

CHAPTER 4

RESEARCH DESIGN AND METHODOLOGY

4.1 INTRODUCTION

Examining the variables related to instructional leadership and the contribution of these variables to the improvement of learner achievement demands a dynamic research approach that is firmly rooted in both qualitative and quantitative epistemology. This is necessary to ensure that the respondents (principals, deputy principals and HODs) in a study of this magnitude and complexity are not denied their subjective views on the phenomena being studied, while the objectivity of the entire research enterprise is guaranteed. In line with this thinking, this study is based on a mixed methods research approach which is explained in detail in the following sections.

4.2 RESEARCH DESIGN AND METHODOLOGY

The two concepts *research design* and *research methodology* need to be clarified firstly, in order to clear the confusion that is often associated with their usage, particularly by emerging researchers. Each of these concepts is presented as a compound word, with the concepts *design* and *methodology* attached to the noun *research*. It is appropriate to first answer the question: “What is research?”

4.2.1 RESEARCH

A number of definitions of research have been proposed by different scholars and researchers, working in different fields. According to the Oxford Advanced Learners’ Dictionary of Current English (1986:720), research is defined as “*systematic investigation undertaken in order to discover new facts, get additional information*”. Saunders, Lewis and Thornhill (2003) define research as “*...something that people undertake in order to find out new things in a systematic way, thereby increasing their knowledge...*”

From the definitions of research provided above, it follows that research is a planned activity, aimed at establishing new facts and information about a particular phenomenon. The research process involves the identification of a particular problem or area of interest,

translating that problem into a research problem, collecting data, analyzing the data and reporting the findings of the research.

4.2.2 RESEARCH DESIGN

Leedy (1997:195) defines research design as a plan for a study, providing the overall framework for collecting data. MacMillan and Schumacher (2001:166) define it as a plan for selecting subjects, research sites, and data collection procedures to answer the research question(s). They further indicate that the goal of a sound research design is to provide results that are judged to be credible. For Durrheim (2004:29), research design is a strategic framework for action that serves as a bridge between research questions and the execution, or implementation of the research strategy.

