Chapter Four

Research Design and Methodology

4.1   Introduction

The qualitative exploratory bounded case study aimed to develop an understanding of the academic use of Facebook in order to support the learning experience of ODL students in the rural areas of the Eastern Cape. The study investigated the academic use of SNSs as part of peer and facilitator support to distance teacher-students in a rural setting. Chapter Four describes the philosophical worldview, the choices and rationale for the research design, methods of sampling, data collection, data analysis, trustworthiness, as well as a description of the researcher's role, ethical considerations and the limitations of the study.

4.2   Defining research

The concept of research comprises many meanings. Research is "one of the many means by which human beings seek answers to questions" (Mertler, 2006). It has evolved over time and the social sciences have been breaking through boundaries. In the past, knowledge and action were seen as separate domains, but now research is becoming a "creative activity as much as a form of objective enquiry" (Terre Blanche *et al.*, 2006, p. 11). Research should be focused on the discovery, insights and understanding of the meaning and perspectives of the participants in order to make a contribution to the knowledge base and practice of education (Merriam, 1998b). Included in research are "activities and undertakings aimed at developing a science of behaviour" (Cohen *et al.*, 2011, p. 1). Educational research, which is part of the social sciences, relates to "the systematic and scholarly application of the principles of a science of behaviour to the problems of people within their social contexts" (Cohen *et al.*, 2011, p. 1). Furthermore, research can also be defined as a "systematic investigative process employed to increase or revise current knowledge by discovering new facts" (Ostashewski *et al.*, 2013).

Research in education involves the development of knowledge through different processes. These processes start with identifying a problem, conducting of empirical studies, replicating existing studies, synthesising research and adopting and evaluating the outcomes. The research approaches can be quantitative (relating to numbers) or qualitative (relating to narratives) or a combination of both (a mixed methods approach). The characteristics of research are objectivity, precision, verification, parsimonious explanation, empiricism, logical reasoning and conditional conclusions. Research has limitations, and these could include the human factor, working with public institutions, the complexity of research problems and methodological difficulties (McMillan & Schumacher, 2001a). The ultimate goal of research is to "bring new knowledge to our society to improve our lives" (Chavez, 2009).

4.3   Worldview of this study

Before a researcher embarks on a study, decisions should be made about which philosophical assumptions will form the basis of the research. There are four philosophical assumptions namely: *ontology*, *epistemology*, *human nature* and *methodology*. The *ontology* of a research relates to the "very essence of the phenomena under investigation" (Burrel & Morgan, 1979, p. 1). The main decision is whether researchers view themselves as the *reality* to be investigated as external or internal to them. The ontological stance of this research, which is the context of my reality, is that I see myself as an *insider:* I have recently completed my BEd Honours with NWU and have experienced much of the same experiences as the teacher-students of this study. I grew up and live in the rural Eastern Cape; I speak isiXhosa; and I have good rapport with the teacher-students. *Epistemology*, which investigates the nature and origin of knowledge (Burrel & Morgan, 1979). I aim to understand the context of the study as the teacher-students understand it—I wanted to walk in their shoes.

The *human nature* of this study, which is the relationship between humans and their environment, is that the "knowledge is of a softer, more subjective, spiritual or even transcendental kind, based on experience and insight of a unique and essentially personal nature" (Burrel & Morgan, 1979, p. 1). The participants' situation is a subjective experience which is based on their own unique contexts and experiences: "Human life is essentially the subject and object of enquiry" (Burrel & Morgan, 1979, p. 2). This research views the participants in their environment from a post-modern view as they are products of their environment and caught in their heritage pasts. Although nearly twenty years have passed since the previous dispensation, the circumstances of these participants have changed little to enable them to use modern technology. The conditions of their "external circumstances" (Burrel & Morgan, 1979, p. 2) still hinder them.

M*ethodology* is affected by the choice of which assumptions the researcher chooses to follow in the quest of investigating and finding knowledge (Burrel & Morgan, 1979). During this study I followed the methodology of a qualitatively bounded case study according to a descriptive explorative style within the pragmatic paradigm. I used a phenomenological lens to describe the meanings of the lived experiences of the participants while learning with technology. I put my own prejudgements (biases) aside and systematically collected data in order to explore, describe and understand how the participants made sense out of learning together with technology (McMillan & Schumacher, 2001a).
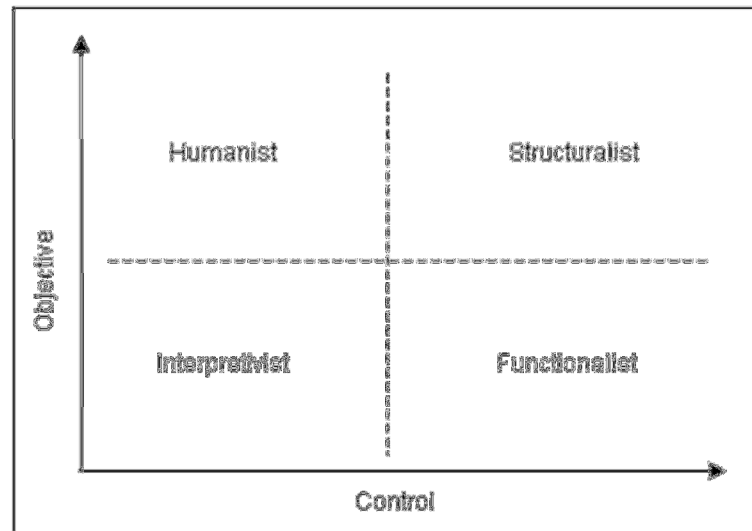
Figure 4.1:　　　　**Four paradigms for the analysis of social theory** (Burrel & Morgan, 1979, p. 22)

Paradigms of research can be grouped into four main categories of interpretation:

(i)　*Humanism* also called Post positivism or Radical Humanist (subjective-radical change) is a scientific approach of cause-and-effect. This view highlights the consciousness of man that is governed by ideological superstructures with which they come in contact—hence their stance to protest against all organisations that exist within society. Philosophers who contributed towards this paradigm where Kant, Hegel and Marx (Burrel & Morgan, 1979).

(ii)　*Structuralism* (Radical change-objective) is a paradigm that relates to the structures in society. It exists alongside to critical theory, with the objective to reform the lives of marginalized, dominated, suppressed or alienated participants in order to create a voice for them. The paradigm is grounded in the idea that the nature of societal structures is embedded in radical change. Marx, Lenin and Bukharin contributed towards this paradigm (Burrel & Morgan, 1979).

(iii)　*Interpretivism* (which exists within Social constructivism), seeks to understand the world in which participants live and work and where they develop a subjective meaning of these experiences which vary and have multiple realities. Philosophers such as Weber, Husserl and Schutz influenced this ideology (Burrel & Morgan, 1979).

(iv)　*Functionalism* (objective-regulation) with pragmatism at the core, aims to balance explanations of human activities. People and relationships are real and can be studied through science (Burrel & Morgan, 1979). It focuses on the outcomes of the research, on solutions, rather than theory in order (Creswell, 2007; Maree, 2011; Mouton, 2011; Terre Blanche *et al.*, 2006).

This research focuses on the pragmatic paradigm as it aims to contribute towards guidelines on the support of ODL teacher-students in the rural areas.

4.3.1   Pragmatism

A pragmatic philosophical worldview is based on the linking of practice and theory. Pragmatism deals with real-life situations and is problem-centred (Creswell, 2008; Kali & Linn, 2007b). Actions are taken based on practice and the main objective of this method of inquiry is to find the most workable solution to a problem. Multiple realities exist and therefore it is important to reach an in-depth understanding of the phenomenon under scrutiny (Pansiri, 2005).

Pragmatism stems from the Greek word *pragma*, which means *practice* and *practical* (Pansiri, 2005) or *action* and *affair* (Thayer, 2013). It also refers to *pragmatisch* which means *experimental, empirical*, and *purposive thought* that is *based on* and *applies to experience* (Thayer, 2013)*.* A definition for pragmatism relates to "the claim that the function of inquiry is to relieve and benefit the condition of man—to make us happier by enabling us to cope more successfully with the physical environment and with each other" (Pansiri, 2005).

