# CHAPTER 4

# RESEARCH DESIGN AND METHODOLOGY

*People change in significant ways as they make their voyage through life.*

**William Shakespeare**

## 4.1 INTRODUCTION

In the previous chapters the research problem was identified and formulated against the background of existing literature and theoretical frameworks. Since the next step in the research process involved choosing an appropriate empirical research design, this chapter focuses on the choice of the empirical research design as well as its methodological implications for the sampling, the data collection and the development of a measuring instrument in this study.

As was explained in Chapter 1, this study aimed to formulate a MCD planning model to address the acute shortage of skilled managers in general and skilled designated managers in the automotive sector in particular and to enhance the managerial career-pathing effectiveness of a life-long learning process that can sustain production activities within the changing and challenging automotive manufacturing environment. With this in mind, the validity of the new model (proposed in Chapter Three) has been investigated by constructing a questionnaire and distributing it among managers in selected automotive companies. Hakim (1987) argues that discussing research methodology is like putting together a plan or an initial design for a building. In the rest of this chapter, therefore, this process is described to show all the factors that may have had an impact on the answers found to the research question.

## 4.2 RESEARCH PROBLEM

The problem to be researched (as identified in this study) was a solution to the acute shortage of skilled designated managers in the automotive sector. Affirmative action development programmes in this sector are increasingly criticized for failing to facilitate designated manager promotion through the ranks in the private sector and for producing poor results. The automotive sector, on the other hand, maintains that there are insufficient skilled designated personnel in the labour market pool (Department of

Labour, 2001). A recent publication of the world competitiveness report (*Business Day*, 2002) highlighted some concerns about designated MCD growth in the automotive industry:

- Individuals see their career as disappointing, due to irrelevant MCD and education with little importance and few organisational pay-offs.
- There is a lack of appraisal systems that link and trigger MCD and MCD is useless without a helpful starting point.
- Designated managers sometimes fail to admit that they have training needs, because they have low self-confidence or self-esteem or maybe because they have a legacy of failure.
- Negative attitudes can be connected with a generational dimension, in which an individual feels too old (or too senior) to need MCD.
- Designated managers must acquire specific skills to resolve complex problems in order to function well in the competitive automotive world.

## 4.3 OBJECTIVES OF THE STUDY

The intention of this research was to engage in the effective and scientific development of an MCD model for previously disadvantaged managers in the workplace. The concepts of MCD are not always well understood by all levels of employees and misconceptions may prevail regarding career expectations. Management is often not properly trained and can be uninformed regarding the process of career management and development. It is hoped that this research will provide explanations of the importance of understanding career management, and also that both managers and employees will be encouraged by the results of this research to be actively involved in MCD.

The primary objective of this study was

- to explore and formulate a new strategic model to enhance the MCD potential of designated managers (to ensure that the lack in South Africa's automotive sector of appropriate and adequate managerial skills development is addressed).

The secondary objectives of the study are

- to investigate the commitment of top management to the career-pathing and development of designated and non-designated managers in middle/lower management and to define their roles clearly;
- to examine the role of automotive organisations in South Africa, with reference to MCD and development strategies for future DSGNS (Black men, women and disabled persons);
- to provide an in-depth literature study on concepts which have a significant impact on MCD intervention within automotive organisations in respect of the training and development of future designated managers; and
- to investigate additional literature and obtain professional expert advice on the concepts and applications of "MCD models" with the following control measures and guidelines:
    - to ascertain whether the HRM component of the organisation has put in place management development programmes and, if so, whether they are effective for both designated and non-designated managers;
    - to ascertain whether the HRM component is activating the organisational strategic plan by implementing a relevant MCD programme;
    - to determine whether a standardised MCD model (of any nature) is in place, and whether there is a difference between its effectiveness for NDSGN and DSGN managers;
    - to ascertain the perceptions of top management about the establishment of internal and external programme monitoring bodies to evaluate and align employment equity with the expected plans for designated MCD programmes;
    - to formulate HRM strategies to accelerate the management development potential of future DSGN managers to meet the needs of the automotive sector;
    - to develop an exploratory integrated model linked to DSGN MCD and strategic HRM activities; and
    - to ascertain whether processes for an advisory HRM focus group that can link and formulate strategies around a company's human resources planning requirements have been set in motion.