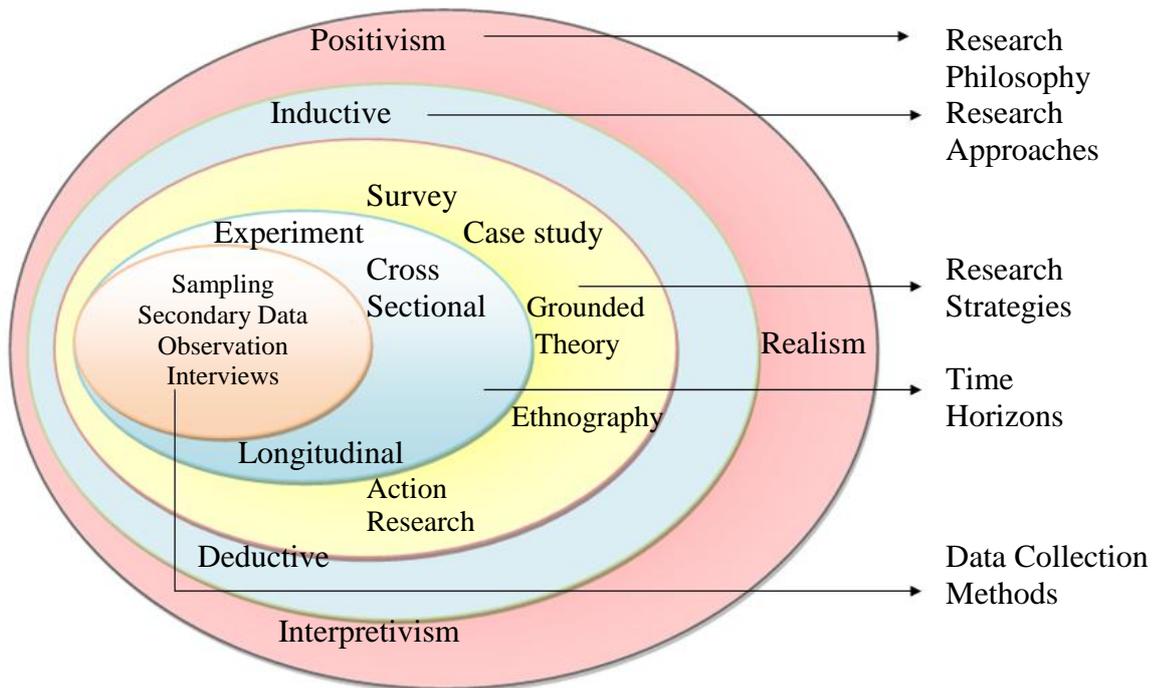
4.2.3 RESEARCH METHODOLOGY

Schwardt (2007:195) defines research methodology as a theory of how an inquiry should proceed. It involves analysis of the assumptions, principles and procedures in a particular approach to inquiry. According to Schwardt (2007), Creswell and Tashakkori (2007), and Teddlie and Tashakkori (2007), methodologies explicate and define the kinds of problems that are worth investigating; what constitutes a researchable problem; testable hypotheses; how to frame a problem in such a way that it can be investigated using particular designs and procedures; and how to select and develop appropriate means of collecting data.

4.3 THE RESEARCH PROCESS

As indicated under the analysis of the different definitions of research above, after identifying the research problem or an area of interest, the researcher has to identify appropriate method(s) to approach the problem. In order to give direction to this study, the research process “onion” of Saunders *et al.* (2003:83) was adopted. This onion illustrates the range of choices, paradigms, strategies and steps followed by researchers during the research process (see figure 4.1).

FIGURE 4.1: The research process onion (Saunders *et al.*, 2003:83)



The research process onion provides a summary of the important issues that need to be taken into consideration and reviewed before undertaking any research. The different layers of the onion serve as a basis from which to consider the following: the philosophical orientation of the researcher; the research approach adopted; appropriate research strategies; the research time lines that are under review; and the data collection techniques employed by the researcher.

4.4 MIXED METHODS RESEARCH METHODOLOGY

As indicated in section 4.1 above, this study adopted a mixed methods research approach. Kemper, Springfield and Teddlie (2003) define mixed methods design as a method that includes both qualitative and quantitative data collection and analysis in parallel form (concurrent mixed method design in which two types of data are collected and analyzed in sequential form). Bazely (2003) defines this method as the use of mixed data (numerical and text) and alternative tools (statistics and analysis), but apply the same method. It is a type of research in which a researcher uses the qualitative research paradigm for one phase of a study and a quantitative research paradigm for another phase of the study.

Burke and Onwuegbuzie (2005:1) indicate that mixed methods research is a natural complement to using either of the traditional qualitative or quantitative research methods in

isolation. They view it as the class of research where the researcher combines or mixes qualitative and quantitative research techniques, methods, approaches, concepts or language in a single study. On the philosophical level, according to Burke et al. (2005), mixed methods research is a “third wave,” or third research movement that moves past paradigm wars by offering a logical and practical alternative.

Creswell, Fetters and Ivankova (2004:7) argue that mixed methods research is more than simply collecting both qualitative and quantitative data; it implies that data are integrated, related, or mixed at some stage of the research process. They further indicate that the underlying logic to mixing is that neither qualitative nor quantitative methods are sufficient in themselves to capture the trends and details of the situation...when used in combination, both qualitative and quantitative data yield a more complete analysis, and they complement each other. In pursuit of the same argument regarding the logic of mixed methods research, Johnson and Onwuegbuzi (2004:17) indicate that mixed methods research includes the use of *induction* which refers to the discovery of patterns, *deduction* which involves testing theories and hypotheses, and *abduction* which refers to uncovering and relying on the best set of explanations for understanding one’s results.

There are several viewpoints as to why qualitative and quantitative research methods can be combined. Sale, Lohfeld and Brazil (2002:46) comment as follows with regard to the combination of the two methods:

“Both approaches can be combined because they share the goal of understanding the world in which we live. They share a unified logic, and the same rules of inference apply to both. A combination of both approaches provides a variety of perspectives from which a particular phenomenon can be studied and they share a common commitment to understanding and improving the human condition, a common goal of disseminating knowledge for practical use. Both approaches provide for cross-validation or triangulation – combining two or more theories or sources of data to study the same phenomena in order to gain a more complete understanding of that phenomenon (interdependence of research methods) and they also provide for the achievement of complementary results by using the strengths of one method to enhance the other (independence of research methods).”

In support of Sale *et al.* (2002), Onwuegbuzie and Leech (2006:479) identify the following rationales for mixing qualitative and quantitative approaches: participant enrichment, instrument fidelity, treatment integrity, and significance enhancement.

