CHAPTER 5

DATA ANALYSIS AND INTERPRETATION

5.1 Introduction

Chapter 4 focused on the empirical research design and the method of investigation and outlined the various factors and their predicted effect on Grade 12 results. In this chapter the data derived from the views of Grade 12 teachers and school principals are analysed, and it is considered whether or not they support the hypotheses that arose from the various theory analyses as reflected in Chapters 2 and 3.

This chapter is thus divided into four parts, the first being a summary of the hypotheses to be tested which arise out of the literature, and relate to the variables which were expected to influence Grade 12 results. The Grade 12 results are considered here to be the dependent variable. With regard to the other variables, measured in this study, while not experimentally manipulated, it can be assumed that they have to have predated the Grade 12 results and possibly influenced them. This chapter examines the degree of influence or otherwise.

Reporting of the data from group one (high performing) schools, as well as from group two (poorly performing) schools used for testing these hypotheses is then divided into three sections, as follows:

- Frequency analyses and descriptive statistics extracted from the results tables where they are of possible interest.
- Contingency tables with chi-square analysis testing the independence of the variables where possible relationships between the variables emerge.
- Contingency tables with chi-square analysis where the results are not significant and independence of the variables from each other can therefore be assumed.

COMPARISON OF THE DATA FROM BOTH GROUPS OF SCHOOLS

Comparison of the data from both groups of schools was undertaken to test the 18 hypotheses listed in Chapter 4 on the influence of different variables upon Grade 12 results, as each group of schools was chosen to represent different types of results, viz.:

- high performing; and
- poorly performing

Consequently Group 1 schools are styled high performing and Group 2 schools poorly performing.

CONTINGENCY ANALYSES

Before testing the main hypotheses on the effect of the various factors on Grade 12 results, I decided first to see which of the factors might be related to one another in some way, thus impacting on interpretation of the results of the hypothesis testing. Thus in the two-way contingency tables given in Sections 5.4, 5.5, 5.7 and 5.8 pairs of variables are compared and subjected to chi-square testing *separately* for each of the two groups (high performing and poorly performing) of schools.

The chi-square is an appropriate test for this comparison of variables, since it is a “statistical procedure that is used as an inferential statistic with nominal data, such as frequency counts” (McMillan & Schumacher 1993: 612).

It should also be indicated that in this presentation of the analysis and interpretation of the results, not all the items in the questionnaire will be considered, but only those items which yielded statistically significant results.

5.2 Research Hypotheses

(See: 4.3; repeated here for the reader's convenience)

As discussed in Chapter 4 the 18 hypotheses which emerged for testing were as follows:

5.2.1 Teacher factors

Highest academic qualification of educators (Variable 4)

H_{01} The Grade 12 results in a school are independent of the academic level of Grade 12 teachers.

Highest teaching qualification of educators (Variable 5)

H_{02} The Grade 12 results in a school are independent of the level of teaching qualification of Grade 12 teachers.

Teachers' home language (Variable 7)

H_{03} The Grade 12 results in a school are independent of the home language of Grade 12 teachers.

5.2.2 School factors

Locality of school, rural/urban (Variable 8)

H_{04} The Grade 12 results in a school are independent of the situation of the school in a rural area.

Number of classrooms (Variable 10)

H_{05} The Grade 12 results in a school are independent of the sufficiency of classrooms in the school.

Assembly hall (Variable 12)

H_{06} The Grade 12 results in a school are independent of the presence of an assembly hall in the school.

Administration block (Variable 15)

H_{07} The Grade 12 results in a school are independent of the presence of an administration block in the school.

Stationery supply (Variable 16)

H_{08} The Grade 12 results in a school are independent of the adequate provision of stationery in the school.

Library (Variable 17)

H_{09} The Grade 12 results in a school are independent of the presence of a library in the school.

Library book stock (Variable 19)

H_{010} The Grade 12 results in a school are independent of the presence of a good number of books in the school library.

Library service (Variable 21)

H_{011} The Grade 12 results in a school are independent of the presence of adequate service in the school library.

Audio-visual aids (Variable 22)

H_{012} The Grade 12 results in a school are independent of the adequacy of audio-visual aids in the school.

Teacher-generated problems (Variable 29)

H_{013} The Grade 12 results in a school are independent of the seriousness of teacher-generated problems in the school.

5.2.3 Parental involvement

Meetings with parents (Variable 31)

H_{014} The Grade 12 results in a school are independent of the frequency of meetings with parents in the school.

5.2.4 Teacher motivation and management

Staff meetings (Variable 44)

H_{015} The Grade 12 results in a school are independent of the frequency of staff meetings in the school.

Scheduling of staff meetings (Variable 45)

H_{016} The Grade 12 results in a school are independent of the scheduling of staff meetings in the school.

5.2.5 Learner motivation and management

Learner motivational levels (Variable 54)

H_{017} The Grade 12 results in a school are independent of the level of learner motivation in the school.

Performance with notes and summaries (Variable 56)

H_{018} The Grade 12 results in a school are independent of the level of learner performance in making notes and summaries in the school.

In the following analyses, it should be borne in mind that high performance or poor performance forms the background to discussion. High performance in sections 5.3 through 5.5, and low performance in sections 5.6 through 5.8 will be discussed.

5.3 Frequency Analysis for Group One (high performing) Schools

The following are some of the descriptive statistics for group one (high performing) schools which have a bearing on the contingency tables testing the independence of the variables, and the testing of the hypotheses.

Table 5.3.1: Frequency distribution of highest academic qualification of teachers (variable 4) in Group 1 (high performing) schools

	Frequency	*Per cent*	*Cumulative Frequency*	*Cumulative percentage*
Std 10	19	22.09	19	22.09
Bachelor's degree	29	33.72	48	55.81
Honours degree	23	26.74	71	82.56
Master's degree	7	8.14	78	90.70
Other	8	9.30	86	100.00

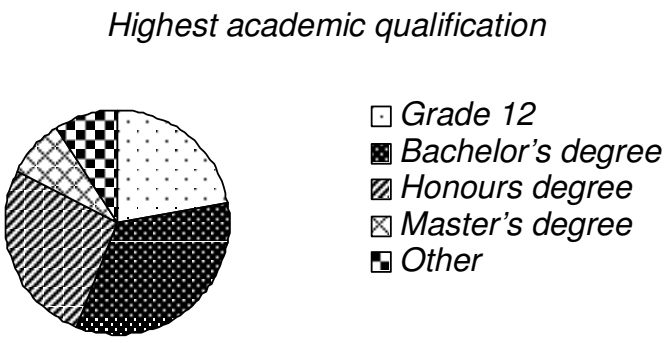


Figure 5.3.1: Highest academic qualification of teachers (variable 4) in Group 1 (high performing) schools

It may be noted that 33,7% of the Grade 12 teachers in the sampled high performing schools hold Bachelor's degrees as their highest academic qualification, and a further 26,7% hold Honours degrees, 22, 9%, have a Standard 10 (Grade12), whereas only 8,1% hold Master's degrees. These results are represented in the pie-chart in Figure 5.3.1. This suggests that this group of schools has teachers that are reasonably well qualified.

Table 5.3.2: Frequency distribution of teachers' home language (variable 7) in Group 1 (high performing) schools

	Frequency	*Per cent*	*Cumulative frequency*	*Cumulative percentage*
TshiVenda	80	91.95	80	91.95
Other	7	8.05	7	100.00

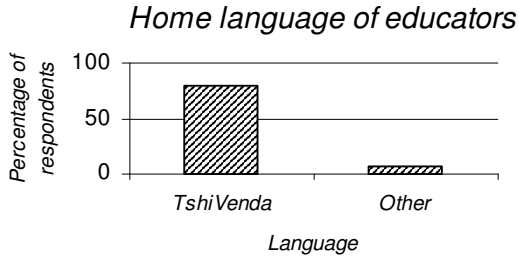


Figure 5.3.2: Teachers' home language (variable 7) in Group 1(high performing) schools

From the results in Table 5.3.2 one can observe that the largest number of the respondents, 91,9%, are Vhavenda. One may argue that the fact that the home language of most teachers in the high-peforming schools in Tshivenda was an advantage as it reflects a culture in which academic achievement is valued – as discussed in Chapter 2 (Section 2.4.4). However, the teacher's home language has not emerged as an important variable in this study, largely because the distribution was fairly uniform over both high-performing and poorly performing schools.

Table 5.3.3: Frequency distribution of school locality (rural/urban – variable 8) in Group 1 (high performing) schools

	Frequency	*Per cent*	*Cumulative frequency*	*Cumulative percentage*
Rural	58	66.67	58	66.67
Urban	29	33.33	87	100.00

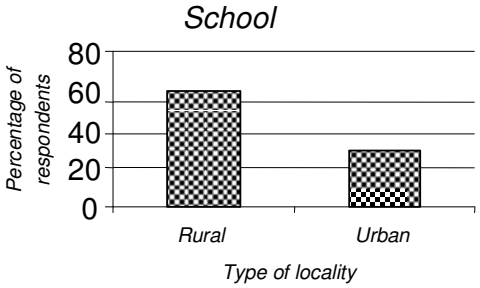


Figure 5.3.3: School locality (variable 8) in Group 1 (high performing) schools

An observation which may be made from Table 5.3.3 is that 66,7% of the high performing schools are in rural areas. It is surprising to find that more schools in rural areas are performing well, since rural schools can be expected to have fewer resources, require longer journeys on the part of learners, and adversely affect teachers by subjecting them to higher prices and more limited resources. It may, however, also be pointed out that rural schools are free of the type of problems mostly associated with urban schools, such as violence and discipline.

In this context the matter of resource availability in high performing schools assumes even greater importance.

Table 5.3.4: Frequency distribution of sufficiency of resources (variables 10, 12, 15, 17 and 23)) in Group 1(high performing) schools

	State	*Frequency*	*Per cent*	*Cumulative frequency*	*Cumulative percentage*
Classrooms (v.10)	Sufficient	24	27.59	24	27.59
	Insufficient	63	72.41	87	100.00
Assembly hall (v.12)	Present	26	30.23	26	30.23
	Absent	60	69.77	86	100.00
Administration block (v.15)	Present	56	65.88	56	65.88
	Absent	29	34.12	85	100.00
Library (v.17)	Present	42	48.84	42	48.84
	Absent	44	51.16	86	100.00
Audio-visual aids (v.23)	Adequate	17	19.77	17	19.77
	Inadequate	69	80.23	86	100.00

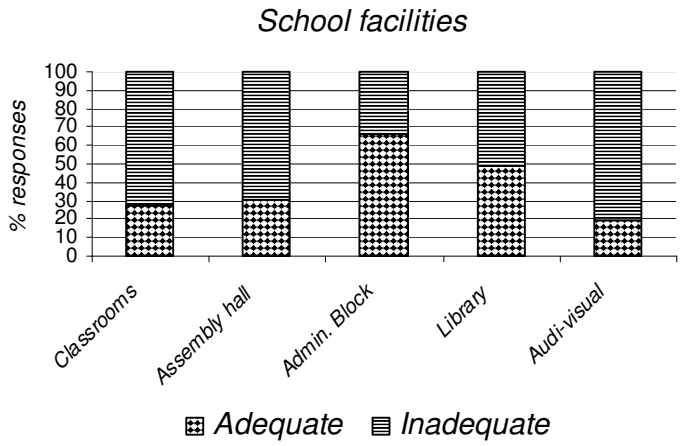


Figure 5.3.4: Sufficiency of resources (variables 10, 12, 15, 17 and 23) in Group 1 (high performing) schools

From Table 5.3.4, reflected in Figure 5.3.4, it is suggested that the majority of high performing schools are inadequately resourced. However, the results could mean that teachers are improvising without adequate resources, since, by definition they are managing to get excellent results.

5.4 Contingency Tables where there are Statistically Significant Relationships between Variables for Group One (High Performing) Schools

In this section tables containing statistically significant relationships ($p<.05$) between variables are presented only for the Group 1 (high performing) schools. More reliable conclusions can thus be drawn.

For every set of variables, the following are tested:

H_0 : The two variables are independent from one another (not related)
H_a : The two variables are dependent on one another (related)

Table 5.4.1: Two-way frequency distribution of classroom sufficiency (variable 10) by school locality (rural/urban – variable 8) in Group 1 (high performing) schools

	Rural	*Urban*
Sufficient classrooms	22	2
Insufficient classrooms	36	27

Statistical test for independence:

Test	*Degrees of freedom*	*Chi-square value*	*p-value*
Chi-square	1	9.3214	.0023*

*p<.05

Effect size[1] 0.33 (Medium) Categorization of effect sizes in this thesis is based on the guidelines provided by Ellis, S.M., & Steyn, H.S. (2003).

Decision : Reject H_0 at a 5% level of significance.

Conclusion: There is enough statistical evidence to suggest that school locality and classroom sufficiency are dependent on (related to) one another. I therefore conclude from this that rural schools are better resourced in terms of number of classrooms than are urban schools.