### 4.3.1 Demographic characteristics of local automotive organisations

Figure 4.1 sets out the main characteristics of the automotive sector positioning against the demographic backdrop of South African economy.

**Table 4.1: Summary of the main characteristics of local automotive organisations**

| | | |
|---|---|---|
| **Number of employees** | 250 000 employees | 9480 managers |
| **Annual Turnover** | R146 billion | Annual exports R84 billion |
| **Demographics of Sector** | Kwa-Zulu Natal (10%)<br>Eastern Cape (East London) (15%)<br>Eastern Cape (Port Elizabeth) (15%)<br>Gauteng (60%) | Toyota<br>Daimler Chrysler<br>Delta and VW Volkswagen<br>BMW, Ford and Nissan |
| **Nationality of ownership** | Japanese<br>South African<br>German<br>Swedish<br>United States of America | Toyota, Nissan<br>Vehicle components and body pressing parts<br>BMW, Daimler Chrysler and VW<br>Volvo<br>Ford (includes Land Rover & Mazda) |
| **GDP for the Sector** | Manufacturing (contributes 5,7% of GDP: 3rd largest economic sector after Mining and Agriculture) | The 2002 domestic automobile demand was 366 000 units with an addition of export units totaling 124 500, with current constant growth. |
| **Number of managers** | NDSGN = 450<br><br>DSGN = 9030 | Intended original sample size = 600.<br>Actual sample size = 227 (from 51 companies). |
| **Number of automotive business service sites** | 200 (1st tier component manufacturers and suppliers to the OEMs). Each automobile manufacturer purchases components from between 100 to 140 1st tier suppliers. | 7 companies of Automotive Assembly Plants (OEMs), 13 brands and approximately 40 different models are manufactured with an annual production of 400 000 units. |
| **Anticipated designated management staffing in the year 2003** | The DSGN will increase by enforcing employment equity plans to resolve past imbalances in previous management structuring (companies avoid Government employment equity fines and penalties for non-compliance to the equity plan). | An increased rate of 35% of selection and recruitment of DSGN is currently taking place within organisations (2003). |
| **Anticipated NDSGN staffing in one year's time (white managers)** | In the year 2003 there was a decrease of NDSGN timed for early retirement that were offered attractive packages. | An anticipated rate in 2003 of 40% turnover of white managers in the organisations were to be replaced by DSGN. |

Source: *Adapted from Business Report (2002)*

## 4.4 RESEARCH DESIGN

For the purposes of this study both quantitative and qualitative research methods were selected and supported the result findings. Research in the automotive sector, particularly in a large division within an organisation, is much more suited to this approach. It is now recognised that automotive organisations are old establishments in South Africa that encourage the use of quantitative methods of scientific inquiry (Shaw & Perkins, 1992). The research design technique chosen using selected items from the instrument of the Career Dimension Questionnaire, which was subjected to Exploratory Factor analysis to determine the underlying factor structure, as suggested by Cooper and Hair (1998:577), that forms part of the discussions in this chapter.

Quantitative data can be classified into various data types using a hierarchy of measurement, the data often a finite ending order of numerical precision (Saunders, Lewis & Thornhill, 1997). These different levels of numerical measurement dictate the range of techniques available for the presentation and analysis of the data.

