

## CHAPTER FOUR

### 4 RESEARCH DESIGN

#### 4.1 INTRODUCTION

In the previous two chapters team management was investigated from a theoretical approach through a literature study. In this chapter the design of the empirical survey, the instrument used to measure the elements of team management, the population and sample, the method of gathering the data, and the statistical techniques used in analysing the data will be presented.

#### 4.2 THE QUESTIONNAIRE AS A RESEARCH TOOL

##### 4.2.1 Objective

The questionnaire was designed to elicit information from the respondents in order to determine their perceptions regarding the extent to which management is implemented in secondary schools attended predominantly by black students in the RSA.

Most particularly the questionnaire sought to determine the absence or presence of evidence of compliance with elements of team management. Evidence of compliance include :

- a team management style of leadership according to Blake and Mouton's 9,9 style;
- a communication process characterised by upward communication
- communication, sharing of information, active listening, effective feedback and absence of forces distorting information;
- participation of teachers in decisions which affect their jobs or fall within their zone of concern.

The questionnaire as a tool was chosen because of its advantages, although it also has its own disadvantages.

##### 4.2.2 Advantages of questionnaires

The questionnaire was used as a tool of investigation because of the following advantages (Sidhu, 1984:139):

- it is economical both for the sender and for the respondent in terms of time, effort and cost;
- it facilitates contact with the subjects of the study who could not otherwise be reached;
- it is relatively easy to plan, construct and administer;
- it has great potential when properly used;
- once it has been constructed skilfully, the investigator may ask anybody to administer it on his behalf;
- it places less pressure on the subject for immediate response; the subject can answer it at leisure;
- it helps in focusing the respondent's attention on all the significant items.

#### **4.2.3 Disadvantages of questionnaires**

Apart from the above advantages the questionnaire has the following disadvantages (Schnetler *et al.*, 1989:50; Borg & Gall, 1989:446; Sidhu, 1984:139) :

- Structured questionnaires can result in a loss of rapport and also to frustrations when respondents feel that their personal options are not included.
- Questionnaire studies often do not probe deep enough to reveal a true picture of opinions and feelings.
- The absence of subtlety in structured questions makes it easy for respondents to discern the purpose behind the question thus forming subjective opinions.
- The structured questionnaire limits the subject's response so that some vital information may be omitted. Subjects may also choose alternatives that do not really reflect their true attitudes.
- Some respondents may not feel happy about airing their views on controversial issues in black and white. Such views can be drawn out only through interviews.
- If the subject misinterprets a question, little can be done to rectify the misinterpretation.
- A low response rate is the biggest disadvantage of the questionnaire. The respondents who return the questionnaire may not constitute a representative section of the entire group.

Despite the above stated disadvantages, Sidhu (1984:131) still maintains that the questionnaire is the most flexible of tools in collecting both quantitative and qualitative information, thus it was chosen as the appropriate instrument for this empirical survey.

### 4.3 QUESTIONNAIRE DESIGN

A well-designed and administered questionnaire may serve as appropriate and a useful data-gathering device (Sidhu, 1984:132) and can boost the reliability and validity of the data to acceptable tolerance. A poorly designed questionnaire, on the other hand can invalidate any research results (Schnetler *et al.*, 1989:44).

Berdiel and Anderson (in Schnetler *et al.*, 1989:44) criticise the poor design of questionnaires rather than the questionnaire itself. Asher (1976:173) is of the opinion that poorly designed questionnaires are a waste of time and effort for both the researcher and the respondents. This problem could be solved if attention were given to what characterises a good questionnaire.

To address the above criticism an attempt was made to comply with Sidhu's (1984:133) guidelines of what constitute a good questionnaire :

- It deals with an important or significant topic so that it entuses respondents to give responses.
- It seeks only such data which cannot be obtained from the resources like books, reports and records.
- It is as short as possible, and at the same time as comprehensive as necessary so that it does not leave out any relevant and critical information.
- Each question deals with a single idea, is worded in a simple and as clear a manner as possible, and provides an opportunity for easy, accurate unambiguous response.
- The questions are objective, with no clues, hints or suggestions as to the response desired. Leading questions are carefully avoided.
- Double negatives are avoided.
- It is easy to tabulate, summarise and interpret.

McMillan and Schumacher (1989:40) warn that although questionnaires are a widely used technique for collecting data in educational research, they are not necessarily simpler than other techniques. Therefore, they should be utilised with caution.

