

Chapter 4

Research Methodology and Design

4.1 Introduction

The theoretical overview of chapters two and three dealt with the importance of formative assessment and assessment in the South African context, as well as the background and rationale for the use of the Dynamic Indicators of Basic Early Literacy Skills assessments. The previous chapters form a conceptual and theoretical framework for this research study, while this chapter presents the empirical section.

The purpose of this study is to determine how officials in an educational district, and foundation phase teachers in a school collect assessment data, how they record the data, and how, if at all, they make instructional decisions, based on the collected assessment data (cf. Chapter 1).

All research is based on some underlying philosophical assumption about what constitutes “valid” research and which research method(s) is/are appropriate for the development of knowledge in a given study. In order to conduct and evaluate any research, it is therefore important to know what these assumptions are. According to Holliday (2002), “no matter how extensive the research, different researchers will always pursue and see very different things in the same setting” (p. 7). The critical point is that the research methodology chosen determines the outcomes of the study. Cooperrider and Srivastva (2001) state that, “Through our assumptions and choice of method we largely create the world we later discover” (p. 1). This chapter describes the outline of a systematic and focused investigation of the empirical research process according to the following topics: research paradigm, research approach, research design, sampling, data collection methods, data collection procedures and data analysis.

4.2 Methodology

The methodological design is the logic through which a researcher addresses the research questions (Mason, 2002), and gains data for the study (Denzin & Lincoln,

2005). Research methodology encompasses the complete research process: the literature review, the research approach, design, procedures and data-collection methods and data analysis used in the study (McMillan & Schumacher, 2001). Therefore, the aim of research methodology is to understand the processes and not the product of scientific inquiry (Cohen & Manion, 1994).

4.2.1 Literature review

Various databases were consulted in order to do an extensive literature review related to the intellectual conundrum under investigated. The essence can be summarised as follows:

Assessment is vital to the education process (cf. section 1.6.1). In schools the most visible assessments are summative. Summative assessments are used to measure what learners have learnt at the end of a unit or to promote learners. But assessment may also serve a formative function. In classrooms, formative assessment refers to frequent, interactive assessments of learner progress and understanding to identify learning needs and adjust teaching appropriately. Teachers using formative assessment approaches and techniques are better prepared to meet diverse learners' needs – through differentiation and adaptation of teaching to raise levels of learner achievement and to achieve a greater equity of learner outcomes. But there are major barriers to wider practice, including perceived tensions between classroom-based formative assessments, and high visibility summative tests to hold schools accountable for learner achievement, and a lack of connection between systemic, school and classroom approaches to assessment and evaluation. Too often highly visible summative tests used to hold schools accountable for learner achievement drive what happens in classrooms. Too often, information gathered through national or provincial monitoring systems, or even in school-based evaluations is seen as irrelevant or unhelpful to the business of teaching. Too often, information gathered in classrooms is seen as irrelevant to the business of policy making.

4.2.2 Empirical investigation

4.2.2.1 Research paradigm

The term paradigm originated from the Greek word “paradeigma” which means pattern and was first used by Thomas Kuhn (1962) to denote a conceptual framework shared by a community of scientists which provided them with a convenient model for examining problems and finding solutions. Kuhn (1977) defines a paradigm as “an integrated cluster of substantive concepts, variables and problems attached with corresponding methodological approaches and tools...” (p. 25). According to him, the term paradigm refers to a research culture with a set of beliefs, values, and assumptions that a community of researchers has in common regarding the nature and conduct of research (Kuhn, 1977). A paradigm therefore implies a pattern, structure and framework or system of scientific and academic ideas, values and assumptions (Olsen, Lodwick, & Dunlop, 1992).

Social reality can be viewed as being constructed. It is “based on a constant process of interpretation and reinterpretation of the intentional, meaningful behaviour of people – including researchers” (Smith, 1989, p. 85). Thus, depiction and/or interpretation of the social inquiry is a constructive process and consequently the researcher cannot be isolated from the phenomenon investigated (Smith, 1989). I chose to conceptualise this study within the interpretivist paradigm. For interpretivists, the world is too complex to be reduced to a set of observable laws and generalisability is a less important issue than understanding the real conditions behind the reality (Gray, 2004). The main goal of the interpretivist is to understand the meaning of the social situation from the point of view of those who live it. The inquirer must interpret the event, understand the process of meaning construction and reveal what meanings are embodied in people’s actions (Schwandt, 1998).

Interpretivism’s main tenet is that research can never be objectively observed from the outside rather it must be observed from inside through the direct experience of the people. Furthermore, uniform causal links that can be established in the study of natural science cannot be made in the world of the classroom where teachers and learners construct meaning. Therefore, the role of the scientist in the interpretivist paradigm is to, “understand, explain, and demystify social reality through the eyes of different participants” (Cohen et al., 2007, p. 19). Researchers in this paradigm seek to

understand rather than explain. The purpose of this study is to understand how educational officials at district level, a school management team at school level, and teachers at classroom level view and implement progress monitoring assessment.

4.2.2.2 Research approach

Not everything that can be counted counts, and not everything that counts can be counted. (Albert Einstein)

Qualitative researchers study things in their natural settings, attempting to make sense of, or to interpret, phenomena in terms of the meanings people bring to them (Denzin, 1994). Qualitative research is intended to penetrate to the deeper significance that the subject of the research ascribes to the topic being researched. It involves an interpretive, naturalistic approach to its subject matter and gives priority to what the data contribute to important research questions or existing information. Qualitative research is characterised by its aims, which relate to understanding some aspect of social life, and its methods which (in general) generate words, rather than numbers, as data for analysis. The strength of qualitative research is its ability to provide complex textual descriptions of how people experience a given research issue. It provides information about the “human” side of an issue – that is, the often contradictory behaviours, beliefs, opinions, emotions, and relationships of individuals.