Quantitative data can be divided into two distinct groups: categorical and quantifiable. Categorical data refer to data whose values cannot be measured numerically but whose values can be classified into sets (categories) and can be further subdivided into descriptive data and ranked. They are placed in a ranked order (they are then known as nominal data). Ranked or ordinal data are more precise. The data are collected and coded using precise numerical measurements that can be regrouped to a less precise level so that the data can be analysed. Quantitative research is not only about "counting and numbers", but is embedded in theory. The scientific quality of the concepts and the measures/instruments is of critical importance in quantitative research. In essence, the term "quality" as it is used here refers to the reliability and validity of an approach (internal validity, external validity, reliability and objectivity). These data types should also be explicitly tested and reported on before proceeding to the rest of the analysis, interpretation and reporting, which form the focus steps set out by Mouton (2001).

It is difficult to put a precise meaning to qualitative research, but it can be described as an umbrella for interpretative methods that describe, translate or come to a conclusion without using a "number crunching" exercise (Van Maanen, 1983). Although qualitative

research has not been refined to reproduce the same degree of preciseness as quantitative research, a number of important factors should be looked at (Saunders *et al*., 1997). These factors are listed below together with their application in the present study.

- **Qualitative research is inductive –** A qualitative researcher must be able to develop his/her own concepts, insights and understanding from the research results. (The aim of this study was to develop an understanding of the way that DSGN and NDSGN managers and the organisation see the problem).

- **Qualitative research is holistic –** People, groups, and settings are viewed as a whole, and are not reduced to variables. (The beliefs, thoughts and needs of the DSGN and NDSGN managers were used in the perspective areas of approach of the research questions).

- **Qualitative researchers are sensitive to the effects of the study on the respondents –** Interaction with the respondents must be as natural and unobtrusive as possible. (Employees were interviewed in familiar surroundings by an interviewer who was familiar to them).

- **Qualitative researchers try to understand the subjects from their own frame of reference –** All experiences as described by the respondents are presented in their exact wording. (The questions used in the questionnaire elicited the personal views and thoughts of the employees).

- **Qualitative researchers set aside their own beliefs and perspectives –** Nothing is taken for granted and everything said or discussed is subject to enquiry by the researcher. (The researcher's own perspectives and beliefs were set aside as far as possible during the evaluation process).

- **Qualitative researchers take all perspectives as valuable views –** The purpose of qualitative research is to seek a proper understanding of the employees' perspectives regarding the career management process. (The respondents were given an

opportunity to express exactly how they felt about the specific issues in question. All these thoughts and perspectives were used in drawing final conclusions).

- **Qualitative methods are humanistic –** The methodology used in qualitative research is as non-obstructive to formal proceedings as possible and this research study is conducted in familiar automotive sector settings.

- **Qualitative researchers put a lot of emphasis on the validity of their study –** Qualitative research methods allow researchers to stay close to the empirical world. (Validity in this research was questioned at all times, in other words, "are we measuring what we are suppose to measure?").

## 4.5 PILOT STUDY

A pilot study was undertaken to determine the validity and reliability of the questionnaire, with a view to making necessary changes in the procedure before the actual study was undertaken. A self-administrated questionnaire was then prepared and used as a measuring instrument after 20 lower/middle managers in ten different companies had used it in a pilot test. It consisted of ten questions, some with subsections. Where relevant, a five-point Likert scale was employed. Respondents were invited to provide additional remarks, criticism or recommendations, and ample space was provided for them to do so. The questionnaire was completed anonymously. This pilot survey revealed the non-existence of Affirmative Action career-pathing models or any staff succession planning and highlighted the need to emphasise "Management Career Development", which was confirmed to be lacking in the companies that were surveyed.

