

CHAPTER 5

DATA COLLECTION, ANALYSIS AND INTERPRETATION

5.1 INTRODUCTION

This chapter intends discussing data collection, analysis and interpretation. It focuses on the purpose of data collection, editing, edge coding, data cleaning and sources of error, viz. researcher effects, participant effects, context effects and measuring instrument effects.

Data analysis and interpretation consist of single frequency tables, double frequency tables and methods used in analysing data, viz. Spearman's rank order correlation and stepwise logistic regression.

5.2 DATA COLLECTION

The purpose of data collection is clearly argued by Mouton (1996:146):

“The objective of data collection is to produce reliable data. This means that such data is consistent over time and place.”

In defining data collection, Mouton (1996:67) argues further:

“Data collection involves applying the measuring instrument to the sample or cases selected for the investigations.”

In order to collect data, questionnaires were issued to 232 grade 12 educators, 30 principals and 502 grade 12 learners of the randomly selected schools. The total number of the questionnaires issued and returned were as follows:

	Number Issued	Number Returned
Educators (Appendix A)	232	232
Principals (Appendix B)	30	30
Learners (Appendix C)	502	502

Although I administered the completion of the questionnaires, I wish to acknowledge the services of the principals and educators in organising the classes and maintaining discipline. Since I collected the questionnaires immediately after their completion, all the issued questionnaires were collected without any difficulty.

5.3 EDITING

Immediately after all the questionnaires were received, I proceeded with editing. The purpose of editing is clearly argued by Bailey (1994:345):

“Editing consists of searching for problems ... The editor simply begins by looking over each completed questionnaire, searching for incomplete answers, cases where questions were misunderstood...”

5.4 CODING

Coding, the main task of data reduction, implies assigning a code number to each answer category. As I intended to do a computer analysis, coding was necessary. Babbie (1995:366) argues:

“For computers to work their magic, they must be able to read the data you’ve collected in your research. Moreover, computers are at their best with numbers.”

As the questionnaires consist of close-ended and open-ended questions, both precoding and postcoding were applied. Precoding was applied on the close-ended questions. According to Bailey (1994:339) precoding is necessarily limited chiefly to questions whose answer categories are known in advance.

Postcoding was applied to open-ended questions. Bailey (1994:340) argues:

“In open-ended questions the researcher is often not sure exactly what answers or how many different answer categories will be given, and so he or she often cannot establish codes until he or she has analysed the data.”

As the open-ended questions resulted in a wide variety of responses, I had to assign a code

number to each answer category and later combined the code categories in order to facilitate analysis. In combining the code categories, I was guided by the theoretical concepts which are being examined in the study. Babbie (1995:367) argues:

“Although the coding scheme ought to be tailored to meet particular requirements of the analysis, one great rule of thumb should be kept in mind. If the data are coded to maintain a great deal of detail, code categories can always be combined during analysis that does not require such detail.”

As I could not memorize all the appropriate codes for every question due to the fact that the open-ended questions gave room for many answers, a code book was compiled.

5.4.1 Edge-coding

As all the answer categories are assigned a code number, I had to transfer the codes to the margins of the questionnaires. Due to the large number of questionnaires and the time factor, I sought the services of a coding assistant. I had to conduct intensive training of the latter in order to ensure that she understood the operation of the system. While I was confronted with the task of coding, I also had to check the performance of the assistant coder.

5.5 DATA CLEANING

Due to the large sample size, I could only correct the visible errors through editing. I requested the services of a research consultant to do a computer data entry. Data collected were organized into single frequency tables which made data cleaning easier. Babbie (1998:366) argues that no matter how, or how carefully, the data have been entered, some errors are inevitable.

Two types of data cleaning were done, viz. possible-code cleaning and contingency cleaning. Possible-code cleaning is clearly defined by Babbie (1998:367) as:

“... the process of checking to see that only those codes assigned to particular attributes - possible codes appear in the data files. This process guards against one class of data-processing error.”

As the single frequency tables indicated the variable, frequency, percentage, cumulative frequency and cumulative percentage, I could easily examine the distribution of responses to each variable. Errors which were found were traced back to the source, viz. the questionnaires in order to make the necessary corrections.

Contingency cleaning is defined by Babbie (1998:367) as:

“... the process of checking to see that only those cases that should have data on a particular variable do in fact have such data. This process guards against another class of data-processing error.”

Errors which needed some contingency cleaning appeared mostly in the learners' responses which occurred mainly due to poor language mastery, i.e. English, as well as carelessness.

5.6 SOURCES OF ERROR (OBSERVATION EFFECTS)

In order to explain the problems encountered with this kind of research, I have decided to focus on the four categories of sources of error, viz. researcher effects, participant effects, context effects and measuring instrument effects.

5.6.1 Researcher effects

These are the effects that are due to the researcher. Mouton (1996:146) explains that researcher effects are the negative consequences relating to validity which are directly attributable to the researcher.

Researcher effects are divided into two sections, viz. effects associated with the researcher's characteristics and effects associated with researcher's orientations. Effects associated with the researcher's characteristics include, *inter alia*, the affiliation of the researcher, the image of the researcher and the distance between the researcher and the participant. The fact that the introductory letters indicated that I am a student attached to the University of Pretoria resulted in the respondents being eager to participate in research through the completion of questionnaires. Mouton (1996:149) argues:

“If the interview is employed by a highly influential organization that is known for the quality of its research, respondents are likely to be better motivated to answer questions seriously and truthfully. Universities and large research organizations usually have reputations of this nature.”

The fact that I had a letter of permission from the Northern Province Department of Education, Arts, Culture and Sport and from the District Manager and as I was introduced to schools by the Circuit Manager through letters, my reputation as researcher was boosted to the extent that the respondents were motivated to complete the questionnaires accurately. Although I was a stranger, the respondents were motivated to co-operate.

As the research was conducted at a time when the Northern Province Department of Education attached high value to the South African school leaving examinations results as an important indicator for school performance and as the research coincided with the Department's efforts to improve the results, the timing of the research boosted the reputation of the research project and my image as researcher.