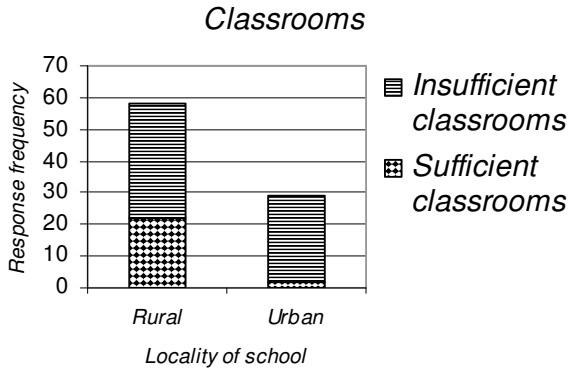


Figure 5.4.1: Sufficiency of classrooms by school locality) in Group 1 (high performing) schools

From the table and Figure 5.4.1 it is interesting to note that classroom insufficiency is more prevalent in the urban areas of the high performing schools. This suggests that classroom insufficiency could be attributed to population density, which is considerably higher in urban areas due to migration in search of labour. It may also be that large numbers of students from the rural areas flock to the urban areas with their parents who are in search of work, or in search of schools they consider well-resourced compared with those in rural areas. The insufficiency of classrooms in the urban areas would therefore represent a lack of preparedness for these tendencies. It may also reflect a policy of concentrating building resources on classrooms in the rural areas rather than any other kind of structure, such as libraries and administration blocks, discussed further on.

[1] Categorisation of effect sized in this thesis is based on the guidelines provided by Ellis, S.M., & Steyn, H.S. (2003).

Table 5.4.2: Two-way frequency distribution of presence of assembly hall (variable 12) by school locality (rural/urban – variable 8) in Group 1 (high performing) schools

	Rural	*Urban*
Assembly hall present	10	16
Assembly hall absent	48	12

Missing frequency: 1

Statistical test for independence:

Test	*Degrees of freedom*	*Chi-square value*	*p-value*
Chi-square	1	14.2540	.0002*

*p<.05

Effect size 0.41(Medium)

Decision : Reject H_0 at the 5% level of significance.

Conclusion : There is enough statistical evidence to suggest that school locality and the presence of an assembly hall are dependent on (related to) one another.

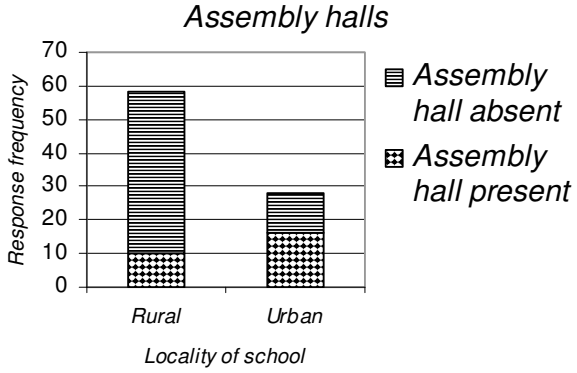


Figure 5.4.2: Presence of assembly hall by school locality

The majority of high performing schools in the urban areas have an assembly hall as compared with only 10 out of 58 such schools in rural areas which also have an assembly hall. In the sense that they have more halls, schools in urban areas are well resourced as compared with those in rural areas. The difference is no doubt due to the difficulty of building in rural areas, where piped water may not be available, and the transport of materials is difficult and expensive. The provision of classrooms would have been a greater priority, and this is supported by the information provided in Table 5.4.1.

Table 5.4.3: Two-way frequency distribution of presence of administration block (variable 15) by school locality (rural/urban – variable 8) in Group 1 (high performing) schools

	Rural	*Urban*
Admin block present	33	23
Admin block absent	24	5

Missing frequency: 2

Statistical test for independence:

Test	*Degrees of freedom*	*Chi-square value*	*p-value*
Chi-square	1	4.9116	.0267*

*p<.05

Effect size 0.24 (Medium)

Decision : Reject H_0 at a 5% level of significance.

Conclusion : There is enough statistical evidence to suggest that school locality and the presence of an administration block are dependent on (related to) one another.

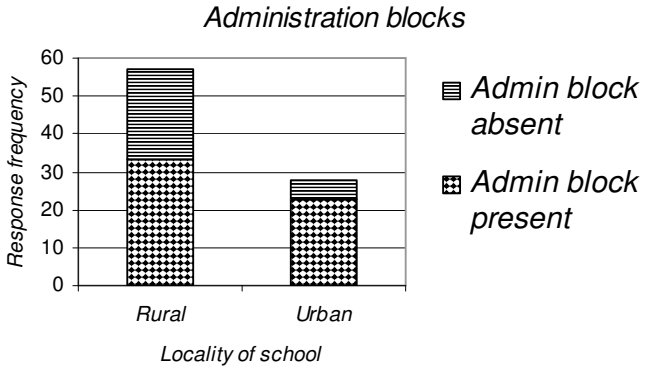


Figure 5.4.3: Presence of administration block by school locality

A small majority – 56,9% of the 58 respondents – from high performing schools in rural areas indicated that they have an administration block, whereas 82% of such schools located in the urban areas have an administration block. The difference between Tables 5.4.2 and 5.4.3 suggests that an administration block takes higher priority than an assembly hall.

To a certain extent the presence of an administration block may be a contributing factor to academic performance. Testing of the main hypotheses, however, reveals no particular effect on Grade 12 performance (Table 5.9.2.7). Any relationship between high performance and the presence of an administration block may be partly due to the fact that the principal, School Management Team and staff members can work more effectively in their offices and staff room, thus positively affecting Grade 12 results.

Table 5.4.4: Two-way frequency distribution of presence of library (variable 17) by school locality (rural/urban – variable 8) in Group 1 (high performing) schools

	Rural	*Urban*
Library present	21	21
Library absent	36	8

Missing frequency: 1

Statistical test for independence:

Test	*Degrees of freedom*	*Chi-square value*	*p-value*
Chi-square	1	9.7337	.0018*

*p<.05

Effect size 0.34 (Medium)

Decision : Reject H_0 at a 5% level of significance.

Conclusion : There is enough statistical evidence to suggest that school locality and the presence of a library are dependent on (related to) one another.

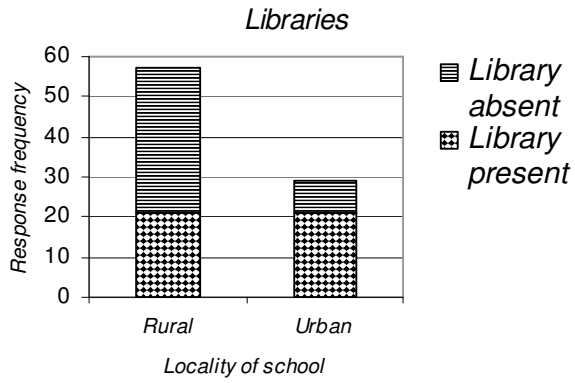


Figure 5.4.4: Presence of library by school locality) in Group 1(high performing) schools

Literature (Bernstein, 2004; Nelson Mandela Foundation, 2005; Simkins, Rule, & Bernstein, 2007) suggests that a library is essential to the development of a spirit of independent inquiry and thus the development of study skills among learners. Results here show that 63,1% of respondents from high performing schools in the rural areas indicated that they do not have libraries in their schools. These results, reflected also in the bar graph, suggest that such rural schools are, where libraries are concerned, not well resourced when compared with urban schools. It is possible that this also reflects on the

quality of the libraries. However, given that all these schools are high performing ones, the results further indicate that the presence of a library does not in fact have any significant effect on Grade 12 results, even though a library could be expected to play a part in the development of learner study skills as described above and in Chapter 2 (section 2.3.3). This alone suggests that library quality may not be as low as the lack of resources may suggest. The results here generally suggest that availability of resources is not a main contributor to academic success. It should also be considered to what extent learners have access to other libraries, for example a public library, which may be more useful than a school library. This, however, is more likely to happen in urban areas than in rural ones.

Table 5.4.5: Two-way frequency distribution of teachers making their own visual aids (variable 23) by school locality (rural/urban – variable 8) in Group 1 (high performing) schools

	Rural	*Urban*
Make own visual aids	9	12
Do not make own visual aids	47	17

Missing frequency: 2

Statistical test for independence:

Test	*Degrees of freedom*	*Chi-square value*	*p-value*
Chi-square	1	6.5784	.0103*

*p<.05

Effect size 0.28 (Medium)

Decision : Reject H_0 at a 5% level of significance.

Conclusion : There is enough statistical evidence to suggest that school locality and teachers making their own visual aids are dependent on (related to) one another.

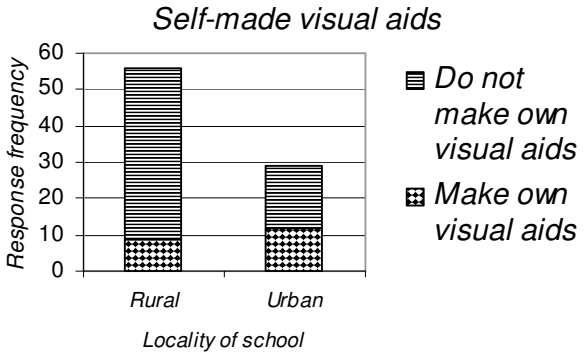


Figure 5.4.5: Two-way frequency distribution of teachers making their own visual aids (variable 23) by school locality (rural/urban – variable 8) in Group 1 (high performing) schools

The fact that the majority of teachers in rural areas do not make their own visual aids, may to a certain extent be attributed to a lack of materials, in turn due to a lack of funding. Zanqa (1999:96) notes the following:

> *Although there are a number of current examples of poorly-resourced schools that are performing virtual miracles of achievement, in the long term and on a day-to-day basis, lack of adequate funding can have a disastrous effect on achievement because it makes everything so much more difficult and thus demoralizing.*

Table 5.4.6: Two-way frequency distribution of teachers offering to help learners with time problems (variable 85) by gender of teacher (variable 6) in Group 1 (high performing) schools

	Male teachers	*Female teachers*
Offer to help	23	8
Do not offer to help	27	27

Missing frequency: 2

Statistical test for independence:

Test	*Degrees of freedom*	*Chi-square value*	*p-value*
Chi-square	1	4.7592	.0291*

*p < .05

Effect size 0.24 (Medium)

Decision : Reject H_0 at a 5% level of significance.

Conclusion : There is enough statistical evidence to suggest that the gender of teachers and teachers offering to help learners with time problems are dependent on (related to) one another. Female teachers in the research group are less inclined/willing to offer help to their learners.

This probably has a cultural basis, related to the high incidence of VhaVenda teachers in the high performing schools (Table 5.3.2). It is often remarked locally that in shops it is the male staff who are more helpful to customers than the female ones.

Table 5.4.7: Two-way frequency distribution of class meetings on discipline (variable 42) by school locality (rural/urban – variable 8)

	Rural	*Urban*
Class meets on discipline	44	28
Class does not meet on discipline	13	1

Missing frequency: 1

Statistical test for independence:

Test	*Degrees of freedom*	*Chi-square value*	*p-value*
Chi-square	1	6.5784	.0103*

*p < .05

Decision : Reject H_0 at a 5% level of significance.

Conclusion : There is enough statistical evidence to suggest that school locality and class meetings on discipline are dependent on (related to) one another. Whereas the vast majority of urban schools meet regularly to discuss disciplinary matters, a sizeable proportion of rural schools do not.

Although the majority of high performing rural schools do have discipline meetings, the fact that almost all such urban schools have these meetings suggests something about the learning environments encountered in the two different locations. The need for discipline is obviously higher in the urban setting.

5.5 Contingency Tables where there are no Statistically Significant Relationships between Variables for Group One (High Performing) Schools

For some of the variables, the chi-square analysis applied to contingency tables showed that some pairs of variables were independent of each other at p>.05 (5%), and that there was therefore no relationship between them. A selected number of different contingency tables were subjected to chi-square analysis. The analyses performed are not directly reported here, but are available. For a number of pairs, it seems enough to report that they are unrelated.

5.6 Frequency Analysis for Group Two (Poorly Performing) Schools

The following are some of the descriptive statistics for Group Two (poorly performing) schools.

Table 5.6.1: Frequency distribution of adequacy of school funding (variable 9) in Group 2 (poorly performing) schools

	Frequency	*Per cent*	*Cumulative frequency*	*Cumulative percentage*
Underfunded	43	87.76	43	87.76
Adequately funded	6	12.24	49	100.00

Naturally funding would have an impact on many of the other variables which have to do with the availability of resources, already considered, for instance, in Table 5.3.4, and further on.

Table 5.6.2: Frequency distribution of sufficiency of classrooms (variable 10) in Group 2 (poorly performing) schools

	Frequency	*Per cent*	*Cumulative frequency*	*Cumulative percentage*
Sufficient classrooms	8	16.33	8	16.33
Insufficient classrooms	41	83.67	49	100.00

Insufficiency of classrooms in 83.67% of the poorly performing schools certainly suggests that availability of classrooms has an impact on Grade 12 academic performance, given that this was the case in only 72.41% of the high-performing schools (Table 5.3.4). However, this is not borne out by the testing of the hypothesis relating Grade 12 results to classroom availability. (See Table 5.9.2.5).

