# CHAPTER 4

# RESEARCH METHODOLOGY

## 4.1 INTRODUCTION

Research methodology contains the procedures and methods used in the research study to collect and analyze (obtain and process) data. The methodology dictates the particular tools the researcher has to select to carry out the research. Every worker needs tools. As the carpenter needs a hammer and saw, the researcher needs an array of tools with which the data can be collected and made meaningful. Chapter 3 indicated how the researcher, through research methodology and research tools extracted meaning from the collected data. Data and methodology are inextricably interdependent. For this reason, the methodology to be used for a particular research problem must always take into account the nature of the data that will be collected for the resolution of the problem. A review of the literature revealed methodologies that have been employed by other researchers to study similar problems. As these methods have been tested and adjusted for studying a specific problem, they are more reliable. The researcher has relied on similar previous studies in the selection of appropriate methodologies.

Chapter 4 addresses the procedures used in this study. The procedures of sampling, data management, data analysis and data interpretation are discussed. The reliability of the measurement instrument as well as the profile of the participants is also discussed.

## 4.2 PROCEDURE FOR SAMPLING

The procedure the researcher followed to draw the sample is depicted in Figure 4.1. The numbers in brackets represent the number of multinational corporations (MNCs).

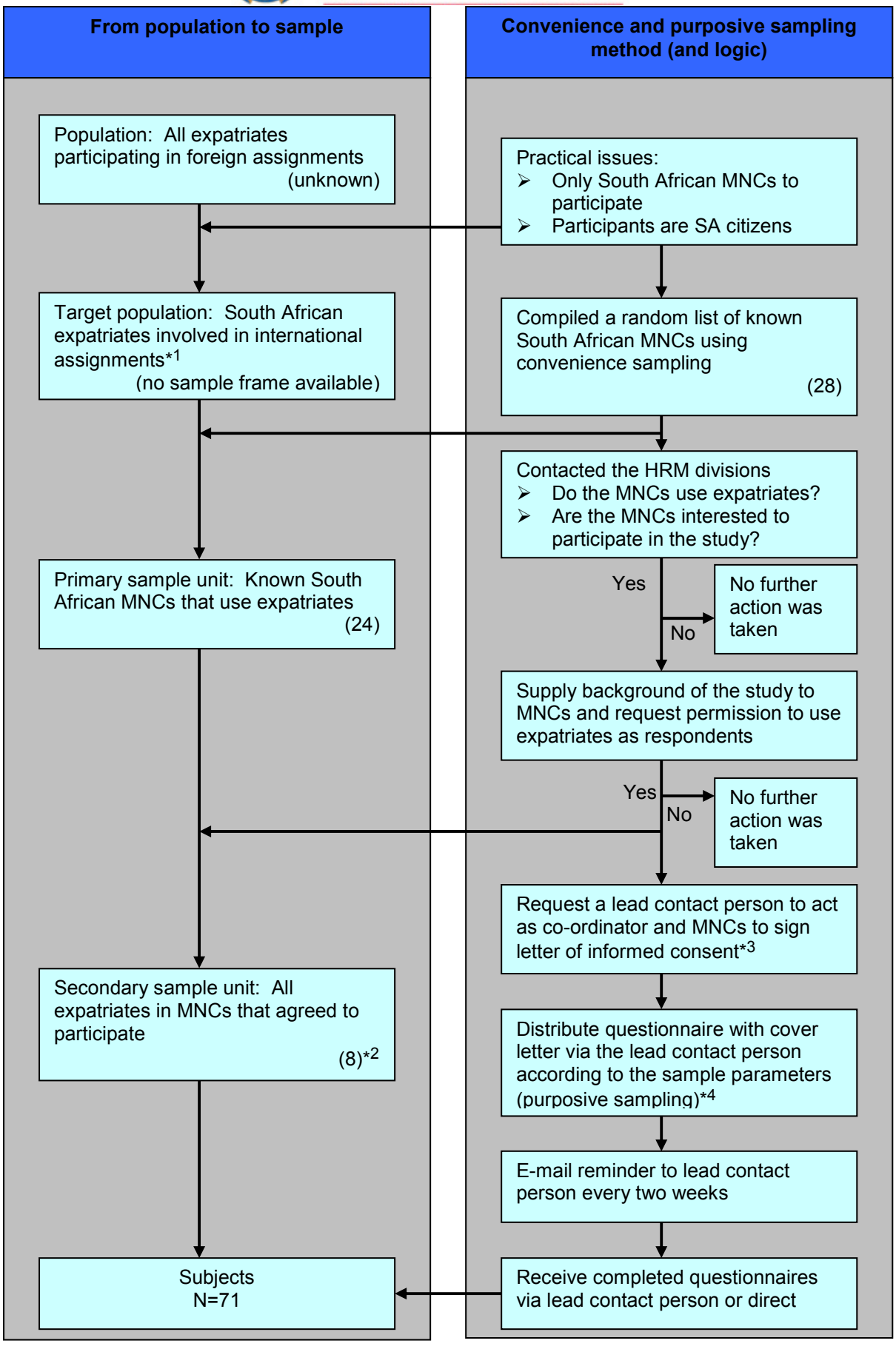


**Figure 4.1: From population to sample through convenience / purposive sampling methods**

- *1 – The definition did not exclude expatriates who had finished their foreign assignments or who had already returned to South Africa.
- *2 – This became the sample frame for the participating organisations, but as the organisations did not want to reveal the mailing list of their expatriates, no sample frame for the possible participants existed.
- *3 – A letter of informed consent was given to every participating organisation. The letter included: a description of the research, ethical considerations, process of participation and the potential benefit of the study for the multinational corporation.
- *4 - An undisclosed number of questionnaires were sent out making follow-up and determining response rate impossible for the researcher.

Denscombe (2000:17) defines a sample frame as "an objective list of the population from which the researcher can make his or her selection." A sample frame must thus contain an up-to-date list of all those that comprise the target population. The researcher did not have access to a sample frame for the following reasons:

- Research houses in South Africa specializing in expatriate research may not make their records available for financial reasons.
- South African consultants specializing in expatriate management, treat membership records as confidential information.
- Multinational corporations did not want to supply the names and e-mail contacts of their expatriates because they feared these would land in the hands of competitors.