Pragmatism is premised on the reflections of the philosophical thought of the *projection of our minds*. The *founding fathers* of pragmatism were members of the Metaphysical Club of America in the 1870s. The members were Justice Oliver Wendell Holmes, Jr. (1841-1935), William James (1842-1910), Charles Sanders Peirce (1839-1914), Chauncey Wright (1850-75) and Nicholas St. John Green (Pansiri, 2005). These men presumed that ideas were not *out there* waiting to be discovered, but that ideas are tools that people devise to cope with the world in which they find themselves. The founding fathers held that ideas were produced by groups of people (socially), and not individually; and that these ideas did not come from within individuals, but were dependent on other humans and their environment. They further maintained that ideas were "provisional responses to particular and irreproducible circumstances, their survival depends not on their immutability but on their adaptability" (Pansiri, 2005, p. 198).

Pragmatism is thus a concept that tries to solve human problems (Burrel & Morgan, 1979; Creswell, 2008). To a pragmatist, the mandate of science is not only to find truth or reality, but to facilitate human problem-solving. According to pragmatist philosopher John Dewey, science should gain understanding of what is necessary to solve problems as they arise (Pansiri, 2005). The idea that knowledge comes from actions, situations and consequences rather than antecedent conditions (as in positivism) remains central to most pragmatists (Pansiri, 2005). Pragmatism is concerned with *what works*—thus finding solutions to problems (Creswell, 2008). Creswell argues that the research problem is the most important issue and researchers have the freedom of choice regarding the methods, techniques and procedures of research that best meet their needs and purposes. This process of inquiry evaluates the results of prior actions and predicts the workability of future lines of behaviour (Morgan, 2007).

An idea that underpins the pragmatic worldview, would be: (i) it is not connected to only one system or reality, (ii) it has freedom of choice, (iii) it does not see the world as an *absolute unity*, (iv) it sees truth as *what works at the time, and (v) it accepts* that research always occurs in social, historical, political and other contexts (Burrel & Morgan, 1979; Creswell, 2007).

Pragmatism is best suited for this research because it deals with objective realities where actions are taken based on practice, are problem-centred, are real-life orientated, and uses appropriate methods to address the research question.

4.3.2   Phenomenology

Phenomenology is a philosophy of science and also a mode of inquiry that describes the "lived experiences of people within their contexts" (McMillan & Schumacher, 2001a, p. 36). The aim of phenomenology is to convert lived experiences into written descriptions of their realities. A phenomenological explanation makes it possible to understand the particular lived experience (McMillan & Schumacher, 2001a). Phenomenology becomes a study of "direct experience taken at face value" (Cohen *et al.*, 2011, p. 18). It is a way of freeing oneself of the pre-conceptions about the world, investigating the accepted conventions of everyday life and looking at them in a new way "beyond the details of everyday life to the essences underlying them" (Cohen *et al.*, 2011, p. 18). The essence of the experience is represented in text, tables and figures relating to verbatim statements conveying "what happened and how the phenomenon was experienced" (McMillan & Schumacher, 2001a, p. 490).

4.4   Research design

The research design is the framework for the research programme. It creates a bridge between the research question(s) and the carrying out of the research (Terre Blanche *et al.*, 2006). Research design refers to the entire process of what will happen during the research, from the time the problem is conceptualized to writing the full report (Creswell, 2007). In planning the research, decisions must be made, for instance, whether you are going to work quantitatively or qualitatively.

4.4.1   Qualitative strategy of inquiry

Qualitative research is an umbrella concept covering several forms of inquiry that "help us understand and explain the meaning of social phenomena with as little disruption to the natural setting as possible" (Merriam, 1998b). Other terms that are often used interchangeably include naturalistic inquiry, interpretative research and inductive research (Merriam, 1998b). A number of key philosophical assumptions underpin qualitative studies. Firstly, it is assumed that "reality is constructed by individuals interacting with their social worlds" (Merriam, 1998b, p. 6). Qualitative researchers (i) are interested in understanding the meanings people construct about their experiences and how they make sense of

their world (Merriam, 1998b); (ii) assume that the researcher is the primary instrument for data collection and analysis (Maree, 2011; Merriam, 1998b); (iii) assume that qualitative studies involve fieldwork; (iv) assume that an inductive research strategy will be employed (Merriam, 1998b). Inductive reasoning works from specific observations to broader generalizations and theories which are based on observations. Informally it is called *bottom up* thinking (Burney, 2008). Merriam (1998b) describes qualitative research as building theories from intuitive understandings that are gained from field-work. Finally, the product of a qualitative study is rich in description. The phenomenon is described in words and in pictures, rather than in numbers and the findings are in the form of themes, categories, factors, variables and concepts that are found in recurring patterns in the data. Qualitative inquiries focus on finding meaning within context and therefore the data collection instruments must be sensitive to the underlying meaning of the data when it is been gathered and interpreted (Merriam, 1998b).

Qualitative studies utilise a broad and holistic approach to data collection than quantitative studies. The research questions are broad and open-ended (Creswell, 2008; Maree, 2011; McKernan, 1996; Mertler, 2006; Terre Blanche *et al.*, 2006). Qualitative design is mainly focussed on the discovering and understanding of a phenomenon, a process, or the perspectives and worldviews of the people that are involved in the study (Merriam, 1998b).

4.4.2   Case study design

A qualitative case study is an "intensive, holistic description and analysis of a bounded phenomenon" (Chen & Bryer, 2012a, p. xiii). It is "the study of an instance in action" (Cohen *et al.*, 2011, p. 289). A case study describes *real people in real situations* and allows the readers to understand the context and ideas of the participants because it penetrates into situations in ways that cannot be reproduced by quantitative designs (Cohen *et al.*, 2011). The focus is to gain an in-depth understanding of a situation and to create meaning for those who are involved in the situation. The context is more important than the variables. Discovery is more important than the confirmation of knowledge. The end-product can also be seen as a product of *field-oriented research*. The outcome of a case study can influence policy, practice as well as future research (Merriam, 1998b).

Researchers define case studies in different ways. A case study is "an in-depth exploration of a bounded system (e.g. an activity, event, process, or individuals) based on extensive data collection" (Creswell, 2008, p. 485). Maree (2011) views a bounded system as not necessarily a single site of study. The delimiting of the object of a case study, makes it a bounded system where the case, as a single entity becomes "fenced in" (Merriam, 1998b, p. 27). The fence defines the edge of the case, thus defining what will be studied and what not. A technique for determining the boundedness of a case study or topic, is, for example, to determine how many participants will participate or how long the study will take to complete (Merriam, 1998b). The boundaries for my case study are the criteria for choosing research participants (§ 4.5.2.1.)

A case study strategy of inquiry strives towards a holistic understanding of how participants relate and interact with each other in a specific situation and how they make meaning of their environment (Maree, 2011). Case studies are predominantly useful for studying programmes in an indepth way that brings a deep understanding of the trend under scrutiny and bringing meaning for those involved (Tinkler, 2004). In addition, Merriam points out that the interest is in "process rather than outcomes, in context rather than a specific variable, in discovery rather than confirmation" (Merriam, 1998b, p. 25). It is usually qualitative in nature and it aims to provide in-depth descriptions of a relatively small number (Mouton, 2011). By implementing a case study method, the outcomes of interventions can be described in detail and a thorough analyses can be done (Yin, 2012).

I have chosen a qualitative case study design for this study as it explores "the setting with vividness and detail" (Marshall & Rossman, 2011, p. 267) in order to truly understand the phenomenon.

4.4.3   Descriptive exploratory style

The study is presented in a descriptive exploratory style in order to best describe the phenomenon under study. A descriptive style describes a phenomenon within populations and an exploratory style is an open, flexible and inductive approach looking for new insights and trying to find relationships that influence the phenomena under study (Terre Blanche *et al.*, 2006). The purpose of descriptive research is to document the nature of existing aspects and how they change over time. It is structured around a set of guiding questions to enable the researcher to describe relationships and to predict the effects that different variables have on one another (Rowley, 2013). Descriptive questions dwell on the *how* things work and exploratory questions are used under *specific* conditions, especially when the researcher is still unsure about the exact nature or extent of a complex problem and want to examine the phenomenon in order to find out more about it (Maree, 2011).

4.5   Selection of research participants

The sample is the unit of analysis that will be used for the study (Merriam, 1998b). Sampling refers to the "process used to select a portion of the population for a study" (Maree, 2011, p. 79). Therefore sampling involves the decisions about which people, settings, events, behaviours and social processes are going to be observed during the research. Sample size (participant selection) in qualitative research depends on many intricate factors, such as funding, time limitations and the availability of the right people (Marshall & Rossman, 2011). It is important to select participants that represents the typical population from which the conclusions will be drawn (Cohen *et al.*, 2011). The size of the sample must allow the researcher to explore in detail a smaller group (in qualitative research) rather than try-

ing to study a large phenomenon with an inadequate sample (Terre Blanche *et al.*, 2006). In qualitative research, sample selection is usually non-random, purposeful and small.

