

CHAPTER 4

EMPIRICAL RESEARCH DESIGN

4.1 INTRODUCTION

In this chapter the empirical design of the research is presented as an orientation to the actual research. The discussion focuses especially on instrumentation which occupies a central place in the gathering of data in research. This includes a discussion on the search for measuring instruments, reasons for selecting a questionnaire, its advantages and its disadvantages. The construction and derivation of the question items are dealt with and the format of the final questionnaire is given.

An explanation of how the questionnaire was pretested in the field is also given because pretesting is essential in operationalising the question items. Furthermore, administrative arrangements carried out to administer the questionnaire are dealt with and the population which was involved in responding to the questionnaire, as well as sampling methods to obtain a representative population, are discussed.

Statistical techniques used to analyse data and so answer the research questions are pointed out, followed by an explanation of how the data was presented. Lastly, the contents of the chapter are summarised thus ushering the next chapter.

4.2 INSTRUMENTATION

4.2.1 Search for measuring instruments

There is a paucity of measuring instruments developed locally in the area of participation because most of the literature deals with team management instead of participation per se (cf. par. 2.1.2). Two recent instruments from America were, however, procured, viz.:

- * **Teacher Participation and Involvement Scale (T.I.P.S. 2)** (Russell et al., 1992)

- * **Shared Education Decisions Survey (SEDS) and Teacher Decision Making Instrument (TDI)** (Ferrara, 1993).

The above instruments proved to be useful reference works but could not be used because the question items were based on the American education system which differs markedly from the system in the RSA. Additionally, contrary to the purposes of the present research, the format of the instruments was based on management areas instead of management tasks (cf. par. 3.2.9). Consequently, a questionnaire survey based on the literature study was constructed.

4.2.2 Reasons for selecting the questionnaire

Of the two types of questionnaires, viz., open and closed, a closed questionnaire was chosen for the following reasons (see, for example, Anderson, 1990:207; Ary et al., 1990:421; Borg & Gall, 1989:152; De Wet et al., 1981:163, 164):

- * Information over a wide field and a large sample can be easily gathered.
- * Uniformity of questions ensures reliable results.
- * The concise question items can be easily presented and analysed.
- * It saves time and costs.

4.2.3 Disadvantages of the questionnaire

In the same breath as above, the questionnaire has the following disadvantages (see for example, Anderson, 1990:207; Ary et al., 1990:421; Borg & Gall, 1989:152):

- * Questionnaires typically yield a low response rate.
- * Questionnaires can easily be "delegated" or discussed with other parties.
- * Some important information may be omitted due to the restrictions imposed by the question items.
- * Some question items may be misunderstood by the respondents.

Notwithstanding the above disadvantages, the questionnaire was selected because the disadvantages would be ameliorated by personal administration of the questionnaire in the field.

4.2.4 Structure and determinants of the questionnaire

Two questionnaires were drawn: one for the principals and the other for the teachers. The two questionnaires were identical in all respects except for the leading question in Section 2 which was tailored to elicit responses from the principals about the participation of teachers. The aim of both questionnaires was to determine the nature, forms and extent of teacher participation in school management (cf. par. 1.2.3).

The following sets out the way in which question items of the questionnaires were derived from the literature study (chapters 2 and 3) and how the questionnaires were structured.

SECTION 1 - Personal and school details

This section aimed at investigating background data which may be used to explain the findings in the other sections of the questionnaire. The question items in this section were divided as follows:

Questions 1.1 - 1.7 : Personal details

- * 1.1 - Gender (cf. par. 2.4.2.1)
- * 1.2 and 1.3 - Age and teaching (cf. par. 2.4.2.3)
- * 1.4 and 1.5 - Professional and academic qualifications (cf. par. 2.4.2.2)
- * 1.6 - Current position in the school (cf. par. 2.4.3)
- * 1.7 - Affiliation (cf. par. 2.4.6)

Questions 1.8 and 1.9 : School details

- * 1.8 - Size of departments/teams/committees (cf. par. 2.3.4.2)
- * 1.9 - Size of school (cf. par. 2.3.4.2)

SECTION 2 : ACTUAL AND DESIRED PARTICIPATION

This section investigated actual and desired participation of teachers in the management and operational tasks (cf. par.3.3). The question items in this section were divided as follows:

- * Questions 2.1-2.9 : Planning (cf. par.3.3.1)
- * Questions 2.10-2.14 : Organising (cf. par. 3.3.2)
- * Questions 2.15-2.23 : Leading (cf. par. 3.3.3)
- * Questions 2.24-2.29 : Controlling (cf. par. 3.3.4)

SECTION 3 : OUTCOMES OF PARTICIPATION

By means of this section data was gathered concerning the perceptions of principals and teachers with regard to the outcomes of participation (par. 2.5). The question items were 4.1-4.9.

4.3 PILOT STUDY

A pilot study was conducted prior to the administration of the questionnaire to test the relevance of the question items and to anticipate and solve problems that may arise during the actual administration of the questionnaire.

The pilot study was conducted in two secondary schools in the Sasolburg area. The schools conform to the major characteristics of the schools to be investigated in that the teachers are urbanised, unionised and predominantly black. The population also formed part of the former Orange-Vaal Region of the DET and was, therefore, subjected to similar management training courses as the actual population of the Vaal Triangle (cf. DET, Top Downs, 1985).

The population selected for the pilot study, therefore, satisfied the requirements of closely resembling the actual population (De Wet et al., 1981:166).

