English is spoken "always" (about 3%), whereas 51% live in homes where it is spoken "sometimes" while 45% stay in homes where English is never spoken. In Mathematics and English pupils whose parents speak English "always" perform significantly better than all other groups. The children whose parents never speak English performed the worst. Since the tests are written in English this makes sense as they require pupils to have a bit of English proficiency.

About 92% of the parents always speak mother tongue or local language whilst about 2% never speak mother tongue or local language at all. Pupils whose parents speak mother tongue or local language perform better in Setswana than those parents who never speak it at all.

Cross tabulation of frequency of speaking English or Mother tongue at home and school location (Tables 7.32 and 7.33) shows that English is mostly spoken in urban areas and least

spoken in remote rural areas. This is understandable as most people with higher educational status are in urban areas. Mother tongue is spoken most in all locations even in urban areas. This leaves the school as the only place where the pupils can speak English so schools should enforce the speaking of English whilst pupils are in the premises.

Table 7.32: School Location and Frequency of Speaking English at Home

School Location	Frequency of Speaking English at Home			Total
	Always	Sometimes	Not at all	
Urban	81	808	227	**1116**
Semi-urban	45	647	348	**1040**
Rural	22	605	827	**1454**
Remote rural	8	157	589	**754**
Total	**156**	**2217**	**1991**	**4364**

Table 7.33: School Location and Frequency of Speaking Mother Tongue at Home

School Location	Frequency of Speaking Mother Tongue at Home			Total
	Always	Sometimes	Not at all	
Urban	1059	115	22	**1196**
Semi-urban	1058	76	27	**1161**
Rural	1491	28	33	**1552**
Remote rural	787	60	13	**860**
Total	**4395**	**279**	**95**	**4769**

Number of School Going Children in the House

Parents were asked to indicate the number of school going boys and girls living with them. When analysing the data, the number of children was grouped into the following categories: 0 - 2, 3 - 4 and 5 or more children. The number of school going children in the house was related to performance of the pupils as shown in Table 7.34. Most households have up to two boys or girls going to school. The performance of the pupils is not affected by the number of girls living in the household except for Setswana where pupils living in households with 3 to 4 girls performed significantly better than those living in household having 5 or more girls. In all the three subjects pupils who are staying in households having more than 5 boys are performing significantly better than those staying in households having less than 5 boys. Pupils living in

households having 3 to 4 boys had the lowest mean scores. In general the number of school going girls in a household has no bearing in the performance of the pupils.

Table 7.34: Number of School Going Children on the Household and Pupils' Performance

Number of School Going Children in the Household			n	%	Mean (SE)	Diff (SE)
Boys	Mathematics	0 to 2	3458	64.5	30.69(.29)	1,2: 2.78(.65)*
		3 to 4	896	16.7	27.91(.56)	1,3: -1.92(.62)*
		5 or more	1011	18.8	32.61(.55	2,3: -4.70(.79)*
	Setswana	0 to 2	3485	64.5	45.77(.28)	1,2: 3.27(.62)*
		3 to 4	909	16.8	42.50(.56)	1,3: -3.40(.60)*
		5 or more	1005	18.8	49.16(.53)	2,3: -6.66(.76)*
	English	0 to 2	3405	64.5	34.32(.27)	1,2: 4.30(.59)*
		3 to 4	878	16.6	30.01(.47)	1,3: -2.74(.56)*
		5 or more	993	18.8	37.06(.52)	2,3: -7.04(.72)*
Girls	Mathematics	0 to 2	3507	65.4	30.75(.29)	1,2: .41(.65)
		3 to 4	893	16.6	30.35(.47)	1,3: .56(.63)
		5 or more	965	18.0	30.19(.56)	2,3: .16(.65)
	Setswana	0 to 2	3527	65.3	45.91(.28)	1,2: -.86(.63)
		3 to 4	904	16.7	46.76(.56)	1,3: 1.11(.61)
		5 or more	968	17.9	44.80(.54)	2,3: 1.96(.78)*
	English	0 to 2	3444	65.3	34.42(.27	1,2: .96(.59)
		3 to 4	876	16.6	33.46(.50)	1,3: .81(.57)
		5 or more	956	18.1	33.61(.51)	2,3: -.15(.73)

** Significant mean differences*

Summary

From the findings it was observed that there are young parents, some of whom are teenagers. These young parents are single and cannot be expected to provide a conducive environment for the development of the children as they too still need guidance from their parents. These children should be identified by the guidance and counselling teachers and work in collaboration with the social workers and psychologists to help them. Parents value education and see it as an investment for their children. However, some still do not actually participate in school activities. Ways should be devised to make parents to actively participate in educational activities of their children and this should be part of the guidance and counselling programme in schools.