### 4.5.1 The design of the measuring instrument

A questionnaire was developed to collect the required data from individual managers rather than their organisations. (A copy of the questionnaire is attached in Appendix A). It was post-coded later (see Appendix B). The questionnaires were printed on one side of sheets only and not back to back to facilitate data capturing. The instrument used for this survey consisted of a pre-coded and self-administered questionnaire, which was carefully constructed to facilitate maximum response and, at the same time, obtain detailed information. The questionnaire was developed by taking into account some of the general rules laid out by Baker (1988) for questionnaire construction:

- Include only questions which address your research concerns and which you plan to analyse.
- Make the questionnaire as appealing as possible to the respondents.
- Keep the questionnaire as short as will suffice to elicit the information necessary to analyse the primary concerns. Be sure, however, to include questions on all aspects of the research problem that you need to address.
- If the questionnaire is self-administered, keep the instructions brief, but make sure they contain all the information required to complete and send back the questionnaire.
- Consider in advance all the issues that a respondent might raise when he/she receives this instrument. Be sure that the questionnaire addresses these issues.

Most types of questionnaires include a combination of open and closed-ended questions. Open-ended questions allow respondents to give answers in their own way (Shaw & Perkins, 1992). Baker (1988:173-174) is of the opinion that closed-ended questions force the respondent to select a single response from a list. However, Saunders, Lewis & Thornhill (1997) indicates that closed-ended questions with forced choice responses are more likely to be completed by respondents than open-ended questions.

A large portion of closed-ended questions were used. Care was taken to ensure that the lists of responses from which the respondent was instructed to choose covered as many alternative answers as possible. However, in some instances, the nature of the issue

addressed dictated the use of open-ended questions, and space was therefore provided for respondents to write out their answers.

The questionnaire was designed according to the objectives of this study, as stated in Section 4.3. The questions took cognizance of the current affirmative action implementation in the light of the struggle by the automotive industry to reduce inequalities among managers. The aim was to ascertain the respondents' points of view of top management responsibilities for and commitment to the identification of potential talents and the implementation of MCD interventions.

The questions were structured to examine the respondents' views on career management, and included categories such as first and current job functions, formal education, gender, tokenism in job placement, privileges, job responsibilities measured against job descriptions, adequate training for current functions, decision-making power on important issues, promotion prospects, relationships to immediate superiors, current company training programmes, the availability of coaching or mentorship programmes; freedom of the organisation and available resources, making critical and important contributions to the organisation, existing training models and personal involvement.

The respondents' personal feelings about and views on the people's understanding of the organisation and its strategies of both the NDSGN/DSGN groups' perceived magnitude of the MCD problems were assessed to evaluate top management commitment. For this questionnaire, the five point Likert scale was used to elicit the degree of agreement or disagreement, and provision was made for a neutral column for each of a series of statements related to the study object. Regarding the design of such statements, Loubser (1996:228) asserts that the "statements must be closely connected with the subject and approximately half of them should be positive and half negative" (Loubser, 1996:228).

The cover page of the questionnaire contained instruction notes to assist the respondents in completing the questionnaire. The questionnaire consisted of 62 questions that elicited detailed information from the respondents selected for the survey. A covering letter addressed to the respondent outlined the importance of the study, the aim of the questionnaire and the value of participation. The respondents were assured of

confidentiality and anonymity to allay any anxiety, whilst the importance of MCD for automotive organisations in South Africa was stressed.

### 4.5.2 Validation of the measuring instrument

The difference between the information required and the information obtained is referred to as measurement error, and it is important to avoid this pitfall in designing a questionnaire. According to Churchill (1987:382), "a measuring instrument is valid to the extent that differences in scores among objects reflect true differences of the objects on the characteristics that the instrument tries to measure".

Content validity involves assessing the representativeness or the sampling adequacy of the items contained in the measuring instrument. According to Bless and Higson-Smith (1996:137), content validity is achieved by referring to the literature relating to the area of study. In this regard the design of the questionnaire enjoyed high content validity and the techniques used were evaluated by pretesting to ensure that the instrument measured what it was supposed to measure.