After identifying the general problems that are to be researched—the unit of analysis. Well-planned and thought-through sampling decisions are beneficial for the study's reliability (Marshall & Rossman, 2011). This means that the researcher should consider "where to observe, when to observe, whom to observe and what to observe" (Merriam, 1998b, p. 19). The number of participants depends on (i) "what we want to know; (ii) the purpose of the inquiry; (iii) what is at stake; (iv) what will be useful; (v) what will have credibility; (vi) what can be done with the available time and resources" (De Vos, Strydom, Fouche, & Delport, 2012). Equally important is the context of the participants, their interaction with one other, and the meaning that can be created through the research. During qualitative research, intensive contact time is spent with participants in their natural contexts (Terre Blanche *et al.*, 2006).

In general, there are two types of sampling i.e. probability and non-probability sampling. Probability sampling is mostly used during quantitative research (Cohen *et al.*, 2011; Merriam, 1998b). I employed non-probability sampling because I wanted to understand "what occurs, the implications of what occurs, and the relationships linking occurrences" (Merriam, 1998b, p. 61). By employing a pragmatic approach, I chose "ordinary [people] who provide[d] an example of a large population" (Creswell, 2007, p. 119).

4.5.1   Site selection

The selected site should be a place where one or more individuals are available to study. These people should be "accessible, willing to provide information and distinctive for their accomplishments and ordinariness or who shed light on a specific phenomenon or issue being explored" (Creswell, 2007, p. 119).

The sites from which my participants were chosen for my study, were the rural areas around Queenstown in the Eastern Cape (the former Transkei and Ciskei) (§ 2.2). These sites included Butterworth, Cofimvaba, Lady Frere, Nqobo, Queenstown and Whittlesea. I chose Queenstown as the location for the sessions because of its centrality for business as well as being the place where many participants have their family homes. Figure 4.2 depicts the site position of the Eastern Cape within South Africa. Figure 4.3 represents the position of the rural towns from where the research participants travelled to attend sessions in Queenstown.
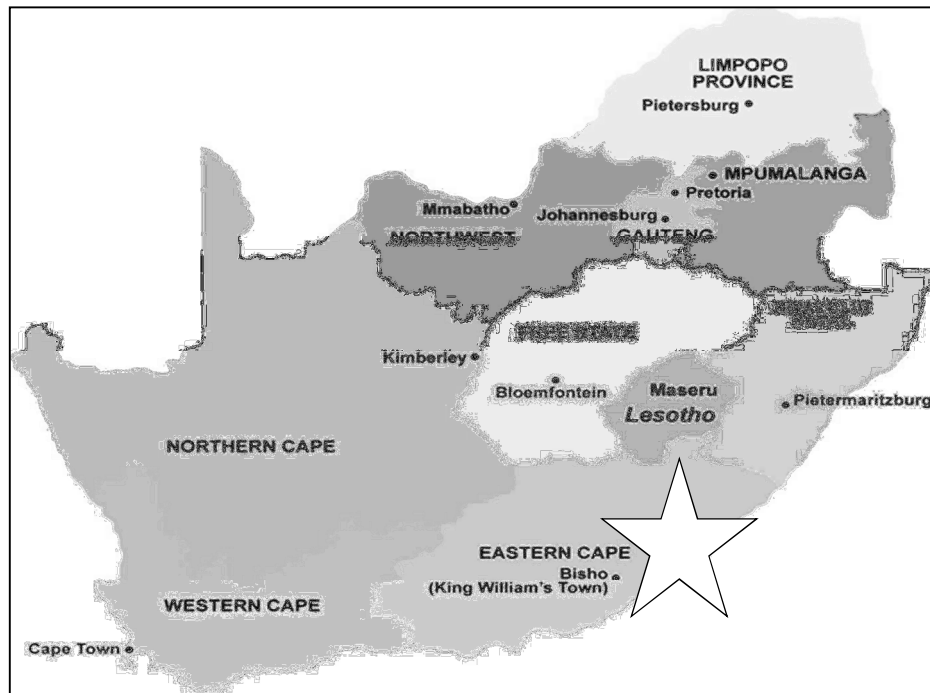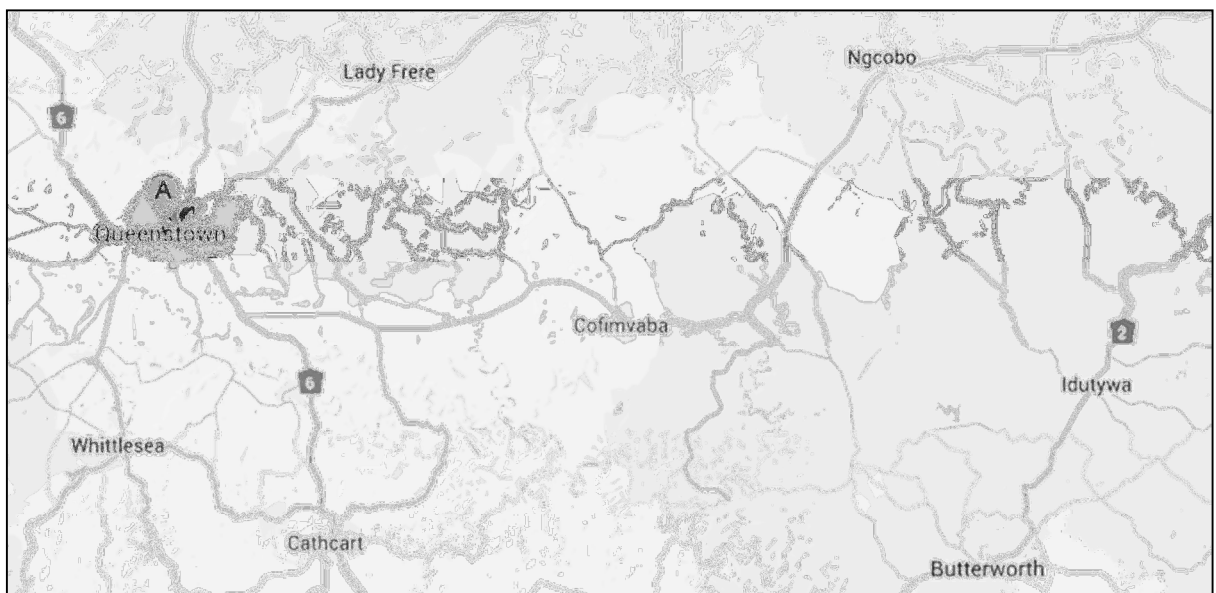
Figure 4.2: Site position in South Africa

Figure 4.3: Site location in rural areas of the Eastern Cape

4.5.2.1 Purposive sampling

Purposive sampling indicates that the participants in this research design was "selected because of some defining characteristic that ma[d]e them holders of the data needed for the study" (Maree, 2011, p. 79). Thus, *information-rich* cases were selected (Merriam, 1998b). There are different types of purposeful sampling, namely: (i) typical sample (reflecting the average population of the phenomenon under study); (ii) unique sample (having unique or rare attributes); (iii) maximum variation (choosing a

wide variety of instances of the observed situation); (iv) snowball, chain or network sampling (each participant refers you to other participants); (v) theoretical sample (samples are not chosen beforehand, because initial sample leads to the next people to be participants) (Merriam, 1998b); and (vi) negative case sample where the sample is chosen who will *disconfirm* the specific theory (Cohen *et al.*, 2011). This study made use of purposive sampling. The following criteria selected the participants as they should be:

- holders of the data that I needed for this study (Maree, 2011)
- enrolled at the NWU in the BEd Honours degree ODL programme
- engaged in completing the Research Project (RSPR 671) during second semester of 2013
- inhabitants of the former Transkei or Ciskei areas, e.g. Butterworth, Cofimvaba, Lady Frere, Nqobo, and Whittlesea
- the owner of an electronic device (e.g. mobile phones, laptops, i-Pads, iPods) that can connect to the Internet
- isiXhosa home language speakers
- males and females between the ages of thirty and fifty-five
- willing to travel to group discussions on certain days
- able to travel to Queenstown to attend research group sessions
- teachers at various schools.

