CHAPTER 2: RESEARCH DESIGN

2.1 RESEARCH PARADIGM

The study draws primarily on a qualitative research paradigm; however it will be informed also by elements of the quantitative paradigm. The qualitative research paradigm allows insight into the experiences of the adults in Shithhelani Village. It focuses on exploring in as much detail as possible, a smaller number of contexts that are illuminating, and aims to attain depth rather than breath. The subjective perspective of the individuals involved in the study helps one understand the complexities and diversity of their daily lives. As Denzin and Lincoln point out, ‘qualitative researchers study things in their natural settings, attempting to make sense of or interpret phenomena in terms of the meanings people bring to them’ (in Creswell, 1998: 15). Through this approach, a wealth of data may be collected from relatively few people providing an understanding of the issues being studied. This richness of data also encourages active participation on the part of the researcher:

....visiting with people, listening, speaking, and allowing conversations to proceed as they will, means that one’s own life is implicated in the life of another person, and one’s own feelings are evoked by the language, history and accounts of this other person.

(Cottle, in Bogdan and Taylor, 1975:8)

Furthermore, this approach is particularistic (i.e. it focuses on the Shithhelani community), descriptive (e.g. villagers describe their understanding and experiences as first time users of electricity) and heuristic (i.e. illuminates understanding of the positive and negative impacts of electricity and how it has transformed the villagers’ livelihood patterns) [Ary et al., 1972; Maykut and Morehouse, 1994; Jaeger, 1988]. The qualitative paradigm is rooted within constructivism, an epistemological view which maintains that an individual is responsible for the construction of knowledge (Cohen and Manion, 1994; and Crotty, 1998). Constructivism subscribes also to
interpretivism where knowledge is seen as personal, subjective and unique, and not hard, objective and tangible as advocated by positivism. Using this approach, one can begin to understand the villagers’ interpretation of the concepts such as deforestation, forest fires, live current, short circuit, electric shock and the like.

Quantitative research is concerned with the collection and analysis of data in numeric form and tends to focus on large-scale and representative sets of data (Blaxter et al, 1996). This approach is designed to discover general laws or generalisation of issues and measures the reactions of large numbers of people using limited questions, thus facilitating comparison and statistical aggregation of information. Using standardised measures, the different perspectives and experiences of the villagers will be recorded in predetermined response categories to which numbers will be then assigned (Maxwell, 1996; and Creswell, 1998).

2.2 RESEARCH DESIGN

According to Weber (in Bogdan and Taylor, 1975), phenomenology is a theoretical perspective ‘concerned with understanding human behaviour from the actor’s own frame of reference’. People are constantly transforming in interaction, and society is transformed through interaction. By describing their learning experiences, villagers are forced to examine their knowledge and understanding of electricity in relation to environmental practices. This philosophical point of view is supported by Curtis (in Cohen and Manion, 1994) who stipulates three crucial features:

- a belief in the importance of subjective consciousness,
- an understanding of consciousness as active, as meaning making, and
- knowledge can be acquired through reflection.
2.3 RESEARCH METHODOLOGY

2.3.1 Sampling and Selection

The study focuses on a geographic area which was once heavily forested and considered typically representative of the whole Shitlhelani village. A random sampling method was adopted where every group of 20 in the population of interest had an equal chance of being selected for study (Blaxter et al, 1996; and Mason, 1996). Although the participants were chosen at random, consideration was given to their geographic location, gender, age, availability, level of education, community involvement, and the type of meter box installed in their houses. Electricity meters in not more than 10 households were monitored and the electricity accounts of 5 households that attended an ‘imbizo’ (social gathering) were examined. Participants were not forced to take part in this study but they volunteered. Those who participated in this study were informed that they could remain anonymous and that their privacy would not be violated. All the respondents nonetheless indicated that they would not be offended if I use their names in this study.

2.3.2 Data Gathering Methods

Four different methods were used to gather data: namely, questionnaires, interviews, non-participant observation and document analysis.

Questionnaires

Separate community member and Eskom employee questionnaires containing specific guiding research questions were used (Appendix C). Examples of completed questionnaires from Shitlhelani community members and Eskom employees are attached in Appendices D and E.
Interviews

Open, individual semi-structured interviews were conducted with seven informants from Shitlhelani Village to produce direct quotations from villagers about their basic perceptions, feelings, experiences, opinions and knowledge concerning electricity. After a certain period of time to allow participant to reflect, recall solutions and insights, 4 focused group interviews comprised of 3 people in each group, were conducted, (Lofland and Lofland, 1984). Two ESKOM informant interviews were conducted to elicit information about environmental awareness education and the safety measures to be followed when using electricity. The limitations of using interviews as a method of gathering data are that responses are longer, more detailed, and variable in content, and analysis is difficult as responses are unsystematic and not standardised (Patton, 2002).