### 4.3.1 Construction of the questionnaire items

In developing questionnaire items, the researcher tried to follow the guidelines set by McMillan and Schumacher (1989:255-258) who advise that :

- items should be clear, i.e. all subjects should interpret the item in the same way;
- double-barrelled questions should be avoided, which means that a question should be limited to a single idea;
- respondents must be competent to answer; they should be able to provide reliable information;
- questions should be important and meaningful to the respondents;
- long and complicated items should be avoided;
- biased and negatively stated items should be avoided.

The following approaches were used in the development of the questionnaire:

- In order to decide which facts or perceptions were to be solicited, chapter 2 and 3 of the literature study were re-examined.
- The leadership style questions (Section 2) were taken from Blake and Mouton (1964:3-4).
- The questions on communication (Section 3) were based on the literature study.
- Items on participative decision-making (Section 4) were adapted from various questionnaires and made relevant to this study.

To collect information and perceptions of the respondents, the researcher decided to employ a structured format of questions.

In formulating the questions the language proficiency of the sampled group was taken into account, technical terms and jargon were avoided, and words and phrases were simplified (cf. Schnetler *et al.*, 1989:57). In order to prevent vagueness phrases such as "sort of", "in general", "about", and "on the whole" were avoided (Schnetler *et al.*, 1989:59).

In developing the questionnaire items, great care was taken to ensure that questions were varied with regard to response format and question type (cf. Schnetler, *et al.* 1989:83). These authors maintain that a long list of items with the same response choice

can become monotonous and tiresome. Consequently, the response format of the four sections was made to differ from each other.

Rummel (1966:128-129) states that a questionnaire should be long enough to include all the information necessary to the investigation, but not so long that the respondent will turn it down as being time-consuming. Rummel further suggests that a long questionnaire may be made to appear shorter than it is by grouping items into several sections and numbering each section. Rummel's suggestion is evident in the questionnaire, for example, the grouping of the items into four sections.

#### **4.3.2 Format and content of the questionnaire**

In designing a format for this questionnaire the researcher was guided by the rules of Borg and Gall (1989:431-432), Schnetler *et al.* (1989:82) and Rummel (1964:126) concerning questionnaire format :

- Organise and lay-out questions so that the questionnaire can be as easy to complete as possible.
- Group questions according to subject. This would cause questions to be logical, enabling the respondents to understand the relationship between them.
- Introductory remarks or directions should be included when changing to a new subject. These directions should explain the purpose of the following set of questions so as to help respondents switch their trains of thought
- Items that require similar responses should be grouped together. This would prevent repetition of response categories for every question.
- With the aforementioned aspects in mind the questionnaire was divided into four sections (see Appendix A) according to focus. Each section was preceded by directions for answering the questions so as to promote uniformly accurate replies and to eliminate the need for help from anyone in answering the questions (Rummel, 1964:126).

Section 1 consists of seven items. This section is intended to collect biographical data about the respondents. Biographical questions are valuable "ice-breakers" at the start of the questionnaire (Schnetler *et al.*, 1989:84). Section 1 can be considered as a warm up type of items.

Section 2 is made up of six elements, each containing five items. The series of questions in this section seeks to determine the leadership styles of principals as perceived by

himself and his subordinates. The respondents are requested select one statement which describes their principal best. The principal is also required to select the statement which describes himself best.

Section 3 consists of eight items and is designed to determine the effectiveness of communication in the school. Amongst others, it investigates the effectiveness of the forces acting for and against the transmission of accurate information as well as the capacity of the leadership to listen. A four-point scale is used to determine this effectiveness, e.g.

1= not effective

2= moderately effective

3= effective

4= very effective

Section 4 of the questionnaire is made up of nine items and is designed to determine the perceptions of teachers regarding their participation or involvement in decision-making. The respondents were asked to indicate on a four-point scale their actual extent of involvement e.g.

1= no participation

2= little participation

3= some participation

4= great participation

#### **4.3.3 Pilot study**

A pilot study provides the researcher with a chance of field-testing the questionnaire. Various alternatives are available to the researcher :

- He may decide to submit his questionnaire to experts. According to Jones (1973:146) these experts can then analyse the instrument, based upon their expertise and thereby imply its validity.
- A "full blown" pilot study may be conducted (Jones, 1973:146). A major pre-test offers the advantage of being able to refine the techniques associated with the study and not just the questionnaire itself.

The researcher utilised both techniques. The questionnaire was given to the researcher's promoter and the university's computer analyst. Thereafter the questionnaire was pre-tested using a sample of twenty teachers (n=20), ten heads of departments (n=10) and five principals (n=5). This group was similar to the intended respondents but would not be part of the final sample in the study.