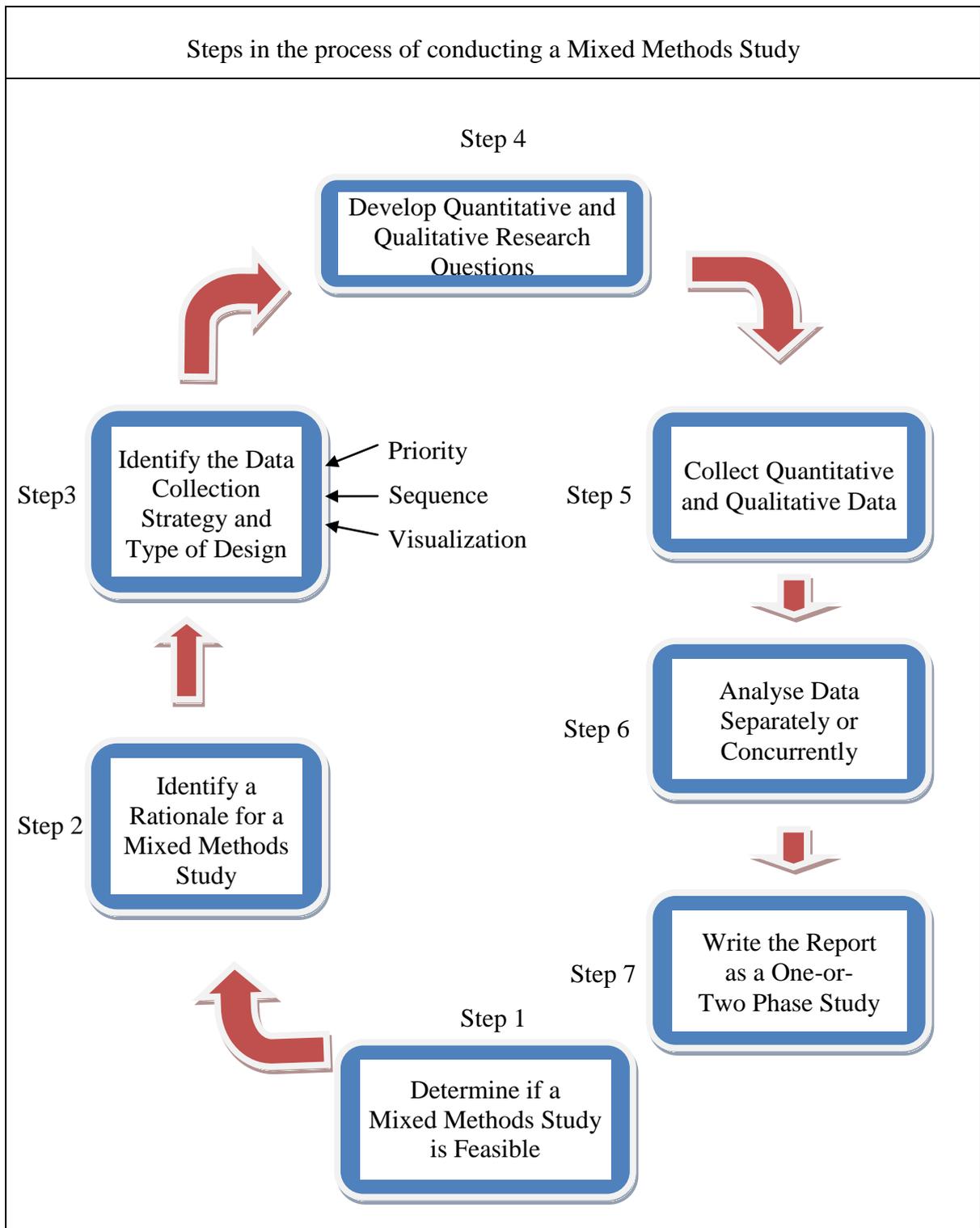
Participant enrichment refers to increasing the number of participants in the research. Leech (2006) contends that the larger the sample, the more reliable and valid the research findings will be. In terms of this rationale, the sample used for this study was limited to all the public secondary schools in Bushbuckridge, where three respondents from each school completed the questionnaire. If all the schools had responded to the questionnaires, a total of 342 questionnaires would have been returned and analyzed.

Instrument fidelity refers to maximizing the appropriateness and/or utility of the instruments used in the study. For the purpose of this study, two instruments were used, namely: questionnaires and interviews. The questionnaire for principals is appropriate in as far as it assisted the researcher to solicit biographical information about the principals; the questionnaire for deputy principals and HODs solicited information regarding the principals' instructional leadership practices.

Treatment integrity refers to mixing qualitative and quantitative research methods in order to assess the fidelity of interventions, treatments, or programmes; and *significance enhancement* refers to maximizing the researcher's interpretation of data.

