CHAPTER 3
EMPIRICAL STUDY

3.1 INTRODUCTION

Chapter 1 provided background information on perceived gender discrimination within the mining industry in South Africa. Chapter 2 presented a literature review on this topic, with specific reference to the historical background and current status. The information gathered from the literature review was used to compile the questionnaire that measured the current state of perceived women discrimination in the mining sector.

Chapter 3 will outline the research objectives, contextualise the literature review, present the empirical study and discuss content reliability and the validity of results.

3.2 RESEARCH OBJECTIVES

The primary and secondary objectives have been mentioned in Chapter 1. These objectives can now be outlined in greater detail:

The primary objective of this study is:
- to determine the existence and prevalence of women discrimination in the South African mining industry; and to establish whether management is made aware of it.

The secondary objectives of this study are:
- To establish whether women discrimination currently exists in the South African mining industry.
- To establish at which employment levels is it prevalent.
- To ascertain how is this form of discrimination is practiced in the South African mines.
- To identify the causes of woman discrimination.
- To establish its effect on productivity.

- To ascertain its effect on women empowerment and industry transformation.
- To establish whether employers (management) are aware of how predominant women discrimination is in this sector and to find out what are they doing to prevent or to eliminate this problem.
- To determine what can be done to change or alleviate the problem.

3.3 LITERATURE REVIEW

Information for this research was obtained from published and unpublished sources such as books, journals, articles, theses, dissertations, internet and other related resources. The main objective (besides establishing what has already been discovered by other researchers), was to create a theoretical base for the compilation of the survey questionnaire.

In view of this a comprehensive review on available literature with regard to women discrimination in the South African mining industry was conducted. Relevant academic sources relating to the topic were consulted. The focus was on finding the following information:

- Discrimination and how it is practised.
- Women discrimination and how it is practised.
- The history of women discrimination within mines in South Africa.
- The current state of woman discrimination within mines in South Africa.
- Reports of incidences of women discrimination within mines in South Africa.

3.4 EMPIRICAL STUDY

The following empirical study sets out the research design; population, sample and sampling technique; data-collection and data analysis. All these are discussed in detail below.

3.4.1 Research design

Welman and Kruger (1999) define the research design as the plan according to which we obtain research respondents (subjects) and collect information from them. In it the researcher describes what will be done with the respondents with a view to reaching conclusions about the research problem.

For the purpose of this study a qualitative research method was used. The qualitative research method was chosen because it was the ideal method for determining the subjective thoughts and experiences of women working in the South African mining industry.

Despite negativity surrounding the use of qualitative research, Woods and Catanzaro (1988) maintain that the validity of qualitative research is one of its biggest advantages.

Qualitative research is concerned with understanding a social phenomenon from the participant's viewpoint (Sinclear, 1998). According to Bryman (1998) qualitative research generally attempts to:

- understand the issues from the viewpoints of the respondents, although the researcher and the respondents are involved in interpreting the data;
- describe the social setting of the respondents so that the respondents' views are not isolated from their contexts;
- understand the respondents' thoughts, feelings and behaviours (these are examined along a developmental or temporal continuum). Interviews are useful in capturing this process through the stories respondents provide. The data is therefore not presented in a static, reductionistic, decontextualised manner;
- conduct research in a relatively unstructured manner. Prior research or theory is generally not excessively relied on to inform the research process.

A hypothesis was not formulated because of the exploratory nature of the study. The emphasis of this study is to discover undefined women discrimination practices and to confirm prior research from the employees' viewpoints.

3.4.2 Population, sample and sampling technique

Wagner (2008) explains a population as the collection of all the observations of a random variable under study, about which one attempts to draw conclusions in practice. A sample is a subset of the population on which observations are made or measurements taken. Sampling is the deliberate selection of a number of individuals who will provide the researcher with the necessary data from which conclusions can be drawn (Jankowicz, 2000).