OLG sent me a comprehensive list of 664 names and addresses of students in the Eastern Cape who had enrolled in 2011 for BEd Hons with NWU through OLG. I handpicked 74 teacher-students who matched the above criteria. Figure 4.4 presents a visual image of the number of students whom I invited to take part in the research project and those who were willing to take part.
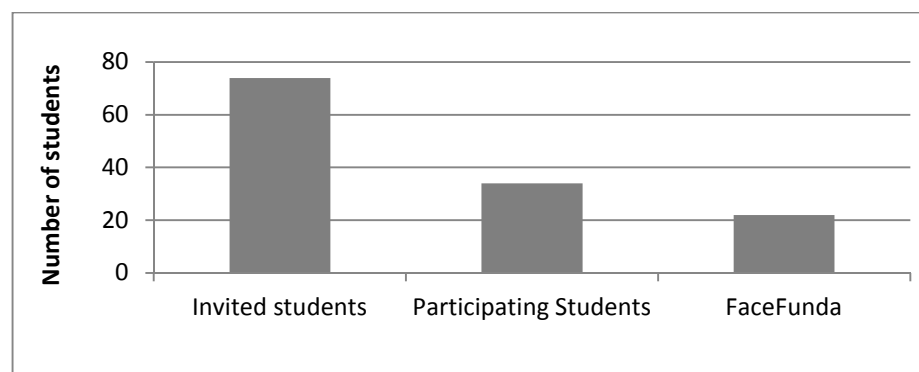

Figure 4.4   **Number of invited students, participating students and those on FaceFunda**

Figures 4.4, 4.5 and 4.6 represent the profiles of the teacher-students who signed consent forms (Addendum 4.1) showing their willingness to participate in the current research programme. There were 34 teacher-students who signed consent forms, while only 22 showed sufficient commitment to break through the technological barriers that they experienced and joined FaceFunda.
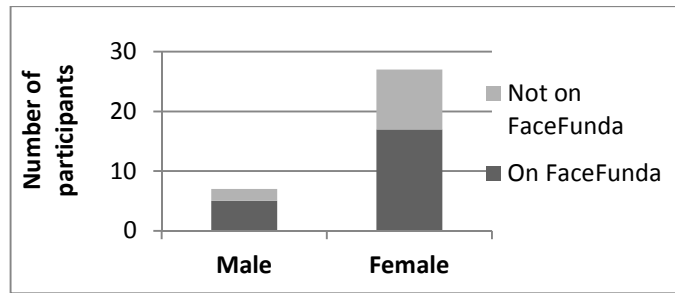
Figure 4.5   **Participants, by gender**

Figure 4.5 illustrate that there were five male and seventeen female teacher-students on the academic Facebook group page, FaceFunda. There were twelve additional teacher-students (two male and ten female), who were not on FaceFunda, but had signed consent forms and attended some of the coaching and scaffolding sessions.
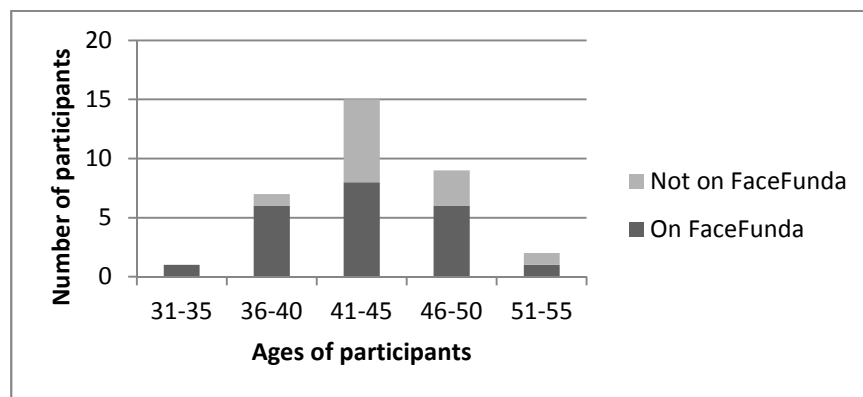

Figure 4.6   **Participants, by age**

Figure 4.6 shows the ages of the participants. The largest group of teacher-students were between the ages of 41-45 and the smallest group between 31-35.

4.6   Strategies for data collection

Primary data are gathered when researchers collect the data themselves, or use existing information in various forms, e.g. (i) textual information such as documents, annual reports, mission statements, transcripts of interviews, autobiographies, etc.; or (ii) numeric information, such as questionnaire responses, test scores, financial statistics, etc. (Mouton, 2011). Data can take the form of language (in qualitative data) or numbers (in quantitative data (Mouton, 2011; Rosnow & Rosenthal, 1999; Terre Blanche *et al.*, 2006). In qualitative research, data can be collected through a variety of measures, such as interviews, observations, field notes, photos or video recordings. Data collection is a "series of interrelated activities aimed at gathering good information to answer emerging research questions" (Creswell, 2007, p. 118).

During this qualitative research study, I made use of three data collection strategies: (i) interviews; (ii) a focus group interview; and (iii) text captured from the academic Facebook group pages.

4.6.1 Individual interviews

Interviews are two-way conversations where the researcher asks the participants questions about their ideas, beliefs, views, opinions and behaviours. This form of data-collection enables the researcher to see the world through the eyes of the participants. If a trust-relationship has been established, rich descriptive data can be collected and this will help the researcher to understand their "construction of knowledge and social reality" (Burrel & Morgan, 1979; Maree, 2011, p. 87). Interviews have the advantages of (i) establishing rapport with the participants which stimulate trust and cooperation (ii) providing help to the participants if they do not understand the questions correctly and (iii) allowing flexibility in determining the wording and sequence of the questions because the researcher has greater control over the process (Rosnow & Rosenthal, 1999).

The aim of interviews is to learn more about the way individual participants (interviewees) experience the phenomenon under scrutiny (Cohen *et al.*, 2011; Creswell, 2007; Terre Blanche *et al.*, 2006). By establishing a conversation, instead of a question-and-answer session, the interviewee becomes a "co-enquirer rather than a research subject" (Terre Blanche *et al.*, 2006, p. 299).

I conducted frequent semi-structured interviews with individuals or small groups of participants. The criteria were: (i) participants who were actively involved in the discussions on FaceFunda; as well as (ii) participants who were not actively involved or participated minimally with the support group. (iii) I also interviewed the IT expert who assisted the participants with their cellular phones and connectivity problems. The assistant, who helped me with the logistics at the sessions, was a colleague-teacher, and I asked him to observe the participants while I facilitated group sessions (Table 2.2). I prepared initial questions and allowed the interview to develop into a comfortable, informal conversation, yet focussing on the interview question. I developed a set of pre-determined questions (Addendum 4.2), but allowed room for probing or the clarification of some answers. I was on the look-out for emerging lines of inquiry and explored those. The transcript of the individual interviews, as part of the integrated dataset, is available as Addendum 4.3.

4.6.2 Focus group interview

A focus group interview is different from a group interview as it focuses on a particular topic where debate and conflict are encouraged and where the group members engage in discussion with one another rather than with the researcher *per se* (Cohen *et al.*, 2011; Creswell, 2007; Maree, 2011). The outcome is thus not an individual but a collective view. The data emerges from the *interaction* of the group and it yields insights that would not come out in the usual interviews (Cohen *et al.*, 2011). The

participants could therefore build on one another's ideas and comments and can thus provide more in-depth views. The study's value is heightened when the new perspectives and unexpected comments sheds new light on the phenomenon under study (Maree, 2011). A focus group interview saves time yet yields a large amount of data (Cohen *et al.*, 2011).

Focus group interviews are methods of *listening to* and *learning from* the data-holders. Focus group interviews are not only utterances to questionnaires, but aim to "encourage exchanges and discussions in an informal conversational manner" (Morgan & Krueger, 1998). Participants actively take part in the process of sharing ideas, uncovering hidden knowledge and developing new ideas to improve the situation under scrutiny. The main focus is to (i) gather opinions, beliefs and attitudes about an issue (ii) to test assumptions, (iii) to encourage discussion, (iv) to build excitement, and (v) to learn more about the topic (Morgan & Krueger, 1998). The participants provide in-depth knowledge and contextual information that enables the researcher to understand the background of the problem. Local issues are identified, new ideas prioritized and practical improvements discussed. It enriches the collected data.