Non-Participant direct observation

Non-participant observation provided information relating to how members of the Shitlhelani village learn about electricity and environmental practices. According to Patton (2002), non-participant observation yields factual, accurate detailed descriptions of people’s activities, behaviours, actions, interpersonal interactions and organisational processes. In the context of this study, 20 homes were randomly selected to monitor how people utilise electricity, particularly the amount of electricity bought on a monthly basis. However, direct observation has its limitations as not everything can be observed or experienced, furthermore, it is labour-intensive and relatively expensive.
Document analysis refers to the studying of program records, memoranda and correspondence, quotations, personal diaries, reports and official publications and open-ended written responses to questionnaires and surveys (Patton, 2002). In this study, documents included the National Electricity Regulators (NER) quarterly journals, documents on environmental awareness education, and ESKOM brochures and TV advertisements on safety issues, etc. The purpose of analysing these documents is to determine the type of information being disseminated (i.e. content) and the method of teaching/learning used (i.e. process). Another consideration when examining these documents will be the language used as well assumptions about the target audience.

2.3.3 Data Analysis and Presentation

After completing the questionnaires and interviews, informants’ responses were reviewed and analysed. Codes were used as labels or tags to represent descriptive units of meaning. Codes are usually attached to words, phrases, sentences, and paragraphs that may or may not be linked to a particular context (Maykut and Morehouse, 1994; Miles and Huberman, 1994). For the purpose of this study, it is not the words themselves but their meaning that matters. Using codes, data relating to a specific research question or themes can be quickly identified and categorised thus setting the stage for making inferences. Reviewing a set of field notes, transcribing and dissecting them meaningfully, while maintaining the relations between the various data allows for pattern recognition and the emergence of themes.
2.4 ACCURACY, VALIDITY AND RELIABILITY OF INFORMATION

Using the triangulated research design strengthens the validity of data. Cohen and Manion (1994: 238) state that ‘triangulation within methods concerns the replication of a study as a check on reliability and theory confirmation’. Validity refers to the correctness or credibility to which an instrument measures what is supposed to attain (Ary et al., 1972; and Maxwell, 1996). Validity in quantitative research relies on the use of measuring instruments (e.g. survey questions and inventories) in an appropriate, standardised way according to the prescribed procedure. Reliability, on the other hand, refers to the extent to which research instruments are consistent in measuring an issue.

A ‘participatory’ approach in which the community members are actively involved usually lends itself to transparency and candour, however, one must bear in mind that misinformation may be given if individuals are:

- reluctant to reveal the true situation since this may reflect badly on their competence and capabilities, and/or their company department;
- disinterested if they see no direct benefit for themselves,
- afraid that, by revealing their true feelings or opinions, they may be victimised and shunned by other community members.

On a more practical side, false or inaccurate information may result if the interview questions are poorly worded or ambiguous.
2.5 LIMITATIONS OF THE DESIGN

In qualitative research, credibility depends to a great extent on the skill, competence, and rigor of a researcher conducting research in the field (Patton, 2002; and Neill, 2004). As a researcher, I am mindful that I should first establish rapport with the informants, gain their confidence and trust. I must remain sensitive to the situation especially if the study raises conflict as pre-existing views and behaviour are challenged (Bogdan and Taylor, 1975; Lofland and Lofland, 1984). This design depends to a large extent on what the informants tell me. I am relying on their experience to provide me with the data I seek. If I don't select informants who can provide this kind of descriptive data, it may jeopardise the results of the research. Also, my own experiences may influence the collection and interpretation of the data. As a person who has lived in this area for my whole life, it may not be easy for me to keep my own experiences separate. As a participant observer, I will need to be very conscious and aware of how my personal experiences are introduced into the study.

2.6 SCOPE OF THE STUDY

Although the study focuses on a limited number of seven households in one rural community at Vhembe region of Limpopo province and the type of education ESKOM provides first time electricity users, the village is considered to be a representative sample of the Limpopo province. The study's findings could be generalised to other villages within the province, but one is aware that all villages in the province are not alike (i.e. there are variations in the population, climate, vegetation, etc); and they may not receive the same treatment from ESKOM.
2.7 DISSEMINATION OF FINDINGS

The study’s research findings will be made accessible to the community through oral presentations, perhaps using community radio (Munghana Lonene FM), or by contacting a local newspaper (e.g. The Mirror). A summary report may be supplied to ESKOM, environmentalists and to the Department of Environmental Affairs but a full report can be obtained on request.