The following figure shows the steps in the process of conducting a mixed methods study.

FIGURE 4.2: Steps in the process of conducting a mixed methods study (Adapted from Cannon, 2004)



The seven steps indicated in the above figure were observed from the planning stage of this research study through to the data analysis stage. Figure 4.2 above emphasizes the fact that rather than viewing various research methods as part of an incompatible quantitative/qualitative dichotomy, in this study, I have approached them as complementary

modes of investigation, resulting in a deeper understanding of the phenomenon being studied (Herman & Egri, 2003). The following section discusses in detail, the qualitative and quantitative research methods that were used in this study and, later the phases in the data collection and analysis are tabulated.

4.4.1 QUANTITATIVE RESEARCH METHODOLOGY

Quantitative research, according to Van der Merwe (1996), is a research approach aimed at testing theories, determining facts, demonstrating relationships between variables, and predicting outcomes. Quantitative research uses methods from the natural sciences that are designed to ensure objectivity, generalizability and reliability (Weinreich, 2009).

The techniques used in quantitative research include random selection of research participants from the study population in an unbiased manner, the standardized questionnaire or intervention they receive, and statistical methods used to test predetermined hypotheses regarding the relationship between specific variables. The researcher in quantitative research, unlike in the qualitative paradigm where he/she is regarded as a great research instrument due to his/her active participation in the research process, is considered as being external to the actual research, and results are expected to be replicable, no matter who conducts the research.

4.4.2 QUALITATIVE RESEARCH METHODOLOGY

Qualitative research, according to Van der Merwe (cited by Garbers, 1996) is a research approach aimed at the development of theories and understanding. Denzin and Lincoln (2005) define qualitative research as a situated activity which locates the observer in the world. It involves an interpretive, naturalistic approach to the world, i.e. qualitative researchers study phenomena in their natural settings, attempting to make sense of, or interpreting phenomena in terms of the meanings people bring to them. Qualitative research implies an emphasis on the qualities of entities and on processes and meanings that are not experimentally examined or measured (Denzin & Lincoln, 2005:10).

In concert with Denzin and Lincoln (2005), Patton (2001:39) defines qualitative research as

“an approach that uses a naturalistic approach which seeks to understand phenomena in context-specific settings, such as real world settings, where the

researcher does not attempt to manipulate the phenomena of interest...it is any kind of research that produces findings not arrived at by means of statistical procedures or other means of quantification, but instead the kind of research that produces findings derived at from real-world settings where the phenomena of interest unfold naturally.”

Weinreich (2009) indicates that the purpose of qualitative research is to provide the researcher with the perspective of target audience members through immersion in a culture or situation and direct interaction with the people under study. This implies that in the qualitative paradigm the researcher becomes an instrument of data collection, and results may differ greatly depending on who conducts the research.

The objective of qualitative research is to promote better self-understanding and increase insight into the human condition. Unlike quantitative research which has, as its objective, collecting facts about human behaviour that will lead to verification and extension of theories, qualitative research emphasizes the improved understanding of human behaviour and experience.

Qualitative methods include direct observation, document analysis and overview, participant observation, and open-ended unstructured interviewing. These methods are designed to help researchers to understand the meanings people assign to social phenomena and to elucidate the mental processes underlying behaviours. Worthen and Sanders (1987:50) characterize qualitative inquiry as “a research approach that is generally conducted in natural settings, utilizing the researcher as the chief “instrument” in both data gathering and analysis. The benefits of qualitative inquiry are embedded in its emphasis on thick description, i.e. obtaining real, rich, deep data which illuminates everyday patterns of action and meaning from the perspective of those being studied. This view emphasizes the importance of the voice of the researched and gaining first hand information regarding the lived experiences of the researched on a particular subject. It tends to focus on social processes, where the established relationship between the researcher and the respondents is valued, rather than primarily or exclusively on outcomes.”

Qualitative inquiry involves employing multiple data gathering methods, especially participant interviews, and uses an inductive approach to data analysis, extracting its concepts from the mass of particular detail which constitutes the data base. The strength of

qualitative approaches, according to Weinreich (2009), is that “*they generate rich, detailed data that leave the participants’ perspective intact and provide a context for the phenomena being studied.*” A disadvantage of data collection in the qualitative approach is that it may be labour intensive and time consuming.