As my residence is closer to the area of the research, viz. the Soutpansberg District and as the respondents and I share many cultural values, including language, most of the respondents were eager to participate in the research project.

The final data cannot be devoid of my prejudices and opinions as argued by Mouton and Marais (1990:84):

“... it is possible to conclude that the eventual observations are clearly influenced by the prejudice, expectations, attitudes, opinions and belief of the researcher.”

5.6.2 Participant effects

Participant effects are explained by Mouton and Marais (1990:79):

“... individual who is being observed, who is being questioned (the respondents) or to a group of people who are being observed or questioned.”

The fact that participants in the social sciences are people, implies that they are aware of the fact that they are objects of investigation and they tend to react to it. Participant effects can be

explained in terms of effects which result from characteristics that are inherent in the participants, e.g. gender, racial group, status, memory decay, the omniscience syndrome, interview saturation and those that are the result of participant orientation, e.g. role selection and the level of motivation of the participants.

While educators and principals could easily remember past events, learners have a problem of memory decay and the omniscience syndrome. Mouton (1996:153) argues:

“Some respondents appear to believe that they can answer any questions. The researcher must be sensitive to this type of effect to avoid the inclusion of responses that are not authentic.”

Due to the omniscience syndrome, some respondents went to the extent of answering all the questions, including those which they were not supposed to answer.

As the questionnaires were supposed to be completed by all the 1999 grade 12 educators and all the principals of the randomly selected schools, the researcher experienced almost no problem with regard to the role selection of the learners, i.e. selecting 20% from each school's learner population.

While the selected learners showed a high level of motivation to participate by merely being selected, principals and educators, particularly those of schools which performed poorly, showed a very low level of motivation as they viewed the questionnaires as a way of accounting for the learners' performance and also as an instrument which could be used against them. As the research coincided with the school visits by departmental officials, learners, particularly from schools which performed poorly, wanted to use the research time to voice their dissatisfaction with educators, principals and the school as a whole because they could not separate my work as a researcher and the work of the departmental officials.

5.6.3 Context effects

Context effects are clearly defined by Mouton and Marais (1990:80):

“... the broad spatio-temporal circumstances under which research is conducted ... and the specific spatio-temporal settings.”

Context effects can be explained by focussing on the broader spatio-temporal factors which include cultural factors, political factors, the period during which the research is conducted and the narrower research setting within which the research is conducted.

I initially planned to start with school visits in August 1999. As the planned period coincided with the educators' mass actions and electioneering political activities, I had no alternative but to postpone the visits to the year 2000.

The period during which the research was conducted, viz. the year 2000, coincided with the floods, particularly in the Nzhelele area where the main Nzhelele bridge was swept away. This resulted in reviewing the school visit timetable. Due to flood damage, road conditions were very poor, to such an extent that I had to park my car far away from some schools and travel by foot. This resulted in applying all my efforts in trying to reduce the actual time spent with individual schools. As a result of poor road conditions which included lack of bridges, I could not reach the Ramabulana Secondary School and an alternative school was visited, viz. the Swobani Secondary School.

The research coincided with a poor communication network which was aggravated by the floods which left many schools without telephones. In order to communicate with various schools, I requested circuit officials to assist in distributing letters regarding appointments to conduct the research.

5.6.4 Measuring instrument effects

Measuring instrument effects are defined by Mouton (1996:146) as:

“The negative consequences or lack of validity that may be directly attributed to some aspects of the measuring instrument.”

In order to check the possible problems which might be related to the questionnaires and to check whether learners, educators and principals would be able to complete the questionnaire, I selected a small group of 3 principals, 5 grade 12 learners and 5 grade 12 educators to complete the questionnaires before they could be distributed to the randomly selected schools. The responses of the small group convinced me of the viability of this type of research.

As the questionnaires consist of, *inter alia*, close-ended questions, I am aware of their shortcomings, viz. the denial of any spontaneity of response by the respondent and a possible lack of the respondent's appropriate category for his or her answer. In recognising the above-mentioned shortcomings, an open-ended element has been attached to most of the questions.

Although an open-ended element is attached to most of the questions, the space provided on the questionnaires may limit some responses, i.e. some respondents may like to supply more information but due to the limited space, they may be forced to limit their responses.

As a result of the length of the questionnaire, viz. 11 pages, some of the respondents complained about the time taken in order to complete the questionnaires.

5.7 DATA COLLECTED

Due to the large sample size, I requested a research consultant to transfer the edge codes into the computer in order to quantify the collected data. The edge codes were converted into a machine-readable form, i.e. a form that can be read and analysed by the computer. The collected data were as follows (Appendix G: Educators' data; Appendix H: Principals' data and Appendix I: Learners' data).

5.8 FREQUENCY TABLES

In order to analyse the collected data, I sought the assistance of a research consultant to organise the collected data into single frequency tables, viz. a single frequency table for educators, a single frequency table for principals and a single frequency table for learners (see Appendices G, H, I).

As the single frequency tables indicated the variable, frequency, percentage as well as the cumulative percentage, I could easily identify any error and make the necessary corrections by tracing the error back to its original source through possible-code cleaning and contingency cleaning.

As the middle and the bottom performing schools revealed almost similar responses to the questionnaires, the performance of the two groups were merged into one group for the sake of analysis, viz. middle/bottom performing schools while the top performing schools remained intact, i.e. performance between 0-49% represented the middle/bottom performance while a performance

of 50% and above represented the top performing schools.

I further requested the research consultant to organise the single frequency tables into double frequency tables which show the performance of two groups, i.e. the top performing and the middle/bottom performing schools (see Appendices J, K, L, M).

5.9 METHODS USED FOR ANALYSING DATA

In attempting to find an appropriate analytical technique, I had to consider numerous techniques with the assistance of a statistician. Initially the chi-square was used and later found not to be appropriate as the sample size was very small, i.e. 75% of the cells had expected counts of less than 5.