A qualitative approach was chosen in order to explore educational officials’ at district level, and teachers’ experiences with formative assessment (i.e., progress monitoring assessment) in foundation phase classrooms, primarily through the use of semi-structured interviews, focus group interviews, and document analysis. I wish to understand the experiences of officials and teachers with assessment and its role in early literacy skills, which is best accomplished through use of a qualitative method. I am studying “behaviour as it occurs naturally” (McMillan & Shumacher, 2010, p. 321-322), where the “situational context is very important in understanding behaviour”. The questions raised are concerned with “understanding the social phenomenon from the participants’ perspective”. My goal is to understand officials’ and teachers’ experiences with formative assessment in the foundation phase classroom setting. I seek to “provide ‘rich’ descriptions that cannot be achieved by reducing pages of narration to numbers” (McMillan & Schumacher, 2010, p. 322).

4.2.2.3 Research design

This study utilises a participatory action research design. Perhaps the most important feature of action research is that it shifts its locus of control in varying degrees from professional or academic researchers to those who have been traditionally called the subjects of research (Kerr & Anderson, 2005). There are several terms in current use that describe research done either by or in collaboration with teachers and/or community members. The most common ones are *action research*, *participatory action research*, *practitioner research*, *emancipatory praxis*, *participatory rural appraisal*, and *advocacy activist* (Kerr & Anderson, 2005, p. 2). Although the plethora of terms coined to describe the research reflects wide disagreement on many key issues, most agree on the following: action research is inquiry that is done *by* or *with* insiders to an organisation or community, but never *to* or *on* them. It is a reflective process, but is different from isolated, spontaneous reflection in that it is deliberately and systematically undertaken and generally requires that some form of evidence be presented to support assertions. What constitutes evidence or, in more traditional terms, data is still being debated. Action research is oriented to some action or cycle of actions that organisational or community members have taken, are taking, or wish to take to address a particular problematic issue. The idea is that changes occur either within the setting and/or within the researchers themselves. Action research is best done in collaboration with others who have a stake in the problem under investigation.

Several more concise definitions exist in the body of literature on action research. For example, McKernan (1988) described it as “a form of self-reflective problem solving, which enables practitioners to better understand and solve pressing problems in social settings” (p. 6). Kemmis and McTaggart (1987), writing about education, add the goal of social justice to their definition:

A form of collective, self-reflective enquiry undertaken by participants in social situations in order to improve the rationality and justice of their own social or educational practices, as well as their understanding of these practices and the situations in which these practices are carried out. Groups of participants can be teachers, students, principals, parents and other community members – any group with a shared concern. The approach is only Action Research when it is collaborative, though it is important to realize that the Action Research of the

group is achieved through the critically examined action of the individual group members (p. 6).

Action research was selected as the preferred design because change lies at the heart of this study. It is through change that progress monitoring assessment can become part of teachers' classroom practice. Action research can be understood as an overarching term for what goes on in the classroom when the teacher decides to change previously accepted situations (McNiff, 1988). McNiff (1988) explains further that applied to classrooms, action research is an approach to improving education through change, by encouraging teachers to be aware of their own practice, to be critical of that practice and to be prepared to change it.

Macintyre (2000) states that action research is an investigation, where, as a result of rigorous self-appraisal of current practice, the researcher focuses on a 'problem' (or a topic or an issue which needs to be explained), and on the basis of information (about the up-to-date state of the art, about the people who will be involved and about the context), plans, implements, then evaluates an action, and then draws conclusions on the basis of the findings (Macintyre, 2000, p. 1). By "up-to-date state of the art" the author implies that the choice of the topic, and possible ways of investigating the topic, should be informed by recent literature. After considering a number of ways in which action research could be conceptualized, McNiff concludes that it is "a spontaneous, self-recreating system of enquiry" (McNiff, 2002, p. 56).

The aim of action research is to "bring about practical improvement, innovation, change or development of social practice and the practitioners' better understanding of their practices" (Cohen et al., 2001, p. 227). Kemmis and McTaggart (1988) describe action research as "...to plan, act, observe and reflect more carefully, more systematically and more rigorously than one usually does in everyday life; and to use the relationships between these moments in the process as a source of both improvement and knowledge" (p. 10).

The term action research highlights the essential features of action and research, which involves the systematic testing of ideas in practice to improve social conditions and increase knowledge (Hatten, Knapp, & Salonga, 1997). It implies that the research is undertaken to evaluate a real life problem, seek and plan systematically for a solution to

the problem, implement the solution and evaluate whether the intervention was successful.

Action research is a form of staff development that encourages and develops the skills of teachers to become more *reflective practitioners*, more methodical problem solvers, and more thoughtful decision makers (Sparks & Simmons, 1989). Sagor (2000) believed that an important purpose for action research was “building the reflective practitioner” (p. 7). He explained that “when reflections on the findings from each day’s work inform the next day’s instruction, teachers can’t help develop greater mastery of the art and science of teaching” (Sagor, 2000, p. 7).

In addition, Danielson and McGreal (2000), Kemmis and McTaggart (1990), McNiff (1997), and Schon (1983; 1987) focused on the importance of teachers critically reflecting on their practice. Each asserted that teacher introspection and on-going discussion about their own practice were very important. The process of action research provides a structured, disciplined approach to reflecting about the teaching and learning process. Danielson and McGreal (2000) stated, “Few activities are more powerful for professional learning than reflection on practice” (p. 24). In this study the aim is to get teachers to reflect on their assessment practices as well as the effect of their assessment practices on their instructional decision making.

Likewise, Schon (1983; 1987) referred to the thinking practices that occurred while in the midst of teaching as reflection in action. He described this reflection in action as thinking about what one is doing while one is doing it. Reflection on action evokes thinking critically about one’s actions after they have occurred. This type of reflection helps us gain a deeper understanding of what we already know. Danielson and McGreal (2000) elaborated on the importance of reflection for professional growth and stated, “The very act of reflection, it appears, is a highly productive vehicle for professional learning” (p. 48).

More than half a century ago, Lewin (1946) developed a theory of action research involving an action-reflection cycle of planning, acting, observing and reflecting. Several other models have also been put forward by those who have studied different aspects of action research and I present some of these in Table 4.1. My purpose in so doing is to enable the reader to analyse the principles involved in these models which should, in turn, lead to a deeper understanding of the processes involved in action research. No

one specific model is being recommended and the models have many similarities. An action researcher should adopt the model which suit his or her purpose most or adapt a model to fit his or her purpose.