Construct validity achieves its purpose when the researcher "makes a list of different pieces of information that the instrument is required to uncover and then designs questions to secure the information" (Bless & Higson-Smith, 1996:138). The measuring instrument used for this study was closely linked to the theory relevant to the scope of the study and was confined to the variables to be tested in the areas of human resources policies and practices, affirmative action initiatives and MCD. The research variable items were identified and constructed on the basis of the literature review and a sample review of questionnaires used for other studies that broadly pertain to the scope of the research. This conformed to the criterion for internal validity, which was supported by further pretesting of the instrument. The pretesting must also determine the reliability of the measuring instrument and test "how consistently a measuring instrument measures whatever concept it is measuring" (Sekaran, 1992:171).

The questionnaire developed for this research focused on the theoretical dimensions of the study and ensured that the variable items were relevant to the research objectives, as well as applicable to the respondents with regard to ensuring face validity Bless and

Higson-Smith (1996:139) stress the importance of the instrument's being tailored to the needs of the respondents for whom it is intended. The questionnaire was designed to contain the key elements of structured questionnaires in order to obtain maximum detail from the respondents. Also, part of a questionnaire developed by the International Department of Management and Technology for the HRD Management Survey (AIDC, 2002) was used and questions and ideas from it were adapted for this study.

The following associations and service providers were consulted and this questionnaire development was discussed with the CSIR, a Clinical Psychologist, major automotive companies such as Nissan, Ford, BMW and Toyota (Pty) Ltd, the University of Pretoria and Ryan Bramble Management Consultants.

### 4.5.3 Factor analysis technique

The items of the Career Dimension Questionnaire were subjected to Exploratory Factor analysis to determine the underlying factor structure. Factor analysis is a generic name for a group of multivariate statistical methods whose primary purpose is to define the underlying structure of a set of variables and to reduce a set of variables, measures or items to a small set of common factors. Variables that correlate highly with each other, as identified from a correlation matrix, are grouped together under a single factor. Each distinct grouping of highly correlated original variables represents a separate factor (Cooper & Hair, 1998:577). This instrument was used in this research to position the perceptions and assessments of the respondents' organisations on a three-point scale. The main applications of factor analysis are, firstly, to reduce the number of variables and, secondly, to detect a structure in the relationships between variables, that is to classify variables. Therefore, factor analysis was applied as a data reduction or structure detection method.

### 4.5.4 Framework of the questionnaire

The instrument used for this survey consisted of a pre-coded questionnaire which was carefully constructed to facilitate maximum response and at the same time, obtain detailed information. The automotive organisation questionnaire was directed at the Senior General Human Resources Managers of the targeted organisations.

The questionnaire contained three sections: biographical data, individual data and organisational data, and a Career Dimension Survey. These are discussed in detail below.

*4.5.4.1 Section A: Biographical data*

The biographical data questionnaire was used to obtain information on each respondent's profile and data in connection with organisational information.

*4.5.4.2 Section B: Survey on individual and organisational data*

In this section, data relating to the HRM component's organisational strategy for designated managers' career-pathing and development was gathered. The questions were designed to obtain a broad picture of a respondent's views on the topic, and aimed to produce a descriptive overview of the respondent's thoughts, feelings, values and emotions. Specific questions were related to the context and meanings of activities in the respondent's world. They were used to organise the researcher's perceptions of how the respondent views reality. Seven important themes were identified, and an attempt was made to analyse the data obtained from the questionnaire using these themes (listed briefly below):

- Theme One: Does the HRM department of the organisation have an MCD programme in place, and, if so, are is it effective for both DSGNS and NDSGNS?
- Theme Two: Is HRM realising the organisational strategic plan by implementing relevant MCD programmes?
- Theme Three: If there is a standardised MCD model (of any nature) in place, is there a difference between its effectiveness for NDSGN and DSGN managers?
- Theme Four: Are the designated MCD programmes aligned with employment equity expectations, and are these programmes monitored?
- Theme Five: What are the effects of employment equity on DSGNS' MCD?
- Theme Six: Do managers have a sense of security in their organisation?
- Theme Seven: How do the respondents perceive their organisation's response to their personal MCD needs?