With the assistance of a statistician, I had to apply other techniques, viz. the Spearman's rank order correlation coefficient and a stepwise logistic regression. The Spearman's rank order correlation coefficient was applied to the interpretation of the principals' data, while a stepwise logic regression was applied to the interpretation of the educators' and learners' data. Defining the Spearman's rank order correlation coefficient, Ary (1990:155, 162) argues:

“The Spearman's rank order correlation is a special case of the Pearson product moment correlation ... [it] is part of the same statistical family as the median. It is an ordinal statistic designed for use with ordinal data ... [and] is used to find the relationship between two sets of ranks.”

Like the Pearson product moment coefficient of correlation, the Spearman's rank order correlation is the statistical index used for finding the relationship between two sets of linearly distributed interval data and it varies from -1.00 (when the individual ranks on one variable are exactly the opposite of their ranks on the other variables) to +1.00 (when each individual has the same rank on both variables). The rank correlation coefficient will be zero if there is no relationship between the variables. The Spearman's rank correlation is one of the indices of correlation which aims at finding the strength of relationship among different types of variables.

As correlation coefficients indicate the direction (positive or negative) and the strength of a relationship between variables, they are by no means indicative of a cause and effect relationship.

Ary (1990:152) argues that:

“Correlation does not necessarily indicate causation. When two variables are found to be correlated, this indicates that relative positions in one variable are associated with relative positions in the other variable. It does not necessarily mean that changes in one variable are caused by changes in the other variable.”

In this study I have decided to use correlation coefficients to indicate only the strength of a relationship between variables and to limit the values to *strong*, *weak* and *no correlation*. I further decided to report on the variables which have a strong correlation only, i.e. a correlation closer to 1.

In order to interpret the educators' data and the learners' data, a stepwise logistic regression technique was applied to determine the relation between the school's performance and the variables. While acknowledging the inadequacies of logistic regression with regard to its interpretation, appropriate and comprehensive use and confusion which may arise from its four modelling techniques, viz. direct, sequential, stepwise and best K-predictors (Peng, So Harry, Stage and St. John 2002:260), the stepwise logistic regression method was applied. In a stepwise logistic regression, the dependent variable is a binary variable. The school performance (top or middle/bottom) was used as the dependent variable. A stepwise logistic regression is clearly defined by Hair, Anderson, Tatham and Black (1998:246) as a specialised form of regression that is formulated to predict and explain a binary (two-group) categorical variable rather than a metric dependent measure.

Stepwise regression selects variables from a group of possible variables based on their ability to explain the dependent variable. In this study, a number of possible factors that were thought to be contributing to the performance of a school were measured and used as explanatory variables. In analysing the data, one representative educator or learner per school was selected, based on the mode of every variable.

5.10 PRINCIPALS' DATA

Based on the Spearman's rank order correlation coefficient, the following variables revealed a strong correlation: V9, V13, V52, V11, V7, V18, V22 and V44 (see Appendix K).

V9 School's performance and the principal's rating of the school performance

Question: Comment on the 1999 grade 12 final examination results of your school.

Poor	1	Fair	2	Good	3	Very good	4
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Responses:

Frequency percent Row Pct Col Pct	Poor	Fair	Good	Very good	Total
Top	0 0.00 0.00 0.00	1 3.33 10.00 12.50	5 16.67 50.00 71.43	4 13.33 40.00 100.00	10 33.33
Mid/Bot	11 36.67 55.00 100.00	7 23.33 35.00 87.50	3 6.67 10.00 28.57	0 0.00 0.00 0.00	20 66.67
Total	11 36.67	8 26.67	7 23.33	4 13.33	30 100.00

The correlation between the school's performance and the principal's rating of the school's performance was found to be 0.76326, i.e. $p = 0.76326$.

9 out of 10, i.e. 90% of top performing school principals rated their school's performance as good or very good, while 18 out of 20, i.e. 90% of the middle/bottom performing school principals rated their school's performance as poor or fair. The rating by the principals of middle/bottom performing schools regarding their school's performance as being good or very good seems to be inconsistent with the actual situation and can probably lead to continuous poor performance since such principals seem to be satisfied with their schools' performance.

V13 School performance and the principal's expectations of the final results

Question: What final results (pass percentage) did you expect from your learners?

0-30	1	31-50	2	51-80	3	81-100	4
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Responses:

Frequency percent Row Pct Col Pct	Fair	Good	Very good	Total
Top	0 0.00 0.00 0.00	8 26.67 80.00 57.14	2 6.67 20.00 100.00	10 33.33
Mid/Bot	14 46.67 70.00 100.00	6 20.00 30.00 42.86	0 0.00 0.00 0.00	20 66.67
Total	14 46.67	14 46.67	2 6.67	30 100.00

The correlation between the school's performance and the principal's expectations of the final results was found to be 0.69533, i.e. $p = 0.69533$.

Though there is no principal who expected his learners to perform poorly, i.e. between 0-30%, all the principals of the top performing schools expected a good or very good performance, while 6 out of 20, i.e. 30% of the middle/bottom performing school principals expected the same.

As all the principals of the top performing schools expected a good or very good performance from their learners, while only 30% of the middle/bottom performing schools expected the same, the expectations of principals regarding the final results correlate positively with the actual results. This indicates that principals who expect poor results from their learners are likely to get poor results while principals who expect good results from their learners are likely to get good results.

V52 School performance and the commendation for an exceptionally good pass rate

Question: If your school achieved an exceptionally good pass rate in the 1999 grade 12 examination, who would you commend the most?

Learners	1
Educators	2
Principal	3
Other (specify)	4

Responses:

Frequency percent Row Pct Col Pct	Learners	Educators	Principal	Other	Total
Top	0 0.00 0.00 0.00	3 10.00 30.00 37.50	3 10.00 30.00 50.00	4 13.33 40.00 100.00	10 33.33
Mid/Bot	12 40.00 60.00 100.00	5 16.67 25.00 62.50	3 10.00 15.00 50.00	0 0.00 0.00 0.00	20 66.67
Total	12 40.00	8 26.67	6 20.00	4 13.33	30 100.00

The correlation between the school's performance and the commendation for an exceptionally good pass rate was found to be 0.67742, i.e. $p = 0.67742$.