The three models presented in Table 4.1 define the steps in action research similarly. These models of action research incorporate a process of five steps. While the models have a variety of differences, they share the steps of data collection and analysis, and taking action on an identified focus.

Table 4.1: Five Step Action Research Process

5 Step Process	Sagor Model	Kemmis & McTaggart Model	Calhoun Model
Step 1	Problem Formulation	Planning	Selecting the Area of Focus
Step 2	Data Collection	Acting	Collecting Data
Step 3	Data Analysis	Observing	Organizing Data
Step 4	Reporting of Results	Reflecting	Analyzing and Interpreting Data
Step 5	Action Planning	Re-planning	Taking Action

Although each of the above-mentioned models uses different words, in essence, they each include using data to act or react to a defined problem or area of concern. According to these models, action research can be summarized as a spiraling process that facilitates planning, acting, collecting, observing, reflecting, analyzing, reacting, and evaluating in a manner that is systematic but flexible in nature.

I find the spiral model appealing because it offers the opportunity to visit a phenomenon at a higher level each time, and so to progress towards greater overall understanding. By carrying out action research using this model, one can understand a particular issue within an educational context and make informed decisions through enhanced understanding. It is about empowerment. To fit the purpose of my study, I developed an action research model for the development and implementation of a school-wide progress monitoring assessment system. In conducting this action research, I structured

routines for continuous confrontation with the data and these routines are loosely guided by movement through five phases of inquiry as shown in Figure 4.1.

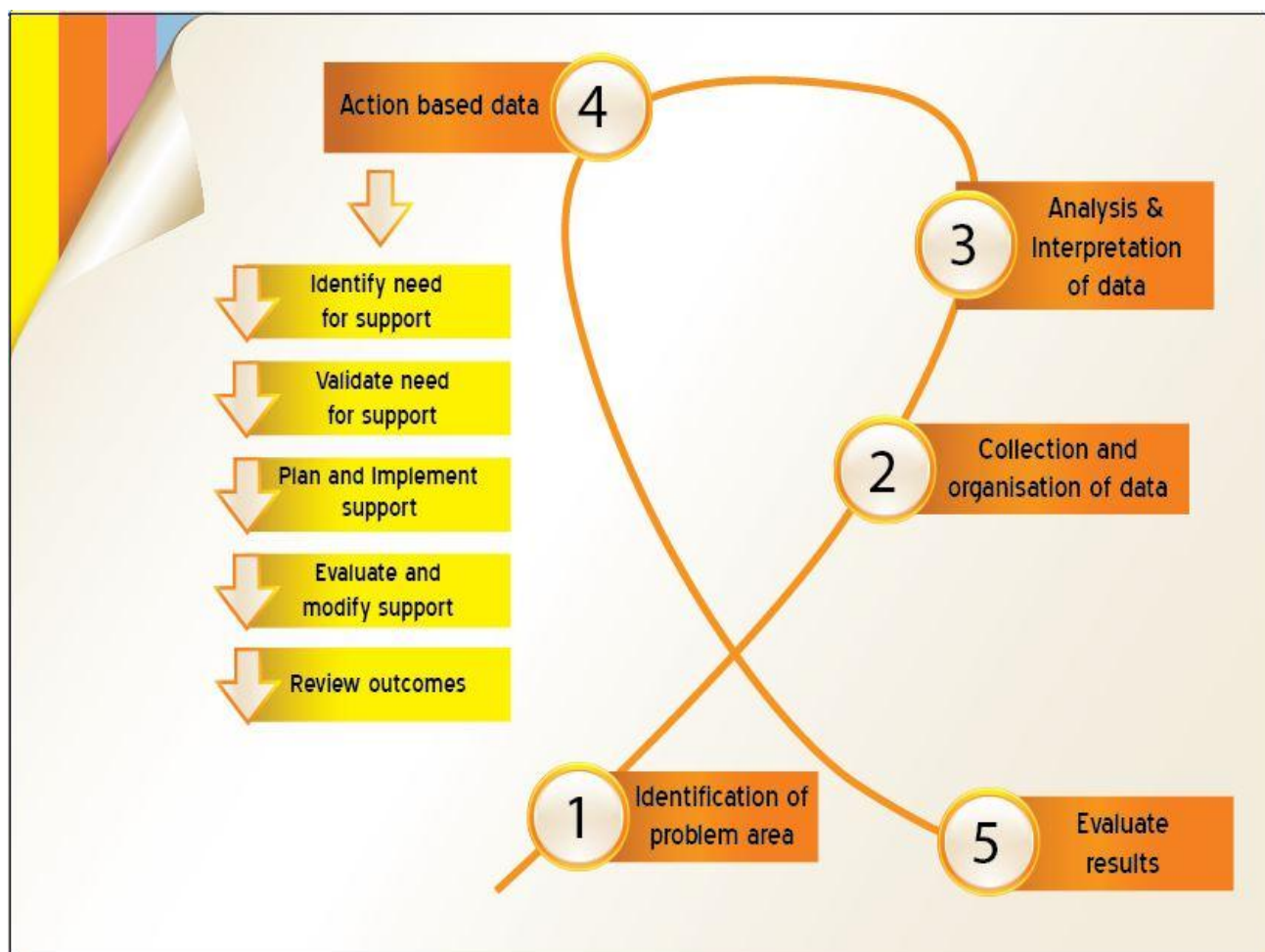


Figure 4.1: Action Research Spiral

These five actions taken by the researcher in the action research process is discussed below:

- Identification of the problem area

The first step in any research study is deciding exactly *what* to study. Action research arises from a problem, dilemma, or ambiguity in the situation in which teachers or administrators find themselves. The problem in this study arose from concerns expressed at national, provincial, district, school and classroom level, namely the role of assessment in foundation phase teaching and learning (cf. section 5.2). The following criteria were taken into account when trying to delimit the research problem. The question(s) should:

- Be a higher-order question – not a yes/no;
- Be stated in common language, avoiding jargon;
- Be concise;
- Be meaningful; and
- Not already have an answer.