TABLE 4.1: Quantitative versus qualitative research: Key points in the classic debate (Adapted from Neill, 2007)

Quantitative research	Qualitative research
<ul style="list-style-type: none"> The aim is to classify features, count them, and construct statistical models in an attempt to explain what is observed 	<ul style="list-style-type: none"> The aim is a complete, detailed description
<ul style="list-style-type: none"> The researcher knows clearly in advance what he/she is looking for 	<ul style="list-style-type: none"> The researcher may only know roughly in advance what he/she is looking for
<ul style="list-style-type: none"> Recommended during latter phases of research projects 	<ul style="list-style-type: none"> Recommended during earlier phases of research projects
<ul style="list-style-type: none"> All aspects of the study are carefully designed before data is collected 	<ul style="list-style-type: none"> The design emerges as the study unfolds
<ul style="list-style-type: none"> The researcher uses tools such as questionnaires or equipment to collect numerical data 	<ul style="list-style-type: none"> The researcher is the data gathering instrument
<ul style="list-style-type: none"> Data are in the form of numbers and statistics 	<ul style="list-style-type: none"> Data are in the form of words, pictures or objects
<ul style="list-style-type: none"> Objective – seeks precise measurement and analysis of target concepts, e.g. uses surveys, questionnaires etc. 	<ul style="list-style-type: none"> Subjective – individuals’ interpretation of events is important, e.g. uses participant observation, in-depth interviews etc.
<ul style="list-style-type: none"> Quantitative data are more efficient, able to test hypotheses, but may miss contextual detail 	<ul style="list-style-type: none"> Qualitative data are more rich, time consuming, and less able to be generalized
<ul style="list-style-type: none"> The researcher tends to remain objectively separated from the subject matter 	<ul style="list-style-type: none"> The researcher tends to become subjectively immersed in the subject matter

4.4.3 PREDISPOSITIONS OF QUANTITATIVE AND QUALITATIVE MODES OF INQUIRY

The concept of predispositions in this context is used to refer to the acquired characteristics of both qualitative and quantitative research methods. The following table represents the predispositions of the qualitative and quantitative modes of inquiry. It further sums up how each of these research approaches operates and each of the predispositions is explained below the table.

**TABLE 4.2: Predispositions of quantitative and qualitative modes of inquiry
(Adapted from Glesne & Peshkin, 1992)**

Quantitative mode	Qualitative mode
<p>Assumptions</p> <ul style="list-style-type: none"> • Social facts have an objective reality • Primacy of method • Variables can be identified and relationships measured • Etic (outsider's point of view) 	<p>Assumptions</p> <ul style="list-style-type: none"> • Reality is socially constructed • Primacy of subject matter • Variables are complex, interwoven, and difficult to measure • Emic (insider's point of view)
<p>Purpose</p> <ul style="list-style-type: none"> • Generalizability • Prediction • Causal explanations 	<p>Purpose</p> <ul style="list-style-type: none"> • Contextualization • Interpretation • Understanding actors' perspectives
<p>Approach</p> <ul style="list-style-type: none"> • Begins with hypotheses and theories • Manipulation and control • Uses formal instruments • Experimentation • Deductive • Component analysis • Seeks consensus, the norm • Reduces data to numerical indices • Abstract language in write-up 	<p>Approach</p> <ul style="list-style-type: none"> • Ends with hypotheses and grounded theory • Emergence and portrayal • Researcher as instrument • Naturalistic • Inductive • Searches for patterns • Seeks pluralism, complexity • Makes minor use of numerical indices • Descriptive write-up
<p>Researcher Role</p> <ul style="list-style-type: none"> • Detachment and impartiality • Objective portrayal 	<p>Researcher Role</p> <ul style="list-style-type: none"> • Personal involvement and partiality • Empathic understanding

With regard to the assumptions, the quantitative mode assumes that social facts have an objective reality and the researcher does not identify with the researched phenomenon. The qualitative mode, on the other hand, assumes that reality is socially constructed and the researcher's point of view matters because he/she identifies with the phenomenon being studied. The purpose of quantitative research is to predict, explain and generalize the outcomes of the research, whereas the purpose of qualitative research is to contextualize, interpret and understand the perspective of the actors.

With regard to the approach, quantitative research begins with hypotheses and theories, using formal instruments such as questionnaires, and reduces the data to numerical indices. Qualitative research, on the other hand, ends with hypotheses and grounded theory and makes minor use of numerical indices. The role of the researcher in quantitative research, as indicated under the assumptions, is that of a distant observer, i.e. the researcher is detached from the research setting to ensure impartiality and objectivity, whereas in qualitative research, the researcher identifies fully with the researched phenomenon and this may possibly lead to partiality and bias.