Table 5.6.3: Frequency distribution of adequacy of classroom furnishings (variable 11)

3	Frequency	Per cent	Cumulative frequency	Cumulative percentage
Adequately furnished	4	8.00	4	8.00
Inadequately furnished	46	92.00	50	100.00

A reporting of 92% of inadequate furnishings in poorly performing schools also suggests some significant relationship between this variable and Grade 12 performance, but this is not borne out by the statistical testing of the hypothesis.

Table 5.6.4: Frequency distribution of presence of science laboratory (variable 13) and adequacy of equipment (variable 14)

	Frequency	*Per cent*	*Cumulative frequency*	*Cumulative percentage*
Laboratory	26	50.98	26	50.98
No laboratory	25	49.02	51	100.00
Adequately equipped	9	28.13	9	28.13
Inadequately equipped	23	71.88	32	100.00

Although slightly over half the poorly performing schools do have science laboratories, the fact that 71.88% are regarded by teachers as inadequately equipped must have some bearing on academic results. What is more probable, however, is that not as many rural students are engaging in science, so that overall Grade 12 results are not affected by this (Simkins, Rule, & Bernstein, 2007).

5.7 Contingency Tables where there are Statistically Significant Relationships between Variables for Group Two (Poorly Performing) Schools

In this section the tables with chi-square analysis where there are statistically significant relationships between variables are presented for the Group 2 (poorly performing) schools. In such cases the probability values of these tests are less than .05. There is thus a statistically significant relationship at the 5% level of significance, and more reliable interpretations can be made.

The first group of tables reflects those variables which were found to be related. In the case of these variables, therefore, it must be assumed that, where one variable changes, the other also changes because of a dependency relationship between the two.

For every set of variables, the following are tested:

H_0 : The two variables are independent of one another (not related).

H_a : The two variables are dependent on one another (related).

Table 5.7.1: Two-way frequency distribution of age of teachers (variable 3) by locality of school (rural/urban – variable 8) in Group 2 (poorly performing) schools

	Rural	*Urban*
25-34 years	8	10
35-39 years	6	13
40-55 years	11	2

Frequency missing: 1

Statistical test for independence:

Test	*Degrees of freedom*	*Chi-square value*	*p-value*
Chi-square	2	9.0139	.0109*

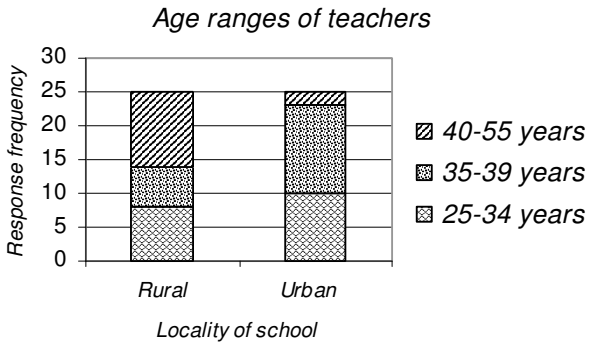
*p<.05

W= 0.42 (Medium)

Decision: Reject H_0 at a 5% level of significance.

Conclusion: There is enough statistical evidence to suggest that school locality and the age of teachers are dependent on (related to) one another. The effect size (w = 0.42) is medium, suggesting the possibility that in practice a larger proportion of teachers in the age group 40-55 teach in rural schools than in urban schools.

Figure 5.7.1: Age of teachers by locality of school



In these poorly performing schools it is interesting that the rural schools have, on the whole, the older teachers, and the younger ones are concentrated in the urban schools. This suggests that the teachers exercise some degree of choice over where they teach, as the younger ones could be expected to opt for a more urban environment, not always appealing to older people.

Table 5.7.2: Two-way frequency distribution of presence of library (variable 17) by locality of school (rural/urban – variable 8) in Group 2 (poorly performing) schools

	Rural	*Urban*
Library present	6	21
Library absent	19	4

Missing frequency: 1

Statistical test for independence:

Test	*Degrees of freedom*	*Chi-square value*	*p-value*
Chi-square	1	18.1159	<.0001*

*p<.05

W= 0.41 (Medium)

Decision : Reject H_0 at a 5% level of significance.

Conclusion : There is enough statistical evidence to suggest that school locality and the presence of a library are dependent on (related to) one another. The effect size (w = 0.41) is medium, suggesting the possibility that in practice a larger proportion of urban schools than rural schools have libraries.

Since libraries are generally regarded as invaluable sources of information, it would be logical to say that the use of libraries should potentially benefit or improve learner performance. On the other hand, absence of libraries is therefore believed to correlate positively with poor performance. In this instance, the majority of the poorly performing schools in urban areas are provided with libraries. Similar studies to the current one suggest that performance may remain poor, despite the presence of a library in a school. Here again the quality of the library and the way it is used may be more important than its actual presence.

Table 5.7.3: Two-way frequency distribution of presence of administration block (variable 15) by locality of school (rural/urban – variable 8) in Group 2 (poorly performing) schools

	Rural	*Urban*
Admin block present	9	20
Admin block absent	16	4

Missing frequency: 2

Statistical test for independence:

Test	*Degrees of freedom*	*Chi-square value*	*p-value*
Chi-square	1	11.3567	.0008*

*p<.05

W= 0.48 (Medium)

Decision : Reject H_0 at a 5% level of significance.

Conclusion : There is enough statistical evidence to suggest that school locality and the presence of an administration block are dependent on (related to) one another. The effect size (w = 0.48) is medium, suggesting the possibility that in practice a larger proportion of urban schools than rural schools have admin blocks.

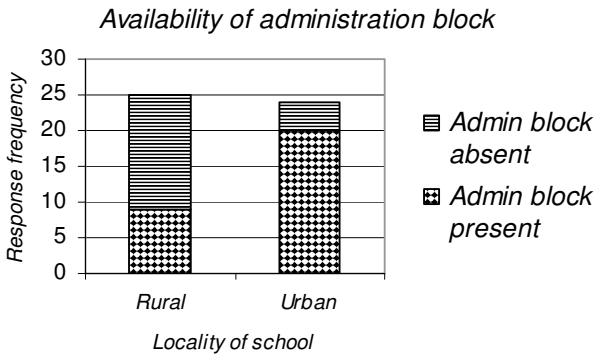


Figure 5.7.3: Presence of administration block by locality of school (rural/urban-variable 8) in Group 2 (poorly performing) schools

The results show that poorly performing urban schools do have physical facilities like an administrative block, whereas those that are rural lack such physical facilities. As discussed in section 5.4. above, in the context of high-performing schools, this is hardly surprising, and is probably due to the difficulty of building.

Table 5.7.4: Two-way frequency distribution of teachers making their own visual aids (variable 23) by locality of school (rural/urban – variable 8) in Group 2 (poorly performing) schools

	Rural	*Urban*
Make own visual aids	1	10
Do not make own visual aids	22	15

Missing frequency: 3

Statistical test for independence:

Test	*Degrees of freedom*	*Chi-square value*	*p-value*
Chi-square	1	8.6196	.0033*

*p<.05

W= 0.42 (Medium)

Decision : Reject H_0 at a 5% level of significance.

Conclusion : There is enough statistical evidence to suggest that school locality and teachers making their own visual aids are dependent on (related to) one another. The effect size (w = 0.42) is medium, suggesting the possibility that in practice a larger proportion of urban schools than rural schools are capable of making their own visual aids.

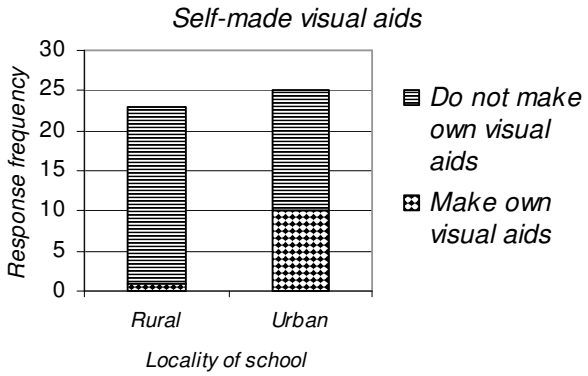


Figure 5.7.4: Self-made visual aids by locality of school in Group 2 (poorly performing) schools

The results show that a significantly larger proportion of teachers from rural areas do not make their own visual aids, but for poorly performing schools there is a large proportion in both types of location. Comparing tables and figures 5.7.4 with 5.4.5, this is a fairly revealing finding, given the fact that the SA DoE has Adapted an OBE teaching and learning approach, which encourages teachers to make their own visual and other aids, thereby compensating for the fact that they do not have satisfactory access to these types of resources. The ideal situation is that educators are encouraged to develop their own low cost materials and equipment to avoid being dependent on externally provided materials which are less available. Since the use of visual aids provides learners with opportunities for practical learning, lack of these resources could therefore be expected to affect learner performance negatively. Studies by Lemlock (1994) indicate that teacher-developed visual aids are more popular with learners and that learners tend to achieve better results when using these resources than those learners who rely only on commercially produced materials. Manana (1994) too maintains that low-cost science teaching equipment in developing countries has a superior pedagogical value over sophisticated equipment as it is developed at the level of the people. In cases where teachers made their own visual aids, achievement improved.

These results therefore suggest that a lack of locally produced visual aids would affect learner performance negatively and learners would perform poorly.

Table 5.7.5: Two-way frequency distribution of presence of assembly hall (variable) by locality of school (rural/urban – variable 8) in Group 2 (poorly performing) schools

	Rural	Urban
Assembly hall present	3	20
Assembly hall absent	22	5

Missing frequency: 1

Statistical test for independence:

Test	*Degrees of freedom*	*Chi-square value*	*p-value*
Chi-square	1	23.2689	<.0001*

*p<.05

W= 0.68 (Large)

Decision: Reject Ho at a 5% level of significance.

Conclusion: There is enough statistical evidence to suggest that school locality and the presence of an assembly hall are dependent on (related to) one another. The effect size (w = 0.68) is large, suggesting a strong possibility that in practice a larger proportion of urban schools than rural schools has assembly halls.

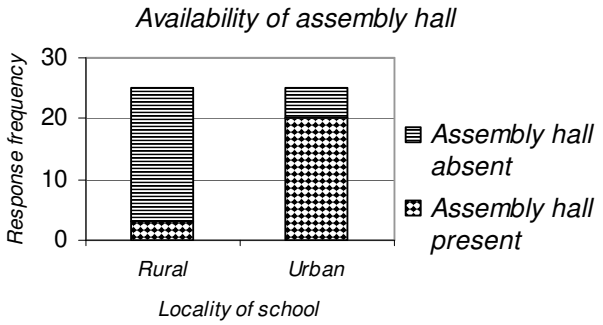


Figure 5.7.5: Presence of assembly hall by locality of school (rural/ urban-variable 8) in Group 2 (poorly performing schools)

As with the administration block (Table 5.7.3.), it is hardly surprising that rural schools have fewer assembly halls than urban ones do. Buildings away from urban centres are more likely to cause problems. The fact that all these schools are in the group that performs poorly, suggests that this rural-urban distribution has no effect on Grade 12 performance.

Table 5.7.6: Two-way frequency distribution of presence of science laboratory (variable 13) by locality of school (rural/urban – variable 8) in Group 2 (poorly performing) schools

	Rural	*Urban*
Science lab present	6	20
Science lab absent	19	5

Missing frequency: 1

Statistical test for independence:

Test	*Degrees of freedom*	*Chi-square value*	*p-value*
Chi-square	1	15.7051	<.0001*

*p<.05

W= 0.56 (Large)

Decision : Reject Ho at a 5% level of significance.

Conclusion : There is enough statistical evidence to suggest that school locality and the presence of a science laboratory are dependent on (related to) one another. The effect size (w = 0.56) is large, suggesting the possibility that in practice a larger proportion of urban schools than rural schools have Science laboratories.

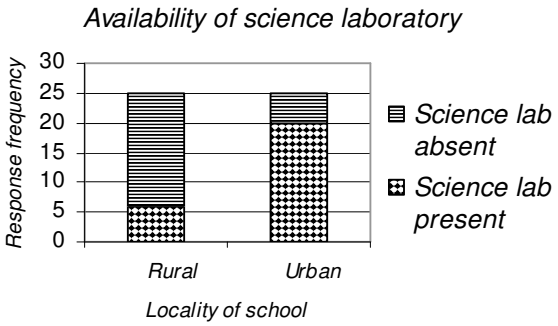


Figure 5.7.6: Presence of science laboratory by locality of school (rural/ urban – variable 8) in Group 2 (poorly performing) schools

Science laboratories are virtually absent in the poor-performing rural schools, but not in the urban ones. The third International Mathematics and Science Study Repeat (TIMSS-R) report indicates that teaching and learning in Mathematics and Science were seriously hampered by a shortage of facilities (TIMSS-R, 2001). The results highlight the shortage of facilities in schools with poor achievement. Out of the nine provinces in South Africa, Limpopo is regarded as the poorest, and it obtained the lowest mean score in Science. According to Macdonald and Rogan (1988), learner performance, particularly in Natural Sciences, is a function of practical work. The laboratory acquires a key role in Science classrooms, not only as a means for visualising textbook material, and for demonstration, but rather as a key element in the Science learning process on account of its use in stimulating and motivating learners.