Pupils who are taken care of by non-relative guardians could be having problems which leads to them under performing, compared to those taken care by parents or relatives. More research should be done on this group so that appropriate interventions should be put in place. In order to understand the child better, the school should have a data base containing basic parental background information like age, marital status, educational level attained, family size, children attending school in the family, occupation etc so that the school may be able to address the gaps not provided by the home environment.

Policy Implications

1. Parents should be encouraged to participate more in their children's education.

2. A strong guidance and counselling programme should be set-up in all schools to assist pupils who are affected by the school and the home environments.

3. Interventions should be found to assist pupils who miss school as a result of the non-payment of school fees.

8. SUMMARY AND RECOMMENDATIONS

SUMMARY

Botswana Examinations Council runs Standard Four assessment program which concentrates on Setswana, English and Mathematics. The intention of the program is to establish the level of attainment of each Standard Four pupil in the three subjects.

The Council prepares the question papers with their marking guides and distributes to schools towards the end of the school year. Each school administers the instruments and marks the responses of the pupils at their own time. The scores obtained on the assessment are then used as part of the evidence for deciding on pupils that should be retained in Standard Four for remediation purposes.

Each school assigns grades to the scores of the pupils, using school procedures and criteria. The distribution of grades are compiled and sent to district offices. No national picture of the level of attainment of the pupils has ever been obtained. In any case, since the procedures for administration, marking and grading are not standardised, it would be inappropriate to try and get a national picture by collecting information sent to the district offices.

Conduct of the Study

Examinations, Research and Testing Division from whom the Council inherited the mandate of examinations, initiated the idea of obtaining a national Standard Four performance picture. A project aimed at establishing the performance of the pupils, identification of factors associated with learning and gauging the suitability of the tests was undertaken in 2007. The usual tests for assessment in this program were used as the attainment instruments for the project. Questionnaires were developed to elicit background information from pupils, teachers, School Heads and parents. A sample of 103 schools was involved in the study, with all the classes in Standard Four tested.

It was necessary to depart from the usual administration of this program. A national time table was issued so that all schools did each test at the same time. Administration of the instruments in the sampled schools was carried out by staff of Botswana Examinations Council while a school coordinator at each school was responsible for organising the testing venue and introducing the Council staff to the pupils.

Scripts were collected by the administrators so that marking was done centrally by trained teachers under the supervision of BEC officers. The questionnaires were also brought back and the responses captured electronically. SPSS was used for data analysis. The raw marks were converted and reported as percentages of total marks in order to gauge the relative strengths of the pupils in the three subjects

Achievement of the Pupils

The outcome showed low levels of achievement (about 30%) in Mathematics and English. It was in Setswana that the mean mark reached 45%. There were students who got zero on each subject. The highest scores, however, were over 90%, except for English where the highest score obtained was 88%. The medians were at about the same level as the means. Hence, while there were a few high scores, the majority of the pupils could not score 50%.

Girls performed significantly better than boys in all the three subjects. The mean percentage differences were more marked in the languages.

Performance by Content Domain

Mathematics

Statistics, though making up a small proportion of the Mathematics test, was performed relatively better than the other domains of Numbers and Operations, Measures, Geometry, and Problem Solving. The latter was relatively the worst done. One would have expected Numbers and Operations to be performed the best because of the concentration given to it at this level. Less than 5% of the pupils scored above 75% of the marks in each content domain. Over 25% of the pupils got zero in Geometry while those getting zero in problem solving were about 60%.

Setswana

Setswana tested the domains; Grammar, Reading and Composition. The highest mean score was in grammar, followed by reading. Pupils were weak in composition, with 37% of them getting zero in this domain.

English

The content domain of English was composed of Grammar, Reading and Composition. Relatively better percentage mean scores were obtained in Grammar, followed by Reading. Pupils could not score 50% of the marks in any content domain.

Most of the Grammar items tested knowledge while Composition items assessed application only. About 5% of the pupils scored 75% of the marks in Grammar while performance in Reading and Composition at this level was quite poor.

Performance by Cognitive Domains

Mathematics

The cognitive domains assessed in Mathematics were Knowledge, Comprehension, Application and Reasoning. The former was relatively better performed while Reasoning had the lowest percentage mean score. This is consistent with the TIMSS (2007) finding where the score for Reasoning could not be estimated. Less than 5% of the pupils reach 75% of the marks in any cognitive domain and over a half of the pupils got zero in Application and Reasoning.

Setswana

Knowledge, Understanding and Application were the cognitive domains covered by the Setswana test. Knowledge had the highest percentage mean score while Application had the lowest mean score. Pupils were particularly weak in Application with none scoring more than 50% of the marks.

English

The test covered Knowledge, Understanding and Application. Again, Knowledge mean score was higher than the mean scores in the other two domains. Over 25% of the pupils got zero in Application.

The picture that emerges therefore is that better scores are obtained in Knowledge and the lowest scores are realised in the higher cognitive domains. However, performance in Knowledge reaches 50% only in Setswana.