In some ways this step was the most difficult as the problem needed to be sufficiently refined to be tractable and to ensure that the focus was on the most important issues. It was also important to recognise which problems or issues it was feasible to focus on, because in some cases a commonsense solution to a current difficulty can be readily found, while in others there may be institutional constraints which render attempts at solution beyond the scope of the stakeholders involved, for example, changing the current National Assessment Policy. In order to identify the problem area, I had informal conversations with the Circuit Manager in the Cloudy District, the Head of Department of the Foundation Phase in one school, and several foundation phase teachers in a city in the North West Province. I also read statements made by academics in the popular media. In addition, I conducted a bird's eye view of the literature in order to distinguish between what has been done and what needs to be done; understand the structure of the problem; unpack important variables relevant to the study; and identify relationships between theory and practice; identify areas of controversy in the research; establish and define the social, educational, or cultural context of the problem or question; identify methodologies and research approaches that have been used in conducting the research.

- Collection and organisation of data

The collection of data is an important step in deciding what action needs to be taken. Multiple sources of data are used to better understand the scope of the problem at district, school and classroom level. During this step, decisions were made about the data collection methods to be used in the study. I made use of semi-structured interviews, focus group interviews and document analysis. Three data sources (triangulation) were used for the basis of actions. Data was organised in a way that would make it useful to identify trends and themes (cf. section 5.3).

- Analysis and Interpretation of data

During this step, the aim is to identify and analyse major themes. I started to analyse the data immediately after the first semi-structured interviews and focus group interviews were held. The material to be analysed consisted of interview (individual and focus group) transcripts as well as collected documents. I chose constant comparative analysis to analyse my data because this method aids in identifying patterns, coding data, and categorizing findings (cf. section 5.4).

- Action based on data

Using the information from the data collection and review of current literature, I designed a plan of action in collaboration with all district officials, the school management team and the teachers at Happy Valley School. The “plan of action” was a progress monitoring assessment and support rocket system (cf. section 5.5). It is important to note that only one ‘variable’ was changed in this study, namely the implementation of a progress monitoring assessment and support rocket system that could have school-wide as well as district-wide decision making implications. The reason for only one change being made is that if several changes were made at once, it would be difficult to determine which action was responsible for the outcome. While the “action” was implemented, I continuously collected, and documented the data on the progress monitoring assessment and support rocket system.

- Evaluate results

The final step in the action research cycle was to assess the effects of the action step that was implemented to determine whether improvement had occurred and to verify and validate whether the data clearly provided supporting evidence for the effective implementation of the progress monitoring assessment and support rocket system.

4.2.2.4 Sampling

Data gathering is crucial in research, as the data is meant to contribute to a better understanding of a theoretical framework (Bernard, 2002). It then becomes imperative that selecting the manner of obtaining data, and from whom the data will be acquired be done with sound judgement, especially since no amount of analysis can make up for improperly collected data (Bernard, 1986).

The purposive sampling technique, also called judgment sampling, is the deliberate choice of a participant due to the qualities the participant possesses. It is a nonrandom technique that does not need underlying theories or a set number of informants. Simply put, the researcher decides what needs to be known and sets out to find people who can and are willing to provide the information by virtue of knowledge or experience (Bernard, 2002; Lewis & Sheppard, 2006). Key participants are observant, reflective members of the community of interest who know much about the topic and are both able and willing to share their knowledge (Bernard, 2002).

The following steps were followed in the purposive sampling of participants for this study:

1. Decide on the research problem.
2. Determine the type of information needed.
 - Information is held by only certain members of the community.
 - Information needs a high degree of interpretation regarding assessment practices in the foundation phase.
3. Define the qualities the participants should or should not have.
4. Find your respondents based on the defined qualities.
 - Research about the structure of the North West Department of Education and District and School Level (i.e., circuit manager, subject specialists, school management team, head of department for the Foundation Phase and Foundation Phase teachers – grade R to grade 3).
 - Ask for help before going to the site (i.e., school and district offices) and upon arrival at the site.
5. Keep in mind the importance of reliability and competency in assessing potential respondents.
6. Use appropriate data gathering techniques.
7. In analyzing data and interpreting results, remember that purposive sampling is an inherently biased method.
 - Document the bias.
 - Do not apply interpretations beyond the sampled population.

Non-probability sampling is used in qualitative research, where the researcher purposively seeks out participants that are deemed to be the best sources of information required. It is the most common sampling strategy in qualitative research

and seeks cases rich in information which can be studied in great depth about issues of central importance to the purpose of the research. The benefit of purposeful sampling is that, as Patton (2002) puts it, “Any common patterns that emerge from great variation are of particular interest and value in capturing the core experience and central, shared dimensions of a setting or phenomenon” (p. 34).

The following boundaries and features applied in this study:

- The School Management Team of the Happy Valley School (four members).
- Eight teachers from the Happy Valley School (one grade R, three grade 1, two grade 2 and two grade 3 teachers (Foundation Phase) in the Cloudy District in the North West Province.
- The circuit manager of the Cloudy District, Mrs Dedicated.
- The coordinator of the General Education and Training Band, Mrs Detail.
- Three subject specialists for language/literacy in the Cloudy District in the North West Province.
- The entire population of Foundation Phase learners at Happy Valley School participated in the study, n= 82 (grade 1), n= 85 (grade 2), n= 86 (grade 3).¹

4.2.2.5 Data collection methods

The following data collection methods were used in this study: semi-structured interviews, focus groups and document analysis. Through the use of multiple data collection methods, I hope to triangulate the data in such a way as to enhance the validity of this study. The methods are discussed below:

- **Semi-structured interviews**

Interviewing is regarded as one of the most powerful ways to understand human behaviour and for this reason, interviewing is also used in this research (Koshy, 2005). Interviewing as a data-gathering method was also included to (Gall et al., 1996, p. 289-290; Denzin & Lincoln, 2005, p. 697-698):

¹ Although all Foundation Phase learners participated in the study, the focus was on the development of a school wide progress monitoring assessment system that would enable teachers and all stakeholders to make effective instructional decisions based on the analysis of DIBELS data.