The population for the study was female employees from different gold and platinum mines found in South Africa within the Gauteng province and Northwest province. These women were employed at management, professional level and labourer level. The gold mines under study were AngloGold Ashanti, Gold Fields, and Harmony. The platinum mines were Impala and Lonmin.

A sample size of 30 females employed in mines was set as the target. According to Woods and Catanzaro (1988) a small sample can provide reliable data and is therefore acceptable for phenomenological studies. Although the sample size was 30 females, only 25 females ended up participating in the interviews. The other five did not participate due to personal reasons.

The sampling technique used was the snowball sampling method. This method refers to a variety of procedures in which initial respondents are selected by probability methods, but in which additional respondents are then obtained from information provided by the initial respondents (Struwig & Stead, 2001).

In the first phase of this kind of sampling a few individuals act as informants to identify other members (in this case other colleagues) from the same population for inclusion in the sample. The latter may in turn identify a further set of relevant individual so that the sample, as a rolling snowball, grows in size (Huysamen, 1993).

3.4.3 Data collection

Data was gathered by means of semi-structured interviews using a semi-structured questionnaire to standardize the questions. After designing the questionnaire, a pilot test was conducted in order to establish whether the questionnaire was appropriate to collect the data required. Following the design and pilot testing of the questionnaire, interviews were scheduled and later conducted. These interviews were conducted in venues with enough ventilation, lightning and comfortable chairs. The interviews were conducted one-to-one, face to face, or telephonically, in instances where it was impossible to meet with the respondents. All interviews were recorded and later transcribed in verbatim.

3.4.3.1 Questionnaire development

According to Baker (2003) semi-structured questionnaires are the principal means used for collecting data by means of a survey designated population or sample. After conducting a relevant literature study, the researcher designed a semi-structured questionnaire. While designing the questionnaire the researcher took into account aspects such as complexity, length, layout and wording. The semi-structured interview questionnaire comprised of three sections: Section A covered the respondents' biographical details; Section B covered their employment details; and Section C covered their perceptions on perceived woman discrimination in the mining industry.

The questionnaire consisted of open-ended probing questions and multiple-choice questions designed in accordance with the research objective. Oppenheim (1992) describes open-ended questions as free response questions in which the respondents express their views openly. According to Rubin and Rubin (2005) probing is the process

of encouragement when the researcher encourages the interviewees to reflect, in detail on events they have experienced. According to the American Heritage Dictionary of the English Language (2010) multi-choice questions offer several answers from which the correct one is to be chosen.

A copy of the questionnaire is included in Annexure B.

3.4.3.2 Questionnaire pilot test

According to Baker (2003), the purpose of pilot-testing lies in checking factors, such as variation, meaning, task difficulty, respondent attention, flow, order of questions, and timing.

A draft questionnaire was given to different parties for approval before the pilot test took place. The different parties included the study supervisor, a union representative, and independent professionals. This was done to validate the content of this questionnaire. The pilot questionnaire was emailed to the independent professionals. The respondents found most questions to be straight-forward and understandable. Some indicated that they found the questionnaire to be too long. Feedback on the distributed pilot questionnaires was received within two weeks and the necessary adjustments were done according to feedback recommendations.

3.4.3.3 Interviews

Interviews based on the phenomenological method were used as the data-gathering method (Moustakas, 1994). Phenomenology is one of many types of qualitative research that examines the lived experiences of humans and phenomenological researchers hope to gain understanding of the essential "truths" (i.e. essences) of the lived experience (Byrne, 2001).

According to Welman and Kruger (1999) "the phenomenologists are concerned with understanding social and psychological phenomena from the perspectives of people involved". The qualitative phenomenological research method was selected because the complexity of the study required a method that would provide complex textual descriptions of how people experience women discrimination. The study sought detailed information. Therefore questions could not be answered by simple yes or no hypothesis.