Curriculum Match Analysis

Primary School teachers were engaged in analysing the correspondence between the tests and the curriculum for Standard Four. The alignment was found to be perfect. There were no items beyond what pupils in Standard Four should have learnt. The tests were therefore appropriate instruments for assessing what Standard Four pupils should know and be able to do. The low level of performance is therefore not a result of tests that are beyond the expectations from pupils at that level.

Benchmarks

The teachers who carried out the alignment study also developed benchmarks of expectations for performance at **high**, **medium** and **low** on the tests. No student reached the high level of performance in Mathematics and English while one percent reached this level in Setswana. It was in Setswana that 60% reached the low level of performance while about 50% reached this level in other two subjects. Conversely, over 50% of the pupils at Standard Four are not reaching the lowest level of performance expected by the teachers.

The same teachers also developed cut-offs that could be used for deciding on progression to Standard Four. Using this criterion, only 22.5% of the pupils are ready for progression in Mathematics, 54.9% in Setswana and 43.7% in English. Since retention is up to 12% only, it means a lot of pupils are allowed to progress before reaching the required standard.

No one would like massive failure. One could argue that the requirements of the group of teachers were too stringent. However, their judgement is a pointer and serious consideration needs to be given to this.

Performance by Background Variables

A number of background variables were analysed for the association they have with pupil's performance. These included the variables summarised below.

Pupil Age

Although the age range of pupils was large (8 - 16), performance tended to decrease with increasing age. The best performance was obtained from pupils aged 8 - 10. The 1.4% who

are 14 years or older could be those who started school late, repeated, or dropped out and then admitted again. They performed the lowest.

Pre-School Attendance

Pre-school attendance has a significant impact in all the subjects. Pupils who attended pre-school could be from the more affluent urban background with environments that foster learning.

Home Possessions and Library Use

Very few pupils come from homes with a lot of books. Performance tends to rise with more books in the home and more frequent use of a library.

Pupils who come from homes with possessions like radio, computers and telephones perform better than pupils from homes without these items. These possessions are of course, manifestations of the socio-economic status of the parents or guardians.

Computers

Pupils who come from homes with a computer perform significantly better than pupils from homes without computers. The difference is particularly marked in English, suggesting that computers at home are associated with better learning of English.

Pupils taught by teachers who had access to computers performed significantly better than those without in English and Mathematics. Again, the usefulness of computers in learning English and Mathematics is brought out. Why it does not make a difference in Setswana can only be speculation. Perhaps this is due to the fact that there is no Setswana in computers. The supply of computers to schools therefore seems to be well grounded.

Meals and Student Performance

There are about 15% of the pupils who eat no meal in the morning and about 10% who eat no meal during the day. These pupils perform very much below the pupils who eat these meals sometimes or always.

Travelling to and from School

Some pupils live more than 2 kilometres away from school. Travelling back and forth can be tiresome to pupils if they have no help. Contrary to expectation, pupils who live furthest score higher than those who live nearer. It is possible these are pupils who can be transported to schools. We know of a school that collects some of their pupils in a bus from as far away as 50 kilometres. The majority of pupils walk to school while about 20% are transported to school. Pupils who walk or use a bicycle perform the lowest. The time taken to travel to school is dependent on the means of travel. Those who take longer tend to perform worse.

Language of Instruction

Pupils who never speak English at all at home constitute about 37%. Their performance is the lowest in all the subjects. The best performance is realised by those who speak English at home sometimes.

Despite the policy of using English as the medium of instruction from Standard Two, some pupils in Standard Four are taught English and Mathematics using local languages. These perform significantly below the pupils who are taught both subjects in English. In this study, pupils' performances in Mathematics varied significantly by level of score in English. This is also supported by the feeling of the teachers that language of instruction is a factor that can work against achievement if there is deficiency.

Pupil Perception and Performance

Most pupils like to go to school where they learn a lot, and joyfully. They like their teachers, but many do not have a lot of friends. Positive perception is associated with better performance.

Teacher Background and Performance of Pupils

This study relates responses of the class teacher at the time of data collection to pupil's performance but does not take into consideration the impact of other teachers who could have taught the pupil prior to data collection time. A number of background information is reported on here.

Sex and Age of Teacher and Pupil Performance

Most of the pupils were taught by female teachers. These performed significantly better than pupils taught by male teachers. Pupils taught by very young teachers (20 - 29) tended to have lower mean scores. Such teachers may not yet be sufficiently experienced. Scores tended to rise with teacher experience, but not linearly. Teacher experience overall or in one school is not a viable explanation of pupil performance. Most of the pupils were taught by teachers who had five years or less of standard four teaching. Other than the small percentage of pupils taught by teachers who had had six years or higher of teaching Standard Four, the data suggest that concentrating on a standard adds value to the learning of the pupils.