Studies by Doidge (1991) reveal that even though many schools do have laboratories, these facilities are mostly used by the Heads of Department or by higher classes only. Furthermore, in most schools, laboratories are always reported as being locked on account of possible vandalism. In addition, many

laboratories are without apparatus. The situation Doidge describes in such a dramatic fashion resembles the situation in most schools in urban areas.

Table 5.7.7: Two-way frequency distribution of teachers offering to help learners manage their time (variable 85) by age of teacher (variable 3) in Group 2 (poorly performing) schools

	25-34 years	*35-39 years*	*40-55 years*
Offer to help	3	12	2
Don't offer to help	15	7	10

Missing frequency: 2

Statistical test for independence:

Test	*Degrees of freedom*	*Chi-square value*	*p-value*
Chi-square	2	11.0972	.0039*

*p<.05

Effect size: 0.48 (Medium)

Decision : Reject H_0 at a 5% level of significance.

Conclusion : There is sufficient statistical evidence to suggest that the age of teachers and teachers offering to help learners manage their time are dependent on (related to) one another. The effect size (w = 0.48) is medium, suggesting the possibility that in practice a larger proportion of teachers between the ages 35-39 than in the age brackets 25-34 and 40-55 offer to help learners manage their time.

In recent years much attention has been paid to COLTS (Culture of Learning, Teaching and Service) as something that should be promoted in schools in order to bring about improvement, and it could be argued that this relates directly to teacher motivation (Van der Westhuizen *et al*. 1999:318). It seems

possible that teachers in the age bracket 35-39, who are in the prime of their career lives, are energetic and have developed more of an interest in teaching, whereas those who are in the category 40-55 may be giving up on account of other responsibilities, and that teachers in the 25-34 age group have not developed as yet, although this seems unlikely. More likely factors are the type of training they have received, or the primacy of responsibilities associated with a young family. This group may also be too young to understand the needs of learners fully, and may not be sure of what to do in terms of helping learners manage their time. They may not themselves be aware of the need for time management.

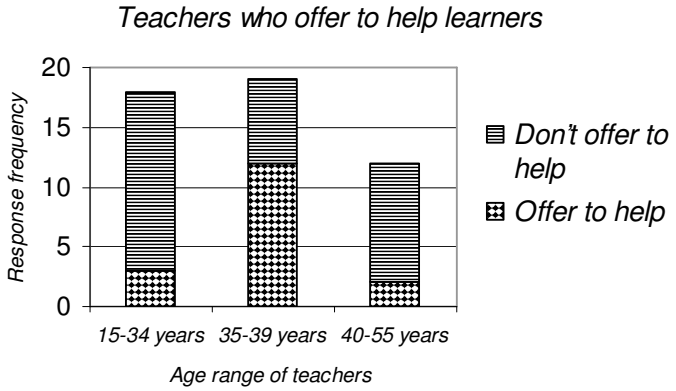


Figure 5.7.7: Teachers who offer to help learners manage their time by age range of teachers in Group 2 (poorly performing) schools

Table 5.7.8: Two-way frequency distribution of teachers offering to help learners manage their time (variable 85) by gender of teacher (variable 6)

	Male	*Female*
Offer to help	11	6
Don't offer to help	12	20

Missing frequency: 2

Statistical test for independence:

Test	*Degrees of freedom*	*Chi-square value*	*p-value*
Chi-square	1	3.2993	.0493*

*p<.05

Decision: Reject Ho at a 5% level of significance.

Conclusion: There is enough statistical evidence to suggest that gender of teachers and teachers offering to help learners manage their time are dependent on (related to) one another.

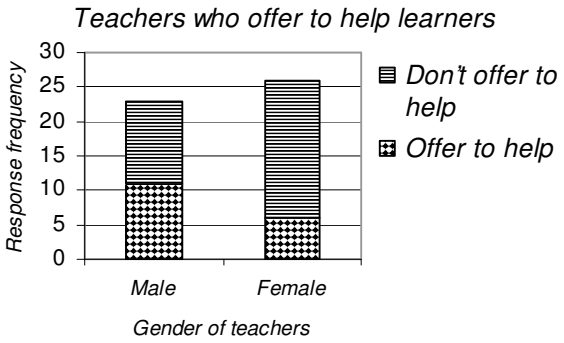


Figure 5.7.8: Teachers who offer to help learners manage their time (variable 85) by gender of teachers(variable 6) in Group 2 (poorly performing) schools

Results show that a larger proportion of male than female teachers offer to help learners manage their time. Where Afrikaans-speaking teachers are concerned, literature shows that 'burnout' among female teachers seemed to occur because of the "problems and uncertainties" connected with the "present period of transition and transformation in education" (Van der Linde, Van der Westhuizen & Wissing 1999:196; similarly Steyn 2000). It is possible that these "problems and uncertainties" have not only been affecting white teachers (Rigsby, Bennet & Boshoff 1996; Zangqa 1999:95), but black female teachers as well, and that this could have contributed to black female teachers' lack of enthusiasm to help learners manage their time. After all, black female teachers' stress levels are higher than the stress levels of their male counterparts (Van Zyl & Pietersen 1999:76-77).

Table 5.7.9: Two-way frequency distribution of class meetings about discipline (variable 42) by locality of school (rural/urban – variable 8) in Group 2 (poorly performing) schools

	Rural	*Urban*
Class meets on discipline	17	23
Class does not meet on discipline	8	2

Missing frequency: 1

Statistical test for independence:

Test	*Degrees of freedom*	*Chi-square value*	*p-value*
Chi-square	1	4.5000	.0339*

*p<.05

Effect size: 0.43 (Medium)

Decision: Reject H_0 at a 5% level of significance.

Conclusion: There is enough statistical evidence to suggest that school locality and class meetings concerning discipline are dependent on (related to) one another. The effect size (w = 0.43) is medium, suggesting the possibility that in practice a larger proportion of rural school classes meets on discipline.

Nelsen *et al*. (1993:4) stress the fact that class meetings concerning discipline are important. These authors maintain that positive discipline and self-discipline are promoted through empowerment techniques such as class meetings, which encourage a number of skills, including the following:

- Intrapersonal skills which seek to understand personal emotions.
- Interpersonal skills which seek to listen, communicate, co-operate, negotiate, share and empathize with others.
- Strategic skills which seek to use responsibility, adaptability, flexibility and integrity in responding to the limits and consequences of everyday life.
- Judgement skills which seek to use wisdom and appropriate values in evaluating situations.

These authors conclude that a lack of class meetings on (e.g.) discipline could affect learner performance negatively. Clearly, teachers attached to township schools in particular need to note this particular finding.

5.8 Contingency Tables where there are no Statistically Significant Relationships between Variables for Group Two (Poorly Performing) Schools

For some of the variables, the chi-square analysis applied to contingency tables showed that some pairs of variables were independent of each other at p>.05 (5%), and that there was therefore no relationship between the pairs of variables.

5.9 Testing of the Main Hypotheses[1] – Comparison of Data from Group One (High Performing) and Group Two (Poorly Performing) Schools

In comparing the two groups of schools (Group 1 high performing, representing good Grade 12 results, and Group 2 poorly performing, representing poor Grade 12 results), the chi-square test was once again appropriate for its capacity to test the independence of two variables. In this case one of the variables is in each case performance as reflected in the school group. This performance is allocated only two states: high (Group 1 schools) and poor (Group 2 schools), and represents the level of Grade 12 results obtained for all the schools in each group.

5.9.1. Null hypotheses which may be rejected

Meetings with parents

H_{014} The Grade 12 results in the schools in the sample under discussion are independent of the frequency of meetings with parents.

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Table 5.9.1.1: Frequency of meetings with parents

Category/state	*Group 1 schools*		*Group 2 Schools*	
	Freq.	*%*	*Freq.*	*%*
Half-yearly & annually	18	22.22	19	39.58
Quarterly & monthly	63	77.78	29	60.42

Missing frequency: 9

[1] Kindly note that I only report those results that had satisfactory cell frequencies.

Statistical test for independence:

Test	*Degrees of freedom*	*Chi-square value*	*p-value*
Chi-square	1	4.4410	.0351

*p<.05

W= 0.34 Medium

Since p<.05, the null hypothesis (H_{014}) has been rejected. Therefore it may be concluded that *the Grade 12 results in the sampled schools are dependent on the frequency of meetings with parents.* The effect size (*W* = 0.34) is medium, suggesting the possibility that in practice a larger proportion of groups 1 and 2 schools meet parents quarterly and monthly. Indeed there is good evidence to show that parents' involvement in a child's education before that child even starts school can be as important as any other kind of involvement (Madolo 1995:20, Winter & McDonald 1997), and has much to do with a child's level of literacy (Lauren & Allen 1999).

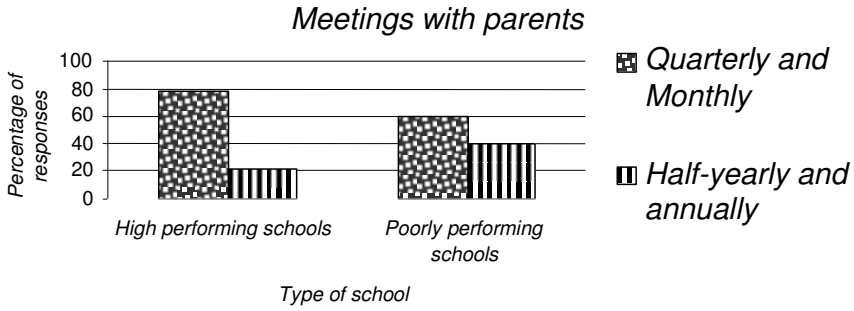

Figure 5.9.1.1: Frequency of meetings with parents

(Rosen 1997) agrees that structured parent-teacher interaction is preferable to one-to-one informal contact (which often results from particular problems teachers are experiencing with a particular learner). The main problem with one-to-one informal contact is to ensure that such interaction should not have negative consequences arising from parents being cornered into a defensive position (Rosen 1997:31), whereupon they may either punish their children or

side with them. Neither response is after all likely to help those involved solve the original problem.

Staff meetings

H_{015} The Grade 12 results in the schools in the sample under discussion are independent of the frequency of staff meetings.

Table 5.9.1.2: Staff meeting frequencies and percentages compared according to school performance group

Category/state	*Group 1 schools*		*Group 2 Schools*	
	Freq.	*%*	*Freq.*	*%*
Daily	10	11.63	19	37.25
Weekly	22	25.58	18	25.29
Monthly	41	47.67	10	19.61
Other frequency	13	15.12	4	7.84

Missing frequency: 1

Statistical test for independence:

Test	*Degrees of freedom*	*Chi-square value*	*p-value*
Chi-square	4	19.9694	.0005

*p<.05

W= 0.38 (Large)

Since p<.05, the null hypothesis (H_{015}) is rejected. Therefore it may be concluded that *the Grade 12 results in the sampled schools are dependent on the frequency of staff meetings.* The effect size (*w* = 0.38) is large, suggesting that the frequency of staff meetings (in favour of group 2 schools) has practical significance.

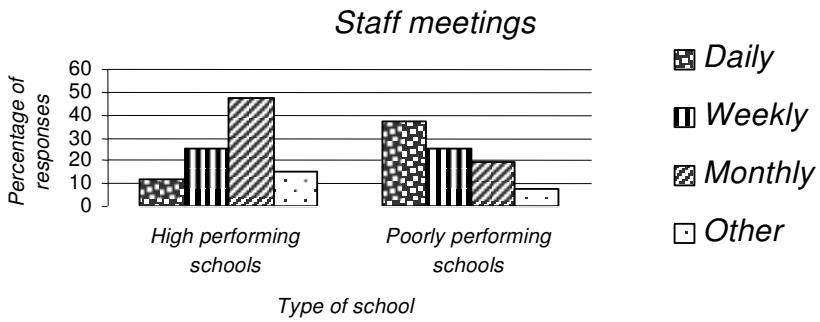

Figure 5.9.1.2: Percentages of staff meetings compared according to school performance group

This finding is consistent with previous research results, which confirm the positive effect of more frequent staff meetings (Mosoge & Van der Westhuizen 1997). In Chapter 2 (section 2.4.3.) the positive effect of involving teachers in the management of the school (Masoge & Van der Westhuizen 1997) is mentioned, and, clearly, frequent meetings must contribute to this.

However, this finding is rather surprising, given the poorer results of group 2 schools (relative to group 1 schools).