After the pilot-testing process all individuals who were identified as part of the sample were contacted telephonically to secure interview meetings. Qualitative interviews were secured with 30 people. Kvale (1996) explains that a qualitative interview "is literally an interview, an interchange of views between two persons conversing about a theme of mutual interest," where the researcher attempts to "understand the world from the subjects' point of view, to unfold meaning of peoples' experiences".

The languages used in the interviews were English, Zulu, Xhosa, Sotho or Setswana. The candidates were put at ease before the start of the interviews by ensuring that they all clearly understood what were expected from them. The researcher introduced herself at the beginning of each interview and explained the context of the interview (Struwig & Stead, 2004). During the interviews the respondents were asked the same questions, from the same questionnaire to standardize the data collection process.

Even though all respondents were asked the same questions, the interviewer adjusted the formulation and terminology to suit the background and educational levels of the respondents (Huysamen, 1993). Questions were "directed to each participant's experiences, feelings, beliefs and convictions about the theme in question" (Welman & Kruger, 1999). During the interview non-directive dialogue techniques i.e. attentive body language, reflection, clarification, minimal encouragement and silence were used to assist the participant to share her experience (Meulenberg-Buskens, 1994). Social-desirable responses were minimised by making use of dialogue techniques.

All interviews were audio-recorded, with the permission of interviewees (Arkley & Knight, 1999; Bailey, 1996) to ensure that no information got lost (Omery, 1983). The interview transcriptions and field notes were stored electronically. On average the interviews took at least one hour to complete.

3.5 DATA ANALYSIS

The aim of data analysis is to assemble or reconstruct the data in a meaningful or comprehensible fashion (Jorgensen, 1989). Coffey and Atkinson (1996) regard data analysis as the systematic procedures to identify essential features and relationships. It is a way of transforming the data through interpretation. Data analysis and interpretation involves identifying patterns and themes in the data and drawing certain conclusions from them (Mouton, 1996). Data analysis was done using the protocol for analysis of data (Annexure C) and content analysis steps (Calitz, 2004) as a guideline.

Once the recorded interviews were complete, they were transcribed verbatim and later analysed by the researcher. Each interview transcript was assigned a code, for an example: RSPDNT (17 August 2010). In cases where more than one interview took place on the same day, the different interviews were identified by a number in front of the code, for an example: RSPDNT-1 (17 August 2010). Data coding was guided by the Protocol for Analysis of Data found in ANNEXURE C. The coding process was similar to the model illustrated in Figure 1. Data was coded on separate occasions and compared to coding frames. The data collected was sorted and then clustered into similar topics. Topics that that relate to each other were grouped together. This enabled the researcher to summarise the information collected into meaning descriptions.   In order to process the data and for data analysis, data was coded manually and captured using Microsoft Excel

Content analysis was used to analyse and interpret the research data in a systematic, objective and quantitative way (Giorgi, 1985). Content analysis refers to the gathering and analysis of textual content. The content refers to messages, e.g. words, meanings,

symbols and themes. The central idea in content analysis is that the many words of the text are classified into considerably fewer content categories. The following steps were followed for content analysis, in line with the recommendations of Calitz (2004):

- The first step was to universalise the context that needed to be analysed, defined and categorised (for example all the verbal answers of the respondents).
- The second step was to determine the sub-units of the analysis, namely words and themes. The researcher read the respondents' notes in order to get the whole picture. Afterwards she read through it again in order to determine the themes. The words which were used by the respondents formed the smallest analysis that could be made. A subtheme was usually a sentence, which was more difficult but also more useful to analyse. Subthemes were combined in order to determine the themes. The analysis of the information continued until the repeated themes were identified.
- The third step was to get rid of the unnecessary information and to determine the meaning of the rest of the subunits by linking it to the whole picture.
- The fourth step consisted of converting the concrete language that was used by the respondents to scientific language and concepts. The precise words of the respondents were used in support. An integration and synthesis were then done based on the received insights from the respondents.
- The number of objects per category was counted and placed in order of preference.