Homework

This is a tool teachers use to give pupils a chance to find out how well they have learnt. For homework to be effective, it should be meaningfully scheduled and utilised. Pupils who are never given homework performed the lowest. Those who get someone to help them with the homework perform better than those who have nobody to help them. Some of the pupils do not do their homework for various reasons. These cannot maximise their learning.

Testing of Pupils

Tests are similar to homework in that they give opportunity for the learner to show what he/she knows and can do. More frequent testing is associated with lower scores. While some testing has an impact, it should not be over-used since pupils get tired and the limited instructional time will be lost to testing.

Automatic promotion

Despite the fact that automatic promotion is no longer supposed to apply, over 40% of the pupils are taught by teachers who feel that automatic promotion is very responsible for poor performance. However, the performance of the pupils runs contrary to the feeling of the teachers that automatic promotion is responsible for poor performance.

Curricula load

Over 60% of the pupils are taught by teachers who feel the curriculum is over-loaded. Pupils taught by teachers who feel the curriculum is not over-loaded perform much better than their counterparts taught by teachers who feel the curriculum is overloaded.

Parental Participation

Teachers expect parents to play a big role in the learning achievement of their children. Less than five percent of the children are taught by teachers who feel parental indifference is not a factor that contributes to lowering the performance of the children. Parental participation seems to be an important factor. Exactly what parents should do should not be explicated.

Remedial Teaching

Remedial teaching is a policy requirement. Lack of it is a factor that lowers the performance of almost 90%, particularly in Mathematics.

The self contained teacher

Teaching skills are expected from every trained teacher. Yet over 33% of the pupils are taught by teachers who feel that pupil performance is hampered by lack of teaching skills. The significant differences are not practically important.

Performance tends to rise with the teacher's academic qualification, except in Setswana. Increasing the number of qualified primary school teachers in a school has minimal impact on pupil performance while increasing the number of teachers qualified to teach at junior secondary level to five or more is associated with dramatic improvement in pupil performance. Inclusion of unqualified teachers in a school is associated with lowered performance.

It should be noted that teachers with Junior Secondary teaching certificates do not seem to be effective in teaching pupils at Standard Four. School Heads should not be moved around so much as the longer one stays in a school the better the performance of the pupils. Experience of being a School Head has the maximum impact at 11 - 15 years. Beyond that, performance of the pupils begins to drop.

The majority of pupils are taught by teachers who have no access to teacher Resource Centre. Such pupils perform significantly below the pupils whose teachers have access to resource centre. Access to a library by the teacher is associated with better performance of the pupils. In a similar manner, pupils perform better if their teacher has access to a teacher college of education.

Performance of pupils taught by teachers who would like to change careers performed significantly lower that the pupils taught by teachers who would like to remain in the profession. The highest percentage of pupils taught by teachers who would like to move is found in Government schools.

School Factors that Impinge on Learning Achievement

School location

Performance works in favour of pupils in urban areas, most of the schools are in rural and remote rural areas. Pupil performance also differs by educational region, with the West region performing the lowest.

School Resources

Pupils are in schools where learning aids are largely available. However, commercial wall charts are not available to about 70% of the pupils. Performance in the three subjects is directly related to availability of commercial wall charts.

Electricity is an essential commodity needed for operating many gadgets that support learning, such as radio, computer and television. Pupils in schools without electricity perform significantly below their counterparts with access to electricity.

Pupils in schools with duplicating machines perform significantly better than pupils in school that do not have. Perhaps such machines help teachers to create tests, prepare instructions faster and better than having to do without.

School Organisation and Management

Pupils in private schools perform as though they were a year or higher above the pupils from the public schools. In Mathematics, for example, their mean score doubles that of pupils from public or government subsidised schools. Private schools are better endowed with facilities that support learning.

There are a few pupils in boarding primary schools and they perform lower than pupils in day schools. Such boarding schools are located in remotest rural areas where conditions are not supportive of learning.

Pupils in schools with double shift perform at the same level with pupils in schools with single shift, except for Setswana where pupils in double shift schools perform significantly better than pupils in single shift schools.

The performance in all subjects of pupils in schools with female School Heads is significantly better than that of pupils in schools headed by male teachers. Why this should be the case is not clear.

Teacher absenteeism is associated with lowered performance of the pupils. The effect is particularly large in Mathematics.

School facilities are intended to facilitate teaching and learning. Facilities such as staff room, special rooms, workshop rooms, libraries and store rooms are positively correlated to performance of the pupils. The impact of special rooms is particularly pronounced. Boarding facilities are also intended to facilitate learning, but it was already pointed out that pupils in boarding schools perform lower than pupils in day school because of the circumstances surrounding their schooling. Effective classrooms provide sufficient ventilation and lighting. Pupil performance is also associated with the adequacy of playing grounds and sports equipment.

Reading materials do promote learning. This data set shows that where there is book loan service, performance of the pupils is better, particularly in English and Mathematics.