The focus-group interview took place near the end of the facilitation period (Table 2.2). I asked a colleague to facilitate the focus-session interview because I wanted a neutral person asking the questions to free the research participants from answering the questions in such a way as they thought I would like to hear their answers. Although I invited the 34 participants who attended scaffolding and coaching sessions at some stage, only ten arrived. The facilitator made use of open-ended interview questions (Addendum 4.4) in order for participants to "build on each other's ideas and comments to provide an in-depth view" (Maree, 2011, p. 90). During the focus group interview, the facilitator gave attention to the dominant respondents who wanted to take over the talk time, vocalizing their knowledge, expertise, energy, enthusiasm and charisma; and probed quieter participants to give input as well (Cohen *et al.*, 2011; Focusgrouptips, 2009-2012). The transcript of the focus group interview is available as part of the integrated dataset as Addendum 4.3. Table 4.1 indicates the relationship between the data collection strategies and the research main and sub questions (§4.6).

Table 4.1:   Relationship between research sub questions and data collection strategies

	Sub question 1*	Sub question 2	Sub question 3
Strategy 1: Individual interviews	-	X	X
Strategy 2: Focus group interviews	-	X	X
Strategy 3: Academic Facebook group page	-	X	X
Research question: How can the affective learning of open distance learning teacher-students in the rural Eastern Cape be supported through academic Facebook?			
Sub questions: 1. What are the implications of affective learning for SNSs?* 2. What are the critical affective learning aspects for coaching and scaffolding opportunities on Facebook? 3. What are the guidelines for the academic use of Facebook for peer and facilitated support?			

*   Sub question 1 was addressed through a literature review

4.6.3   Analysis of qualitative data

Data analysis refers to the action of making sense out of the gathered information—a process that is highly intuitive (Merriam, 1998b). Analysis is the processes of "bringing order, structure and meaning to the mass of collected data" (De Vos *et al.*, 2012, p. 397). Content or textual analysis is a research method that is used to analyze the social sciences by studying and interpreting written communication (Babbie, 2010; Crossman, 2013). *Content* refers to words, meanings, pictures, symbols, themes or any message that can be communicated (Chen & Bryer, 2012a; Merriam, 1998b; Mouton, 2011). Babbie (2010) defines *content analysis* as "the study of recorded human communications, such as books, websites, paintings and laws," and can also include speech, written text, interviews, images, film, art, music and other cultural products (Crossman, 2013).

Therefore, content analysis is a systematic approach to identify and summarise message content by categorizing and classifying it into identified themes and relationships between the themes by coding (Cohen *et al.*, 2011; Maree, 2011; Terre Blanche *et al.*, 2006). This systematic procedure describes the content of documents (Merriam, 1998b). A theme is a "group of words with similar meaning or connotations" (Weber, 1990). It is a powerful data reduction technique as it reduces high volume of data into manageable content themes (Stemler, 2001). It thus comprises the reduction of the raw data to create an outline for communicating the "essence of what the data reveal[s]" (De Vos *et al.*, 2012, p. 397). A number of qualitative data analysis strategies are possible: ethnographic analysis, narrative analysis, phenomenological analysis, and constant comparative methods (Merriam, 1998b). The constant comparative method (CCM) is viewed as the main intellectual activity in qualitative research because it is a method of comparing and contrasting data during the analysis process. During this proses categories are formed, boundaries of these categories are established, segments are assigned to categories and content of each category is summarized (Boeije, 2002). When comparisons are made while analysing the research-data commonalities and differences in behaviour, reasons, attitudes and perspectives are uncovered—this is a creative process whereby the researcher and the data interact with one another. The fragmenting and the connecting of the data in various ways must, however, be balanced between data that are *similar with regard to certain criteria*. Qualitative research provides *many moments of comparison*; therefore CCM can be conducted successfully. "The researcher must know beforehand which comparative steps are needed in the analysis regarding the elements that are compared, the aims, the questions asked and the expected results of each step" (Boeije, 2002). The aim of analysing data is to transform data to address the posed question of the study (Terre Blanche *et al.*, 2006). Therefore it is a good practice to transcribe and analyse interviews immediately after they have been carried out (De Vos *et al.*, 2012). Preliminary coding enables the researcher to "capture the richness of themes emerging from the participants' talk" (De Vos *et al.*, 2012, p. 360).

Advantages of content analysis comprise the fact that: (i) a coding system can be developed for the specific research question, (ii) the coding system does not cost much money, (iii) it is a safe method, because the researcher can adapt the codes as more insights are discovered, and (iv) it forces the

researcher to examine the evaluated data against specific criteria and assess their success in measuring qualitative phenomena (Rosnow & Rosenthal, 1999). It allows the researcher to look at the data from different angles to identify different themes which will help with the understanding and interpretation of the raw data. The analysis is usually inductive—meaning that the particular facts and examples are used to form general rules and principles—looking for similarities and differences to confirm or disconfirm specific theories (Maree, 2011; Rosnow & Rosenthal, 1999). The process of analysis is not a linear, step-by-step process (De Vos *et al.*, 2012; Merriam, 1998b), but the different aspects rather move in *analytic circles*, "circling around and *upwards* towards completion of the process" (De Vos *et al.*, 2012, p. 403). The development of computer programmes have largely been accepted as important innovations in assisting qualitative researchers with the management of large amounts of raw data. However, computer software programmes cannot do "the researcher's work—it simply assists the researcher in doing many of the tasks related to data analysis" (De Vos *et al.*, 2012, p. 401). To ensure effective interpretations, the classification procedure should be consistent and reliable—in so much that "different people should code the same text in the same way" (Weber, 1990).

By employing different technologies that were already available to the research-participants (e.g. cellular phones, laptops, etc.), I asked the research participants to interact with me and one another at any time the need arose. The research-participants had to feel free to ask questions related to their studies, answer one another, debate issues and support one another. The academic Facebook group page (FaceFunda) was the main channel of communication. Reflections of each participant were part of the integrated communication process. The captured data is available as Addendum 4.3 and formed the basis of the textual content analysis.

I made use of content-analysis through a constant comparative method (Boeije, 2002) with the help of the Atlas.ti™ software program, to analyse the data that was collected during this qualitative research. Analysis began with the first contact sessions because emerging insights directed the next phases. This was an interactive process which helped to produce believable and trustworthy findings (Merriam, 1998b).

Atlas.ti™ is a powerful software package that manages documents in a qualitative analysis research project. It helps to "explore the complex phenomena hidden in your textual and multimedia data" (Atlas.ti©, 2013). It is capable of managing, extracting, comparing, exploring and reassembling meaningful segments of large data. It groups them creatively in systematic ways to enable you, as the researcher, to make meaningful conclusions. The features of Atlas.ti™ are that it comprises an intuitive interface, is easy to use, is quick to access, has a logical structure, can multi-task, and has intelligent margin areas and wrapped lines. Basic operations include to segment, to code and to memo data.

The data obtained through the implementation of the three data collection strategies was captured in MS Word documents: The individual interviews and focus group interview were transcribed and the documents were assigned to Atlas.ti™—a computer-assisted qualitative data analysis software

(CAQDAS) (De Vos *et al.*, 2012, p. 401). This term was coined by Lee and Fielding (2004) and has become a popular term describing the increased variety of available software programs as well as the escalated number of people using these programs (De Vos *et al.*, 2012). The software assists researchers to analyse data systematically and manage the findings. Atlas.ti™ provides tools that enable the researcher to "locate, code and annotate findings in primary data material, to weigh and evaluate their importance, and to visualize the often complex relations between them" (Atlas.ti©, 2013). It combines large volumes of documents in order to keep track of notes from texts, images, audio or video data. The data should be itemised, coded, reorganised and clustered to enable the researcher to find patterns and themes. Then the data should be recombined and synthesized in relation to the research question. Systematic grouping of data builds themes and patterns to meaningful conclusions (Atlas.ti©, 2013).

During the analysis of the integrated data set 30 codes were derived from the data (Table 4.2). The codes represent the affective experiences which the participants underwent during their learning encounter with technology.