7 out of 10, i.e. 70% of the top performing school principals were of the opinion that the principal, learners, educators and parents should be commended for an exceptionally good pass rate while 17 of 20, i.e. 85%, of the middle/bottom performing school principals had an opinion that learners and educators should be commended for an exceptionally good pass rate.

This indicates that the middle/bottom performing school principals do not regard themselves as part of the people who should take responsibility for good or poor learner performance and this can probably be, *inter alia*, a significant factor in determining the differences in performance between the top and the middle/bottom performing schools.

V11 School performance and the principal's opinion on the capability for 80% performance

Question: Do you think your learners were capable of obtaining more than an 80% pass aggregate?

Yes	1	No	2
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Responses:

Frequency percent Row Pct Col Pct	Yes	No	Total
Top	9 30.00 90.00 52.94	1 3.33 10.00 7.69	10 33.33
Mid/Bot	8 26.67 40.00 47.06	12 40.00 60.00 92.31	20 66.67
Total	17 56.67	13 43.33	30 100.00

The correlation between the principals' opinion (based on the capability for 80% performance) and the school performance was found to be 0.47565, i.e. $p = 0.47565$.

9 out of 10, i.e. 90% of the top performing school principals were of the opinion that their learners were capable of obtaining more than an 80% pass aggregate while 12 out of 20, i.e. 60% of the

middle/bottom performing school principals were of the opinion that their learners were not capable of obtaining more than an 80% pass aggregate.

The middle/bottom performing school principals did not have an opinion that their learners were capable of obtaining more than an 80% pass aggregate, which indicates that they did not expect an exceptionally good performance from their learners. Undoubtedly this can, *inter alia*, be a significant factor in determining the differences in performance between the top performing schools and the middle/bottom performing schools.

V7 School performance and the principal's enjoyment in heading the school

Question: Rate your enjoyment in heading your school in 1999.

Bad	1	2	3	4	5	6	7	8	Good
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Responses:

Frequency percent Row Pct Col Pct	1	2	3	4	5	6	7	8	Total
Top	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	1 3.33 10.00 20.00	1 3.33 10.00 20.00	3 10.00 30.00 42.86	5 16.67 50.00 62.50	10 33.33
Mid/Bot	2 6.67 10.00 100.00	1 3.33 5.00 100.00	1 3.33 5.00 100.00	2 6.67 10.00 100.00	4 13.33 20.00 80.00	3 10.00 15.00 75.00	4 13.33 20.00 57.14	3 10.00 15.00 37.50	20 66.67
Total	2 26.67	1 3.33	1 3.33	2 6.67	5 16.67	4 13.33	7 23.33	8 26.67	30 100.00

The correlation between the school's performance and the principal's enjoyment in heading their schools was found to be 0.47484, i.e. $p = 0.47484$.

All the principals of the top performing schools rated their enjoyment in heading their schools as being good or very good, while 6 out of 20, i.e. 30% of the middle/bottom performing school principals rated their enjoyment in heading their schools as being poor or fair.

Based on the principals' report, schools of which the principals enjoy heading, tend to perform better than the schools of which the principals do not enjoy heading them, hence the principals' enjoyment in heading the school is a significant factor in determining the differences in performance between the top performing schools and the middle/bottom performing schools.

V18 School performance and the punctuality of learners at lessons

Question: Comment on the 1999 grade 12 learners' punctuality during the lessons

Responses:

Frequency percent Row Pct Col Pct	Poor	Fair	Good	Very good	Total
Top	0 0.00 0.00 0.00	3 10.00 30.00 27.27	4 33.33 40.00 44.44	3 10.00 30.00 75.00	10 33.33
Mid/Bot	6 20.00 30.00 100.00	8 26.67 40.00 72.73	5 16.67 25.00 55.56	1 3.33 5.00 25.00	20 66.67
Total	6 20.00	11 36.67	9 30.00	4 13.33	30 100.00

The correlation between the school's performance and the punctuality of learners at lessons was found to be 0.46562, i.e. $p = 0.46562$.

7 out of 10, i.e. 70% of the top performing school principals rated the punctuality of learners at lessons as good or very good while 14 out of 20, i.e. 70% of the middle/bottom performing school principals rated the punctuality of learners as being poor or fair.

Based on the principals' responses, schools where learners attend lessons punctually tend to perform better than those schools which have poor learner punctuality. In this study, punctuality at lessons is a significant factor in determining the differences in performance between the top performing schools and the middle/bottom performing schools.

V22 School performance and the attendance of learners at afternoon studies

Question: Comment on the 1999 grade 12 learners attendance of afternoon studies.

Poor	1	Fair	2	Good	3	Very good	4
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Responses:

Frequency percent Row Pct Col Pct	Poor	Fair	Good	Very good	Total
Top	2 6.67 20.00 22.22	1 3.33 10.00 11.11	3 10.00 30.00 37.50	4 13.33 40.00 100.00	10 33.33
Mid/Bot	7 23.33 35.00 77.78	8 26.67 40.00 88.89	5 16.67 25.00 62.50	0 0.00 0.00 0.00	20 66.67
Total	9 30.00	9 30.00	8 26.67	4 13.33	30 100.00

The correlation between the school performance and the attendance of learners at afternoon studies was found to be 0.42880, i.e. $p = 0.42880$.

7 out of 10, i.e. 70% of the top performing school principals rated the grade 12 learners' attendance at afternoon studies as good and very good, while 15 out of 20, i.e. 75% of the middle/bottom performing school principals rated the learners' attendance as poor or fair.

Based on the principals' reports, schools which have good attendance of learners at afternoon studies tend to perform better than schools which have poor learner attendance. This indicates that poor learner performance in this study could be attributed to, *inter alia*, poor learner attendance at afternoon studies.

V44 School performance and parental support

Question: Rate the support of parents in terms of their contribution to the 1999 grade 12 final examination results.