Telephone is a gadget that has become available to a large segment of the population. Over 70% of the pupils are in schools where telephone service is always available. The availability of this gadget is associated with better performance.

The computer is an important property that the Ministry of Education and Skills Development is increasingly supplying to schools. Although almost 60% of the pupils are in schools without computers, performance of the pupils improves with computer availability.

Most pupils are in schools that are less than 1km from the nearest medical facility. Over 30% of the pupils, however, attend schools which are above 5km from the nearest security facility. Less than 30% of the pupils are in schools where safety is good. Yet good performance is linked to safety in the school environment. Over 20% of the pupils are in schools where safety is poor.

An orderly environment is a good learning place. Vandalism causes disorder with the destruction of property. The best performance of pupils is realised where there is no vandalism.

About 5% of the pupils are in schools where sexual abuse of pupils is frequent. They perform significantly lower than pupils in schools where sexual abuse is rare or does not occur. This is a practice that needs concerted effort to eliminate.

Home Background and Pupil Performance

In all the subjects, pupils whose parent questionnaire was filled by non-relative guardians obtained mean scores below those of the pupils whose questionnaire was filled by father, mother, or guardian. Though this group is small and the finding should be taken cautiously, it may be that those taken care of by non-relative guardians could be orphans. It is important to give special attention to this group. The findings also show that pupils whose parent questionnaire was completed by the father tended to score the highest.

Performance of the pupils with the youngest parents is the lowest. These parents might not have the means to provide maximally for the learning achievement of their children. The findings also show a pattern of increasing single parents and decreasing marriages while cohabiting is falling. Pupils with married parents obtain the highest mean score while children

with cohabiting parents obtain the lowest. This shows the significance of family dynamics on the performance of pupils.

The educated parents are more able to cater for their children's education better than the less educated parents. Performance generally rises with increasing level of education of the parent and earning of salary. The less educated parents are more associated with remote rural areas than urban areas and a smaller percentage of them live in permanent houses compared to the more educated parents. This, at least in fact, accounts for the poorer performance of pupils from rural areas compared to pupils from urban schools.

Socio-economic factors are well known to be associated with pupils performance and this is supported by the data at hand. Similarly, pupils who come from families with problems tend to under-perform. Orphan hood is a societal reality. Majority of the pupils are taught by teachers who indicated that the orphanage of the pupils affected performance negatively. This is a problem that needs addressing through social support programmes.

There is indication of improvement in the home compared to MLA study. Refrigerators, running tap water, electricity and telephone are now available in more homes compared to 2003. These facilities are positively related to achievement. One would expect performance to rise, but, as has been seen, it is still low.

Performance of pupils is also positively associated with the presence of a radio, television, video and computer in the home.

Household size needs to be conducive to learning. Performance of the pupils decreases with household size. Apart from noise, the ability of a family to provide for the education of the children is weakened by a large household. The data shows decline percentage of employed mothers and fathers and therefore for a large household with no salary there will be hardships in provision.

Parents have positive perception of their children's education. They value the education of their children and are not sending their children to school as means of future livelihood. They believe that both boys and girls should receive education. These positive perceptions are associated with better performance of the pupils.

RECOMMENDATIONS

1. Strengthen Basic Mathematical Operations

Despite the fact that a lot of time is spent on Number, performance of the pupils suggests that even this basic operation is not being learnt successfully. Though emphasis is being directed to higher levels, the basic operations from the foundation must be made firm. However, efforts on higher order thinking skills should not be relaxed.

2. Develop National Benchmarks for Quality Performance on Standard Four Assessment Programme.

Although each school administers and scores the responses of their pupils on the Standard Four Assessment Programme, benchmark guidelines should be developed to assist teachers interpret the outcomes and use them effectively for making promotion/retention decisions. If the limit of 12.5% retention is to be maintained, then effective teaching and learning must be attained right from Standard One.

3. Standardise the Administration of the Programme

In the process of carrying out this project, a national time table was issued. This should be done annually so that all the schools do the tests on the same day. Guidelines for the administration of the tests should be strengthened.

Examiners for the PSLE currently are not trained, but they standardise at marking venues. In order to have dependable information from this assessment, at least one teacher from each school for each subject should be trained in marking. This will help to attain marking standards that are consistent from schools to school.

4. Develop a Bi-annual Reporting System for the Programme

The need for this study arose mainly because there was no national information on how standard four pupils are performing on the assessment. It is recommended here that every two years schools send in the marks for their pupils for compiling a

national report. When teachers are trained in marking and the administration of the instruments is standardised, the marks that come from individual schools should have little error. Optical mark reader forms should be distributed to schools for capturing the marks at item level. In this way, analysis of the overall results and on individual items can be carried out. Background data can be collected from a number of schools to supplement the marks from schools. This will expand the utility value of the Standard Four assessment programmes.