Not having a sample frame was one of the major reasons for choosing a convenience/ purposive sampling design. However, a disadvantage of not having a sample frame was that the researcher was unable to determine the response rate. 28 South African Multinational Corporations (MNCs) were randomly telephoned to request their expatriates to participate as respondents in the study. Of the 28, 4 did not make use of expatriates and 7 were not interested. A letter seeking permission and explaining the research purpose and process was sent to the remaining 17. Only 8 of the 17 institutions gave permission. This amounted to 27.8% of the 24 institutions.

Reasons given by some of the multinational corporations for not participating:

- They were members of a research house, or made use of contracted service from a consultant therefore participating would breach the agreement.
- They did surveys themselves and did not want to burden the expatriates with "another" survey.
- They were afraid that the list of their expatriates' contact details would end up in the wrong hands and other multinational corporations would poach their expatriates.
- The person the researcher contacted was most probably a gatekeeper, protecting the time and other valued attributes of their expatriates.

As the researcher relied on purposive sampling, the sample parameters were very important. The lead contact person in every MNC was requested to send questionnaires to all the South African expatriates that he/she had on record and comply with the sample parameters set out in chapter 3.

## 4.3 PARTICIPANTS IN THE STUDY

### 4.3.1 The sample size of the study

As the survey was conducted using a lead contact person and the number of questionnaires sent out was not disclosed, the researcher was unable to measure the response rate properly. Denscombe (2000:19) defines the response rate as "the proportion of the total questionnaires distributed which are successfully completed and returned as requested". The researcher received 75 questionnaires of which 4 were not usable. This implied that for this study n = 71. From the 8 participating organisations only two were willing to reveal how many questionnaires had been distributed by them, and as the lead contact persons in both the organisations collected the questionnaires, the researcher was able to calculate the response rate from only these two multinational corporations. Organisation 1 sent out 15 questionnaires and 6 were returned. Response rate 40%. Organisation 2 sent out 8 questionnaires and 3 were returned. Response rate 37.5%. The assumed response rate of the study seems higher than other international studies. In the study by

Naumann *et al*. (2000) a total of 800 questionnaires were mailed and 209 usable questionnaires were returned, that made the overall response rate 26 %. Naumann *et al*. (2000:230) concluded that the response in their study was higher than that in most international surveys (Dawson & Dickinson, 1988; Jobber & Saunders, 1988).

Although the response rate seemed higher than in other international studies it was still lower than the norm set by Babbie and Mouton (2001:261). They argue that a response rate of 50% is adequate for analysis and reporting. On the other hand, Welman and Kruger (2001:147) point out that mail surveys have the lowest response rate of all survey methods. Reasons that could have contributed to the low response rate were:

- The length of the questionnaire is commonly believed to reduce response rate (De Vos *et al.*, 2005:167). Frohlich (2002:530-562) suggests that a questionnaire of 40-50 items spread over four-five pages would elicit high response rates. He argues that if a survey is under four or five pages, resistance to participate would be lower and the response rate higher. The questionnaire used in the study was 11 pages long and contained 175 items. The negative influence of the length of the questionnaire was confirmed by comments received from some of the participants. The researcher, however, could not alter the existing instruments without influencing the validity; therefore the length of the questionnaire could not be reduced.
- The contact leads at the respective multinational corporations could have failed to deliver the questionnaires to the prospective respondents or they did not carry out the required follow-ups.

The most serious limitation of the study seems to be the size of the sample. According to Denscombe (2000:21-24), in order to generalize from the findings of a survey, the sample must not only be carefully selected to be representative of the population, it also needs to include an adequate number. Denscombe (2000:24) argues though, that whatever the theoretical issues, the fact of the matter is that surveys and sampling are frequently used for small-scale research involving between 30 and 250 cases.

Nevertheless, the following points need to be stressed in relation to smaller samples:

- Extra attention needs to be paid to the issue of how representative the sample is and special caution is needed about the extent to which generalizations can be made on the basis of the research findings. Provided the limitations are acknowledged and taken into account, the limited size of the sample need not invalidate the findings.
- The smaller the sample, the simpler the analysis should be, in the sense that the data should be subjected to fewer subdivisions. Keeping the analysis down to four factors, for instance, greatly increases the prospect of having a reasonable number of cases in each category.
- Samples should not involve fewer than 30 people or events.
  (Denscombe, 2000:24)

The smaller sample size seems aligned to other international studies on expatriate management. In a recent study conducted by Lee and Liu (2007:127), they had 118 subjects from 86 randomly selected multinational corporations. Lee and Liu e-mailed the survey to the human resource management departments of the selected participating organisations, who then distributed it to the organisations' repatriates. The actual number of distributed surveys could not be computed. The smaller sample size in international expatriate studies seems to correlate with the South African situation as a South African study conducted by Vogel (2006:123) had only 65 responses to his web-based survey. The small sample and assumed low response rate contributed to the following sample biases:

- The high non-response rate is associated with a real risk that the data will be biased. If the data is biased, there is a risk that the low responses might reflect the perspective of certain expatriates only and not all South African expatriates.
- Many statistical tests require an appropriate number of cases.

The words of Hoinville (in Denscombe, 2000:23) motivated the researcher to stick to good judgement during the sampling procedure: ***"In practice, the complexity of the competing factors of resources and accuracy means that the decision on a sample size tends to be based on experience and good judgement rather than on a strict mathematical formula."***

### 4.3.2 The demographic profile of the participants

The demographical and work-related characteristics of the sample are discussed in order to get a profile of the survey group. Data analysis was done through frequency distributions. Babbie (2004:401) indicates that a frequency distribution is a description of the number of times the various attributes of a variable are observed in a sample. Consequently frequencies describe the characteristics of the sample. Information that will be given on all relevant questions posed in Section F of the questionnaire will be displayed in both tabular and graphical format. The purpose of the graphical format is to provide a visual illustration of the sample.

**Age:** The age distribution of the participants appears in Table 4.1 where the participants are classified into six age groups. The largest single group (38,03%) of participants was between the ages of 30 and 39 years. The smallest group (2,82%) of the participants was younger than 20 or older than 60 years. The predominant age group in their thirties was in line with recent trends. Scullion (1994:88-89) mentions that there is a tendency of multinational corporations to give younger managers international experience earlier in their careers than previously.