4.5 RESEARCH PARADIGM

Before discussing the paradigmatic assumptions of this study, it is important to begin with a discussion of paradigms by defining the concept “paradigm”, its components, as well as various perspectives. Rocco, Bliss, Gallagher and Perez-Prado (2003:19) define a paradigm as a “world view”. It is a “basic set of beliefs or assumptions” that guides a researcher’s inquiry. This implies that every researcher will approach research with a plethora of interlocking and sometimes contradicting philosophical assumptions and standpoints. Creswell (2007:15) indicates that the research design process begins with philosophical assumptions that the enquirers make when deciding to undertake a study. Researchers bring their own world views, paradigms, or sets of beliefs to the research project, and these inform the conduct and writing of the study. In concert with Creswell (2007), Mason (2002:59) indicates that in defining one’s paradigmatic perspective as a researcher, the interplay between ontological and epistemological assumptions, meta-theoretical underpinnings, the research questions, and research methodology become prominent.

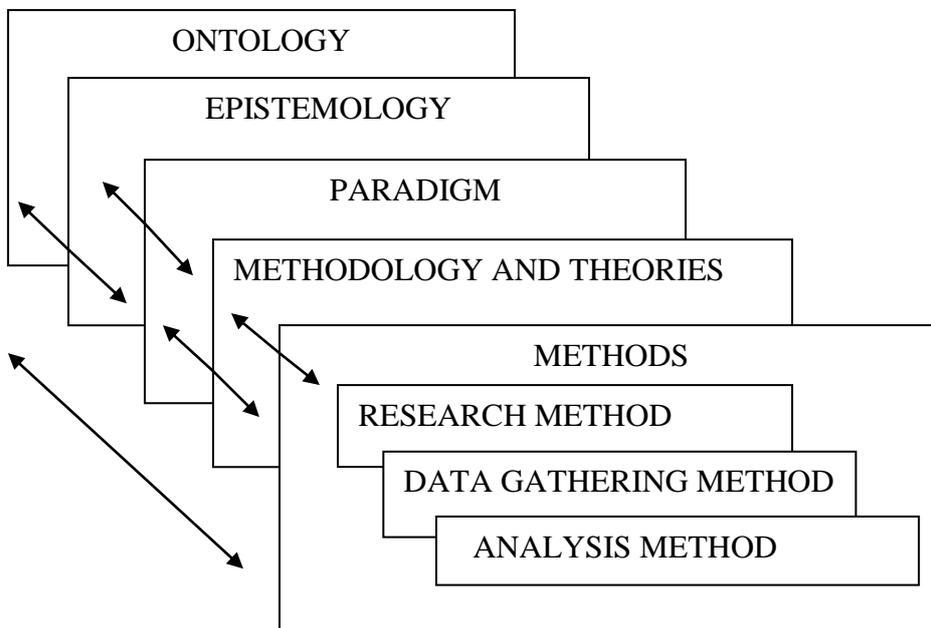
The researcher’s ontological beliefs are about the nature of reality, which is explored through the researcher’s answers to problems such as what is the nature of the world, including social phenomena; if reality is orderly or lawful; the existence of the natural social order; if reality is fixed and stable or constantly changing, and whether it is unitary or multiple; and if reality can be constructed by the individuals involved in the research situation (Creswell, 1998:76). The researcher’s epistemological beliefs are about what is possible for one to know – the relationship of the researcher to what is being researched. Fayolle, Kyro and Ulijn (2005:136) assert that:

“looking at the concept of ontology and epistemology, we can see that they are some kind of “rules of the game,” and we have different rules.....these rules are

interconnected within each game. If we assume that knowledge is not one entity but many and it changes, it is reasonable to assume that we have different ways of studying it.....”

Based on their assertion above, Fayolle *et al.* (2005:137) use a hierarchical order to express the way in which knowledge can be studied and understood as depicted in the following figure:

FIGURE 4.3: Hierarchical order of a paradigm (Adapted from Fayolle *et al.*, 2005:137)



According to Fayolle *et al.* (2005), ontology is the broadest and deepest level, followed by epistemology which is the second level and may be deduced from ontology. Ontology is concerned with the different ways of attaining knowledge which are referred to as methodology. Each methodological choice consists of several specific methods and within these methods we find several alternatives for data gathering and analysis.