Poor	1	Fair	2	Good	3	Very good	4
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Responses:

Frequency percent Row Pct Col Pct	Poor	Fair	Good	Very good	Total
Top	2 6.67 20.00 18.18	2 6.67 20.00 20.00	4 13.33 40.00 66.67	2 6.67 20.00 66.67	10 33.33
Mid/Bot	9 30.00 45.00 81.82	8 26.67 40.00 80.00	2 6.67 10.00 33.33	1 3.33 5.00 33.33	20 66.67
Total	11 36.67	10 33.33	6 20.00	3 10.00	30 100.00

The correlation between school performance and parental support in terms of their contribution to the final examination results was found to be 0.39488, i.e. $p = 0.39488$.

6 out of 10, i.e. 60% of the top performing school principals rated parental support as being good and very good, while 17 out of 20 principals of the middle/bottom performing schools rated

parental support as being poor or fair. The principals' reports indicate that schools which are well supported by parents tend to perform better than schools that are not well supported by parents.

5.11 EDUCATORS' DATA

Based on a stepwise logistic regression, one representative educator per school was selected based on the mode of every variable. The following variables were found to be important in determining the differences in performance between the top performing schools and the middle/ bottom performing schools (see Appendix J).

V9 School performance and the rating of school performance

Question: Comment on the 1999 grade 12 final examination results of the subject mentioned in 5.

Poor	1	Fair	2	Good	3	Very good	4
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Responses:

Frequency percent Row Pct Col Pct	Poor	Fair	Good	Very good	Total
1	0 0.00 0.00 0.00	22 9.48 28.21 27.50	34 14.66 43.59 39.08	22 9.48 28.21 50.00	78 33.62
2	21 9.05 13.64 100.00	58 25.00 37.66 72.50	53 22.84 34.42 60.92	22 9.48 14.92 50.00	154 66.38
Total	21 9.05	80 34.48	87 37.50	44 18.97	232 100.00

The correlation between the school's performance and the subject educators' rating of the school's performance was found to be 0.26256, i.e. $p = 0.26256$.

A high number, viz. 56 out of 78, i.e. 71,8% of the top performing school educators rated their school performance as good or very good while 75 out of 154, i.e. 48,7% of the middle/bottom performing school educators also rated their schools' performance as good or very good.

The fact that 48,7% of the middle/bottom performing school educators also rated their school performance as good or very good seems to be inconsistent with the actual situation and indicates clearly that they are probably not even aware of the poor performance of their schools. Undoubtedly this factor can result in continuous poor performance since such educators seem to be satisfied with the results.

V33 School performance and the contribution of school regulations on discipline

Question: What contribution did the regulations of your school have on the discipline of your grade 12 learners?

Poor	1	Fair	2	Good	3	Very good	4
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Responses:

Frequency percent Row Pct Col Pct	Poor	Fair	Good	Very good	Total
1	0 0.00 0.00 0.00	11 4.74 14.10 14.47	39 16.81 50.00 38.24	28 12.07 35.90 57.14	78 33.62
2	5 2.16 3.25 100.00	65 28.02 42.21 85.53	63 27.16 40.91 61.76	21 9.05 13.64 42.86	154 66.38
Total	5 2.16	76 32.76	102 43.97	49 21.12	232 100.00

The correlation between the school's performance and the contribution of the school regulations on the discipline of grade 12 learners was found to be 0.34798, i.e. $p = 0.34798$.

67 out of 78, i.e. 85,9% of the top performing school educators rated the contribution of school regulations on the discipline of grade 12 learners as good or very good while 84 out of 154, i.e. 54,5% of the middle/bottom performing school educators rated the same. A higher percentage of the top performing school educators rated the contribution of school regulations on the discipline of grade 12 learners as good or very good as compared to that of the middle/bottom school educators, which indicates that the top performing schools have better discipline than the middle/bottom performing schools.

V22 Correlation between the school's performance and the attendance of learners at afternoon studies

Question: Comment on the 1999 grade 12 learners' attendance of afternoon studies:

Poor	1	Fair	2	Good	3	Very good	4
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Responses:

Frequency percent Row Pct Col Pct	Poor	Fair	Good	Very good	Total
1	34 14.66 43.59 52.31	16 6.90 20.51 21.62	21 9.05 26.92 31.34	7 3.02 8.97 26.92	78 33.62
2	31 13.36 20.13 47.69	58 25.00 37.66 78.38	46 19.83 29.87 68.66	19 8.19 12.34 73.08	154 66.38
Total	65 28.02	74 31.90	67 28.88	26 11.21	232 100.00

The correlation between the school's performance and the attendance of learners at afternoon studies as reported by grade 12 educators was found to be 0.16412, i.e. $p = 0.16412$.

50 out of 78, i.e. 64,1% of the top performing school educators rated grade 12 learners' attendance at afternoon studies as being poor or fair while 89 of 154, i.e. 57,8% also rated the learner attendance of afternoon studies as being poor or fair. In this study, the attendance of learners at afternoon studies is therefore not an important factor in determining the differences in the performance between the top performing schools and the middle/bottom performing schools as in both groups the attendance of learners is not good.

5.12 DATA OF LEARNERS

Based on a stepwise logistic regression, one representative learner per school was selected based on the mode of every variable. The following variables were found to be important in determining the differences in performance between the top performing schools and the middle/ bottom performing schools (see Appendix L).

V12 School's performance and the rating of learners of the school's performance

Question: Comment on the 1999 grade 12 final examination results of your school

Poor	1	Fair	2	Good	3	Very good	4
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Responses:

Frequency percent Row Pct Col Pct	Poor	Fair	Good	Very good	Total
1	9 1.79 7.20 7.50	19 3.78 15.20 12.93	65 12.95 52.00 39.16	32 6.37 25.60 46.38	125 24.90
2	111 22.11 29.44 92.50	128 25.50 33.95 87.07	101 20.12 26.79 60.84	37 7.37 9.81 53.62	377 75.10
Total	120 23.90	147 29.28	166 33.07	69 13.75	502 100.00

The correlation between the school's performance and the rating of learners of the school's performance was found to be 0.34922, i.e. $p = 0.34922$.

97 out of 125, i.e. 77.6% of the top performing school learners rated the school's performance as good or very good while 138 out of 377, i.e. 36,6% of the middle/bottom performing school learners also rated the same. The fact that some of the middle/bottom performing school learners, viz. 36,6% also rated their school's performance as being good or very good seems to be inconsistent with the actual situation and can lead to continuous poor performance since such learners seem to be satisfied with the performance of their school.