5. Accelerate Pre-School Access

Pre-schooling has been shown to be positively linked to performance. At the moment, the percentage of the pupils that attend pre-school is small. It is noted Government has got this development in hand and the recommendation here is to accelerate the pace so that access is expanded. At the moment pre-schools are concentrated in towns and big villages and are too expensive for the majority of parents.

6. Strengthen Proficiency in English

This is the fourth study by BEC which finds that proficiency in English is associated with better performance. Linguists will perhaps argue as to whether it should be mother tongue or a second language that should be emphasised at a stage like Standard Four. Our argument here centres on the fact that Botswana uses English as the medium of instruction and as such assessment has to be carried out in English. Pupils who are used to speaking and reading materials in English will undoubtedly have an advantage as the outcome here shows. Botswana is participating in an international language assessment and has decided to go for the 'softer' version of the tests because of the known level of proficiency in English of the pupils. No teacher should go against the policy of giving instruction in English from Standard Two.

7. Assessment of Primary Curriculum Load

A large number of pupils are taught by teachers who feel that the curriculum is over-loaded. The implication of this feeling is that there could be many schools where the curriculum is not wholly delivered or if done, it is covered in a hurry. An assessment of

the load in the curriculum should be carried out. From our participation in TIMSS and PIRLS, we find the assessment frameworks cover a wide range of topics to great depths. Pupils who cover such curricula are bound to be very competitive internationally. Such comparisons suggest that it may be found that the Botswana primary curriculum is not really over-loaded compared to international expectations. The method of delivery and the circumstances pertaining in schools should be scrutinised to find out whether they contribute to giving the appearance of an over-loaded curriculum.

8. Foster Effective Communication Between Teachers and Parents

The findings here showed that where parents are not indifferent to the learning achievement of their children, performance is higher than where the parents are indifferent. Parents do send or allow their children to go to school. They value the education of their children. Parent-teacher association exist in many schools. Some parents help with physical work in the schools while others give money. There are parents who are able to help their children with homework. Yet it seems to be a strong feeling among teachers that parents are indifferent. Where the gap is between teachers and parents should be brought out clearly for harmonious cooperation between teachers and parents.

9. Pay Special Attention to Orphans

A number of pupils are taken care of by non-relatives and their performance is low. Our speculation is that these could be orphans who have even lost their close relatives. Counselling is one way of helping them and strengthening their resolve to be 'normal' children. We are not recommending that schools should isolate such pupils and counsel them away from others. The intention of the recommendation is to encourage identification of such pupils and making sure that school counsellors keep a close eye on them. A school counsellor is needed in every school.

10. Do it Like Private Schools

The quality of performance that has concerned the country for so long can be overcome by looking at the performance of pupils in private schools. We are aware that

the moment private schools are mentioned the tendency is to attribute any difference to money, but we are convinced that much can be done to emulate private schools to a large extent even with the current level of funding. What is required is to document the practices at private schools and institute them in public primary schools.

11. A Turn For The Boy-Child

Evidence from this study supports findings in other studies that the boy-child is being left behind. Why boys are performing lower than girls is not clear to us. It is possible the attention that has been given to the girl-child in recent times has resulted in less attention being paid to the boy-child. We are recommending that a balance be established. Some research should be carried out as to why the boys seem to be falling further and further behind girls.

12. Address Urban-Rural Disparity

Pupils in rural areas are known to have a lot of factors hindering their academic progress. The principle of equity demands that the factors that work against a subgroup must be acted on. The instructional materials, teachers, parents and the attitude of everyone concerned should be taken up to open the way for the rural child to explore his potential.

13. Accelerate Computer Supply

This study has found that the presence of computers in a school is associated with better performance. The effort on supplying computers to primary schools should therefore be supported and hastened.

14. Foster a Reading Culture

The presence of books at home and access to a library are positively associated with better performance. Schools should be equipped with libraries where pupils can go and read. Library time could be scheduled for each class so that children get used to using the library. In some places the school may be the only source of books that

pupil can read. Structures should be put in place so that even during weekends pupils who can use the library should have access.

15. Encourage Long Tenure of School Heads in the Same School

This study finds that better performance is associated with School Heads who have been in the same school for 6 - 11years. It would appear that in early years of posting, School Heads try to find their way and the impact is not realised until much later. School Heads should therefore not be moved around, unless one is experiencing some extenuating circumstances.

16. Develop Contingency Plans for Teacher Absenteeism

The impact of teacher absenteeism on pupil achievement is high. Yet, a teacher may have to be absent for valid reasons, such as sickness. There should be plans for dealing with such absenteeism. Otherwise, unnecessary teacher absenteeism should receive zero tolerance.

17. Address Shortages of Resources

Resources were found to be linked to achievement. Classrooms, furniture, electricity and water are some of the items that should be available in every school.