Scheduling of staff meetings (Variable 45)

H_{016} The Grade 12 results in the schools in the sample under discussion are independent of the scheduling of staff meetings.

Table 5.9.1.3: Scheduling of staff meetings (Variable 45) frequencies and percentages compared according to school performance group

Category/state	*Group 1 schools*		*Group 2 Schools*	
	Freq.	*%*	*Freq.*	*%*
Scheduled	72	82.76	33	64.71
Not scheduled	15	17.24	18	35.29

Statistical test for independence:

Test	*Degrees of freedom*	*Chi-square value*	*p-value*
Chi-square	1	5.7591	.0164

*p<.05

W= 0.2 Small

Since p<.05, the null hypothesis (H_{016}) is rejected. Therefore it may be concluded that *the Grade 12 results in the sampled schools are dependent on the scheduling of staff meetings.* The effect size (W = 0.2) is small, suggesting that this result has little practical value. Whether or not schools schedule regular staff meetings, seems to have little noticeable effect on performance.

5.9.2: Null hypotheses which may not be rejected

Highest academic qualification of educators

H_{01} The Grade 12 results in the schools in the sample under discussion are independent of the academic level of Grade 12 teachers.

Table 5.9.2.1: Highest academic qualification of educators (Variable 4) frequencies and percentages compared according to school performance group

Category/state	*Group 1 schools*		*Group 2 Schools*	
	Freq.	*%*	*Freq.*	*%*
Grade 12	19	22.09	17	34.00
Bachelor's degree	29	33.72	21	42.00
Honours degree	23	26.74	6	12.00
Other	15	17.44	6	12.00

Missing frequency: 2

Statistical test for independence:

Test	*Degrees of freedom*	*Chi-square value*	*p-value*
Chi-square	4	6.1294	.1897

Since p>.05, the null hypothesis is not rejected. Therefore it may be concluded that *the Grade 12 results in the sampled schools are independent of the academic level of Grade 12 teachers.*

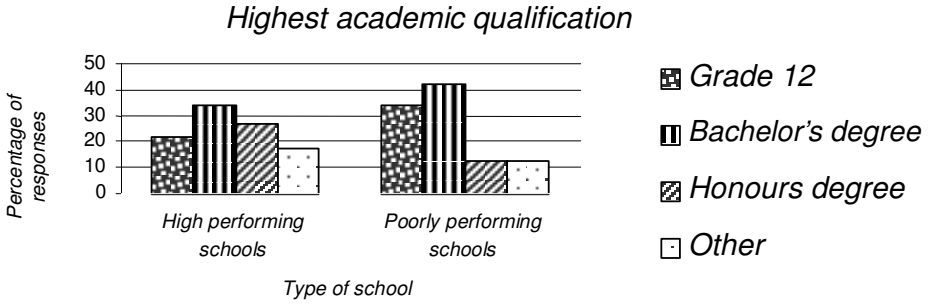

Figure 5.9.2.1: Highest academic qualification of educators (Variable 4) percentages compared according to school performance group

Inspection of Table 5.9.2.1 nonetheless reveals that the majority of teachers in Groups 1 and 2 – in other words, in both the high-performing and the poorly-performing schools – are educated up to the Bachelor's degree level. A sizeable proportion of teachers from Group 1 (high performing schools) are in possession of honours degrees, but a greater proportion in the Group 2 schools are thus qualified. This further supports the argument that Grade 12 results are not in any way dependent on teacher qualification, but possibly on some other teacher factor not revealed in this study.

Highest teaching qualification of educators.

H_{02} The Grade 12 results in the schools in the sample under discussion are independent of the level of teaching qualification of Grade 12 teachers.

Table 5.9.2.2: Highest teaching qualification of educators (Variable 5) frequencies and percentages compared according to school performance group

Category/state	*Group 1 schools*		*Group 2 Schools*	
	Freq.	*%*	*Freq.*	*%*
Secondary School Diploma	40	45.98	30	61.22
University Diploma	29	33.33	15	30.61
Other	18	20.69	4	8.16

Missing frequency: 2

Statistical test for independence:

Test	*Degrees of freedom*	*Chi-square value*	*p-value*
Chi-square	4	6.1452	.1885

Since p>.05, the null hypothesis (H_{01}) is not rejected. Therefore it may be concluded that *the Grade 12 results in the schools in the sampled schools are independent of the level of the teaching qualification of Grade 12 teachers.*

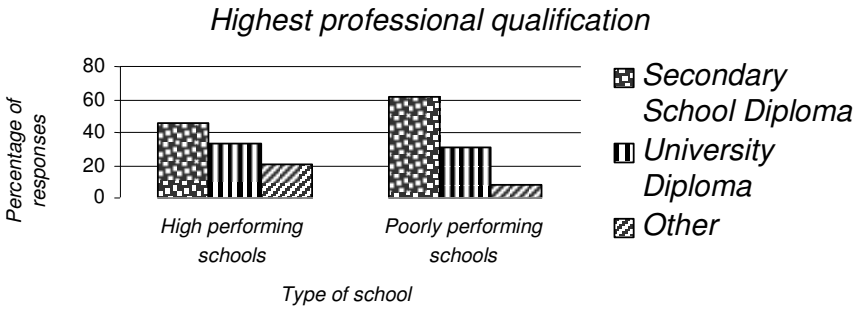

Figure 5.9.2.2: Highest teaching qualification of educators (Variable 4) percentages compared according to school performance group

Inspection of Table 5.9.2.2 reveals that the majority of teachers in Groups 1 and 2 hold the Secondary School Diploma, and it could be argued that, although there is not enough variation between the two groups of schools to have any statistical effect, this is still a rather low qualification for teachers of Grade 12 pupils. In light of the fact that the level to which teachers are trained potentially, impacts on the efficacy of teaching (Maree, 2005), it is possible to argue that schools in this research region need to take drastic steps to upgrade the teaching qualifications of their staff members. Many teachers from both groups of schools do not possess the necessary qualifications to teach up to Grade 12 level.

Teachers' home language (Variable 7)

H_{03} The Grade 12 results in the schools in the sample under discussion are independent of the home language of Grade 12 teachers.

Table 5.9.2.3: Teachers' home language (Variable 7) frequencies and percentages compared according to school performance group

Category/state	*Group 1 schools*		*Group 2 Schools*	
	Freq.	*%*	*Freq.*	*%*
Tshivenda-speaking teachers	80	91.95	45	90.00
Other language	7	8.05	5	10.00

Missing frequency: 1

Statistical test for independence:

Test	*Degrees of freedom*	*Chi-square value*	*p-value*
Chi-square	1	0.1517	.1885

Since p>.05, the null hypothesis (H_{03}) is not rejected. Therefore it may be concluded that *the Grade 12 results in the sampled schools are independent of the home language of Grade 12 teachers*.

As the home language of the educators is, in almost all instances in both groups of schools, the same as that of the students, it is possible to argue that this in itself might be an important factor. We were, of course, unable to test this hypothesis; however, it could be that, without this factor, Grade 12 results could have been different.

Locality of school, rural/urban (Variable 8)

H_{04} The Grade 12 results in a school are independent of the situation of the schools in the sample under discussion in terms of urban and rural.

Table 5.9.2.4: Locality of school, rural/urban (Variable 8) frequencies and percentages compared according to school performance group

Category/state	*Group 1 schools*		*Group 2 Schools*	
	Freq.	*%*	*Freq.*	*%*
Rural	58	66.67	25	50.00
Urban	29	33.33	25	50.00

Missing frequency: 1

Statistical test for independence:

Test	*Degrees of freedom*	*Chi-square value*	*p-value*
Chi-square	1	3.635	.0546

Since p>.05, the null hypothesis (H_{04}) is not rejected. Therefore it may be concluded that *the Grade 12 results in the sampled schools are independent of the locality of the school, rural or urban.*

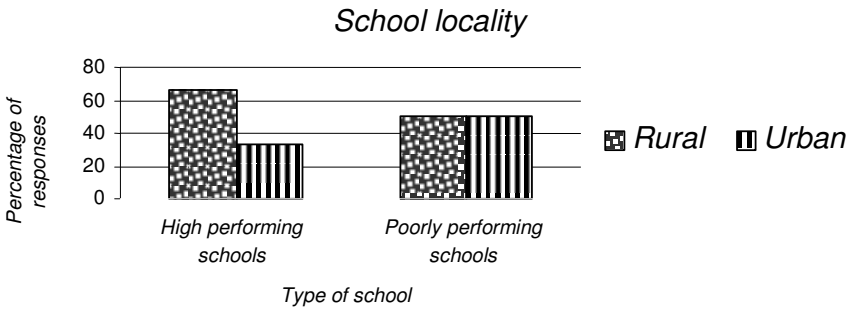

Figure 5.9.2.4: Locality of school, rural/urban (Variable 8) percentages compared according to school performance group

This is in fact a reassuring finding, suggesting that Grade 12 students in the rural areas are not penalized by the fact that they are remote from urban centres. The lack of the kind of distractions offered by urban localities may nevertheless be a factor here, and this assumption is supported by the evidence from Table 5.4.7. above, relating meetings on discipline to the locality of the school.

Number of classrooms (Variable 10)

H_{05} The Grade 12 results in the schools in the sample under discussion are independent of the sufficiency of classrooms in the school.

Table 5.9.2.5: Sufficiency of classrooms (Variable 10) frequencies and percentages compared according to school performance group

Category/state	*Group 1 schools*		*Group 2 Schools*	
	Freq.	*%*	*Freq.*	*%*
Sufficient classrooms	24	27.59	8	16.33
Insufficient classrooms	63	72.41	41	83.67

Missing frequency: 2

Statistical test for independence

Test	*Degrees of freedom*	*Chi-square value*	*p-value*
Chi-square	1	2.2086	.1372

Since p>.05, the null hypothesis (H_{05}) is not rejected. Therefore it may be concluded that *the Grade 12 results in the sampled schools are independent of the sufficiency of classrooms in the school.*

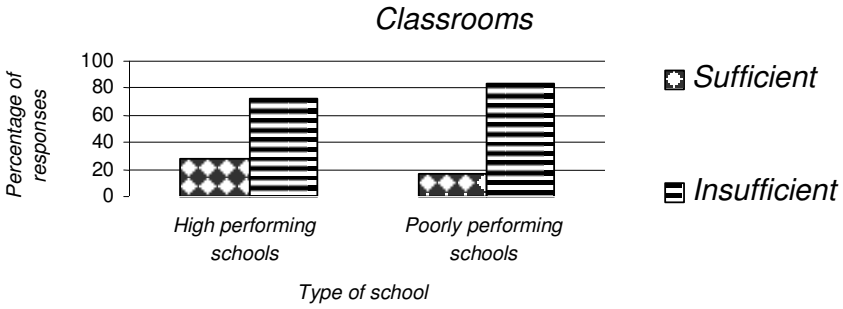

Figure 5.9.2.5: Sufficiency of classrooms (Variable 10) percentages compared according to school performance group

The matter of classroom sufficiency has already been discussed in the context of the differences between rural and urban schools. Rural schools are relatively well provided with classrooms (see Table 5.4.1), although most teachers reported a shortage, and this doubtless impacts on the quality of teaching, especially if classes have to be large as a result.

Assembly hall (Variable 12)

H_{06} The Grade 12 results in the schools in the sample under discussion are independent of the presence of an assembly hall in the school.

Table 5.9.2.6: Assembly hall (Variable 12) frequencies and percentages compared according to school performance group

Category/state	*Group 1 schools*		*Group 2 Schools*	
	Freq.	*%*	*Freq.*	*%*
Assembly hall	26	30.23	23	45.00
No assembly hall	60	69.77	28	54.90

Missing frequency: 1

Statistical test for independence:

Test	*Degrees of freedom*	*Chi-square value*	*p-value*
Chi-square	1	3.0794	.0793

Since p>.05, the null hypothesis (H_{06}) is not rejected. Therefore it may be concluded that *the Grade 12 results in the sampled schools are independent of the presence of an assembly hall in the school*.

The absence of an assembly hall does not, of course, imply an absence of school assemblies. In rural schools it is more than likely that there is an area of the school grounds where the school may assemble on required occasions and thus generate an atmosphere of community purpose favourable to school culture.

Administration block (Variable 15)

H_{07} The Grade 12 results in the schools in the sample under discussion are independent of the presence of an administration block in the school.

Table 5.9.2.7: Administration block (Variable 15) frequencies and percentages compared according to school performance group

Category/state	*Group 1 schools*		*Group 2 Schools*	
	Freq.	*%*	*Freq.*	*%*
Admin block	56	65.88	29	58.00
No admin block	29	34.12	21	42.00

Missing frequency: 3

Statistical test for independence:

Test	*Degrees of freedom*	*Chi-square value*	*p-value*
Chi-square	1	0.8388	.3597

Since p>.05, the null hypothesis (H_{07}) is not rejected. Therefore it may be concluded that *the Grade 12 results in the sampled schools are independent of the presence of an administration block in the school.*

This is a more surprising finding, since the absence of an administration block must result in considerable difficulty for the school administration and thus for teachers trying to organize their work. It is more than likely that, as a temporary measure, a structure built as a classroom is in fact being used as an administration block in order to facilitate matters for teachers. This would minimize any effect on Grade 12 performance.