- obtain additional information;
- clarify vague statements;
- permit exploration of topics; and to
- yield a deeply experiential account of the extent of assessment practice at district, school and classroom levels.

Interviews were conducted according to a semi-structured interview schedule (cf. chapter 5 for the interview questions) that specifies predetermined questions and sequences for the interviewer. The structured part of the interview was developed according to the research purpose (cf. section 1.5), and the literature review of government documentation (cf. section 1.3).

The interview questions included the following topics:

- Benchmarks for literacy;
- Assessment documentation;
- Recording of assessment;
- Progress monitoring assessment;
- Types of assessment;
- Assessment feedback;
- Instructional support related to assessment;
- Instructional decision making based on assessment data;
- Use of assessment data; and
- General comments.

A semi-structured interview was chosen to allow more clarifying, probing and cross-checking questions where the interviewer had the freedom to alter, rephrase and add questions according to the nature of responses from interviewees (Best & Kahn, 2003; Argarwal, 2005). The semi-structured interviews provided opportunities for the recording of idiosyncratic and more free-flow responses.

Interview procedure

The recording of the interview data took place by means of note-taking and audio recording as recommended by among others Gall et al. (1996), Huberman and Miles (2002) and De Vos et al. (2005). The note-taking served as an additional recording measure and as a back-up procedure if consent was not obtained from the interviewees

to record the interview by means of an audio recorder. Interviews took place in the offices of the district officials, the staffroom at Happy Valley School and in the classroom of the Head of Department of the Foundation Phase.

There was also sensitivity to the specific situation of each respondent, because of the school-specific circumstances and work-related priorities. Interview skills are not simple motor skills, but involve a high order combination of observation, empathic sensitivity and intellectual judgement of the interview situation and person being interviewed (Denzin & Lincoln, 2005).

The initial task was to establish a friendly, secure and cooperative relationship with the interviewee by a word of thanks for being willing to partake in the research. The participants were assured of the confidentiality of their participation in the interview and the background of the research and related aims were explained to provide the interviewees with relevant and necessary information about the research. The format and sequence of questioning were also explained before the actual interview. The pace and time during the interview were continuously monitored (Best & Kahn, 2003; Breen, 2006). The preceding information and explanations were also included in the cover letter that was handed to each participant (cf. Appendix T). A copy of the interview schedule, with the contact detail of the researcher was provided to each interviewee for possible future enquiries.

- **Focus group interviews**

The reason for including focus group interviews as part of this research was to obtain comments from participants at district and classroom level in a group setting where participants could get the opportunity to discuss among themselves. The spontaneous comments reflect the views, experiences and feelings of the participants about the research topic and made new insights possible that further explained existing results (Sekaran, 2006). De Vos et al. (2005) regard the strength of a focus group discussion as the potential of group interaction to uncover additional data that could have been lost in the case of individually gathered data.

The purpose of the focus group interviews in this research was to ensure cumulative and more elaborative data for a fuller, deeper understanding of the research topic

according to the research purpose (Denzin & Lincoln, 2005; De Vos et al., 2005; Breen, 2006).

Three focus group discussions were conducted for this study, namely with:

- Subject specialists for language/literacy at district level;
- School Management team of the Happy Valley School, responsible for making assessment-related decisions; and
- Foundation phase teachers of the Happy Valley School.

The approach during the above-mentioned focus group interviews was at first a welcoming address followed by a brief overview of the research topic and purpose. Caution was taken to balance the role of researcher with the role of facilitator according to the dynamics of each particular group to ensure an interactive and participative atmosphere in which all participants had an opportunity to share their views (Denzin & Lincoln, 2005; Breen, 2006; Mertler, 2006).

The questions that were asked to the focus groups for discussion were based on the research problem and research purpose as stated in chapter 1. The focus group questions were similar to those of the semi-structure interviews (cf. section 5.3).

The group discussions were audio-recorded for the purpose of transcribing, analysis and integration. My promoter provided academic assistance during all three focus group discussions and during the analysis and interpretation phases of the research.

Focus group interviews are regarded as a research method that collects data through group interaction in which participants are encouraged to share perceptions, points of view, experiences and concerns in a non-threatening environment and without any pressure to reach consensus (Denzin & Lincoln, 2005; De Vos et al., 2005). Focus groups allow the investigation of a multitude of perceptions in a defined area of interest and are fundamentally a way of listening to and learning from people to acquire ideas and insights (Breen, 2006).

Focus group interviews are less structured compared to semi-structured interviews. This is because of the difficulty in bringing structure in a group; however, rich data can emerge through interaction within the group, for example, sensitive issues that could have been missed in individual interviews, may be revealed. In a group, people develop

and express ideas they would not have thought about on their own (Preece, Rogers, & Sharp, 2002).

- **Document analysis**

Document analysis is a systematic procedure for reviewing or evaluating documents, both printed and electronic material (Bowen, 2009). Documents contain text (words) and images that have been recorded without a researcher's intervention. Document analysis is often used in combination with other qualitative research methods as a means of triangulation, "the combination of methodologies in the study of the same phenomenon" (Denzin, 1970, p. 291). By triangulating data, the researcher attempts to provide "a confluence of evidence that breeds credibility" (Eisner, 1991, p. 10). By examining information collected through different methods, the researcher can corroborate findings across data sets and thus reduce the impact of potential biases that can exist in a single study. Document analysis yields data—excerpts, quotations, or entire passages—that are then organised into major themes, categories, and case examples specifically through content analysis (Labuschagne, 2003) (cf. section 5.3.4). Merriam (1988) pointed out, "Documents of all types can help the researcher uncover meaning, develop understanding, and discover insights relevant to the research problem" (p. 118).

Atkinson and Coffey (1997) advise researchers to consider carefully whether and how documents can serve particular research purposes. As the authors emphasise:

We should not use documentary sources as surrogates for other kinds of data. We cannot, for instance, learn through records alone how an organization actually operates day-by-day. Equally, we cannot treat records—however 'official'—as firm evidence of what they report. That strong reservation does not mean that we should ignore or downgrade documentary data. On the contrary, our recognition of their existence as social facts alerts us to the necessity to treat them very seriously indeed. We have to approach them for what they are and what they are used to accomplish (p. 47).