V27 School performance and afternoon study lessons

Question: Does your school have afternoon study lessons for grade 12 learners?

Yes	1	No	2
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Responses:

Frequency percent Row Pct Col Pct	Yes	No	Total
1	67 13.35 53.60 19.25	58 11.55 46.40 37.66	125 24.90
2	281 55.98 74.54 80.75	96 19.12 25.46 62.34	377 75.10
Total	348 69.32	154 30.68	502 100.00

The correlation between the school's performance and afternoon study lessons for grade 12 learners was found to be 0.04004, i.e. $p = 0.04004$.

67 out of 125, i.e. 53,6% of the top performing school learners reported that their schools had afternoon study lessons while 281 out of 377, i.e. 74,5% of the middle/bottom performing school learners also reported the same. Based on the learners' report, only 53,6% of the top performing schools had afternoon study lessons as compared to 74,55% of the middle/bottom performing schools. In this study it was found that afternoon study lessons is not a significant factor in determining the differences in performance between the top and the middle/bottom performing schools.

V16 School performance and the learners' expectation of the final results

Question: What final results do you expect from your final examination?

Poor	1	Fair	2	Good	3	Very good	4
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Responses:

Frequency percent Row Pct Col Pct	Poor	Fair	Good	Very good	Total
1	2 0.40 1.60 8.70	6 1.20 4.80 16.22	30 5.98 24.00 16.48	87 17.33 69.60 33.46	125 24.90
2	21 4.18 5.57 91.30	31 6.18 8.22 83.78	152 30.28 40.32 83.52	173 34.46 45.89 66.54	377 75.10
Total	23 4.58	37 7.37	182 36.25	260 51.79	502 100.00

The correlation between the school's performance and the expectation of learners of the final results was found to be 0.20417, i.e. $p = 0.20417$.

117 out of 125, i.e. 93,6% of the top performing school learners expected good or very good final results while 325 out of 377, i.e. 86,2% of the middle/bottom performing school learners expected the same results. Though both groups expected good or very good results, a higher percentage of top performing school learners, viz. 93,6% expected good or very good results as compared

to 86,2% of the middle/bottom performing school learners.

V38 School performance and the implementation of school regulations

Question: Evaluate the implementation of school regulations in terms of their contribution to the grade 12 results.

Poor	1	Fair	2	Good	3	Very good	4
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Responses:

Frequency percent Row Pct Col Pct	Poor	Fair	Good	Very good	Total
1	3 0.60 2.40 14.29	24 4.78 19.20 14.72	60 11.95 48.00 25.42	38 7.57 30.40 46.34	125 24.90
2	18 3.59 4.77 85.71	139 27.69 36.87 85.28	176 35.06 46.68 74.58	44 8.76 11.67 53.66	377 75.10
Total	21 4.18	163 32.47	236 47.01	82 16.33	502 100.00

The correlation between school performance and the implementation of school regulations was found to be 0.23188, i.e. $p = 0.23188$.

98 out of 125, i.e. 78,4% of the top performing school learners rated the implementation of school regulations in terms of their contribution to the grade 12 results as good or very good while 220 out of 377, i.e. 58,3% of the middle/bottom performing school learners also rated the implementation of school regulations as good or very good. Based on the rating of learners, top performing schools seem to have better discipline than the middle/bottom performing schools.

V29 School performance and teaching on the 1st day of the 1st semester

Question: Were you taught on the 1st day of the 1st semester this year?

Yes	1	No	2
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Responses:

Frequency percent Row Pct Col Pct	Yes	No	Total
1	62 12.35 49.60 20.39	63 12.55 50.40 31.82	125 24.90
2	242 48.21 64.19 79.61	135 26.89 35.81 68.18	377 75.10
Total	304 60.56	198 39.44	502 100.00

The correlation between the school's performance and teaching on the 1st day of the 1st semester was found to be 0.12910, i.e. $p = 0.12910$.

62 out of 125, i.e. 49,6% of the top performing school learners reported having been taught on the 1st day of the 1st semester while 242 out of 377 middle/bottom performing school learners reported the same. While the importance of starting to teach on the first day of the first semester, i.e. the 1st day of the reopening of school cannot be refuted, it does not seem to be significant in this study in determining the differences in performance between the top and middle/bottom performing schools.

V41 School performance and the visit of learners to the library

Question: Have you visited a library this year 2000?

Yes	1	No	2
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Responses:

Frequency percent Row Pct Col Pct	Yes	No	Total
1	30 5.98 24.00 17.96	95 18.92 76.00 28.36	125 24.90
2	137 27.29 36.34 82.04	240 47.81 63.66 71.64	377 75.10
Total	167 33.27	335 66.73	502 100.00

The correlation between the school's performance and a visit to the library by learners was found to be 0.1325, i.e. $p = 0.11325$.

30 out of 125, i.e. 24% of the top performing school learners reported having visited a library while 135 out of 377 middle/bottom performing school learners, i.e. 35,8% reported the same. A higher percentage of the middle/bottom performing school learners, i.e. 35,8% reported having visited the library but still failed to perform well as compared to 24% of the top performing school learners who reported the same, which indicates that the differences in grade 12 learner performance in this study cannot be attributed to learners having visited the library or not.

V14 School performance and the opinion of learners (based on the capability for 80% performance)

Question: Do you think your learners were capable of obtaining more than 80% pass aggregate?

Yes	1	No	2
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Responses:

Frequency percent Row Pct Col Pct	Yes	No	Total
1	105 20.92 84.00 30.79	20 3.98 16.00 12.42	125 24.90
2	236 47.01 62.60 69.21	141 28.09 37.40 87.58	377 75.10
Total	341 67.93	161 32.07	502 100.00

The correlation between the school's performance and the opinion of learners (based on the capability for 80% performance) was found to be 0.19827, i.e. $p = 0.19827$.