18. Address Teacher Qualification

The Ministry of education and skills development has recognised the importance of a higher level of teacher qualification in a study on teacher supply and demand at both the primary and secondary school level. The Ministry recommends the phasing out of both the Primary Teaching Certificate and the Diploma in Secondary Education. This report recommends that all teacher qualification at all levels of the school system should be a Degree or higher.

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Appendix 1 Competency Levels

Mathematics Competency Levels

Low National Benchmark

A. Learners have some basic mathematical knowledge
B. Learners demonstrate an understanding of whole number and can do simple computation with them.
C. They demonstrate familiarity with basic properties of shapes such as triangle, square and rectangles.
D. They can read information from simple graph and tables.

Medium National Benchmark

E. Learners can apply basic mathematical knowledge in straight forward situation.
F. They can read, interpret and use different representation of numbers.
G. They can perform operations up to 3 digit numbers and decimals.
H. They can extend simple patterns.
I. They are familiar with range of two dimensional shapes.
J. They can interpret different representation of the same data, similar to F.

High National Benchmark

K. Learners can apply their knowledge and understanding to solve problems.
L. They can solve multi step word problems involving addition, subtraction, multiplication and division.
M. Learners can use their understanding of place value and simple fraction to solve problems.
N. They can solve simple equations.
O. Learners show understanding of three dimensional objects, how shapes can make other shapes.
P. They demonstrate a variety of measurement skills and interpret, organize and represent data in tables and graphs to solve problem.
Q. They show understanding of solving games and puzzles.

Setswana Competency Levels

Low National Benchmark

A. Read and write simple sentences
B. Use basic punctuations appropriately in reading and writing
C. Arrange words alphabetically
D. Translate simple sentences
E. Explain kinship terms
F. Decode meaning of simple words and phrases
G. Spell words with basic form and follow rules of orthography

Medium National Benchmark

H. Read and recall events and characters in a story read
I. Write at least meaningful short paragraphs
J. Use punctuation marks correctly in reading and writing
K. Use simple sentence structures
L. Translate complex and compound sentences

High National Benchmark

M. Read a story and recall events, characters and meanings of words and explain ideas.
N. Write own sentences using different parts of speech correctly.
O. Write a composition of not less than three quarters of a page.
P. Write compound and complex sentences.

English Competency Levels

Low National Benchmark

A. Read and write simple sentences
B. Use basic punctuations appropriately in reading and writing
C. Arrange words alphabetically

Medium National Benchmark

D. Read and recall events and characters in a story
E. Write at least a meaningful short paragraph
F. Use punctuation marks correctly in reading and writing

High National Benchmark

G. Read a story and recall events, characters and meanings of words and explain ideas
H. Write own sentences using different parts of speech correctly
I. Write a composition of not less than three quarters of a page
J. Write compound and complex sentences

Appendix 2 Test Curriculum Match

Mathematics Test Curriculum Match Analysis

Curriculum match?	**Numbers and Operations**		Curriculum match?	**Statistics**		Curriculum match?	**Measures**		Curriculum match?	**Geometry**		Curriculum match?	**Problem Solving**	
Item no.	Yes	No	Item no.	Yes	No	Item no.	Yes	No	Item no.	Yes	No	Item no.	Yes	No
1	1.2.1.3													
2	1.2.1.2													
3	1.3.1 1.4.1													
4	1.5.1.4 1.5.1.5													
5	1.5.1.2													
6	1.6.1.2													
			7	5.1.1.4										
8	1.1.1.6													
						9	3.1.1.2							
						10	3.1.1.3							
						11	3.4.1.2							
									12	2.1.1.3				
						13	3.4.1.1							
14	1.6.1.7													
15	1.4.1.7													
16	1.3.1.3													
17	1.6.1.6													
18	1.2.1.5													
									19	2.1.1.3				
									20	2.2.1.1				
21	3.4.1.3													
												22	4.2.1.1	
									23	3.1.1.3				
						24	3.1.1.4							
						25	3.1.1.6							
												26	4.1.1.2	
						27	3.5.1.4							
												28	4.1.1.1	

Setswana Test Curriculum Match Analysis

Curriculum match?	Reading		Curriculum match?	Grammar		Curriculum match?	Composition	
Item no.	Yes	No	Item no.	Yes	No	Item no.	Yes	No
1	343							
2	343							
3	346							
4	343							
5	3410							
6	3410							
7	421							
8	421							
			9	452				
			10	452				
			11	461				
			12	461				
			13	461				
			14	432				
			15	432				
			16	432				
			17	4131				
			18	4131				
			19	433				
			20	433				
			21	465				
			22	465				
			23	469				
			24	409				
			25	462				
			26	521				
			27	521				
			28	521				
29	353							
30	354							
31	343							
32	351							
33	353							
34	353							
35	357							
36	391							
37	392							
						38	471	