Research is all about being amazed at the world around us, and the steps we take to understand this world. It concerns how we think the social world is constructed or what we think the world is (ontology), and this shapes the way we believe we can know the world. How we look at the world (epistemology) and the methods we use, shape what we can see. I accept that research is concerned with understanding the world and that such understanding

is informed by how I view the world, what I interpret understanding to be, and what I see as the purposes of understanding (Cohen, Manion & Morrison, 2003:3). On the basis of my submissions above, my working assumptions are as follows:

Humans create reality by learning from others, teaching others and reflecting on their own understanding. Social reality can thus be understood from both an external point of view and within levels of individual consciousness (Cohen *et al.*, 2003:5). Knowledge is acquired by transactional means, which implies that knowledge can be acquired by interacting with the source in a bi-directional manner. This transactional view implies that knowledge can be viewed as hard, objective and tangible, which prompted me to use quantitative methods for this study. Knowledge can also be created by personal experiences that result in individual cognition. Such experiences require a deeper qualitative approach in order to reveal the personal, subjective and unique nature of translated interactions and intra-actions.

Burrell and Morgan (1979; 2005:24) introduce four paradigms for the analysis of social theory and indicate that: “*to be located in a particular paradigm is to view the world in a particular way*”. The four paradigms are described in the table below:

TABLE 4.3: Four paradigms for the analysis of social theory (Adapted from Burrell & Morgan, 1979; 2005:24)

THE SOCIOLOGY OF RADICAL CHANGE

SUBJECTIVE	Radical Humanist	Radical Structuralist	OBJECTIVE
	Interpretive	Functionalist	

THE SOCIOLOGY OF REGULATION

Karnevio (2007:22) and Burrell and Morgan (1979) explore the above paradigms as follows but only the two paradigms that are used in this study are discussed below.

A *functionalist* paradigm is a primary paradigm for organizational study. It is realistic, positivistic, deterministic and nomothetic, giving explanations to social people. This paradigm assumes rational human action and believes that one can understand behaviour

through hypothesis testing (Burrell & Morgan, 1979). It is objectivistic so that social truths are outside human beings (Karnevio, 2007).

An *interpretive* paradigm, like the functionalist paradigm, belongs to the sociology of regulation and its purpose is to understand the world from the individual's viewpoint. It is nomothetic, antipositivistic, voluntaristic and ideographic, using subjective first-hand knowledge (Karnevio, 2007). In this paradigm, researchers attempt to observe ongoing processes to better understand individual behaviour and the spiritual nature of the world (Burrell & Morgan, 1979).

The above assumptions and the subsequent paradigms influenced my methodological choices. I found it appropriate to use both qualitative and quantitative (mixed methods research) approaches for this study. On the basis of this research approach, I used two paradigms, firstly the *social constructivism (interpretive)* paradigm which employs inductive logic and qualitative research methods, and secondly the *post positivism (positivist)* paradigm which employs deductive logic and quantitative research methods (Rocco *et al.* (2003:21). Crotty (1998) defines social constructivism as "...the view that all knowledge, and therefore all meaningful reality as such, is contingent upon human practices, being constructed in and out of interaction between human beings and their world, and developed and transmitted within an essentially social context."

The reason for my choice is that through social constructivism researchers seek an understanding of the world in which they live and work and develop subjective meanings of their experiences – meanings directed towards certain objects or things. The researcher's intention is to make sense of the meanings others have about the world (Creswell, 2007:21). The social constructivist perspective of this study was embraced by the interviews conducted to collect data from the respondents in answering qualitative questions. The questionnaire (quantitative instrument) embraced the post positivist perspective by seeking answers to theory driven questions (Creswell & Tashakkori, 2007:306). The constructivist perspective is supported by the participatory paradigm which proposes that at the end of the social constructivist agenda, there should be an action agenda for reform which may change the lives of the participants, the institutions in which they live and work, or even the researchers' lives (Heron & Reason, 1997). Hussey and Hussey (1997:54) indicate that positivism and interpretivism are two poles of the same continuum and illustrate the differences between these two paradigms as follows:

TABLE 4.4: Differences between the positivist and interpretivist paradigms (Adapted from Glesne & Peshkin, 1992)

Positivist Paradigm	Interpretivist Paradigm
Tends to produce quantitative data	Tends to produce qualitative data
Uses large samples	Uses small samples
Concerned with hypotheses testing	Concerned with generalizing theories
Data is highly specific and precise	Data is rich and subjective
Location is artificial	Location is natural
Reliability is high	Reliability is low
Validity is low	Validity is high
Generalizes from sample to population	Generalizes from one setting to another

These two paradigms assisted me in acknowledging and appreciating the fact that there are multiple realities/truths about the world (ontology) as seen and heard from different individuals in the research setting, and therefore a single reality has to be constructed by the researcher through interaction with the researched (epistemology), i.e. reducing the distance between the researcher and the researched.