105 out of 125, i.e. 84% of the top performing school learners were of the opinion that their learners were capable of obtaining more than an 80% pass aggregate while 236 out of 377, i.e. 62,6% of the middle/bottom performing school learners had the same opinion.

A higher percentage of the top performing school learners, i.e. 84% were of the opinion that their learners were capable of obtaining more than an 80% pass aggregate and still perform well as compared to the 62,6% of the middle/bottom performing school learners who had the same opinion, which indicates that the differences in performance between the top performing schools and the middle/bottom performing schools can *inter alia*, be attributed to the opinion of learners on the performance, i.e. the expectation of learners.

V24 School performance and afternoon study timetable

Question: Does your school have afternoon study timetable for grade 12 learners?

Yes	1	No	2
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Responses:

Frequency percent Row Pct Col Pct	Yes	No	Total
1	51 10.16 40.80 18.48	74 14.74 59.20 32.74	125 24.90
2	225 44.82 59.68 81.52	152 30.28 40.32 67.26	377 75.10
Total	276 54.98	226 45.02	502 100.00

The correlation between the school's performance and the availability of an afternoon study timetable was found to be 0.16412, i.e. $p = 0.16412$.

51 out of 125, i.e. 40,8% of top performing school learners reported that their schools had an afternoon study timetable for grade 12 learners while 225 out of 377 middle/bottom performing school learners reported the same.

A higher percentage of middle/bottom performing school learners, i.e. 59,6% reported that their schools had an afternoon study timetable and yet they could not perform well as compared to 48,8% of the top performing school learners who reported the same, which indicates that the differences between the top and the middle/bottom performing schools cannot be attributed to whether the school had an afternoon study timetable or not.

V35 School performance and the month in which educators were expected to complete the syllabi

Question: In what month do you expect the educators to complete their 2000 grade 12 syllabi?

Responses:

Frequency percent Row Pct Col Pct	Jan	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Total
1	0 0.00 0.00 0.00	0 0.00 0.00 0.00	1 0.20 0.80 10.00	23 4.58 18.40 21.90	37 7.37 29.60 23.72	14 2.79 11.20 35.00	32 6.37 25.60 29.91	14 2.79 11.20 19.72	3 0.60 2.40 42.86	1 0.20 0.80 100.0 0	0 0.00 0.00 0.00	125 24.90
2	1 0.20 0.27 100.00	3 0.60 0.80 100.00	9 1.79 2.39 90.00	82 16.33 21.75 78.10	119 23.71 31.56 78.10	26 5.18 6.90 65.00	75 14.94 19.89 70.09	57 11.35 15.12 80.28	4 0.80 1.06 57.14	0 0.00 0.00 0.00	1 0.20 0.27 100.00	377 75.10
Total	1 0.20	3 0.60	10 1.99	105 20.92	156 31.08	40 7.973	107 21.31	71 14.14	7 1.39	1 0.20	1 0.20	502 100.0 0

The correlation between school performance and the month in which educators were expected to complete the syllabi was found to be 0.05778, i.e. $p = 0.05778$.

60 out of 125, i.e. 48% of the top performing school learners expected their educators to complete the syllabi in good or very good time, viz. July, August or September while 158 out of 377, i.e. 41,9% of the middle/bottom performing school learners expected their educators to complete the syllabi during the same months.

A higher percentage of the top performing school learners, i.e. 48% expected their educators to complete the syllabi in good and very good time as compared to 41,9% of the middle/bottom performing school learners, which indicates that the differences in the performance between the top and the middle/bottom performing schools could, *inter alia*, be attributed to the period in which educators complete the syllabi.

5.13 COMBINATION OF DATA

As the individual analysis of the double frequency tables, viz. educators, principals and learners, revealed different variables which determine different school performance, I found it necessary to do a further analysis of the combined data. Variables that question almost the same aspect were grouped together in order to determine the variables which are important for the determination of the differences in performance between the top performing schools and the middle/bottom performing schools.

As the Spearman's correlation coefficient was applied on the data of the principals while a stepwise logistic regression was applied on the educators and learners, the following variables were found to be important: G15 and G9 (see Appendix M).

G15 School performance and the learners' school attendance

Question: Comment on the 1999 grade 12 learners' attendance of lessons

Poor	1	Fair	2	Good	3	Very good	4
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Responses:

Frequency percent Row Pct Col Pct	Poor	Fair	Good	Very good	Total
Top	0 0.00 0.00 0.00	5 5.56 16.67 20.00	14 15.56 46.67 32.56	11 12.22 36.67 78.57	30 33.33
Mid/Bot	8 8.89 13.33 100.00	20 22.22 33.33 80.00	29 32.22 48.33 67.44	3 3.33 5.00 21.43	60 66.67
Total	8 8.89	25 27.78	43 47.78	14 15.56	90 100.00

The correlation between the school's performance and the grade 12 learners' school attendance as rated by subject educators, principals and learners was found to be 0.18675, i.e. $p = 0.18675$.

25 out of 30, i.e. 83,3% of the top performing schools (educators, principals and learners) rated grade 12 learners' school attendance as good or very good while 32 out of 60, i.e. 52,3% of the middle/bottom performing schools (educators, principals and learners) rated the same. This indicates that top performing schools have better learner attendance than the middle/bottom performing schools, hence it can be concluded that the differences in performance between top performing schools and the middle/bottom performing schools can, *inter alia*, be attributed to learners' school attendance.

G9 School performance and the rating of the school's performance

Question: Comment on the 1999 grade 12 final examination results

Poor	1	Fair	2	Good	3	Very good	4
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Responses:

Frequency percent Row Pct Col Pct	Poor	Fair	Good	Very good	Total
Top	0 0.00 0.00 0.00	4 4.44 13.33 14.81	20 22.22 66.67 55.56	6 6.67 20.00 75.00	30 33.33
Mid/Bot	19 21.11 31.67 100.00	23 25.56 38.33 85.19	16 17.78 26.67 44.44	2 2.22 3.33 25.00	60 66.67
Total	19 21.11	27 30.00	36 40.00	8 8.89	90 100.00

The correlation between the school's performance and the rating of the school's performance by subject educators, principals and learners was found to be 0.34943, i.e. $p = 0.34943$.