**Table 4.1: Age distribution of the participants**

| Age | Frequency | Percentage | Cumulative frequency | Cumulative percentage |
|---|---|---|---|---|
| 0-20 | 2 | 2.82 | 2 | 2.82 |
| 21-29 | 15 | 21.13 | 17 | 23.94 |
| 30-39 | 27 | 38.03 | 44 | 61.97 |
| 40-49 | 15 | 21.13 | 59 | 83.1 |
| 50-59 | 10 | 14.08 | 69 | 97.18 |
| 60-69 | 2 | 2.82 | 71 | 100 |

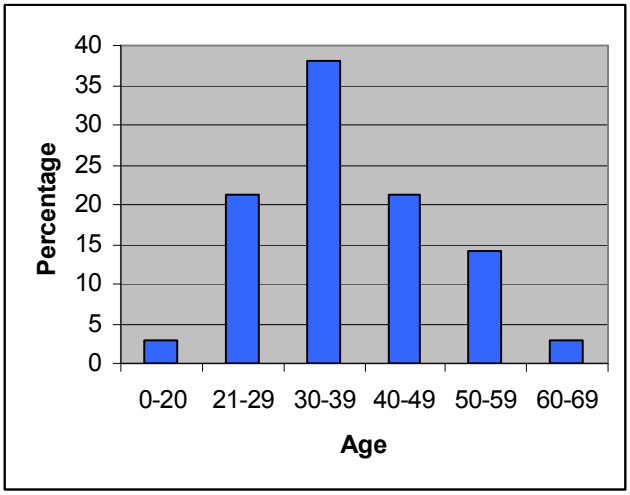


**Figure 4.2: Age distribution of the participants**

**Gender:** The gender distribution of the participants appears in Table 4.2. The majority of the respondents are male (n = 42) representing 59,15% of the sample. Females (n=29) represent 40,85% of the sample. Scullion and Brewster (2001:353) state that although the number of female expatriates is lower in relation to the overall size of the qualified labour pool, there appears to be a steady increase in the use of women in international assignments. The male/female distribution in the study is in line with international trends.

**Table 4.2: Gender distribution of the participants**

| Gender | Frequency | Percentage | Cumulative frequency | Cumulative percentage |
|---|---|---|---|---|
| Male | 42 | 59.15 | 42 | 59.15 |
| Female | 29 | 40.85 | 71 | 100 |

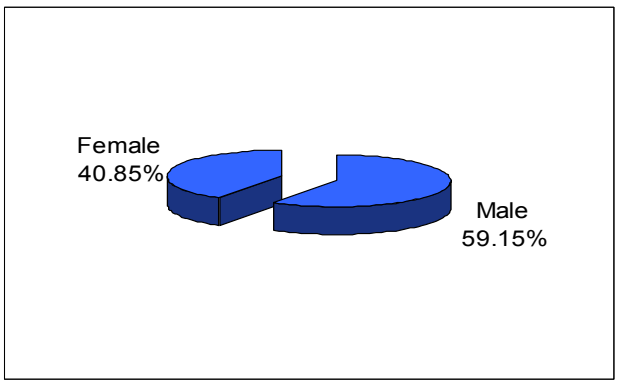


**Figure 4.3: Gender distribution of the participants**

**Marital status:** The data in Table 4.3 shows that of the 71 respondents, 45 are married (63,38%) and 24 are not married (33,8%). The higher percentage of married expatriates in the study supports Hawley's (2005:1) view that one of the greatest challenges facing multinational corporations is the fact that they are not dealing with individual employees, but with a whole family and their needs as a family in the relocation process.

**Table 4.3: Marital status of the participants**

| Marital Status | Frequency | Percentage | Cumulative frequency | Cumulative percentage |
|---|---|---|---|---|
| Never married | 24 | 33.8 | 24 | 33.8 |
| Married | 45 | 63.38 | 69 | 97.18 |
| Widowed | 1 | 1.41 | 70 | 98.59 |
| Divorced | 1 | 1.41 | 71 | 100 |

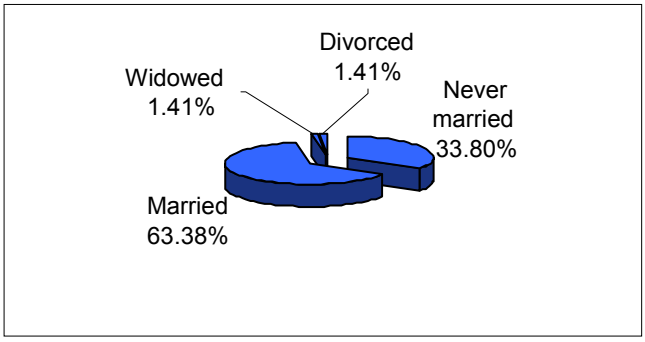


**Figure 4.4: Marital status of the participants**

**Tenure:** Table 4.4 indicates that 64,79% of the participants have less than 5 years' experience with the current multinational organisation, with the largest single group (36,62%) in the 3 to 5 year category. The high percentage of low tenure (only 12,68% of participants have more than 11 years with the multinational corporation) raised the question of what prevented the more experienced individuals from being on international assignments. This high level of low tenure also challenges Hill's (2003:612-613) argument that one of the main reasons for using expatriates is the transmission of corporate culture (values). The question can thus be raised why the employees with longer service are not available to transfer the organisational values. An explanation can be that the notion of employees staying with a single

organisation for most of their career life has become obsolete. A new trend is occupational commitment. A person is loyal to a profession rather than to a specific organisation (Corcoran, 2003:13). Collings *et al*. (2007:204) support this view by mentioning the changing attitudes towards careers. The nature of careers is changing and increasing emphasis is placed on career mobility and a decreasing commitment to specific organisations.