Table 4.2: **Code book of 30 codes which emanated from the qualitative analysis**

Code Info	Comment
Anxiety	A state of uneasiness or tension caused by apprehension of possible misfortune; intense apprehension or fear, brought about by a very distressing experience
Apprehension	Anxiety over what may happen; to be fearful or anxious
Avoidance	To keep away of, to refrain from doing, to prevent from happening. Contexts differ but people need to make choices. Everybody must decide what is the most important for him- or herself. Reasons for not accepting invitations or staying away from sessions, e.g. funerals, home-situations, union responsibilities
Caring	To be worried or concerned about others. To have regard or consideration for others. To share feelings and knowledge with others. To display an agreeable nature so that decisions suit most people concerned. To be patient with one another. To accept differences without making a fuss
Clarity	Something is clear or easy to understand. Clearness of an expression
Confidence	Belief in one's own abilities. Showing certainty. To improve or progress in understanding. Change of attitude which comes with understanding more about others and new things. Widening of horizons. To be less tense or rigid. Informal learning takes place
Confusion	To be disordered, bewildered or perplexed. Lack of clarity; uncertainty
Empathy	The power of understanding and imaginatively entering into another person's feelings
Enthusiasm	Ardently interested and lively. Eager to learn more. Having a keen interest and being motivated
Expectation	The act or state of expecting something, looking forward to something, an attitude of expectancy or hope
Frustration	To feel agitated, irritated or upset. A deep dissatisfaction arising from unresolved problems or unfulfilled needs
Gratitude	A feeling of thankfulness, appreciation. Enjoying, showing pleasure, satisfaction, joy
Helpfulness	Providing help. Assisting someone to do something by sharing the burden. Contributing to improve someone's situation. The act of helping someone who needs it. To supply or provide favours for others. Willing to help, kind and obliging
Hopefulness	Having or expressing hope. A person considered to be on the brink of success
Inadequacy	Not adequate, not capable, insufficient. A feeling of not knowing about something, being unable to do something, sometimes to such an extent that you want to quit
Incompetence	Not possessing the necessary ability or skill to do or carry out a task. Being incapable. Generational issues relating to the lack of ability of the older generation with technology; their inability to deal with these devices effectively
Indifference	The state of being not caring, being unconcerned. Not experiencing care or concern, no sense of importance. Not prejudiced towards or against any particular side. Brings feelings of neutrality

Code Info	Comment
Misconceptions	A false or mistaken view or opinion or attitude. Wrong idea about something
Motivation	Inner drive to do something. To give incentive to
Optimism	The tendency to expect the best in all things. Hopefulness, confidence. Disposed to take a favourable view of events or conditions; to expect the most favourable outcome
Participation	To take part. To become actively involved, be part of
Perceptiveness	Quick at perceiving. Being observant. An advantageous, appropriate and favourable combination of measures to notice needs and support people
Pressurized	Emotional strain or tension. Worried about something. To feel disturbed because of interferences at places of communication, e.g. sessions
Pride	A feeling of honour and self-respect, a sense of personal worth. Satisfaction in one's own or another's success, achievements
Supported	Helped, assisted. To provide the necessities of life for another person, to give aid or courage
Trauma	A powerful shock that may have long-lasting effects. Real-life situation that cannot be prevented e.g. sickness, or to be subjected to mental trauma, shock, suffering
Uncertainty	The state or condition of being uncertain. Not able to know exactly what to do. Feeling unsure. Not sure or confident. The state or condition of being in doubt, uncertain. Feeling uncertain because the person is new to or inexperienced in a certain task, situation, a beginner or a novice
Understanding	The ability to learn, judge, make decisions. To know and comprehend the meaning of something
Unsupported	To not have support, help or encouragement. Isolated, alone
Willingness	Favourably disposed or inclined. Ready, prepared to; cheerfully, freely, voluntarily wanting to do. Choosing certain actions. Determined intention.

Table 4.2 constitutes the code book which was formed in Atlas.ti™ during coding the integrated data set. It describes the meaning assigned to each affective code. The interpretation of the words guided the assigning of quotations that corresponded with the codes (Boeije, 2002).

I assigned keyword code names to sections of text and arranged these sections in an analytical way to create complex collections of inter related clips so that I could explore meaningful relationships in the data. The data provided visual support to the transcripts of the interviews. I constructed categories of recurring patterns in the data, explored the relationships amongst these categories in order to develop an understanding of the phenomenon under study. The analysis, including the integrated dataset is available as Addendum 4.3. Table 4.3 indicates the coding structure which emerged during the analysis of the integrated data.

Table 4.3:   **Coding structure**

Pattern 1 Emotions while learning		Pattern 2 Experiences with technology		Pattern Need for support	
Theme Competent	**Theme** Incompetent	**Theme** Technophilia	**Theme** Technophobia	**Theme** Competent	**Theme** Incompetent
Codes:(6) Hopefulness Expectation Caring Understanding Clarity Gratitude	**Codes:(6)** Uncertainty Inadequacy Confusion Indifference Anxiety Apprehension	**Codes:(4)** Optimism Willingness Pride Confidence	**Codes:(4)** Misconceptions Incompetence Uncertainty Frustration	**Codes:(7)** Enthusiasm Helpfulness Motivation Empathy Participation Confidence Supported	**Codes:(4)** Unsupported Avoidance Pressurized Trauma

The coding structure which emerged while analysing the integrated data shows the three patterns, namely (i) emotions while learning with technology, (ii) experiences with technology and (iii) the need for support. Each pattern consisted of two themes, which signifies feelings of competency and incompetency. Within every theme, distinct codes depicted various emotions (Table 4.3).

Figure 4.7 represents the flow of the research during the qualitative study in order to address the research sub questions. The procedural processes were divided in three phases, whereby each phase addressed a research sub question. Figure 4.7 illustrates that during phase one, the first research sub question was addressed by exploiting literature. The second phase comprised the intervention strategies which were employed, namely the coaching and scaffolding sessions and the SNS facilitation, from which rich data was gathered. Interviews were conducted with selected individual participants, the IT expert, the observer and a focus group, as well as the FaceFunda text and the researchers' research diary which were assigned to Atlas.ti™ as part of the integrated data set for analysis. Affective codes were linked to meanings of units and themes emerged which were supported by quotations. The data was used to answer the second research sub question. During phase three a secondary analysis was done by assigning the affective code findings to Atlas.ti™. From this secondary document guidelines where formulated to effectively address research sub question three.
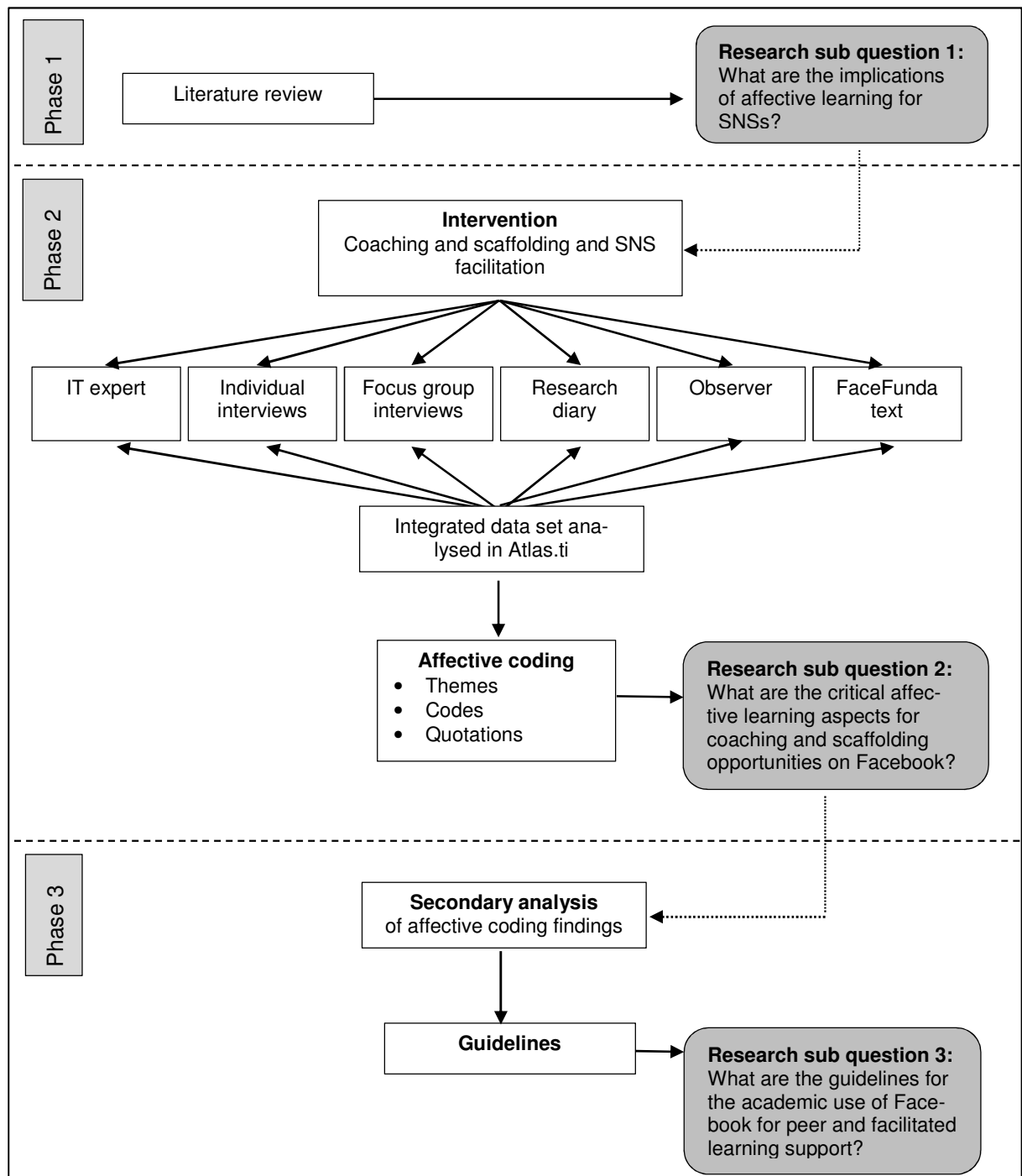
Figure 4.7 **Diagram of research strategies for the qualitative study of the affective experiences of rural students in the Eastern Cape**