A feedback form was attached to the questionnaire to enable the pilot-study respondents to comment on the questionnaire itself (Borg & Gall, 1989:435). In this way they could indicate whether the directions and some questions are clear to them or repetitive. They could also comment about the length of the questionnaire; problems or difficulties experienced in completing the and make whatever recommendations they would.

The pre-test results were analysed. The pilot study respondents were satisfied with the clarity of the questions and the instructions as well as the length of the questionnaire. The respondents found the questions non-repetitive. Constructive suggestions were received from respondents.

#### **4.3.4 Final questionnaire**

After the pilot study had been conducted and observations noted, the final questionnaires were designed (see appendices A and B).

#### **4.3.5 Covering letter**

A covering letter serves the purpose of arousing the respondent's interest, so that he will complete the questionnaire honestly and submit it to the researcher (Russel, 1964:133) or the contact person. In this letter the purpose of the study is stated to allay suspicion on the part of the respondent concerning any hidden agenda or ulterior purpose (Galfo, 1983:87).

The covering letter, which was sent to the respondents (Appendix I), contained the following information :

- purpose and significance of the study;
- the importance of the information to be given by the respondent; and
- guarantee for the respondent's anonymity.

#### **4.4 ADMINISTRATIVE PROCEDURES**

On 9 March 1995 a letter was written to all Area Managers (DET) requesting a list of the secondary schools in their areas including number of teachers, heads of departments and indicating whether the principal or HODs were permanent or merely acting. In addition, they were to provide a list of teachers for every secondary school as reflected in the E.T. 20 (Annual Statistics) for 1995 (see Appendices C & D). This list also reflects the names of the HODs. Thereafter, the teachers and permanent departmental heads as well as principals were added up to determine the target population.

A letter requesting permission to conduct research in the Gauteng Province was posted to the Superintendent-General on 12 July 1995 (See Appendix E). A response to the request was received on 28 July 1995 from the Deputy Director-General (see Appendix F). In his reply the Deputy Director-General also advised the researcher to inform the District Directors and principals

concerned. This was done between the 4 August and 1 September 1995 respectively (see Appendices G and H).

The researcher had to wait for the finalisation of the district and regional boundaries in Gauteng. After this process has been completed, the schools were rearranged according to the new boundaries of the districts and regions. Thereafter, the total number of teachers, departmental heads and principals for each region were calculated and a stratified random sampling method was employed

to ensure that the three regions viz., North, Central and South were proportionally represented.

One school inspector per district and two principals in the South were approached to become contact persons and to help with the distribution and collection of the questionnaires in each school. The researcher took personal responsibility of three districts. As from 4 September 1995, a total of 1994 questionnaires were distributed to the contact people for further distribution to the schools.

With the help of contact persons in the districts, questionnaires were returned using the same procedure. Where the researcher was personally responsible, he collected the questionnaires himself.

#### 4.5 FOLLOW-UP

As stated earlier (cf. 5.2.3) one of the disadvantages of the mailed questionnaire is a low rate of response. Another disadvantage observed by Bailey (1978:177) is lack of control over the time the questionnaire is completed. Thus it is necessary to have a follow-up.

About 46% of the total questionnaires were returned within three weeks after which follow-ups were started in the fourth week. This increased the response rate to 64,3%. At the end of September schools closed for the September recess which normally takes two weeks. After recess, the third stage of follow-ups was conducted by the researcher personally and through telephone calls. This pushed the response rate to 78.6%. The researcher was convinced that further follow-ups would not yield further response because of reports of unwillingness received from outstanding schools.

#### 4.6 POPULATION AND SAMPLE

The target group for the empirical study included school principals, heads of departments and teachers in the eighteen districts of the Gauteng Department of Education.

In identifying the target population, those teachers and heads of departments whose principals were identified as not being permanently appointed or whose schools did not have Std 10 classes, were excluded. Temporary teachers and heads of departments in acting capacity were also excluded. Finally the target population (N=6206) comprised of principals (n=166), heads of departments (n=820) and teachers (n=5220) in black secondary schools in Gauteng.

The above totals are representative of the three Gauteng regions namely, North, Central and South as shown in Table 4.1.