**Table 4.4: Organisational tenure of the participants**

| Number of years | Frequency | Percentage | Cumulative frequency | Cumulative percentage |
|---|---|---|---|---|
| 0-2 | 20 | 28.17 | 20 | 28.17 |
| 3-5 | 26 | 36.62 | 46 | 64.79 |
| 6-8 | 8 | 11.27 | 54 | 76.06 |
| 9-11 | 8 | 11.27 | 62 | 87.32 |
| 12-14 | 1 | 1.41 | 63 | 88.73 |
| 15-17 | 4 | 5.63 | 67 | 94.37 |
| 18-20 | 2 | 2.82 | 69 | 97.18 |
| 21-23 | 0 | 0 | 0 | 0 |
| 24-26 | 0 | 0 | 0 | 0 |
| 27-29 | 1 | 1.41 | 70 | 98.59 |
| 30-32 | 0 | 0 | 0 | 0 |
| 33-35 | 1 | 1.41 | 71 | 100 |

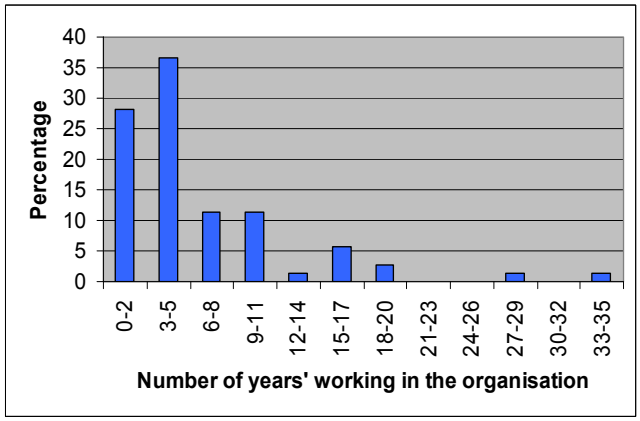


**Figure 4.5: Organisational tenure of the participants**

**Experience in working on foreign assignments:** Table 4.5 indicates that 69,01% of the participants in the study have less than 5 years' experience on international assignments. Figure 4.6 indicates that the majority of the sample has participated in 1 or 2 international assignments. A reason for posting less experienced expatriates

on foreign assignments could be the development and transfer of organisational capabilities, enhancing organisational learning and management development (Hill, 2003:612-613). Scullion (1994:88-89) supports this view by stating that some companies adopted a strategy of broadening the opportunities for international development throughout the organisation instead of a selected few.

**Table 4.5: Participants' years of experience on foreign assignments**

| Years' experience | Frequency | Percentage | Cumulative frequency | Cumulative percentage |
|---|---|---|---|---|
| 0-2 | 20 | 28.17 | 20 | 28.17 |
| 3-5 | 29 | 40.85 | 49 | 69.01 |
| 6-8 | 8 | 11.27 | 57 | 80.28 |
| 9-11 | 8 | 11.27 | 65 | 91.55 |
| 12-14 | 0 | 0 | 0 | 0 |
| 15-17 | 6 | 8.45 | 71 | 100 |

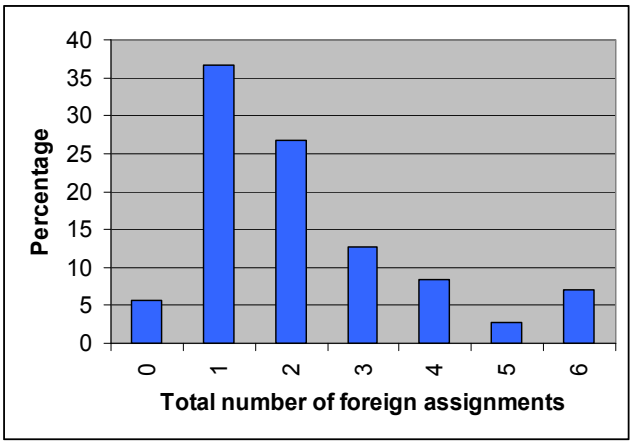


**Figure 4.6: Participants' number of foreign assignments**

**Education:** Table 4.6 indicates that the largest single group of participants (26,76%) have a Bachelor's degree or equivalent with 23,94% of the participants holding a Master's degree or equivalent. The high level of education supports Hill's (2003:612-613) argument that two of the main reasons for using expatriates are the transfer of knowledge and skills, and potential management development.

**Table 4.6: Participants' highest academic achievement**

| Highest academic achievement | Frequency | Percentage | Cumulative frequency | Cumulative percentage |
|---|---|---|---|---|
| Grade 12 or equivalent | 6 | 8.45 | 6 | 8.45 |
| Post-school certificate/diploma | 14 | 19.72 | 20 | 28.17 |
| National diploma/National higher diploma | 6 | 8.45 | 26 | 36.62 |
| Bachelor's degree or equivalent | 19 | 26.76 | 45 | 63.38 |
| Honours degree or equivalent | 6 | 8.45 | 51 | 71.83 |
| Master's degree or equivalent | 17 | 23.94 | 68 | 95.77 |
| Doctoral degree | 3 | 4.23 | 71 | 100 |

**Location of the international assignment:** The participants were asked to identify the country in which they were currently stationed, or if they had already returned, in which country they were stationed during expatriation. The responses were then classified according to continents. From figure 4.7 it can be seen that the majority of participants were stationed in Africa (69,01%) followed by Europe (25,35%). This is similar to the results from the study conducted by Vogel (2006:143). In his study 61,53% of the participants were stationed in Africa and 20% in Europe. It can thus be concluded that the majority of South African expatriates are first stationed in Africa and then in Europe. As cross-cultural adjustment is a major indicator for expatriate success, this demographic information is worth taking note of.

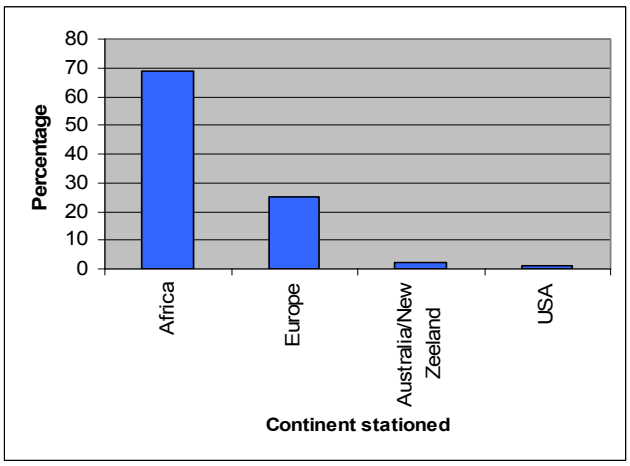


**Figure 4.7: Host continent of the participants**

**Fluency in the host country language:** Figure 4.8 highlights that 42,25% participants in the study indicated that they were not fluent in the language predominantly spoken in the host country of the foreign assignment. Usunier (1998:92) postulates that language barriers and communication problems play an important role in the difficulties related to personal adjustment. The open-ended questions confirmed language as a barrier to adjustment. It is interesting to see that despite this being common knowledge in the international management arena, it is still not properly addressed by multinational corporations in their selection and training programmes.