*4.5.4.3 Section C: A Career Dimension Survey*

In this section, data in connection with each respondent's scoring of the perceptions of the organisational dimension were assessed on a three-point scale. These questions aimed to reveal the following perceptions and assessments of each respondent's organisation:

- the future perspective;
- the work design;
- organisational systems;
- managerial support; and
- individual concerns.

## 4.6 TARGET GROUP AND DEMOGRAPHICS

The sample was selected from computerised random numbers to select **51** companies from the target population of 120, situated across South Africa, of automotive manufacturers and 1st tier component supplier companies. A selection of **44** companies was made from 1st tier automotive component suppliers falling under NAACAM. They manufacture products to the value of R30 000 million (leather seats, metal components, catalytic converters, exhaust systems, aluminium wheels, raw materials and body panel pressings). A further **7** OEMs (Original Equipment Manufacturers) and vehicle assemblers under NAAMSA were selected (BMW, VW-SA, Toyota SA, Delta Motors, Daimler Chrysler SA, Ford Motor Company and Nissan SA), to whom the 1st tier suppliers deliver their components with a total industry export value of approximately 18.6 billion Rand per annum (*Logistics News*, 2002).

A computer programme using statistical computer language was written specifically to draw the sample size of the total companies. This computer programme generated the random numbers, and selected the sample size under the registered licence software of NAAMSA. It was written by a colleague of the researcher and was also used to draw samples for other marketing activities. Since the target population of 120 companies was tabulated in numerical sequence for each company, the assigned numbers were matched to the corresponding computer-generated numbers on the composite schedule and ringed accordingly. Thus, the 51 companies ringed became the sample for the survey.

According to Bless and Higson-Smith (1996), an important issue in the field of surveys is determining an optimal sampling size. Whilst a large sample may be more representative, it could be very costly. A small sample could be less accurate, but more convenient. For this study, the sample size of 51 companies (>40%) is more than the significant level required from the target population of 120 companies (in other words, the seven individual OEMs represent more than 50% of the managers of the population).

The questionnaire was distributed nationally to all targeted groups of $D_{SGN}$s (previously disadvantaged managers' placement) and $N_{DSGN}$s (white males) available across the 51 automotive companies. The Senior General Human Resources Managers and Chief Executive Officers representing these companies administered the questionnaire by randomly selecting a sample of both designated and non-designated managers willing and able to participate. The criteria and characteristics of the sample for managers' participation were that they had to

- be employed by the automotive industry private sector within the four demographic national segments;
- work in the disciplines of engineering, human resources, administration, finance, technical work or production;
- be aged between 27 and 55;
- be in the middle-to-lower management job categories; and
- be NDSGN and DSGN managers identified by assigning appropriate ticks on a pre-coded questionnaire to separate the groups.

Each company's senior representative received a formal letter and a self-administered questionnaire in batches of ten and met individually with the respondents to discuss the contents of the research project. The discussions reached all the members of the companies that met the criteria for participation. The respondents were supplied with return post envelopes (continued support and comments were received via electronic mail). The targeted sample size was approximately 600 for the total NDSGN (white male) managers and DSGN managers (which included white/black women, disabled persons, and previously disadvantaged managers).

Table 4.2 forms part of the unit of analysis of middle/lower management respondents. Some 600 questionnaires were electronically mailed and administered by hand to the national automotive assemblers and component manufacturers, facilitated by the NAAMSA/NAACAM automotive associations.

### 4.6.1 Geographic distribution of the selected sample

The automotive industry is largely concentrated in four provinces, namely in the coastal belt of Kwa-Zulu Natal (10%), the Eastern Cape (10%), the Western Cape (20%) and Gauteng (60%). It is the largest manufacturing segment, and the highest single contributor to the GDP. A total of 600 questionnaires were distributed to all four provinces, according to the demographics shown in the Table 4.1.