Stationery supply (Variable 16)

H_{08} The Grade 12 results in the schools in the sample under discussion are independent of the adequate provision of stationery in the school.

Table 5.9.2.8: Stationery supply (Variable 16) frequencies and percentages compared according to school performance group

Category/state	*Group 1 schools*		*Group 2 Schools*	
	Freq.	*%*	*Freq.*	*%*
Adequate stationery	48	55.81	24	47.06
Inadequate stationery	38	44.19	27	52.94

Missing frequency: 1

Statistical test for independence:

Test	*Degrees of freedom*	*Chi-square value*	*p-value*
Chi-square	1	0.9842	.3212

Since p>.05, the null hypothesis (H_{08}) is not rejected. Therefore it may be concluded that *the Grade 12 results in the sampled schools are independent of the adequate provision of stationery in the school.*

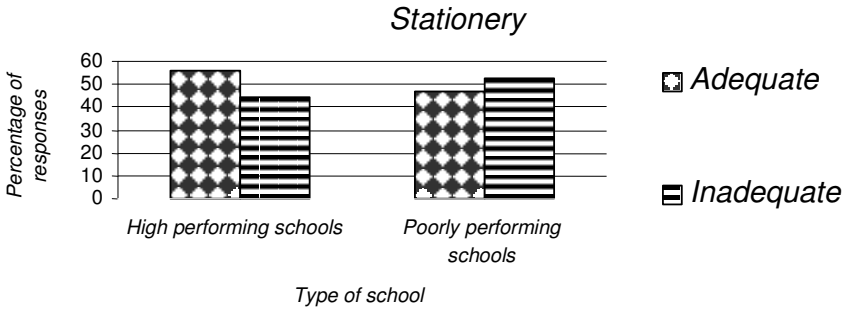

Figure 5.9.2.8: Stationery supply (Variable 16) percentages compared according to school performance group

The table does show a slight difference between high performing and poorly performing schools in this regard, although it is not statistically significant. It becomes worth asking, however, how any students – but especially the high-

performing Grade 12 students – are managing in the face of an apparent stationery shortage. Either they are providing their own stationery, in which case any difference in performance would relate more directly to the family income of the students, or stationery provision is not as important as it is often assumed to be.

Library (Variable 17)

H_{09} The Grade 12 results in the schools in the sample under discussion are independent of the presence of a library in the school.

Table 5.9.2.9: Library (Variable 17) frequencies and percentages compared according to school performance group

Category/state	*Group 1 schools*		*Group 2 Schools*	
	Freq.	*%*	*Freq.*	*%*
Library	42	48.84	27	52.94
No library	44	51.16	24	47.06

Missing frequency: 1

Statistical test for independence:

Test	*Degrees of freedom*	*Chi-square value*	*p-value*
Chi-square	1	0.2157	.6423

Since $p>.05$, the null hypothesis (H_{09}) is not rejected. Therefore it may be concluded that *the Grade 12 results in the sampled schools are independent of the presence of a library in the school*.

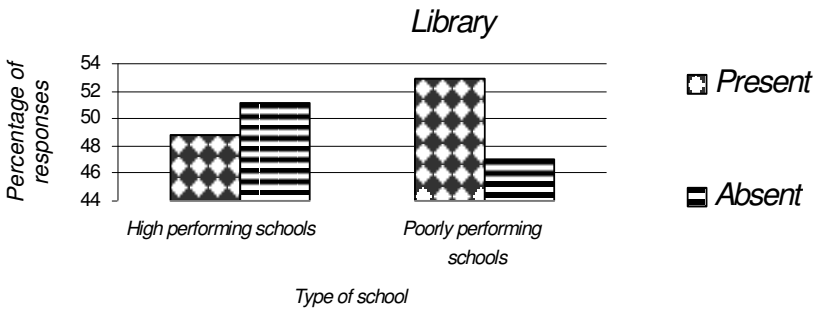

Figure 5.9.2.9: Library (Variable 17) percentages compared according to school performance group

The table suggests, in fact, that the presence of a library might even have a *negative* effect on Grade 12 performance. However, it is reassuring that the statistics do not support this suggestion. The apparent difference seems to be merely a reflection of inadequate sample size. As discussed under Table 5.7.2. above, the provision of libraries in the sampled area relates more to the urban/rural divide, and can still be considered important to academic performance.

Audio-visual aids (Variable 22)

H_{012} The Grade 12 results in the schools in the sample under discussion are independent of the adequacy of audio-visual aids in the school.

Table 5.9.2.10 Audio-visual aids (Variable 22) frequencies and percentages compared according to school performance group

Category/state	*Group 1 schools*		*Group 2 Schools*	
	Freq.	*%*	*Freq.*	*%*
Adequate	17	19.77	4	8.16
Inadequate	69	80.23	45	91.84

Missing frequency: 3

Statistical test for independence:

Test	*Degrees of freedom*	*Chi-square value*	*p-value*
Chi-square	1	3.1999	.0736

Since p>.05, the null hypothesis (H_{012}) is not rejected. Therefore it may be concluded that *the Grade 12 results in the sampled schools are independent of the adequacy of audio-visual aids in the school.*

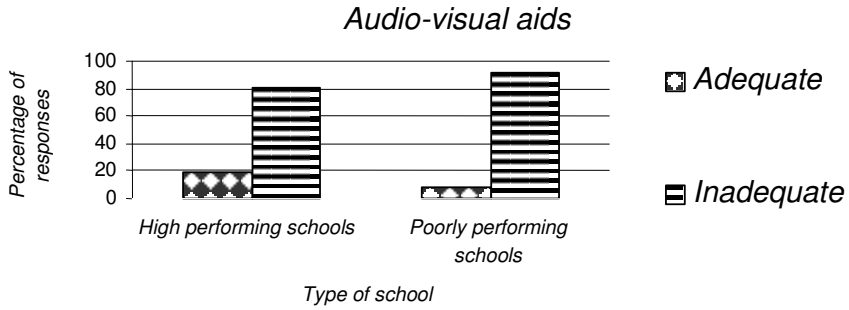

Figure 5.9.2.10: Audio-visual aids (Variable 22) percentages compared according to school performance group

Learner motivational levels (Variable 54)

H_{017} The Grade 12 results in the schools in the sample under discussion are independent of the level of learner motivation in the school.

Table 5.9.2.11: Learner motivational levels (Variable 54) frequencies and percentages compared according to school performance group

Category/state	*Group 1 schools*		*Group 2 Schools*	
	Freq.	*%*	*Freq.*	*%*
High	37	42.53	18	25.29
Moderate	38	43.68	29	56.86
Low	12	13.79	4	7.84

Statistical test for independence:

Test	*Degrees of freedom*	*Chi-square value*	*p-value*
Chi-square	2	2.5552	.2787

Since p>.05, the null hypothesis (H_{017}) is not rejected. Therefore it may be concluded that *the Grade 12 results in the sampled schools are independent of the level of learner motivation in the school.*

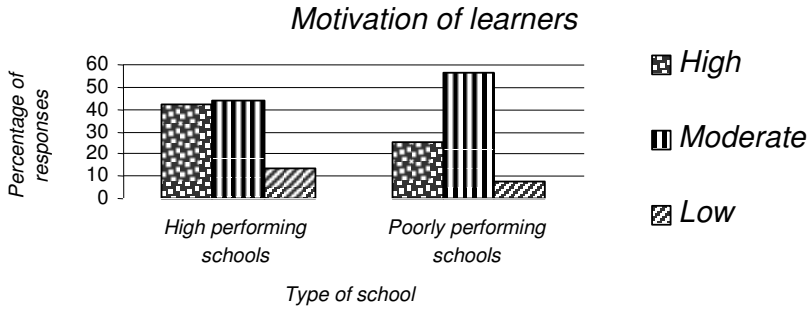

Figure 5.9.2.11: Learner motivational levels (Variable 54) percentages compared according to school performance group

Performance with notes and summaries (Variable 56)

H_{018} The Grade 12 results in the schools in the sample under discussion are independent of the level of learner performance in making notes and summaries in the school.

Table 5.9.2.12: Performance with notes and summaries (Variable 56) frequencies and percentages compared according to school performance group

Category/state	*Group 1 schools*		*Group 2 Schools*	
	Freq.	*%*	*Freq.*	*%*
Very high	29	33.33	15	29.41
Adequate	46	52.87	34	66.67
Poor	12	13.79	2	3.92

Statistical test for independence:

Test	*Degrees of freedom*	*Chi-square value*	*p-value*
Chi-square	2	4.2986	.1166

Since p>.05, the null hypothesis (H_{018}) is not rejected. Therefore it may be concluded that *the Grade 12 results in the sampled schools are independent of the level of learner performance in making notes and summaries in the school*.

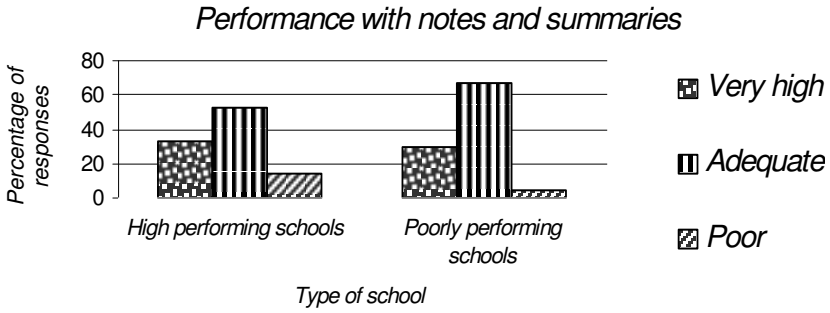

Figure 5.9.2.12: Performance with notes and summaries (Variable 56) percentages compared according to school performance group

5.9 Conclusions

In many cases the statistical analyses, i.e. the chi-square tests for independence, do not support what might be predicted about the relationships between Grade 12 performance and a number of variables. Sometimes the tables do reveal a relationship that is not supported by the analyses to be significant, but are worth discussing in any event, and are also worth further research.

5.10.1 Rejected hypotheses – where Grade 12 results are dependent on some variable

The important variables affecting Grade 12 results are those three to do with meetings with parents and staff, and the scheduling of the meetings. This suggests that the dialogues between adults – parents and teachers – have the most effect on student performance. The fact that the scheduling of staff meetings also has an effect would suggest that the formality of the interaction is also a factor.

5.10.2 Hypotheses which were not rejected – where Grade 12 results are not affected by measured variables

Grade 12 results do not seem to be dependent on any of the other 111 variables measured and explored in this study, although the results from some of them are suggestive but not conclusive.

Important ones among these could be the provision of visual aids (Variable 22), particularly as teachers seem to be unable or unwilling to make their own visual aids (Variable 23).

Learner motivational levels (Variable 54) also bear some examining, as there is a greater number of students with moderate levels of motivation in the poorly performing schools, and this would affect the statistical balance even

though the high performing schools have a greater proportion of highly motivated students than the poorly performing schools. A similar pattern is observable with the variable of performance with notes and summaries.

The variable of library provision (variable 16) is also worth considering, as it was not canvassed to what extent the libraries were actually used, and this may depend on library qualities not apparent from the data collected by this study.

The effect of a small sample size would have affected some of the statistical analyses, but there is also the effect of sample area to be considered. It is noticeable that the teachers in this area are predominantly Tshivenda speakers, thus precluding teachers' home language (Variable 7) from being a true variable. The qualifications of the teachers (Variables 4 and 5), especially the academic ones, are also fairly uniform, masking any possible effect on Grade 12 performance.

That there is some cultural effect is suggested in the interaction between the gender of a teacher (Variable 6) and the teacher's willingness to help learners with time problems (Variable 85) as reflected in Table 5.4.6.

All this suggests that this study, far from presenting any definitive answers to the problem of Grade 12 performance serves mostly to outline a number of trends that need to be investigated further in the future.

5.11 Data Collected through Interviews with School Principals

In accordance with the triangulation proposals described in Chapter 4 (Sections 4.12 and 4.9.1), interviews were conducted with a total of 24 school principals, distributed as shown in Table 5.10.

Table 5.11: Breakdown of sample of principals involved in this study

	Group 1 Schools (Grade 12 results 75-100%) 'High performing'		*Group 2 Schools (Grade 12 results 30-40%) 'Poorly performing'*		
	Urban District	*Rural District*	*Urban District*	*Rural District*	*Totals*
No. of principals	7	7	5	5	24

Since the questions to the principals were presented in the course of an interview, and they had not been required to complete a questionnaire, the information acquired was much more personal and qualitative. In any case, the sample size of principals was too small for meaningful statistics to be calculated, and their responses are thus judged as anecdotal and subjective. Nevertheless, these responses do serve as a valuable comparison with the more quantifiable and perhaps more reliable responses obtained from the teachers. It should not be forgotten that responding principals may have felt that they had a vested interest in any reaction to the responses that they gave.