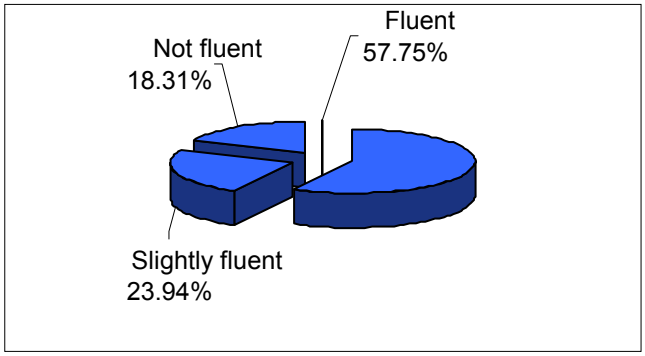


**Figure 4.8: Participants' fluency in the host country's language**

**Work pressure:** Participants were asked to indicate the hours they worked on average per week, if they worked overtime regularly and how many days' vacation leave they took on average per annum. The purpose for the inclusion was to get an indication of the expatriate's level of work exhaustion. Ahuja *et al*. (2007:4) recently confirmed a strong positive relationship between work exhaustion and turnover intention. In this study, Table 4.7, 57,75% of the participants indicated that they experience work pressure because of perceived work overload.

**Table 4.7 Participants' experience of work pressure**

| Work pressure | Frequency | Percentage | Cumulative frequency | Cumulative percentage |
|---|---|---|---|---|
| Yes | 41 | 57.75 | 41 | 57.75 |
| No | 30 | 42.25 | 71 | 100 |

## 4.4 PROCEDURE FOR DATA MANAGEMENT

### 4.4.1 Administration of the data collection

A self-administered questionnaire, combining six separate existing instruments was developed and pre-tested. The questionnaire was in electronic format and was sent and returned via e-mail as an attachment in Microsoft Word, as was discussed in chapter 3. A section on biographical characteristics was added at the end of the questionnaire to gather relevant background, personal and organisational information. In order to not confuse the respondents, the different instruments were separated into the sections depicted in Table 4.8:

**Table 4.8: Sections of the measurement instrument**

| Section | Instrument |
|---|---|
| A | Job characteristics (41 items) covering the instrument of Hackmanand Oldman (JDS) and the selected scales of Rizo, House and Lirtzman. |
| B | Job satisfaction (72 items) covering the instrument of Smith, Kendall and Hulin (JDI). |
| C | Organisational commitment (15 items) covering the instrument of Mowday, Porter and Steers (OCS). |
| D | Job involvement (6 items) covering the scales from Kanungo. |
| E | Expectations (8 items) covering the scales of Lee and Mowday. |
| F | Biographical characteristics (18 items), 3 items identifying the participants' intention to quit and 2 open questions asking participants about their adjustment to foreign assignments. |

In line with the advice of Leedy and Ormrod (2005:191) clear instructions were given at the beginning of each section as well as clear explanations on the interpretation of the measurement scales. Each questionnaire was accompanied by a covering letter explaining the purpose of the study to the prospective participant, the importance of completing the questionnaire, the confidentiality agreement and general instructions on how to complete the questionnaire.

Once permission had been obtained from the multinational corporation and the letter of consent signed, the questionnaire was sent via e-mail to a lead contact person at each multinational corporation. The lead contact person was, in all 8 multinational corporations, a part of the human resource management division and to some extent involved with expatriates. The lead contact person's responsibility was to distribute

and collect the questionnaires. The lead contact person was requested to send the questionnaires according to the sampling parameters and contact all available expatriates that adhered to the parameters set. Completed questionnaires were returned to the researcher either directly or via the lead contact person, depending on the arrangements the lead contact person had made with the expatriates in his/her organisation. Every two weeks, an e-mail reminder was sent to the lead contact person who then had to remind the respondents to complete and return the questionnaires. The researcher also had telephonic conversations with the lead contact persons to urge them to send out the questionnaires and remind the expatriates to return them.

During the process of data gathering the researcher adhered to the following ethical principles:

- Freedom from coercion – no individual or organisation was pressurised to participate in the research study.
- Informed consent – the researcher gave each organisation a full description of the procedure of the study and its risks and benefits before it was asked to participate.
- Confidentiality – the data from the study is published in a way that protects the anonymity of the participating organisations and their employees. The data is stored without identification.

### 4.4.2 Administration of the returned questionnaires

Having procedures for the administration of the returned questionnaires was as important as collecting the data. Administration of the returned questionnaires included data coding and editing, data entry, data cleaning and data-processing. Activities performed by the researcher during this phase of the study concentrated mainly on the following:

- **Data coding and editing.** Prior to data entry, it was necessary to check the completed questionnaires, code all items in the questionnaire, deal with missing data, and eliminate incorrect responses. The researcher checked each returned

questionnaire, on reception, for problems and missing data. Finchilescu (2005:209-210) recommends dealing with missing data by either removing the respondent from the data file or replacing the missing number with the average of the respondent's other scores if not more than 25% is missing. Roth and Switzer (1995) recommend, among other techniques, *listwise deletion* and *regression imputation*. *Listwise deletion* eliminates all the data for an individual when there is any missing data and regression imputation uses related variables to estimate or impute missing values. If an answer had been omitted, but the researcher felt the respondent's intended response was obvious, she made the necessary correction (*regression imputation*). In cases where the missing data could not be accounted for, the questionnaire was eliminated (*listwise deletion*). 75 questionnaires were returned, of which 4 were eliminated. Hence, the researcher was left with 71 usable questionnaires.

A reference number was allocated to every returned questionnaire (1-75) and a number (code) was allocated to each variable according to the already developed code book (discussed in chapter 3). A sample log was maintained on: the reference number assigned to the respondent; the date the completed questionnaire was received; corrections made to the questionnaire (if any); reasons for elimination; and any comments the researcher wanted to remember regarding the respondent (some respondents attached interesting messages and remarks to their questionnaires). Coding of the textual data will be dealt with in section 4.7, the procedure for qualitative data analysis, as the coding of the textual data forms part of the qualitative analysis.

- **Data entry.** A data file (Microsoft Excel spreadsheet) was prepared and a research assistant appointed. The assistant entered the data directly from the questionnaire with the assistance of the codebook.

- **Data cleaning.** As accuracy was extremely important during the coding and entering of the data, and the sample size allowed it, the research assistant entered all the data twice and then compared the two spreadsheets to eliminate any mistakes.