4.8 Trustworthiness

In qualitative research, measuring instruments mostly include observation and interviewing schedules. Qualitative research focuses on "credibility and trustworthiness" (Maree, 2011, p. 80). Trustworthiness or rigor can be defined as a "demonstration that the evidence for the results reported is sound and when the argument made based on the results is strong" (LaBanca, 2010). Therefore, trustworthiness

relates to the verification of how interpretations and findings where reached (LaBanca, 2010). Measures that can be implemented to reach trustworthiness are credibility, dependability and transferability during the entire research procedure (Graneheim & Lundman, 2003). The engagement of multiple methods of data collection, such as interviews and document analysis, supports the trustworthiness of the findings of the research against which data can be checked. A deep understanding of the situational dynamics must be developed to ensure a true and trustworthy outcome of the research (Maree, 2011). A researcher should present *a true picture* of the phenomenon. Detailed accounts of the context of the fieldwork contribute towards the trustworthiness of the study. Confirmation depends on the emergence of the findings from the data itself and not from the researcher's predisposition (Shenton, 2004).

Credibility refers to the implementation of appropriate, recognised research methods; developing familiarity with the culture of participants; triangulation by using different methods; different types of participants and different sites; tactics employed to ensure honesty of participants; iterative questioning in interviews; use of *reflective commentary*; description of background, qualifications and experience of researcher; member checks of data transcriptions and a thick description of the bounded case study (Shenton, 2004).

The credibility of the researcher is another instrument that tests trustworthiness. The trust that the researcher generates throughout the study, is as important as the adequacy of the procedure. Another method of confirming credibility of a study is by member checks. The participants should sign off on all interviews with participants (Addendum 4.5). A detailed, rich description of the context also supports credibility of the study as it confirms the reliability of what the researcher has inferred throughout the study (Shenton, 2004).

4.8.1   Crystallisation

Qualitative studies search for a deep understanding by describing and analysing emerging realities, rather than trying to find fundamental relationships which are exact and measurable like with quantitative research methods. Therefore, the data must be described in an exact and measurable way when describing and analysing the emerging realities because that becomes a representation of own reinterpreted understanding of the phenomenon. All the findings must conclude to the same emerging patterns, because this makes the research crystallised and trustworthy (Maree, 2011). Transferablility refers to the describing of context and methodology in a given study to enable it to be implemented in another study and to allow comparisons. Overlapping of methods helps to sustain triangulation (Shenton, 2004).

4.8.2 Validity

Validity signifies the extent to which the research findings and conclusions are consistent, sound, convincing and believable (Creswell, 2007; Maree, 2011; Terre Blanche *et al.*, 2006). The credibility of qualitative research is established while the research is being undertaken. Researchers continually look for discrepant evidence to the hypotheses they develop as a means of "producing a rich and credible account" (Terre Blanche *et al.*, 2006, p. 91). These measures could include triangulation and/or employing a variety of research methodologies (e.g. multi-methods) to find out whether they provide discrepant findings (Cohen *et al.*, 2011; Terre Blanche *et al.*, 2006). Triangulation in qualitative research, involves the use of a variety of methods, such as individual and focus group interviews as well as observations.

The constant comparative method is linked to *external validity* (Boeije, 2002). External validity refers to the "extent to which the results of a study can be generalized to other situations and to other people" (Aronson, Wilson, Akert, & Fehr, 2007). This implies that when a study's sampling has been done well within a reasonably homogeneous sample, there is a solid basis for generalizing the concepts and the relations between them and the results can be transferred to different substantial fields that show similarities with the original field (Boeije, 2002).

4.8.3 Reliability

Reliability refers to the degree to which results are repeatable (Merriam, 1998a; Terre Blanche *et al.*, 2006). This is not the focus in qualitative research because in interpretive and constructionist research, it is expected that people or groups will behave differently and have different opinions in changing contexts (Cohen *et al.*, 2011; Terre Blanche *et al.*, 2006). They thus focus on dependability of the findings, which is achieved through rich and detailed descriptions that describe the context of the research (Merriam, 1998b; Terre Blanche *et al.*, 2006). It is important to categorize the collected data according to the original contexts in which they were used, to prevent that the agenda of the researcher is conveyed instead of that of the participants (Cohen *et al.*, 2011). Transferability refers to whether a current study with a small number of participants can be applied to a wider population—that the findings and conclusions will be applicable for them as well. Dependability refers to the overlapping of methods, such as the individual interviews and the focus group interview, to come to the same conclusions. The research design should be seen as a prototype model in which (i) a description is written of what was planned and executed on a strategic level; (ii) the operational detail of data gathering, addressing the minutiae of what was done in the field; (iii) reflective appraisal of the project, evaluating the effectiveness of the process of inquiry undertaken (Shenton, 2004).

4.9   Researcher's role

The researcher is the primary instrument during qualitative research. The researcher collects, analyses, and responds to the data according to the given situation by creating the best opportunities for producing meaningful information (Merriam, 1998b). The role of the researcher refers to the attitude or "posture of the mind" (Rosnow & Rosenthal, 1999, p. 17) that leads a person to behave in one way or the other. A variety of orienting attitudes are expected of researchers in all fields. These could include enthusiasm, open-mindedness, good sense, role-taking ability, principled inventiveness, confidence in one's own judgement, ability to communicate, consistency and care about details and integrity and honest scholarship (Rosnow & Rosenthal, 1999). The researcher becomes "immersed in the situation and the phenomenon studied" (McMillan & Schumacher, 2001a, p. 396) and adopts an interactive role when the interactions of the participants are recorded. The stance of the researcher is an active participatory role because in qualitative research a *person* is the tool, which is in contrast to the *instrument* that is the tool in quantitative research (McMillan & Schumacher, 2001a).

In qualitative studies the researcher is subjectively involved in all areas of the investigation. The researcher becomes the "research instrument" (Maree, 2011, p. 79) in the data gathering process. The researcher is involved in the changing real-world situation and all the data needs to be recorded (Maree, 2011). The researcher should be personally involved in every step of the research process, because every consideration and decision will have to be based on entirely personal grounds—a very complex perspective (Fink, 2000). A researcher should have tolerance for ambiguity (uncertainty) because there is no set structure for qualitative research methods. They should be able to adapt to unforeseen changes in pursuit of finding meaning and make decisions to enrich the research process. Furthermore, the researcher should be sensitive towards the context and the gathered data, for example, the non-verbal behaviour of the participants, their physical setting, as well as their secret and obvious agendas. It is also very important to know when enough information has been gathered to complete the current study. A researcher must also be a good communicator, being able to show empathy when needed, listening attentively, hearing what has been said and be able to write all these things in a coherent, interesting style (Merriam, 1998b).

There are three ways in which a researcher can participate in the research: (i) complete participation—researcher does not reveal him/herself and participates in discussions; (ii) participant as observer—researcher participates minimally and observes more; (iii) observer as participant—researcher observes openly and participants know the researcher, but the participation of the researcher remains marginal (Thietart, 2007). My role in the research was an observer as participant, because the participants knew that I was the researcher. The participants knew me as their coach and mentor, and I revealed my status as researcher to them.