26 out of 30, i.e. 86,7% of the top performing schools (educators, principals and learners) rated their school performance as good or very good while 18 out of 60, i.e. 30% of the middle/bottom performing schools (educators, principals and learners) rated the same. Some of the middle/bottom performing schools, i.e. 30% also rated their school's performance as good or very good, which indicates clearly that some middle/bottom performing schools are not aware of their poor performance.

5.14 CONCLUSION

As the purpose of this study is to investigate whether the differences in the South African school leaving examination results of various schools in the Northern Province can partly be attributed to the impact of the hidden curriculum, the following factors which are attributed to the hidden curriculum have been found to impact on the examination results.

The rating of the school performance by educators, principals and learners is found to be inconsistent with the actual situation and is also rated differently.

- The expectation of poor results by educators, principals and learners. Principals seem not to accept responsibility for the results and seem not to enjoy heading their schools.
- Poor school attendance by learners. The punctuality of learners at lessons seems to be poor.
- Poor attendance of afternoon studies by learners.
- Poor school support by the parents.
- School discipline seems to be poor.
- Inability of educators to complete the syllabi in good time.

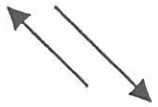
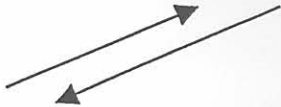
The above-mentioned factors which are viewed as the attributes of the hidden curriculum can be grouped in three main categories, viz. motivational factors, attitudinal factors and disciplinary factors. The findings of this study can be summarized in the following figure (Figure 5.1):

SCHOOL CURRICULUM



FORMAL CURRICULUM

HIDDEN CURRICULUM



Motivational factors

- Learners' school attendance
- Punctuality at lessons
- Learners' attendance of afternoon studies
- Parental support
- Principal's enjoyment in heading the school
- Inability to complete the syllabi in good time

Attitudinal factors

- The rating of the school performance being inconsistent with the actual situation
- Expectation of poor results
- Principals not accepting responsibility for the results

School discipline

- Teaching
- Learning
- Management
- Governance
- Service

Examination results

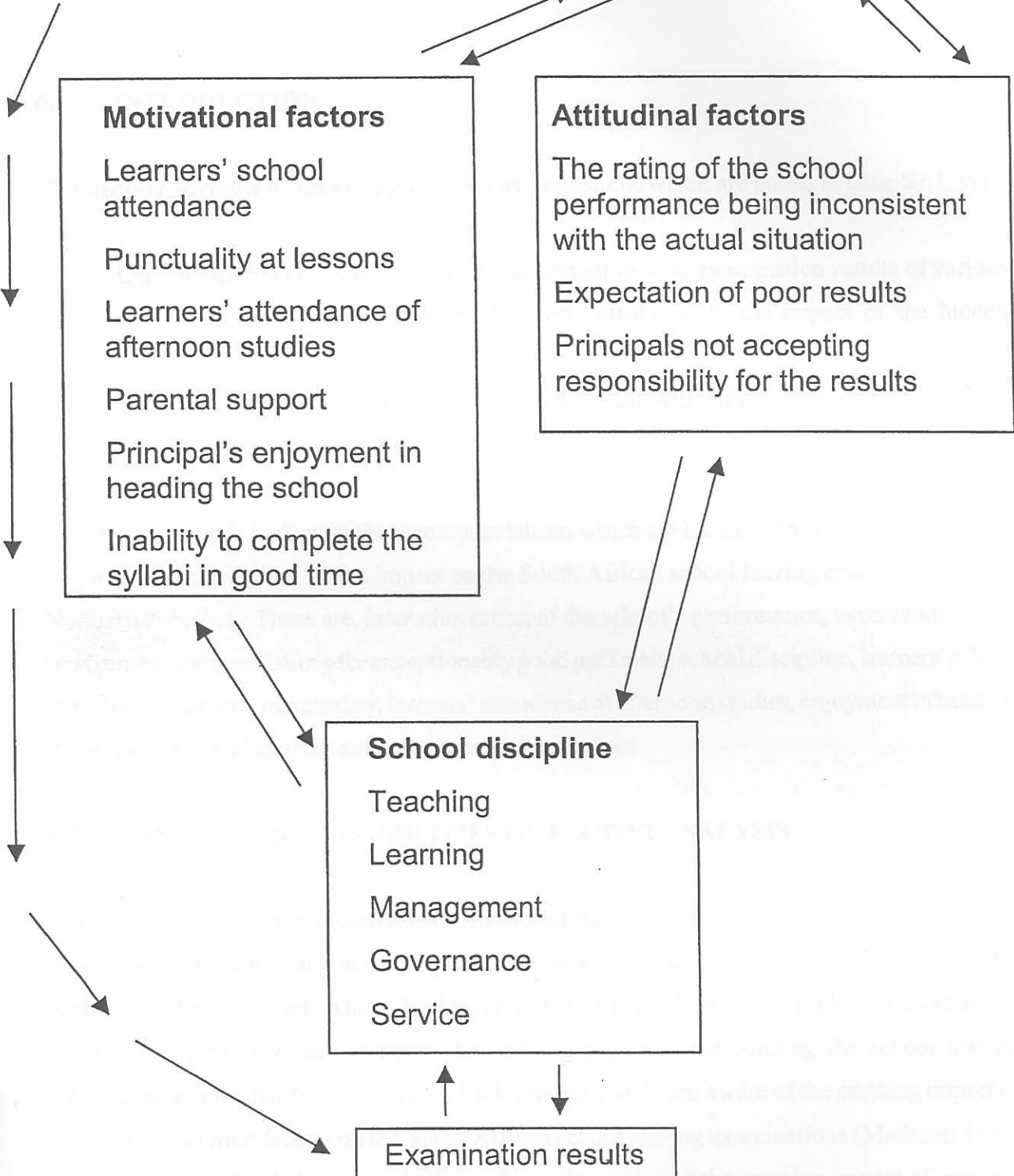


Figure 5.1 Research finding: The impact of the hidden curriculum on the school leaving examination in the Northern Province