- **Data processing**. The statistical analysis of the data was done for practical reasons at the Department of Statistics at the University of Limpopo, South Africa. The Excel spreadsheet was e-mailed to the statistician who processed the data using the statistical program SPSS. The researcher and the statistician were in agreement on the statistical analysis methods highlighted in chapter 3.

## 4.5 RELIABILITY OF THE MEASUREMENT INSTRUMENT

Cooper and Schindler (2003:231) state that a good measurement tool should be an accurate indicator of what the researcher is interested in measuring, and in addition, easy and efficient to use. Three major criteria exist to determine the above: the scientific requirements of validity and reliability, and the operational requirement of practicality. As the validity and practicality of the research measurement tool have already been confirmed in chapter 3, the focus will now be on a discussion of the reliability of the measurement instrument. As obtaining additional reliability estimates by administering the survey a second time or by using alternative forms of the instrument was not feasible, the researcher relied on Cronbach's alpha $(a)$ coefficient to ensure the internal consistency of the questionnaire. Cronbach alpha $(a)$ coefficients are computed to assess the internal consistency reliability of the measuring instrument and items that are used in the study. This index is indicative of the extent to which all the items in the measuring instrument measure the same characteristic, and that the set of variables is consistent within what it is indented to measure. If multiple measures are taken, the values of the reliable measures will all be consistent (Field, 2005:666-669). Reliability differs from validity in that it relates not to what should be measured, but instead to how it is measured.

Cronbach's alpha as a measure of reliability ranges from 0 to 1 with a value of above .50 regarded as acceptable (Cooper & Schindler, 2003:216-217). There is, however, considerable debate in the literature as to what constitutes "acceptable" or "sufficient" alpha. Terre Blanche *et al*. (2006:154) state that as a rule of thumb, questionnaire-type scales with an alpha greater than .75 are considered reliable (internally consistent). Other authors are of the opinion that reliability coefficients in the range of .50 to .60 are deemed sufficient (Field, 2005:668). Cortina (in Field,

2005:668) explains these discrepancies by indicating that the value of $\alpha$ depends on the number of items in the instrument and that more items require a higher $\alpha$. The internal consistency reliability coefficients of the study reported in Table 4.9 show that all nine sub-dimensions of the measurement instrument meet the above criteria with alphas ranging from the lowest .776 (the job itself) to the highest .895 (organisational commitment). The coefficient alphas indicate that the reliability of the measurement instrument is good.

**Table 4.9: Cronbach's alpha for the sub-scales of the measurement instrument**

| Instrument sub-dimension | Cronbach's alpha ($\alpha$) | No of items |
|---|---|---|
| Job characteristics | .840 | 41 |
| The job itself | .776 | 18 |
| Supervisor | .843 | 18 |
| Co-workers | .862 | 18 |
| Promotion opportunities | .864 | 9 |
| Compensation package | .820 | 9 |
| Organisational commitment | .895 | 15 |
| Job involvement | .826 | 6 |
| Expectations | .810 | 8 |

The above alphas seem aligned with the results from other researchers. In a study by Whisenant, Pedersen and Smucker (2004:368-382) the Job Description Index (JDI) was used in conjunction with a referent-comparison scale in order to measure job satisfaction. Initial validation of the JDI instrument included factor and cluster analysis, which supported the five factors (the job itself, supervisor, co-workers, pay and promotional opportunities) and allowed the developers of the survey to conclude that the scale had a high level of discriminate and convergent validity. Whisenant *et al*. (2004:372) state that reliability assessments using Cronbach alpha coefficients have typically exceeded .80 on all the JDI scales in other studies. In the study of Whisenant and colleagues the Cronbach's reliability coefficients were .88 for the facet of pay satisfaction, .78 for promotion satisfaction, .90 for supervision satisfaction, .77 for co-worker satisfaction, and .91 for the job-itself satisfaction. These correlations indicate how well the items within each part (facet) of the instrument yield similar results from each respondent (Whisenant *et al*., 2004:372).

## 4.6 PROCEDURE FOR QUANTITATIVE DATA ANALYSIS (NUMERICAL DATA)

The purpose of the study was to test empirically whether job satisfaction, organisational commitment and job involvement affect the expatriates' intent to leave the organisation and to identify the specific factors of job attitudes that are perceived by expatriates as critical to their adjustment in a foreign assignment. The study examined the relationships of a set of independent variables: job satisfaction, organisational commitment and job involvement with the dependent variable, South African expatriates' intent to leave the organisation (intention to quit).

In order to achieve the above purpose the researcher relied on the following descriptive and inferential statistical procedures:

- Descriptive statistics (Means, Standard deviations, Frequencies, Percentages, Tables and Graphs) – to describe the characteristics of a data set and to compare results.
- Parametric statistics (T–tests and ANOVA) – to test for statistically significant differences between the two groups (those with an intention to quit and those who have no intention to quit).
- Non-parametric statistics (Spearman's rho) – to determine the correlation between job attitudes and the intention to quit.
- Logistic regressions – to identify the predictor variables that are responsible for the most significant variances in the intention to quit.
- Non-parametric chi-square test as part of Logistic regression – to determine the probability that the difference between those with an intention to quit and those who have no intention to quit has resulted from sampling error alone.

### 4.6.1 Means and standard deviations

Means and standard deviations are techniques used to describe characteristics of a dataset and to compare results (Wegner, 2000:53, 83). The mean is the best-known measure of central tendency that reveals what sets of measures are like on average. The standard deviation is a measure of dispersion and indicates the distances that

describe the distribution of the individual scores from the mean. The higher the standard deviation, the greater the distances, on average, above or below the mean (Babbie, 2004:402-405). The mean and standard deviation were used to describe the two groups (intention to quit versus no intention to quit) and to compare the differences. Significant differences between the two groups were given meaning to and the mean was used descriptively as a prediction of the intention to quit.