Documents, therefore, provide background and context, additional questions to be asked, supplementary data, a means of tracking change and development, and verification of findings from other data sources. Moreover, documents may be the most effective means of gathering data when events can no longer be observed or when respondents have forgotten the details.

The following documents were collected for analysis in this study:

School Level

- The Curriculum and Assessment Policy Statement (CAPS): English Home Language for Grade R to Grade 3 (Foundation Phase) (cf. Appendix B);
- Records of teachers' assessment planning (cf. Appendix L);
- Records of teachers' assessment recording (cf. Appendix P);
- Records of assessment tasks (cf. Appendix K); and
- Records of learner report cards (cf. Appendix Q).

District Level

- The National Assessment Protocol (cf. Appendix A);
- Action Plan to 2014: Towards the Realisation of Schooling 2025 (cf. Appendix D);
- Annual National Assessments 2012: A Guideline for the interpretation and use of ANA results (cf. Appendix C); and
- Records of assessment analysis procedures (cf. Appendix J).

4.2.2.6 Data collection procedure

In this study I chose to conduct a 16 month action research project at the Happy Valley School in the Cloudy District. I worked with the foundation phase teachers as well as foundation phase district officials of the Cloudy District in the North West Province. The time and dates of site visits were scheduled according to the participants' convenience, the school schedule, and my own time availability. Within this time period, semi-structured interviews and focus group interviews were conducted and document analysis was done.

Figure 4.2 provides a graphic illustration of the data collection process used during my action research. The action research timeline (cf. Figure 4.2) provides an overview of the action research project. The timeline depicts how I used the elements of action research (cf. Figure 4.1) and notes both what was reflected on during each stage and when and what type of qualitative data was collected and analysed.

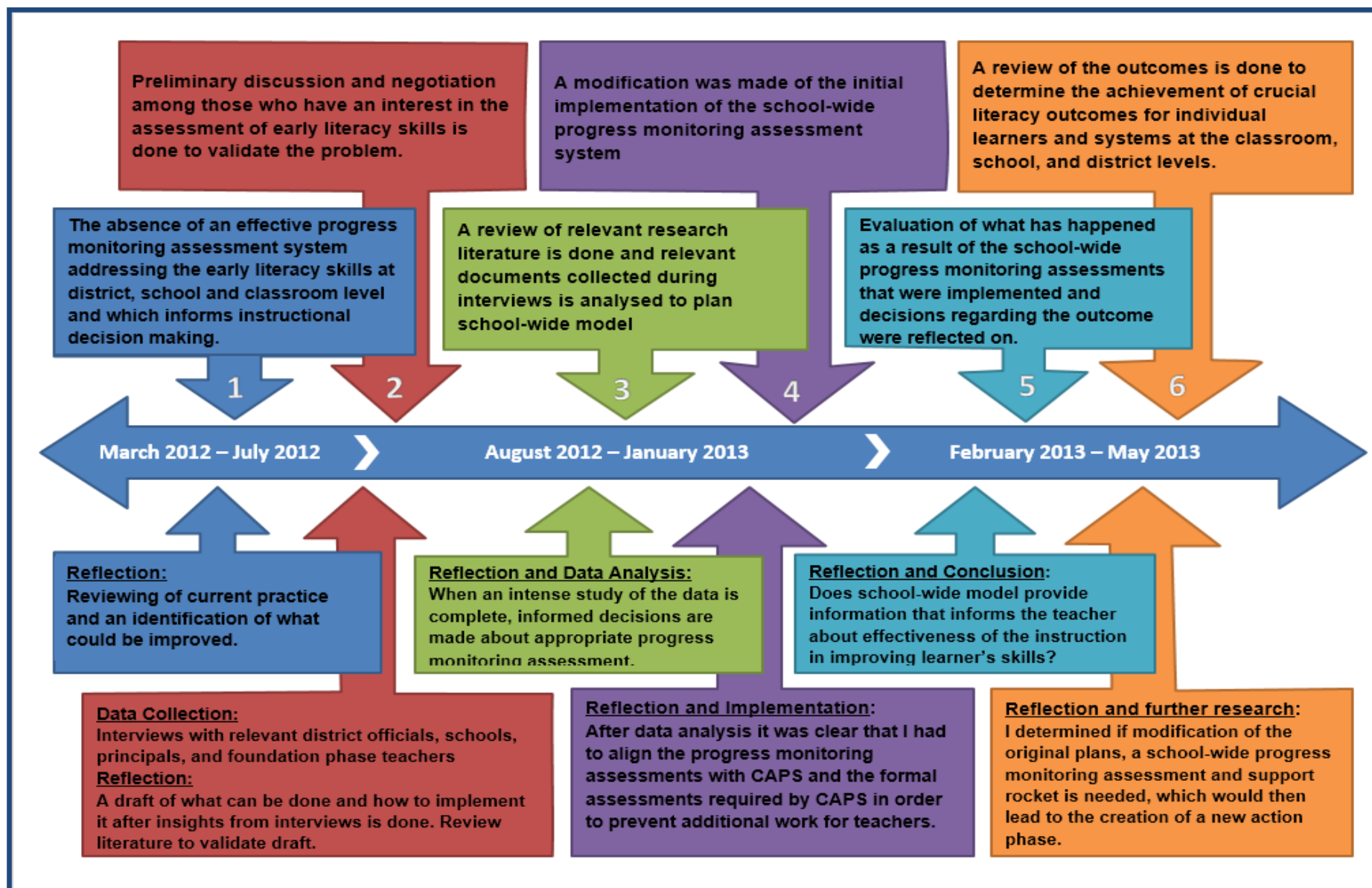


Figure 4.2: The Data Collection Timeline

4.2.2.7 Data analysis

Qualitative data are in the form of text and the act of analysis involves the deconstruction of the textual data into manageable categories, patterns and relationships (Neuman, 1997; Mouton, 2002). The aim of the qualitative analysis of this research was to examine the various elements of the captured data to clarify concepts and constructs and to identify patterns, themes and relationships according to the research purpose.