A number of issues need to be highlighted before I commence my analysis of the qualitative data. Firstly, even though it is assumed that that the principals were conversant with issues around their schools, it cannot be claimed that they "know everything". Secondly, as can be seen from Table 5.10 above, high performing schools are also found in rural areas. Furthermore, although no analysis was undertaken to compare the different types of problems between rural and urban schools, urban schools are known to have specific problems of their own (Steyn & van Wyk 1999:41) and I was particularly interested in finding out if there were differences, not only in terms of the experiences of high performing and poorly performing schools, but also in the experiences of urban principals vis-à-vis those attached to rural schools. Lastly, as I have indicated, the main reason for these comparisons was to

compare the data acquired in this way with responses to the same questions obtained from teachers for purposes of triangulation. The data collected from interviews with the school principals were categorized into fifteen main categories:

1. Length of service of the principal
2. Funding
3. Classroom sufficiency
4. Science laboratory availability
5. Involvement of parents in education
6. Methods of parental involvement
7. Rationale for parental Involvement
8. Availability of code of conduct for learners
9. Problems caused by teachers
10. Problems caused by learners
11. Effectiveness of disciplinary committee
12. Frequency of staff meetings
13. Scheduling of staff meetings
14. Availability of a year planner
15. Teacher motivation

I will now discuss each of these fifteen categories separately.

5.11.1 Length of service of school principals

The principals indicated that they had occupied their position for over nine (9) years on average.

Table 5.11.1: Length of service of school principals

	Number of responding principals			
	High performing schools		*Poorly performing schools*	
Length of service (years)	*Urban*	*Rural*	*Urban*	*Rural*
0-5	1	0	1	1
6-10	4	3	3	2
11-15	1	1	0	1
16-20	1	1	1	0
21-25	0	2	0	1
26-30	0	0	0	0
TOTAL	**7**	**7**	**5**	**5**

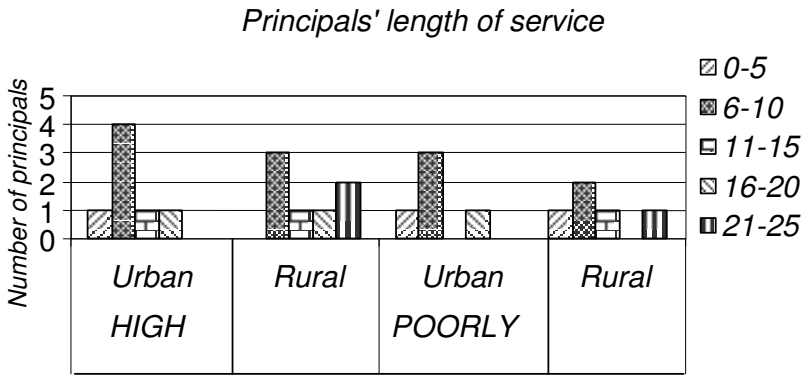

Figure 5.11.1: Length of service of school principals

When this information is broken down further as in Table 5.10.1, it can be seen that principals who have been in service between 6 and 10 years do predominate, and that they are more predominant in high performing schools. It can be assumed that such principals are fairly young, although a greater number of those in the 21-25 year range of service also appear in the high performing schools, and it is interesting that this older group is also to be

found in the rural schools. One interpretation of this is that older principals are more willing to take on schools in rural areas, possibly because they are more peaceful. No analysis was undertaken to compare the different types of problems between rural and urban schools, but urban schools are known to have specific problems of their own (Steyn & van Wyk 1999:41).

5.11.2 Funding of schools

Twenty of the twenty-four principals (i.e. 83%) interviewed from both types of schools stated that their schools were not adequately funded.

Table 5.11.2: Principals' assessment of school funding

	Number of responding principals	
	High performing schools	*Poorly performing schools*
Adequate funding	1	3
Inadequate funding	13	7

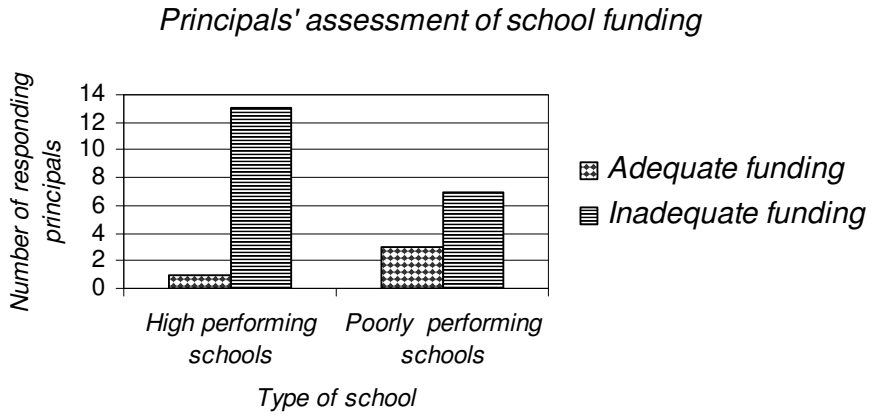

Figure 5.11.2: Principals' assessment of school funding

If the principals are to be believed, more of the high performing schools are in need of funding than the poorly performing schools.

It is interesting that a greater proportion of the principals from the high performing schools considered funding to be inadequate. One plausible explanation for this finding could be that principals' were particularly concerned about the whole matter of funding, since it became clear from some of the responses that principals responding to this question were hoping that their opinion would get transmitted to some authority in the matter.

Zangqa (1999:96) maintains that lack of adequate funding can have a disastrous effect on achievement because it makes teaching and learning so much more difficult and thus demoralizing. It is interesting to note, though, that a number of current examples of poorly resourced schools are performing miracles of achievement. Clearly, even though researchers such as Zangqa (1999) have highlighted the negative impact of insufficient funding on teaching and learning, it should be kept in mind that this need not necessarily be the case.

In the quantitative analysis based on teacher response to the questionnaire, variable 9 (School funding – section 5.6) was dropped at an early stage as not showing sufficient variation between the two types of school. Indirect evidence of funding, as reflected in the presence or otherwise of science laboratory and library (see Chapter 4, Section 4.12.4), was statistically tested, as described above in Tables 5.6.4, 5.7.6 and 5.9.2.9. Here again, there turned out to be no relationship between these and Grade 12 performance.

5.11.3 Classroom sufficiency

The majority of school principals interviewed stated that they did not have sufficient classrooms, and very few claimed otherwise.

Table 5.11.3: Principals' assessment of classroom sufficiency

	Number of responding principals	
	High performing schools	*Poorly performing schools*
Sufficient classrooms	2	2
Insufficient classrooms	12	8

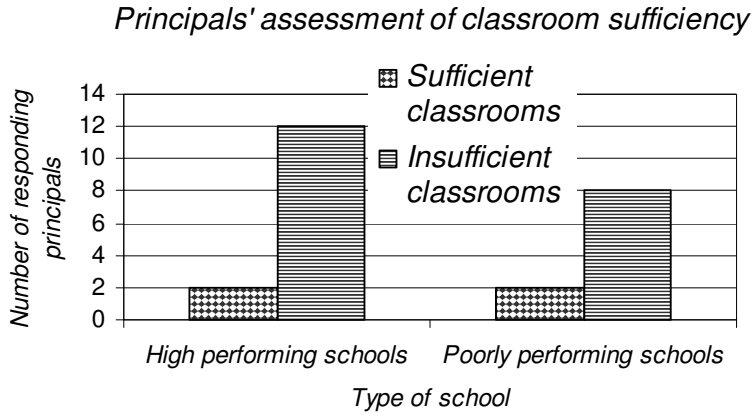

Figure 5.11.3: Principals' assessment of classroom sufficiency

This supports the information obtained from teachers, the majority of whom also reported a shortage (see Table 5.9.2.5) – although the shortage was revealed to be more acute in urban schools (Table 5.4.1). In any event, Grade 12 results proved to be independent of a school's relative classroom shortage. This does not really minimize the importance of having sufficient classrooms; it just means that the effect was the same in both types of school. The principals' view that more classrooms should be provided to enable better teaching seems to be a logical assumption.

5.11.4 Science laboratory availability

Even though principals of the urban schools acknowledged the presence of science laboratories in their schools, they were unanimous in agreeing that the mere presence of these laboratories does not contribute to enhanced learner performance. One of them stated that "We have a building called a laboratory but we cannot afford to buy the chemicals." They complained about the presence of laboratories without equipment, and this is supported by Table 5.6.4. which reflects the teachers' dissatisfaction with the equipment of the science laboratories provided. This might lead to poor performance, as suggested by the Third International Mathematics and Science Study Repeat (TIMSS-R that teaching and learning in Mathematics and Science may be seriously hampered by a shortage of facilities. It needs to be stressed, however, that the mere presence of a laboratory is not enough; there needs to be better funding, a better use, and perhaps better teaching before the function of a science laboratory can be reflected in a school's Grade 12 results. In the light of this, the role of a school laboratory in the Grade 12 performances of the sampled schools is not surprisingly negligible. This is another instance where the effect can be considered uniform over both types of school, and is comparable with the effect of classroom sufficiency.

5.11.5 Involvement of parents in education

Quantitative data obtained from the teachers (Table 5.9.1.1) shows a clear relationship between the *frequency* of meetings with parents and the Grade 12 results. All principals interviewed claimed to involve parents in education, although some complained that, in most cases when they call parents, the parents fail to appear. As a result, the principals end up disappointed and frustrated. Assuming that the methods principals employ to ensure parental involvement are often not effective, the need for more strategic planning to facilitate enhanced parental involvement seems evident.

5.11.6 Methods of parental involvement

The general response of the principals was that there are many ways in which they involve parents in school matters. Parents serve on the School Governing Bodies; they attend school meetings and, when the schools close, parents are usually called in to collect their children's results. They are also called in when there is a problem with a particular learner. It may be asked whether this is enough, given that frequency of meetings turns out to be so important.

Some principals went so far as to say; "When parents are involved, teachers and parents form a partnership." As a result, they believe that learners' academic performances improve. They also believe that misbehaving learners will not misbehave as some fear their parents, and knowledge of their involvement with the school will inhibit bad behaviour. One principal also noted that his particular school has a huge project of constructing the administrative block, and parents are fully involved with that. A plan was drawn by the teacher from the same school, and a parent plumber volunteered to do the plumbing for the school. Even at this basic level the principal considered that the effect was positive.

In one of the schools sampled, a principal stated that parents were involved in an unusual way. The school organized a cleaning campaign and parents were fully involved in the cleaning. The principal felt that encouraging parents to become familiar with the school yard in such a way could have a positive effect on the relationship between school and parents, indirectly impacting positively on learner achievement. This finding is particularly important, since it corroborates the finding contained in 5.1.1: "The important variables affecting Grade 12 results are those three to do with meetings: meetings with parents and staff meetings and their scheduling. This suggests that the dialogues (and thus cooperation) between adults – parents and teachers – have the greatest effect on student performance."

5.11.7 Availability of code of conduct for learners

All 24 principals from both the high and poorly performing schools stated that they have codes of conduct for learners. Any effect on Grade 12 performance cannot therefore be assessed.

5.11.8 Problems caused by teachers

Although most principals did not want to comment on this issue, five principals from the high performing schools stated that they had hardworking teachers who, as human beings, had minimal weaknesses, although four principals from the same category stated that they experienced problems of absenteeism, coming late and non-commitment. At the same time, five principals from the same group of schools (high performing) complained that some teachers did not understand the new teaching style and assessment strategies.

From the poorly performing schools, six principals stated that they experienced problems of non-commitment by teachers. They did not respond to the school siren or bell. They were not time-conscious. Three of these principals stated that teachers were hard hit by the redeployment process. The uncertainty of not knowing where they would be working the following month or year demoralised them. Only one principal from this category indicated that he did not experience problems among teachers.