The pilot study was useful in identifying defects in the question items and these were subsequently changed. A problem which emerged was the reluctance of the teachers to complete the questionnaire in the presence of the researcher, most preferring to take home the questionnaire and submitting it the following day. A corollary of this problem was low response seeing that some teachers kept forgetting the supposedly completed questionnaire at home. It emerged during discussions with some of the non-responding teachers that teachers had a negative attitude to questionnaires because such questionnaires had little or no practical value in changing their teaching life for the better. This indicated that a well-motivated introductory letter was necessary in order to overcome this negative perception (see Appendix III).

It also showed that means were to be devised to counteract a possible low response in the actual research.

4.4 ADMINISTRATIVE ARRANGEMENTS AND FINALISATION OF THE QUESTIONNAIRE

The questionnaire was then submitted to the Department of Education and Training for scrutiny and approval. The Pretoria Head Office gave approval without altering any question items and also indicated that Orange-Vaal Regional Office should also be contacted. On the basis of the problems identified in the pilot study and with the DET effecting no changes in the question items, the questionnaire was finalised (see Appendix II).

Although suitable for mailing, the research instrument was delivered by hand at the selected schools in order to save time. A secondary aim in using this method was to enhance the response rate and to exercise some control over the conditions in which the respondents completed the questionnaire. Unfortunately this secondary aim was not achieved due to the reluctance of teachers to remain after school hours. According to the conditions accompanying the permission letter to conduct research, it was stated that the questionnaire must not be completed

during school hours (see Appendix III). The researcher obtained permission from the principal, as well as the teachers included in the sample, to conduct the research.

4.5 POPULATION AND SAMPLING TECHNIQUES

The target population consisted of 1012 teachers and 40 principals of secondary schools in the education areas of the Vaal Triangle, Vereeniging and Vanderbijlpark. The personnel of the schools are predominantly black.

Due to the large size of the population, a sample size was calculated using the formula (PU vir CHO, 1991:9-20):

$$n \geq \frac{\frac{N}{10\,000}}{1 + \frac{N}{10\,000}d^2} \quad n \geq = 298,0$$

where N = size of population (1 052)

d = 5 at 5% confidence level

n = size of sample.

This showed that a sample of 300 respondents (298) was representative enough to produce reliable estimates of the opinions of the target population. Such a sample size would also be more manageable within the time and resource constraints of the research.

A stratified two stage cluster sampling technique was used. This technique involved selecting random samples of clusters, i.e., schools from each of the three education areas in the Vaal area. From each of the selected schools teachers were randomly selected from the list of the staff members of the school. The principal of the selected school was automatically included in the sample. Thus, in each education area the following number of schools were selected:

- 4 out of 11 schools in the Vaal Triangle area

- 8 out of 16 schools in the Vanderbijlpark area
- 8 out of 16 schools in the Vereeniging area.

A sampling procedure using a combination of various procedures is recommended where a single procedure may prove counterproductive for the research (Anderson, 1990:199).

In this research, the procedure was employed to achieve representativeness (cf. Ary et al., 1990:179; Fraenkel & Wallen, 1990:72) and to overcome the problem of low response experienced in the pilot study (par. 4.2.3).

The response rate was as follows:

TABLE 4.1
RESPONSE RATE

	TOTAL POPULATION	SAMPLE		RESPONSE OF SAMPLE		NO RESPONSE		TOTAL	
		f	%	f	%	f	%	f	%
Principal	40	20	50	19	95	1	5	20	95
Teachers	1012	280	27,7	209	74,6	71	25,4	280	74,6

As the above Table 4.1 shows, the response rate among the principals was 95% with one principal apparently having delegated the completion of the questionnaire to a teacher and thus, this questionnaire was not usable. There was a 74,6% response rate among the teachers. Since a response rate of 70% provides a quantity of data large enough to draw valid and reliable conclusions (Ary et al., 1990:453; De Wet, 1981:169; Anderson, 1990:167), **generalisations from the research can be made to the whole population of teachers and principals in the Vaal area.**

4.6 STATISTICAL TECHNIQUES

The research data was processed using the SAS programme which reflects statistical measures such as frequencies, central tendency (mean) and variability (standard deviation) for each sample of the population (SAS Institute, 1985:403).

These statistical measures were employed to obtain an idea about the nature, forms and extent of teacher participation in school management.

A t-Test was computed to determine differences in the sample means between the principals and teachers. This statistical test is widely used to find out whether a statistically significant difference exists in the mean scores of two samples (Ary et al., 1990:453). The p-value in this test denotes statistically significant difference between the means while a further computation of the d-value (effect size) measures the difference of magnitude between the sample means. By computing the d-value, therefore, it was possible to find out whether the statistically significant differences were also practically significant because a statistically significant difference with a small effect has little significance for implementation of results (cf. Cozby, 1993:158).

4.7 METHOD OF PRESENTING RESULTS

The research results are presented in the form of tables which reflect the frequencies and percentages of responses and, where applicable, the mean scores, standard deviations, t-values and d-values of the data. Each table is followed by an analysis, interpretation and discussion of the presented data.

4.8 CHAPTER SUMMARY

This chapter presented the design of the empirical research into the nature, forms and extent of teacher participation in school management. This included a discussion on measuring instruments where reference was made to the questionnaire as the instrument used to gather data in this research. Reasons for selecting the questionnaire were given, and its advantages and disadvantages were pointed out. The chapter also discussed the pretesting of the questionnaire in the form of a pilot study, administrative arrangements to aid the application of the measuring instrument, population and sampling techniques, the statistical techniques employed, and the methods of presenting, analysing and interpreting the research data.

In the ensuing chapter the collected data will be presented and discussed.