**Table 4.10: Measures of descriptive statistics (Leedy and Ormrod, 2005:260,263)**

| The statistic | Symbol used | How it is determined | Data for which it is appropriate |
|---|---|---|---|
| Arithmetic mean | $\overline{x}$ | $\overline{X} = \frac{\sum X}{n}$ | Data on interval and ratio scales; and that falls in a normal distribution. |
| Standard deviation | *SD* | $SD = \sqrt{\frac{\sum (X - \overline{X})^2}{(N-1)}}$ | Data on interval and ratio scales; and that falls in a normal distribution. |

### 4.6.2 T-test

The T-test for independent groups is an appropriate inferential test to test a hypothesis in which the mean scores on some variable will be significantly different for two independent groups. The T-test is used to compare the two (estimated) population means and compare distributions that are normally distributed. T-tests can be used when the sample size is small, the population standard deviation is unknown, the researcher can assume that the two groups are drawn from a normal distribution and the data is on an interval scale (Terre Blance *et al*, 2006:226; Zikmund, 2003:524-525). The T-test was used in the study to determine whether a statistical difference existed between the participants that had an intention to quit and those who did not have an intention to quit, for males and females (gender) and for married and unmarried people (marital status). The results were used to indicate which variables were significantly different between the two groups and also to infer predictions about the intentions of expatriates to quit based on population parameters.

**Table 4.11: Measure of statistically significant differences between groups (Leedy and Ormrod, 2005:260,272)**

| The statistic | Symbol used | How it is determined | Data for which it is appropriate |
|---|---|---|---|
| 2-sample t-test | *T* | $t = \frac{\overline{X}_1 - \overline{X}_2}{S_{\overline{x}_1 - \overline{x}_2}}$ | Data on interval and ratio scales.<br>Two means<br>Two groups |

### 4.6.3 ANOVA (Analysis of variance)

To avoid the problem of multiple t-tests in a single-factor design, the researcher used a one-way analysis of variance (ANOVA) to test for significant differences in age groups and educational levels. One-way analysis means one independent variable (Factorial ANOVA will be applied in cases of more than one independent variable). In essence, one-way ANOVA, tests for the presence of some "overall" significance that could exist somewhere among the various levels of the independent variable. The ANOVA is used to look for statistically significant differences among three or more means by comparing the variances ($X^2$) both within and across groups. The ANOVA yields an F score and like the score from a t-test, the F score examines the extent to which the obtained mean differences could be due to chance or some other factor, presumably the independent variable (Goodwin, 1995:209, Terre Blance *et al*., 2006:227-229).

**Table 4.12: Measure of statistically significant differences between three or more means (Leedy and Ormrod, 2005:266)**

| The statistic | Symbol used | How it is determined | Data for which it is appropriate |
|---|---|---|---|
| One-way ANOVA | *F* | $C = \frac{k!}{2(k-2)!}$ | Nominal data<br>More than two means<br>One IV. One DV |

### 4.6.4 Spearman's rank-order correlations coefficient

The measures of central tendency (mean) and variability (standard deviation) related to only a single variable. However, the researcher also wanted to know how many

more variables were interrelated. The statistical process, by which the nature of relationships among different variables is discovered, is called correlation. The resulting statistic, called a correlation coefficient is a number between - 1 and + 1. A correlation coefficient for two variables simultaneously tells two different things: (1) The direction of the relationship is indicated by the sign of the correlation coefficient – a positive number indicates a positive correlation; and (2) The strength of the relationship is indicated by the size of the correlation coefficient. The closer the value of a correlation coefficient (ρ) to -1.00 or +1.00, the more accurate is the prediction that one variable is related to another variable (Leedy & Ormrod, 2005:265). Spearman's rank order correlation (Spearman's rho) was used in this study to determine the extent to which job satisfaction, organisational commitment and job involvement are related to the intention to quit. The correlation coefficients were based on the assumption that in the case where the job attitudes and the intention to quit fluctuate simultaneously, a correlation or relationship exists between them.

**Table 4.13: Measure of correlations (Croucher, 2003:251)**

| The statistic | Symbol used | How it is determined | Data for which it is appropriate |
|---|---|---|---|
| Spearman's rank order correlation (Spearman's rho) | *Rs* | $r_s = 1 - \frac{6\sum_i d_i^2}{(n^3 - n)}$ | Both variables involve rank-ordered data and so are ordinal in nature |

### 4.6.5 Logistic regression

Regression analysis is a form of multivariate analysis where more than two variables are analysed simultaneously. The general formula, called the regression equation, for describing the association between two variables is Y = *f*(X). This formula reads "Y is a function of X", meaning that values of Y can be explained in terms of variations in the values of X. Stated differently, X causes Y, so the value of X determines the value of Y. There are several forms of regression analysis available, but for the purpose of this study logistic regression will be used (Babbie, 2004:447-448; Field, 2005:218). Logistic regression was used to predict the intent to quit (outcome variable) from the different independent variables (predictor variables) and explained the impact of the predictors on the intent to quit.

**Table 4.14: Measure of regression analysis (Field, 2005:220)**

| The statistic | Symbol used | How it is determined | Data for which it is appropriate |
|---|---|---|---|
| Forward stepwise logistic regression | *P(Y)* | $P(Y) = \frac{1}{1 + e^{-(b_0 + b_1 X_1 + b_2 X_2 + \ldots + b_n X_n + \varepsilon_i)}}$ | The outcome variable is dichotomous |

### 4.6.6 Chi-square ($X^2$) goodness-of-fit test as part of Logistic regression

As the researcher wanted to see whether there was a relationship between two categorical variables (the participants who indicated an intention to quit and specific aspects of job attitudes) the Chi-square ($X^2$) goodness-of-fit test was used. The test is based on the observation of how closely observed frequencies or probabilities match expected frequencies or probabilities. In other words, it was possible to test for statistically significant differences between the observed distribution of data among categories and the expected distribution based on the hypotheses. The result was used to identify the likelihood of an expatriate quitting if certain job attitudes were not present in the job (Babbie, 2004:464; Field, 2005:682-684).

**Table 4.15: Measure of statistical significance (Cooper and Schindler, 2003:536)**

| The statistic | Symbol used | How it is determined | Data for which it is appropriate |
|---|---|---|---|
| **Chi-square ($X^2$) goodness-of-fit test** | $X^2$ | $x^2 = \sum \frac{(Observed_{ij} - Model_{ij})^2}{Model_{ij}}$ | For nominal, ordinal, interval or ratio data |

## 4.7 PROCEDURE FOR QUALITATIVE DATA ANALYSIS (TEXTUAL DATA)

Exploratory questions were included to allow the identification of variables not foreseen by the researcher. This enabled the researcher to develop an impression of the respondents' total life situation and to become aware of important new variables operating in the phenomenon under study. This was achieved by including the open-ended questions in the pre-structured questionnaire.

The following two open-ended questions were included:

- Which aspects made or are making your adjustment to the foreign assignment easier?
- Which aspects made or are making your adjustment to the foreign assignment difficult?