Partington (2003) states that there is little standardisation with no absolutes where a specific type of qualitative data relates to a specific type of analysis. No single qualitative data analysis approach is widely accepted (Neuman, 1997). Each qualitative data analysis will to some extent be a uniquely designed event. With the preceding in mind, the qualitative data analysis of this research (responses from the interviews and focus group discussions and an analysis of the documents) was done according to a **qualitative content analysis process** as recommended by Gall et al. (1996, p. 322), Henning et al. (2004, p. 104-109), De Vos et al. (2005, p. 334) and Roberts et al. (2006, p. 43). The qualitative content analysis involved the following procedures:

- **Recording of data** by means of note taking and audio recording of responses.
- Responses from the interviews and focus groups **were transcribed** verbatim.
- The entire transcribed text and field notes **were read** at first to obtain an overall impression of the content and context.
- *Codes* are names or labels assigned to specific units or segments of related meaning identified within the field notes and transcripts (Neuman, 1997; Henning et al., 2004). The **coding process** for the field notes and transcripts consisted of three coding steps as described by Neuman (1997) and Thietart (2007), namely: open coding, axial coding and selective coding.
 - *Open coding* involved the identification and naming of segments of meaning from the field notes and transcripts in relation to the research topic. The focus of open coding was on wording, phrasing,

context, consistency, frequency, extensiveness and specificity of comments. The segments of meaning from the field notes and transcripts were clearly marked (highlighted) and labelled in a descriptive manner.

- *Axial coding* was done by reviewing and examining the initial codes that were identified during the previous procedure. Categories and patterns were identified during this step and organised in terms of causality, context and coherence.
- *Selective coding* as final coding procedure involved the selective scanning of all the codes that were identified for comparison, contrast and linkage to the research topic as well as for a central theme or “key linkage” that might occur.
- The codes were eventually **evaluated** for relevance to the research purpose.
- Related codes were then listed in **categories** according to the research purpose and theoretical framework from the literature study.
- The analysis process was further informed by inquisitive questions to identify **thematic relationships** from the various categories. Questions included among others (Henning et al., 2004):
 - What was the relationship (-s) in meaning between all the categories?
 - What can be deduced from the categories as a whole?
 - What meaning was missing?
 - What was foregrounded in the analysis?
 - What has moved to the background?
 - What alternative explanations were possible?
 - How were the research aims addressed by the various categories (p. 106)?
- The qualitative analysis process was concluded by the **description** of thematic relationships and patterns of relevance to the research (cf. section 5.4).

The process outlined above of qualitative analysis served as a framework to ensure that the initial data (interviews and focus group discussions as well as the document analysis) were systematised by thematic organisation to form part of the final data.

The outlined process enabled a systematic and logic step-by-step approach for the analysis of the qualitative data and allowed the researcher to go beyond mere descriptive, comparative and explanatory ends to discover the rationale and motivation for responses (Thiétart, 2007). The qualitative analysis process was approached like a spiral or circular process and not as a fixed linear action. The content analysis approach implied that the various steps of analysis were regarded as procedural guidelines and not as rigid steps like that of a recipe (De Vos et al., 2005).

The identified themes were further used as basis for reasoning, argumentation and the formulation of syntheses and conclusions to develop a progress monitoring assessment and support rocket system (cf. section 5.5).

4.3 The role of the researcher

In qualitative research, the researcher stands central to the data collected (Wood, 2012). The researcher collects the data by means of semi-structured interviews, focus group interviews, and the analysis of relevant documents. The following implications are relevant for the role of the researcher:

- As the primary instrument of data collection and analysis, I should become “immersed” in the phenomena under investigation (McMillian & Shumacher, 2000);
- As an active participant in the research, I should adopt an exploratory, non-judgemental orientation by trying to learn what is going on in particular situations or contexts and, through analysis and interpretation, arrive at an understanding of the distinctive orientations, perspectives or beliefs of the people concerned (Biggerstaff & Thompson, 2008; McMillian & Schumacher, 2000); and
- Introspection and the acknowledgement of own biases, interest, perspectives and values are typical reflexive qualities of a good qualitative researcher (Cresswell, 2003).

The positionality perspective taken in this study is that of outsider in collaboration with insiders. The issue of what each stakeholder wants out of the research needs to be negotiated carefully if reciprocity is to be achieved. I approached the study from a “We know. They know” perspective and not a “We know. They don’t know” perspective (Kerr & Anderson, 2005). My positionality can, therefore, be described as one of cooperation – local people (departmental officials, teachers) work together with outsiders (research team) to determine priorities; the responsibility remains with outsiders for directing the process. The relationship status is that of doing research *with* insiders.

4.4 Trustworthiness

According to Huberman and Miles (2002) and Tobin and Begley (2004), it is inappropriate to transfer terminology across paradigms. The authors suggest alternative ways to demonstrate reliability and validity outside the linguistic confines of a quantitative research paradigm. The trend that rather emphasises the use of *rigour* to assure reliability and validity in qualitative research was followed in this section of the research (Tobin & Begley, 2004; Twycross & Shields, 2005). Rigour refers to the demonstration of integrity and competence in qualitative research by adherence to detail and accuracy to assure authenticity and trustworthiness of the research process. As such the rigour of the qualitative section relates to the overall planning and implementation of the planned research design (cf. par. 4.2.2.3) conducted in a logical, systematic manner to ensure the authenticity and trustworthiness of procedures according to the following criteria (Tobin & Begley, 2004; Roberts et al., 2006, p. 43; Freeman et al., 2007, p. 28-29):

- **Credibility:** Engagement with the data (recordings, notes and transcripts) was done intensively to demonstrate clear links between the data and interpretations. The use and indication of verbatim examples of participants’ responses reflect for example the range and tone of the gathered responses. The credibility of the research was further increased by the presence and academic assistance of an experienced researcher (my promoter) during 50% of the interviews. After completion of the decoding process, the results were again submitted to my

promoter for an independent evaluation of my documentation and interpretation of data. Regular discussions were held and adjustments were made according to suggestions and recommendations.