**Table 4.2: Geographic distribution of the selected automotive companies**

| Provinces/ demographics | Distributed randomly/ province | No of unusable responses received | No of responses received (less spoilt copies) | No of responses not received | Frequency sample received |
|---|---|---|---|---|---|
| Kwa-Zulu Natal | 60 | 3 | 53 | 4 | 93 |
| Eastern/Western Cape | 180 | 2 | 40 | 138 | 23 |
| Gauteng | 360 | 4 | 134 | 222 | 38 |
| **Total sample** | **600** | **9** | **227** | **364** | **39** |

From the above table it can be seen that 227 respondents completed the questionnaires and 51 out of the 60 companies responded. This translates to a response of 39% of all the managers. The overall sample from the total designated lower/middle management respondents is reasonably well represented among the organisations and *sample quota* coverage was achieved. The difference between the numbers of companies contacted and those who responded is due to the lack of availability of DSGN persons responsible for HRM. Of the NDSGN respondents, 61% failed to complete the questionnaire.

### 4.6.2 Analysis of the data collected

Editing entails a thorough and critical examination of a completed questionnaire in terms of compliance with the criteria for collecting meaningful data, and in order to deal with questionnaires not fully completed (Martins, Loubser & Van Wyk, 1996:295). It is therefore essential that the data be checked for completeness and accuracy before data are accepted for coding and capturing (see Coding: Appendix B). The editing of the data for this study was conducted by the researcher with the assistance of STATOMET at the University of Pretoria. Each completed questionnaire was scrutinised, and carefully edited to ensure that the criteria of completeness had been met. A random audit check of the respondents was also made to determine that the meeting had taken place with the selected respondent and that the questionnaire was administered professionally. For the purposes of this study, the significant level was set at 0.05%, (chi-square testing can be accepted when the p-value is smaller than 0.05).

The second part of the questionnaire data were edited and encoded into forms, making analysis more manageable using a processing system and data storage. The codes follow various decision rules that the researcher devised to assist with the sorting, tabulation and analysis, with the assistance of STATOMET at the University of Pretoria. The data analysis was influenced by a factor analysis technique process that reduces the data to a meaningful size, developing summaries, looking for patterns and applying the factor analysis statistical technique.

Furthermore, the researcher interpreted these findings in the light of the research questions and checked for consistency within the primary objectives and theories. Explorations of the problem in factor analysis data collection were accomplished through familiarization with the available literature, interviews with experts and focus groups. The management data aspects of the second part of the research questionnaire was a desirable outcome for exploring the factor analysis technique further in order to enhance the researcher's understanding of the options available for developing a successful data collection design. This data analysis identified patterns among the primary variables and a combination of the original underlying factors supporting the study.

The factor analysis was aimed at discovering key career dimensions that need to improve, and investigating outcomes that enable an organisation to build a successful career development process model (that is, an effective career development system uniting the employee's aspirations with the strategic direction of the organisation).

According to Farren and Kaye (1998), this designed research questionnaire for this study identifies five key areas, namely future perspective, organisational systems and practices, work design, managerial support, and individual career-management concerns. The Career Dimension Questionnaire/Survey section contained 20 items that had to be rated on a scale of one (not true) to five (very true). Respondents were asked to rate the 20 items according to how they perceived their organisation (or division) as responding to their personal career needs. Respondents were instructed to mark their answers directly on the answer sheet, and had a time limit of 20 minutes to complete it.

## 4.7 CONCLUSION

In this chapter the research methodology was discussed with the aim to establish whether there are significant differences between designated managers and non-designated managers for certain MCD objectives being observed. This study set six objectives and a preposition that address the research problem, primary/secondary objectives and how the sample was drawn from the target population of the automotive sector. The data from the questionnaire were captured and analysed by using a software package from the Statistics Department of University of Pretoria.

The next chapter will present an overview of the analysis of the results obtained by this research.