From a qualitative perspective, the answers to the two questions above (raw data) were analysed through analytical induction. Manning in De Vos (1998:338) defines analytical induction as seeking "to develop universal statements containing the essential features of a phenomenon, or those things that are always found to cause or lie behind the existence of a social occurrence". During this process the approach of Marshall and Rossman in De Vos (1998:342-343) was used. Marshall and Rossman identify five stages in qualitative data analysis:

- **Organising the data**

The researcher read the answers many times to become familiar with the data and listed all the answers for every participant on separate note cards. The note cards were numbered from 1-75, similar to tally, with the reference number that was allocated to every returned questionnaire.

- **Generating categories, themes and patterns**

Participants answering the open-ended questions were not forced at the time of data collection to adjust their answers to categories. The researcher did the coding as part of qualitative data analysis. The questions were not pre-coded because the researcher had little idea about the range of different reasons that participants might come up with. Participants were therefore left free to say whatever they wanted. The researcher had to decide what the relevant points were in what was being said. The researcher started by reading through all the recorded responses to a question and extracting from them the basic points that the participants made. As she sifted through participants' answers, she began to compile a list of codes that reflected the main themes in the responses. Code sheets were compiled for aspects making adjustment easier (Table 4.16) and aspects making adjustment difficult (Table 4.17).

**Table 4.16: Code sheet for aspects that made adjustment easier**

| Code | Categories/ Themes |
|---|---|
| Commitment to the vision of the organisation | E1 |
| Friendly supportive co-workers (work environment) | E2 |
| Good relationship with management | E3 |
| Teamwork | E4 |
| Job satisfaction and challenges within the job | E5 |
| Remuneration/ benefits | E6 |
| Work environment (Ethics, work schedule) | E7 |
| Being well prepared / Pre-departure training | E8 |
| Expatriate support from home country | E9 |
| Friendly supportive locals (social environment) | E10 |
| Fluency in the host-country language | E11 |
| Family accompanied expatriate on the assignment | E12 |
| The opportunity to see new places and travel | E13 |
| Country parameters (Safe environment, stable economic climate, stable political environment, high-quality education) | E14 |

**Table 4.17: Code sheet for aspects that made adjustment difficult**

| Code | Categories/ Themes |
|---|---|
| Local language barriers | D1 |
| Missing family and friends | D2 |
| Racism and discrimination (social and work) | D3 |
| Unsettled family life (opportunities for spouses and schooling for children) | D4 |
| Foreign culture (social environment) | D5 |
| Weather | D6 |
| Missing everyday commodities<br>➢ Food<br>➢ Technology and infrastructure<br>➢ Medical services<br>➢ Living conditions<br>➢ Others | D7 |
| Financial constraints | D8 |
| Cultural differences in the working environment | D9 |
| No expatriate support received from the organisation | D10 |
| Unmet expectations | D11 |

It is thought valuable to take note of the comment of Buckingham and Saunders (2004:139): “Phenomenologists remind us however, that different people may devise different sets of categories from reading the same responses.

Once the set of codes had been devised the participants’ answers were coded into the above categories. Allocating answers to the coding categories enabled the researcher to calculate frequency counts, which could be interpreted and given meaning to in the context.

- **Testing the emerging hypotheses against the data**

Once the categories and patterns became apparent in the data, the researcher tested it against the hypotheses and the literature. The purpose was to evaluate the data for informational accuracy, credibility usefulness and centrality.

- **Searching for alternative explanations of the data**

As categories and patterns between the categories emerged in the data, the researcher engaged in challenging the patterns that became apparent. The researcher looked for other plausible explanations for the data and the links between them. The purpose was to ensure that the explanation given would be the most probable explanation of all possible explanations.

- **Recording the finding**

As the qualitative data was central to the analytic process, the results were discussed with the results of the quantitative analysis in chapter 5. The goal was to integrate the themes and concepts into a theory that would offer an interpretation of the research arena.
(Babbie, 2004:314-324; De Vos, 1998:342-343; Hardy & Bryman, 2000:548-553; Leedy & Ormrod, 2005:142)

## 4.8 PROCEDURE FOR DATA INTERPRETATION

Data interpretation aims at extracting meaning from the analysed data. After data analysis the researcher had to organize and manipulate the quantitative and qualitative data to get it to reveal aspects of interest about the job attitudes and

intention to quit of expatriates. Neuman (2006:343) states that the major concern of data interpretation is to answer the question of statistical significance, in other words, how safe generalizations are from a part to a whole. Babbie (2004:459) defines statistical significance as the likelihood that relationships observed in the sample can be attributed to sampling error alone. The reliability of the generalization, i.e. the probability of error, will depend on the extent to which the sample mirrors the population. A relationship is significant at the .05 level of the likelihood. Interpreting the data means the following:

- Relating the findings to the original research problem and the specific research questions and hypotheses.
- Relating the findings to pre-existing literature, concepts, theories and research studies.
- Determining whether the findings have practical as well as statistical significance.
- Identifying limitations of the study.

Once the data had been analysed a framework of organisational best practice enhancing expatriate job and organisational adjustment was deduced. The framework was tested by content analysis through a small sample of 10 to verify the content validity of the best-practice framework, utilising Lawshe's content validity technique (Lawshe, 1975). The sample was drawn using convenient sampling and was based on availability.

## 4.9 SUMMARY

Chapter 4 addressed the procedures used in this study. As the researcher relied on convenience and purposive sampling, the sample parameters were very important. The lead contact person in every MNC was requested to send questionnaires to all the South African expatriates that he/she had on record and comply with the sample parameters. The questionnaire was in electronic format and was sent and returned via e-mail. Administration of the returned questionnaires included data coding and editing, data entry, data cleaning and data-processing. In order to achieve the purpose of the study, the researcher relied on descriptive and inferential statistical procedures to analyse the quantitative data and analytical induction to analyse the

qualitative data. Once the data had been analysed a framework of organisational best practice enhancing expatriate job and organisational adjustment was deduced. The framework was tested by content analysis to verify the content validity of the best-practice framework.

The words of Leedy and Ormrod (2005:179): “To behold is to look beyond the fact; to observe is to go beyond observation. Look at the world of people and you will be overwhelmed by what you see. But select from the mass of humanity a well-chosen few, and observe them with insight and they will tell you more than all the multitudes together”, summarize what chapter 4 aimed at achieving.

Chapter 5 presents the results and findings that originated from the data gathering and data analysis process.