The limitations of researchers lies within the fact that being human creates room for mistakes, to miss valuable opportunities and to allow personal bias to interfere with the study under scrutiny (Merriam,

1998b). The researcher cannot help to be affected by and to affect the setting of the study as well as the interaction of the participants. However, I tried to keep a neutral position as far as possible.

In research, bias occurs when systematic errors occur in the testing of findings by selecting certain answers over others (Pannucci *et al.*, 2010). Bias is thus a tendency that prevents unprejudiced consideration of a situation. To prevent bias, research should be handled with a great awareness of how easily bias occurs. Bias must be recognised and reduced as far as possible, because it could distort the truth, alter the results and affect the decisions. The researcher must be open-minded and as neutral as possible in tone and body language. Personal opinions of the researcher must not be given while interviewing the participants. Leading questions should not be asked, because they bias the participant's answers. Questions should be phrased in such a way that answers are not implied; neither should words be put in the participant's mouths. Questions should be simple and clear to prevent different interpretations to cause misunderstanding. Start by asking general questions before specific ones; positive questions before negative ones; and behaviour questions before attitude questions. During the focus group interview, the facilitator was careful to allow all participants equal time to talk and to give their opinions and so discouraged dominant participants from taking over (Focusgrouptips, 2009-2012).

4.10   Ethical considerations

The word ethics stem from the Greek word *ethos*, which means *character* or *disposition*. It refers to the values by which a researcher evaluates the character or the behaviour of people (Rosnow & Rosenthal, 1999). The goal of science is to search for truth, but this may not happen at the expense of the rights of individuals (Mouton, 2011). A general definition for ethical behaviour is that it represents a set of moral principles, rules, or standards which govern a person or a profession. To act ethically, is to "do good and avoid evil" (Aurelius, 2013). Likewise, Rosnow and Rosenthal (1999) caution researchers that they are treading on *thin moral ice* when they are doing research with human subjects, because they are "constantly in danger of violating someone's basic rights, if only the right of privacy" (Rosnow & Rosenthal, 1999, p. 59).

In qualitative research, the researcher focuses on exploring, describing and understanding people in their natural environments. Entrenched herein is the concept of relationships and the rapport between the researcher and the participants. By participating in a research programme, participants indicate their willingness to share their experiences. Therefore, by giving consent, they become involved in a relationship of mutual trust (Mouton, 2011; Orb *et al.*, 2000; Rosnow & Rosenthal, 1999). The researcher should recognise the vulnerability of the participants and value their contributions to the study (Creswell, 2007; Makoe, 2010; Orb *et al.*, 2000; Rosnow & Rosenthal, 1999). Researchers are responsible for ensuring that participants' informed consent is given and that they should not be harmed and their privacy is maintained (Aurelius, 2013).

Mobile learning raises many ethical and philosophical issues (De Villiers, 2010; Kukulska-Hulme, 2013). New norms of acceptable behaviour need to be put in place for data publication on the web. Images of people, recordings and video clips are posted and these raise concerns. Consent on SNSs is a controversial issue because the boundaries between public and private information are not clear—it represents *private lives in public space*. Vague guidelines exist whether data must be anonymous and to what extent. Access to individual sites on Facebook raises the questions of privacy and confidentiality. Pseudonyms can be used to provide confidentiality and anonymity (De Villiers, 2010). These concerns need to be dealt with because they will not lessen in the future—on the contrary, they will actually increase (Kukulska-Hulme, 2013). As privacy, respect and risk are three problem areas on the Internet, six principles of fair information processing have been used to undergird the matter of personal information control:

- Openness: Existence of data banks should be publicly known
- Individual access and correction: People should have access to the data collected about them
- Collection limitation and relevance: Personal data should be collected for one specific, legitimate purpose
- Use limitations: Information should be used only for purposes specified at the time of collection
- Disclosure limitation: Personal data is not to be communicated externally without the consent of the subject who supplied the data
- Security: Personal data should be reasonably guarded against risks such as loss, unauthorized access, modification, or disclosure (Jones, 1999).

When faculty participate on social networks, it is advisable to remove their personal profile from Facebook because of the possibility of identity theft. Their presence on web-pages could possibly damage their professional reputation. However, when faculty members split their personal and professional lives, it reduces the transparency of participants. Participants on research projects should be informed about the security and privacy issues connected to the posting of private information online. The Internet is an open environment and there is no control over what people post on it. Inappropriate content can easily be posted and this could harm future careers of individuals. Cyber-bullying is a reality that can happen with individuals (Chen & Bryer, 2012b).

During my research, I obtained permission from every participant who participated. They signed informed consent letters (Addendum 4.1). Their privacy and confidentiality was protected by the fact that all the communications that took place on academic Facebook, was kept within the group. It was not a public social network. Furthermore, participants stayed anonymous because I assigned a pseudonym to each of the participants. Neither was their specific work and home addresses revealed. Participants were not involved in any physical exercises or going to dangerous places—ICTs and participated in interviews. Feedback on the outcome of the investigation would be communicated to

them, if they so wished. The participants partook on a voluntary basis and they were free to withdraw at any time from the research, without any penalty (Maree, 2011; Mouton, 2011). During the publication of research results, ethical considerations which adhere to partial confidentiality will be implemented. This implies that the transcripts of the collected data will be mentioned and explored, but that specific data will not be attributed to particular participants' names (Brown & Palmerino, 2006).

Ethical clearance for the study related to a Thutuka research project of Dr J Kruger's (Addendum 4.6). Chapters one to six were submitted individually to the Turnitin software programme to verify the content against plagiarism. The reports are available as Addenda 4.7-12. No serious contradictory findings were located as the percentages fluctuated between 1% and 28%.

4.11   Limitations of the study

This qualitative study was carried out within a complex backdrop which makes it very difficult to generalize the results. No broad, sweeping recommendations can be made based on the outcomes of the research (Aderson, 2010; Barbour, 2001; Smith, 2013). Qualitative studies are often designed to suit the needs of one population and it becomes difficult to deduce findings to the broader population or to draw general findings (Smith, 2013). Data was collected from a few cases or individuals (Aderson, 2010). In-depth issues were provided, and the findings cannot transfer across individuals or groups (Smith, 2013).

Qualitative research relies heavily on the researcher's knowledge and interpretation, makes it questionable that other researchers, replicating a qualitative study, would achieve the same results—they might make different decisions about interpretation, might ask interview questions in different ways, or might even change the design halfway through the study, based on perceptions of the participants' needs. This variation can radically change the results of a study and make study results inconsistent even if two studies have the same approach (Smith, 2013). This implies the personal aspects of qualitative studies.

The researcher could have been biased in her approach. The analysis, observations and results can therefore be influenced by the researcher's prejudices and preferences. The researcher's skill and characteristics is also an influential factor in research, because novice researchers can easily make mistakes. Furthermore, the researcher's presence while gathering data can have an effect on the responses of the participants (Aderson, 2010). To quantitative scholars, qualitative research may seem to be less than valid in approach, methods, or conclusions. Qualitative research depends on the individual judgment of the researcher and is heavily dependent on the researcher's interpretation (for example, in the analysis of interview data or case study information). Although this fact allows for research to reflect the complexity of a particular situation or the knowledge of the researcher, it can also allow the researcher's subjective opinions to bias the information presented or the conclusion drawn.

In such cases, the study becomes more reflective of the researcher's opinions than of the actual data (Smith, 2013).

Qualitative research is time consuming. It generally takes more time to collect, analyse and interpret the volume of data when compared to quantitative research (Aderson, 2010). I experienced a tight time-restriction, and I could thus have missed opportunities to gather richer data, analyse it in more depth and interpret it with better considered responses.

I am not of the same racial identity as those of my participants, and therefore I acknowledge my *whiteness* (Nkomo & Dolby, 2004) as a hindering factor to understand the subtle nuances of reading between the lines of what the participants shared during the interviews. Therefore I employed an isiXhosa field-worker and facilitator to assist me.

4.12   Chapter summary

This chapter dealt with the research design and the methodology that was followed in this study. The methodology was described, the qualitative data collection method was discussed and reasons for choosing these particular methods were given. The data analysis process and the use of Atlas.ti™ were explained. The strategies for validation as well as the ethical issues were addressed. The researcher's roles and the limitations of the study were outlined.

Chapter 5 describes the analysis of the data as findings of the study.