Table 5.11.8: Principals' assessment of teacher problems

	Number of responding principals	
	High performing schools	*Poorly performing schools*
Satisfied with teachers	5	1
Absenteeism etc.	4	6
Problems with teaching methods	5	

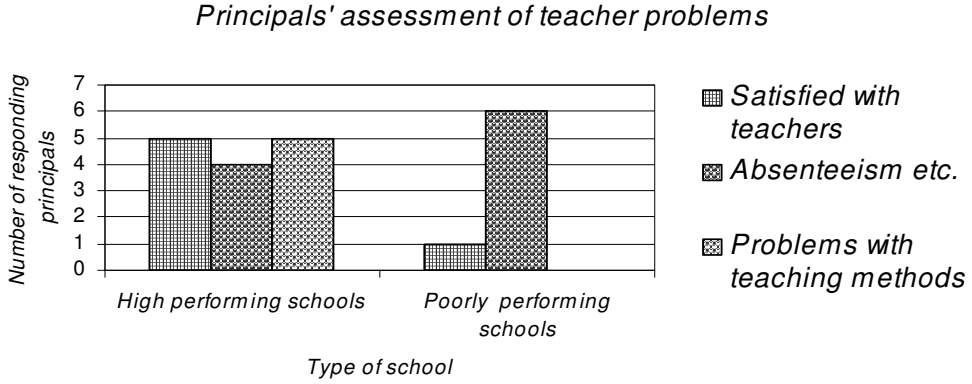

Figure 5.11.8: Principals' assessment of teacher problems

Table 5.10.7 and Figure 5.10.7 might suggest that non-commitment on the part of teachers could indeed affect Grade 12 results, but this conclusion would need further testing. The demonstration that parental involvement is statistically significant (Table 5.9.1.1), in the specific sense of frequency of meetings between parents and teachers, in which the type of relationship formed may also play a part (Section 5.10.6) and also staff meetings and their scheduling (Tables 5.9.1.2 and 5.9.1.3) all suggest in this context a complex interaction of different things. Seemingly, a combination of elements can have a positive effect on Grade 12 results. So far the elements seem to be:

- teachers who enjoy a principal's trust (see: Table 5.10.8);
- frequent meetings with parents (see: Table 5.9.1.1);
- a partnership formed between teacher and parent to manage student behaviour (see the argument following Table 5.9.1.1).

Teacher commitment, as mentioned by the principals, could well be a further element in that combination A committed teacher would be more likely to enjoy a principal's trust, and also more willing to meet with parents and to form a partnership with them. The views of principals who came from the poorly performing schools, identified absenteeism as the main problem with teachers. The lower frequency of administration blocks in the poorly performing schools (Table 5.9.2.7) may suggest that school conditions are an

important factor in teacher commitment. As some of the principals in these schools also report that teachers are hard-hit by the redeployment process, this suggests that not only conditions but terms of employment could be a problem for teachers. The predominance of the older age groups of teachers in the rural schools (Table 5.7.1) may also be a reflection of this.

5.11.9 Problems caused by learners

Of the fourteen principals at the high performing schools, seven stated that they experienced the following problems caused by learners: dodging of classes, late coming, drug abuse, fighting and some learners were not fully committed to schoolwork. These principals went on to say that since they had co-operative parents, they always called them when they experienced these types of problems. Of the remaining principals from the high performing schools, five stated that they experienced minor problems caused by learners. Only two principals from this category stated that there were a few learners who engaged themselves in 'freaking' (hiring of a minibus with loud music also used in buying large quantities of liquor and moving around town, sometimes during school hours).

Of the ten principals from poorly performing schools, nine stated that the main problem caused by learners is 'freaking', related of course to non-commitment to school work, alcohol abuse, vandalism and disrespect for teachers. Only one principal from this category blamed the parents for learners' misbehaviour.

Qualitative analysis of principals' responses seem to suggest that student behaviour may indeed have some effect on their Grade 12 results (*id est*, problem behaviour might have a negative effect on Grade 12 results). It has already been suggested that the closeness of the relationship between parents and teachers can affect Grade 12 results. Even though students' misbehaviour certainly seems to correlate positively with poor Grade 12 results, principals from poorly performing schools in particular were not relating students' unbecoming behaviour to lack of parental involvement.

However, these principals consistently expressed the view that parents were to a certain extent to blame for their children's misdoings, stating that it was obvious that parents should be held accountable for children's problem behaviour. As one of them remarked: "The hiring of a minibus and the purchase of liquor require money, to say the very least, and where else but from their parents would the learners get such money?" (As an aside, the phenomenon of 'freaking' is largely limited to the urban areas, since taxis-for-hire are not generally available in rural zones.)

5.11.10 Presence of a disciplinary committee

All of the 24 principals interviewed (thus from both the high and poorly performing schools) reported that they had a disciplinary committee in their schools. Two of them (from high performing schools) went on to say that their disciplinary committee consisted of teachers (from the School Management Teams) as well as learners (two members of the Learners Representative Council) plus the principal as an ex-officio member.

The mere presence of a disciplinary committee seems to have little noticeable effect, therefore, on Grade 12 results, in the poorly performing schools at least.

5.11.11 Effectiveness of disciplinary committee

The effectiveness on learner behaviour of a disciplinary committee may be another matter. When asked about the effectiveness, all the principals claimed that their committees were very effective.

Given the results discussed under section 5.10.9 above, it is perhaps possible to doubt the principals' opinion on this. In poorly performing schools, discipline is obviously poor and it is possible to relate this to parental involvement.

5.11.12 Frequency of staff meetings

Of the 14 principals from high performing schools, eight stated that they usually held their planned staff meetings once a month. However, they added that their meetings were not limited to the planned ones. They always had a short meeting when there was an urgent issue to be discussed. Of the remaining six principals of the high performing schools, four stated that they had weekly staff meetings and two indicated that they had daily staff meetings. Those who had daily staff meetings indicated that that was in order to encourage teachers to come to school on time.

Of the 10 principals from poorly performing schools, five stated that they had their staff meetings daily. Of the remaining five, three had their meetings weekly and two principals had their meetings monthly.

Table 5.11.13: Principals' version of staff meeting frequency

	Number of responding principals	
	High performing schools	*Poorly performing schools*
Daily	2	5
Weekly	4	3
Monthly		2
Monthly plus	8	

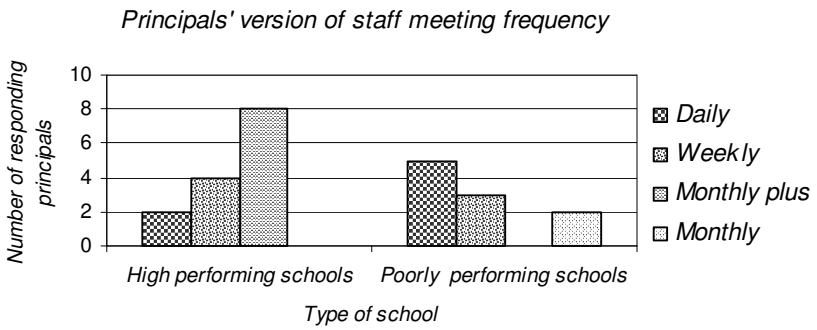

Figure 5.11.13: Principals' version of staff meeting frequency

On the face of it, this may seem a surprising result – until it is compared with Table 5.9.1.2 above. Teachers in high performing schools also reported a high frequency of monthly meetings and a low frequency of daily meetings, with weekly meetings coming somewhere in between. The fact that the two principals in high performing schools who required daily meetings did so in order to exercise discipline over teachers may suggest that a high frequency of meetings could be a result of poor Grade 12 performance rather than an effort to involve all staff constructively in planning their daily teaching and learning activities. Daily meetings are more common in the poorly performing schools, and may be similarly motivated, although this was not mentioned by the principals concerned. This particular finding is consistent with the finding in section 5.9.1. In summary, it seems as if the frequency of daily staff meetings in a school may (at least to an extent) be the result of something being wrong in that school, and monthly meetings may on the other hand be symptomatic of a smoothly-run school, as reflected in Grade 12 performance.

5.11.13 Scheduling of staff meetings

All 24 principals from both types of school (high and poorly performing) have scheduled staff meetings, except in cases of emergencies. This of course would be normal, and would not be expected to have any effect on Grade 12 performance. However, too many unscheduled meetings might indicate some dysfunctionality in the school. As discussed above, daily meetings already suggest this, and daily meetings may well be a substitute for unscheduled meetings.

5.11.14 Availability of a year planner

All 24 principals had a year planner. One principal from the high performing group added that a year planner is compulsory for all schools. Any correlation with Grade 12 performance would not therefore be expected.

5.11.15 Teacher motivation

Of the 14 principals from high performing schools, nine stated that they motivated their teachers by congratulating them on good performance. More than that, they give them merit certificates. From the same group of schools, three principals took their teachers out towards the end of the year – a type of year-end function when they reviewed the whole year's work. Another two principals maintained that, in order to motivate teachers, they valued their contribution and treated them as adults.

The behaviour of the principals in this respect should be seen against their views where teacher problems are concerned, as reflected in Table 5.10.8., according to which principals in the high performing schools were on the whole more satisfied with the behaviour of their teachers.

It is crucially important to reiterate the following: I am fully aware that the qualitative data, depending as it does on the ***opinions*** of school principals, must be carefully interpreted. An interviewed principal would be aware in advance of whether or not the school was producing good Grade 12 results. Furthermore, those in poorly performing schools might (at least to an extent) be seeking to shift the blame away from themselves – onto school funding, teachers, parents, or the students. As a result their information may be less reliable than that coming from the principals of the high performing schools. On the other hand, principals of successful schools might be seeking to take credit for themselves, but, judging by the comments made by these principals during my study, this appears not to have been the case in general.

5.12 Conclusions

It seems clear from the analyses discussed thus far that, in many cases, the statistical analyses, i.e. the chi-square tests for independence, do not support what might be expected about the relationships between Grade 12 performance and a number of variables. However, in a number of instances,

even though the results do not reveal statistically significant relationships, the findings seem worth discussing nonetheless, and worth further research.

5.12.1 Rejected hypotheses – where Grade 12 results are dependent on some variables

The statistically significant variables affecting Grade 12 results are those three to do with meetings: meetings with parents and staff meetings and their scheduling. This suggests that the dialogues between adults – parents and teachers – have the most significant effect on student performance. The fact that the scheduling of staff meetings also has an effect would suggest that the formality of the interaction is also a factor. A raised incidence of unscheduled meetings, possibly reflected in the frequency of daily meetings, as discussed in Section 5.10.12 above, seems to have more of a disciplinary function. Scheduled monthly meetings to deal with the routine business of a school suggest a better management style prevailing at the school. This conclusion arises out of the fact that a relatively high frequency of staff meetings does not seem to be influencing Grade 12 performance positively, and monthly meetings as opposed to daily ones may indeed be having a positive effect on Grade 12 performance. This may reflect on teacher motivation as well as school management, as was suggested when the qualitative data were considered (Sections 5.10 and 5.11.3).

5.12.2 Hypotheses that were not rejected – where Grade 12 results are not affected by measured variables

Grade 12 results do not seem to be dependent on any of the other 111 variables measured and explored in this study, although the results from some of them could be indicative of some connection, while not being conclusive. For instance the relative success of schools in rural areas as opposed to those in urban areas could correspond to a better relationship with parents. Furthermore, the greater proportion of administration blocks in high performing schools could have a bearing on school management and a better

relationship between principal and teachers reflected in the scheduling of monthly meetings.

Another important variable could be the provision of visual aids (Variable 22), particularly as teachers seem to be unable or unwilling to make their own visual aids (Variable 23). Furthermore, learner motivational levels (Variable 54) also bear some examining. Whereas there is a greater number of students with moderate levels of motivation in the poorly performing schools, this would affect the statistical balance even though the high-performing schools have a greater proportion of highly motivated students than the poorly performing schools.

The variable of library provision (variable 16) also deserves further investigation, as it was not canvassed to what extent the libraries were actually used.

The effect of a small sample size would have affected some of the statistical analyses, but there is also the effect of sample area to be considered. It is noticeable that the teachers in this area were predominantly TshiVenda speakers, thus precluding teachers' home language (Variable 7) from being a true variable. The qualifications of the teachers (Variables 4 and 5), especially the academic ones, were also fairly uniform over both types of school. If level of qualification has any effect on Grade 12 performance, the data from this sample were not able to test the hypothesis that better qualified teachers might facilitate better Grade 12 results.

That there is some cultural effect is suggested in the interaction between the gender of a teacher (Variable 6), and the teacher's willingness to help learners with time problems (Variable 85) is reflected in Table 5.4.6**.** One would ordinarily expect women teachers to be more helpful, so it is a surprise to find that men are more helpful. The cultural effect could be that among the Venda, men more than women are often confronted with the need to organize their time efficiently and so are more likely to be sympathetic to a learner who has problems with this.

5.12.3 Qualitative data obtained from school principals

In conclusion I would like to confirm that understanding the potential impact of staff meeting frequencies is perhaps not as straightforward as it may seem at first glance. The fact that those principals in high performing schools who required daily meetings did so in order to exercise discipline over teachers may suggest that a high frequency of meetings could be a result of poor Grade 12 performance rather than an effort to involve all staff constructively in the planning of daily teaching and learning activities. This particular finding is important, and is strengthened by the fact that a relatively high proportion of the poorly performing schools have daily meetings. Furthermore the involvement of parents in teaching-and-learning related activities appears to be crucial, since it appears to impact positively on learner behaviour. Lastly, it is worth noting that principals seem to agree that engaging parents in locating disciplinary problems, impacts positively on Grade 12 performance.

Clearly, the picture is not as clear as one might have hoped it would be. However, even though I have not come up with conclusive “answers” to my research questions, I do believe that I have, in some small way, contributed to debates in this field. All this suggests that this study, far from presenting any definitive answers to the problem of Grade 12 performance, serves mostly to provide material for further research.