English Test Curriculum Match Analysis

Curriculum match?	Reading		Curriculum match?	Compositing		Curriculum match?	Grammar	
Item no.	Yes	No	Item no.	Yes	No	Item no.	Yes	No
						1	Std 3:4411	
						2	Std 3:4411	
						3	Std 3:4515	
						4	Std 3:4515	
						5	Std 2:4415	
						6	Std 3:4515	
						7	Std 3:4516	
						8	Std 3:4516	
						9	Std 3:4516	
						10	Std 4:4416	
						11	Std 4:4411	
						12	Std 4:4411	
						13	Std 4:4416	
						14	Std 4:4411	
						15	Std 2:4414	
						16	Std 2:4414	
						17	Std 4:4411	
						18	Std 4:4411	
						19	Std 4:4411	
20	Std 1:3512							
21	Std 1:3512							
22	Std 3:3414							
23	Std 3:3414							
24	Std 4:3513							
25	Std 3:3414							
26	Std 2:4415							
27	Std 4:3513							
28	Std 2:4415							
29	Std 3:3414							
30	Std 3:3912							
31	Std 2:4415							
32	Std 4:3513							
						33	Std 3 4311	
						34	Std 3 4311	
						35	Std 4 4312	
						36	Std 3 4613	
			37	Std 4:4611				
			38	Std 1:4411				

Appendix 3 Classification of Items by Cognitive Domain and Benchmarks

Mathematics

Benchmark	Knowledge	Understanding	Application	Reasoning	Total
Low Benchmark	**1** (1) A	**8** (2) B			
	2 (1) A				
	4 (2) B				
	6 (1) B				
	7 (4) D				
	10a (1) A				
	12 (2) C				
	13 (3) D				
	19 (1) C				
	20 (2) A				
	23 (1) C				
	27a (1) D				
					22
Medium Benchmark	**3** (5) G	**25** (1) G	**14** (2) E	**3** (5) G	
	9 (1) E	**10b** (1) E	**15** (2) E	**9** (1) E	
	24 (2) G	**11** (1) G	**16** (2) E	**24** (2) G	
	27b (1) F	**17** (3) G	**21** (2) G	**27** (b) (i) F	
					23
High Benchmark		**5** (1) M		**22** (5) K	
		18 (4) N		**26** (2) N	
				28 (3) Q	
					15
Total	**29**	**13**	**8**	**10**	**60**
Progression	**13/29**	**5/13**	**3/8**	**4/10**	**26/60**

( ): Marks available for the question
A-P: Benchmark objectives addressed

Setswana

Benchmark	Knowledge	Understanding	Application	Reasoning	Total
Low Benchmark	**7** (1) C				
	8 (1) C				
	9 (1) F				
	10 (1) F				
	19 (1) G				
	20 (1) G				
	21 (1) F				
	22 (1) F				
	26 (1) E				
	27 (1) E				
	28 (1) E				
					11
Medium Benchmark	**11** (1) K	**1** (1) H	**29** (1) H		
	12 (1) K	**36** (1) H	**30** (1) H		
	13 (1) K	**37** (1) H	**31** (1) H		
	14 (1) J		**33** (1) H		
	15 (1) J				
	16 (1) J				
	17 (1) L				
	18 (1) L				
	23 (1) K				
	24 (1) K				
	25 (2) K				
					19
High Benchmark		**2** (1) M	**32 (**2) M		
		3 (1) M	**34** (1)M		
		4 (1) M	**35** (1) M		
		5 (1) M	**38** (10)O		
		6 (1) M			
					19
Total	**23**	**8**	**18**		
Progression	**10/23**	**3/8**	**9/18**		**22/49**

( ): Marks available for the question
A-J: Benchmark objectives addressed

English

Benchmark	Knowledge	Understanding	Application	Reasoning	Total
Low Benchmark	**1** (1) A	**10** (1) A			
	2 (1) A	**11** (1) A			
	33 (1) B	**12** (1) A			
	20 (1) C	**13** (1) A			
	21 (1) C	**14** (1) A			
		34 (1) B			
					11
Medium Benchmark	**36** (1) F	**5** (1) E			
		6 (1) E			
		22 (1) D			
		24 (1) D			
		30 (1) D			
		35 (1) F			
					7
High Benchmark	**3** (1) J	**15** (1) H	**7** (1) H		
	4 (1) J	**16** (1) H	**8** (1) H		
		17 (1) H	**9** (1) H		
		18 (1) H	**37** (10) I		
		19 (1) H			
		23 (1) G			
		25 (1) G			
		26 (1) J			
		27 (1) G			
		28 (1) J			
		29 (1) G			
		31 (1) J			
		32 (2) G			
		38 (3) H			
					32
Total	**8**	**29**	**13**		
Progression	**5/8**	**7/29**	**5/13**		**17/50**

( ): Marks available for the question
A-Q: Benchmark objectives addressed

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