**TABLE 4.1: TARGET POPULATION**

REGION	TEACHERS	HODS	PRINCIPALS
North	1383	226	50
Central	1888	273	53
South	1949	321	63
TOTALS	5220	820	166

**TABLE 4.2: SAMPLING**

POSITION	TOTALS	%	SAMPLE
Teachers	5220	30%	1566
HODs	820	40%	328
Principals	166	60%	100

As indicated above (cf. Table 4.2) a sample of 60% (n=100) of the principals; 40% (n=328) of the heads of departments and 30% (n=1566) teachers was selected. Thereafter, a stratified random sampling method was employed to ensure that the three regions viz., North, Central and South were proportionally represented (cf. Tables 4.3, 4.4 and 4.5)

**TABLE 4.3: STRATIFIED SAMPLING FOR NORTH REGION**

NORTH REGION			
POSITION	TOTALS	%	SAMPLE
Teachers	1383	30%	415
HODs	226	40%	91
Principals	50	60%	30

**TABLE 4.4: STRATIFIED SAMPLING FOR CENTRAL REGION**

CENTRAL REGION			
POSITION	TOTALS	%	SAMPLE
Teachers	1888	30%	566
HODs	273	40%	109
Principals	53	60%	32

**TABLE 4.5: STRATIFIED SAMPLING FOR SOUTH REGION**

SOUTH REGION			
POSITION	TOTALS	%	SAMPLE
Teachers	1949	30%	585
HODs	321	40%	128
Principals	63	60%	38

A total of 1994 principals, heads of departments and teachers constitute the sample of this survey.

#### 4.7 RESPONSE RATE

Table 4.6 shows the return rate per sample population in the whole Gauteng province, while Table 4.7 shows the return rate from each sample population in each region.

**TABLE 4.6: RESPONSE RATE PER SAMPLE**

NUMBER OF QUESTIONNAIRES			
	SEND OUT	RETURNED	%
Principals	100	94	94
HODs	328	259	78,96
Teachers	1566	1215	77,59
TOTAL	1994	1568	78,63

**TABLE 4.7 RESPONSE RATE PER SAMPLE PER REGION**

Region	Principals			HODs			Teachers		
	Out	Ret	%	Out	Ret	%	Out	Ret	%
North Region	30	25	82	91	66	72,5	415	318	76,6

Central Region	32	31	96,9	109	74	67,89	566	416	73,5
South Region	38	38	100.0	128	119	92,99	585	481	82,2
TOTALS	100	94	94,0	328	259	78,96	1566	1215	77,59

From Table 4.6 it is clear that of the 100, 328 and 1566 questionnaires sent to principals, departmental heads and teachers respectively, 94 (94%), 259 (78,96%) and 1215 (77,59%) were returned.

Landman (1980:112) and Babbie (in Bailey, 1978:153) state that with a 70% response rate, valid and reliable deduction can be made. In this survey, 1568 (78,63%) of the 1994 questionnaires were returned. This good response rate vindicates the use of contact persons and the follow-up process.

Table 4.6 also reveals that there was a high rate of response from principals 94 (94%) compared with HODs 259 (78,96%) and teachers 1215 (77,59%). Even the latter two have a reasonably higher rate of response.

Table 4.7 shows the response from the three regions viz. North, Central and South. According to this table, all the principals in the South returned their questionnaires while only one did not return his questionnaire in the Central region resulting in a 96,9% return rate. The North registered a 82% response rate.

The South recorded the highest return rate in all three samples of principals, departmental heads and teachers. The Central region registered the lowest return rate for HODs and teachers. The percentage return of HODs in the Central region was the lowest for all samples in all the three regions.

Between 1992 and 1995 most HODs in the Central region were harassed, marginalised and prevented from performing their duties to the extent that many decided to adopt a low profile. This could be a possible explanation for their low response rate. Most principals in the South and Central regions are personally known to the researcher since he had worked in these regions for a long time. This history of acquaintance could have been the incentive for their co-operation.

## **4.8 STATISTICAL TECHNIQUES**

### **4.8.1 Descriptive data**

A computer-aided statistical analysis was employed. The results of the research were processed using the SAS Programme (SAS Institute, 1985). The initial step in the analysis was to compute the descriptive data for each sample group of the target population. These included statistics like frequency distribution, central tendency (means) and variability (standard deviation).

### **4.8.2 Quantitative data**

To determine the statistical significant difference between the sample means, the analysis of variance and the t-test for independent samples were computed respectively. The analysis of variance is used to determine whether three or more sample means differ significantly from one another (Borg & Gall, 1979 : 427). The analysis of variance results in an F value. The t-test for independent samples is usually used to find the significance of the difference between the means of two samples (Ary *et al.*, 1976:158). To calculate the practically significant differences between the groups the d-value was used.

These statistical measures are applied in chapter 5.

## **4.9 SUMMARY**

In this chapter the design of the study, the population and sample, instrumentation of the study, method of gathering the data, and statistical techniques were discussed. Chapter 5 will include the analysis of the data.