- **Dependability:** Care was taken to ensure that the research process was logical, traceable, and clearly documented in a reflexive manner by giving a detailed account of the research process.
- **Transferability:** This indicates the extent to which the findings can be applied in other contexts or with other participants (Babbie & Mouton, 2001). The strategies for achieving transferability comprises of thorough descriptions and purposive sampling (Babbie & Mouton, 2001). To ensure thorough descriptions, detailed descriptions of data are provided. Purposive sampling was applied within this study because of its propensity to maximise the variety of the information that can be obtained within a specific context (Babbie & Mouton, 2001).
- **Confirmability:** An audit process was implemented by working forward as well as backward through the research process to ensure that the data and interpretations of the findings were not figments of imagination, but clearly derived, sound and confirmed findings. The intention during the interpretation process was not to generalise findings to a population, but to identify generic accepted principles and trends related to the research topic. Confirmability, therefore, constitutes the degree to which my own biases are excluded from the finding (Babbie & Mouton, 2001). Accordingly, a confirmability audit trail was developed by leaving an adequate trail for following up the conclusions, interpretations and recommendations. To ensure that such a trail was adequate, six classes of data was reviewed. These include raw data, reduction and analysis products of data, reconstruction and synthesis products, and process notes.

The description of the research process of *what* was done, *how* it was done and *why* it was done as well as the implementation according to criteria for qualitative research ensured that the authenticity and trustworthiness of the research was increased. The stated criteria did not serve as a restrictive checklist for the qualitative research process, but were regarded as parameters to generate

informational knowledge in accordance to the research aims (Freeman et al., 2007). The legitimacy of the interview was thus assured by a clear conceptualisation, a purposeful design of an interview schedule, as well as a set plan or protocol to conduct the interview. The consistency of responses was checked by restating questions in different forms at various stages of the interview (Anderson, 1998; Best & Kahn, 2003).

4.5 Ethical aspects

Codes for conduct in research came out of atrocious abuses that came to light during the Nuremberg war crime trials at the end of World War II. When the biomedical experiments conducted by physicians and scientists on prisoners in concentration camps were exposed, there was a startling new awareness of the vulnerability of those held captive, who were subjected to experiments they never consented to, conducted by those in power or in positions of authority. The result was the Nuremberg Code, which “became the prototype of many later codes ... intended to assure that research involving human subjects would be carried out in an ethical manner” (National Commission, 1979, p. 1).

The history of research abuses led to the creation of ethics policies focusing on the protection of human subjects from exploitation or exposure to unacceptable levels of risk through their participation in research. Three basic principles are set forth in the Belmont Report to provide an analytical framework toward the resolution of ethical problems that develop with research involving human subjects: (a) respect for persons, (b) beneficence, and (c) justice. The principles provide a framework within which to think about risks to human subjects participating in research; in addition, they “provide a basis on which specific rules may be formulated, criticized, and interpreted” (National Commission, 1979, p. 3).

Respect for persons represents flip sides of the same idea: that individuals are autonomous persons, capable and entitled to personal decision making in terms of participating or not in the research process, conversely, if their autonomy is diminished, they are persons in need of protection in terms of their possible participation in the research process (National Commission, 1979).

In terms of respecting potential research participants, the researcher is obliged to be forthcoming in terms of imparting the information necessary whereby the potential participant can consent to participate based on being apprised of relevant information; part of the relevant information is a complete description of what the participant might expect if agreeing to be involved in the research. This has typically involved a spelling-out of the procedures of the research – focus groups, interviews, anything that the participant will be asked to do as part of the research. The idea is that the potential participant is fully informed as to what to expect in the research process.

The principle of justice in research speaks to the fair distribution of the burdens and benefits of research in the selection and recruitment of participants (Mastoianni & Kahn, 2001). The principle of beneficence speaks to the maximising of benefits and the minimising of risks in the research process. According to the Belmont Report, researchers are to adhere to two general rules: (a) do no harm, and (b) maximise the possible benefits and minimise possible harms (National Commission, 1979, p. 6). Essentially, “we must actively attempt not only to avoid harms, but to benefit those studied, to augment, not merely respect, their autonomy” (Cassell, 1982, p. 27).

The researcher dealt with ethical issues in the following manner:

a. Informed consent

The Researcher informed the participants of the purpose, nature, data collection methods, and extend of the research prior to commencement. Further, the researcher explained to them their typical roles. In line with this, the researcher obtained their informed consent in writing (cf. Appendix T; Appendix U).

b. Harm and risk

In this research study the researcher guaranteed that no participants were put in a situation where they might be harmed as a result of their participation, physical or psychological (Trochim, 2000).

c. Honesty and trust

Adhering strictly to all the ethical guidelines serves as standards about the honesty and trustworthiness of the data collected and the accompanying data analysis.

d. Privacy, confidentiality, and anonymity

In this study the researcher ensured that the confidentiality and anonymity of the participants would be maintained through the removal of any identifying characteristics before widespread dissemination of information. The researcher made it clear that the participants' names would not be used for any other purposes, nor will information be shared that reveals their identity in any way.

e. Voluntary participation

Despite all the above mentioned precautions, it was made clear to the participants that the research was only for academic purposes and their participation in it was absolutely voluntary. No one was forced to participate.

f. Ethical clearance

Ethical clearance was obtained from the North-West University ethical committee:

Number: NWU-00063-12-A2;

Approval date: 2012/08/07

Expiry date: 2017/08/06 (cf. Appendix V).

4.6 Summary

This chapter introduced the research methodology and methods for this study. A qualitative approach was adopted to investigate the key issues in relation to this investigation, followed by a detailed description of the implementation of research methods. This description included information about aims of the study, participant selection, data collection and data analysis procedures for this study. The ethical considerations for this study have also been outlined in this chapter.

The primary focus of this chapter has been to provide descriptions for the research process and its applicability to the research questions at hand. The following chapter reports in detail on the findings of this action research study using a structured narrative format.