Figure: 1: A Model of Qualitative Data Analysis

A Model of Qualitative Data Analysis
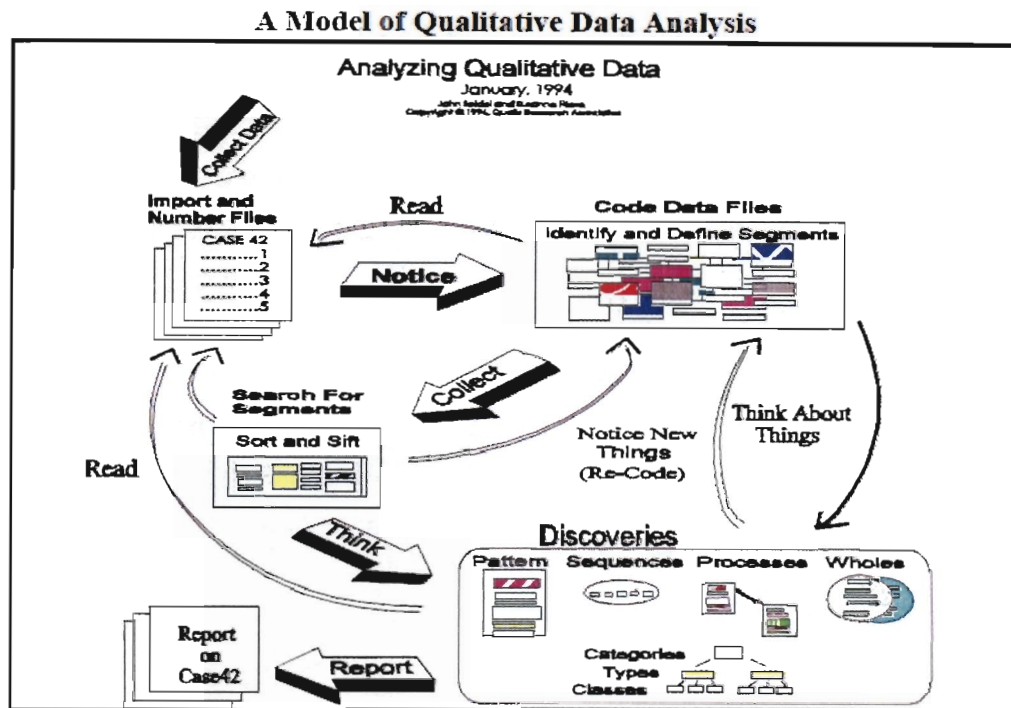
(Source: Seidel, 1998)

3.6 RELIABILITY AND VALIDITY OF RESULTS

Firstly, to ensure content reliability and validity of the results, the sample was chosen from women who work in the identified industry. These women would have first hand information on the subject matter because they would see what was happening in the industry on a daily basis. Secondly, a questionnaire pilot test was done before drafting the final questionnaire, as explained above. The questionnaire was based on the literature review. Schurink, Schurink and Poggenpoel (1998) emphasise the truth-value of qualitative research and list a number of means to achieve truth. In this study, the phenomenological research design contributed toward truth. To ensure that the information collected was valid, the researched spent enough time with the respondents. During the interview, the questions were rephrased and repeated to ensure that credible information was gathered. After conducting the interviews, the researcher gave the

39

respondents the transcribed copies of their interviews in order to validate that it reflected their perspectives regarding the phenomenon that was studied. The trustworthiness of the content analysis was promoted by the coding that took place by the researcher and by an independent human resources specialist with a meticulous background of HR in the mining sector.

During the interviews the researcher made use of a diary to highlight the ideas and feelings of the respondents during the research process. These notes consisted of information on the problems and frustrations that have been experienced (Krefling, 1991). The research findings were presented by means of simple frequency tables and graphs. The researcher did not deem it necessary to statistically prove the reliability and validity of the questions and findings.

3.7   CHAPTER SUMMARY

This chapter outlined the research objectives and discussed the empirical study, which included the research design; study population; data collection; and data analysis.

Chapter 4 will set out the results of the empirical study.