4.6 RESEARCH METHODS

This is a mixed methods research study of the variables related to instructional leadership and their contribution to the improvement of learner achievement. Given this focus, literature reviews, questionnaires and interviews were used to collect data. According to Van der Merwe (1996:290), in theoretical studies the researcher produces his/her evidence to support arguments from existing facts or information.

4.6.1 LITERATURE REVIEW

This study focuses on variables related to instructional leadership and their contribution to the improvement in the performance of learners in the matriculation examination. For this purpose, an extensive and relevant literature review was conducted in an attempt to provide a theoretical foundation for the research project. The literature review provided scientific explanations for the research question(s), and enabled me to verify my findings and to compare these with the work of other scholars in the field of instructional leadership.

According to Neuman (1997:89), a literature review is based on the assumption that knowledge accumulates and that we learn from, and build on, what others have done. Literature reviews can take various forms, namely: contextual, historical, theoretical, integrative, methodological and meta-analysis. Each type of review has a specific goal. Neuman (1997:89) indicates that the goals of a literature review are: demonstrating the researcher's familiarity with a body of knowledge that already exists about the subjects of research and establishing the credibility of such knowledge; showing the path of prior research and how the current project is linked to already completed research; integrating and summarizing what is known in and about his/her area of research; learning from others; and stimulating new ideas.

This study, in line with Neuman's (1997) goals above, used existing literature to investigate the evolution and development of instructional leadership by exploring the widely accepted models, definitions and theories of instructional leadership, and how the concept manifests itself as an accepted practice in the improvement of learner achievement.

4.6.2 QUESTIONNAIRES

A questionnaire is a form containing a set of questions, especially addressed to a statistically significant number of subjects, and is a way of gathering information for a survey. It is used to collect statistical information or opinions about people. The Oxford Advanced Learner's Dictionary (1997:952) defines a questionnaire as a written or printed list of questions to be answered by a number of people, especially as part of a survey.

For the purpose of this study, the questionnaire formed my second data collection method and its content was guided by the literature reviewed. Assistance from the Statistics Department at the University of Pretoria was sought, particularly to get advice with regard to validity of items for statistical purposes. The questionnaire was administered to the 114 principals in the Bushbuckridge Region of the Mpumalanga Province, as well as their deputy principals and heads of department.

4.6.2.1 Construction and structure of the questionnaires

Structured questionnaires were used as research instruments for the first section of this study. The literature review was used to construct two different questionnaires, one for

principals and another one for deputy principals and heads of departments. The purpose of the questionnaire for principals was to obtain information about them, ranging from their demographic information, the background of their schools, their qualifications, and the pass rate in their schools from 2004 to 2008.

The purpose of the questionnaire for the deputy principals and HODs was to gather information concerning their perceptions with regard to the role of the principal as an instructional leader. This questionnaire covers the four variables (the secondary challenges mentioned in chapter 3) which I adopted for this study, namely: *promoting frequent and school-wide teacher development activities, defining and communicating shared vision and goals, monitoring and providing feedback on the teaching and learning process, and managing the curriculum and instruction.*

Each of the variables indicated above consists of sub-questions with a six point scale to determine the extent to which the principal performs instructional leadership related functions. Both questionnaires were structured with the assistance of statisticians from the Statistics Department at the University of Pretoria.

4.6.2.2 Distribution and collection of the questionnaires

As indicated in the sample and sampling procedures described below, my target sample was the 114 public secondary schools in the Bushbuckridge region of the Mpumalanga Province. The purpose of the questionnaire was to investigate and document the contribution of the independent variables which characterize instructional leadership and its effect on the dependent variable, which is learner performance.

The following methods were used to distribute and collect the questionnaires:

- The questionnaires were packaged according to the 14 circuits of the region and submitted to the circuit coordination office for delivery to the different circuit offices.
- Circuit managers were telephonically informed by the researcher to collect their packages from the same office and requested to expedite the completion of the questionnaires.

- Each school's questionnaire consignment consisted of one questionnaire for the principal and two questionnaires numbered (a) for the deputy principal and (b) for the HOD.
- Some circuit managers submitted the completed questionnaires from their circuits to the regional office; others handed theirs directly to me and I personally collected some from the circuits.
- Only three out of the 14 circuits did not participate in the completion of the questionnaires.

4.6.3 INTERVIEWS

Seale, Giampietro, Gubrium and Silverman (2004) define an interview as a social encounter where speakers collaborate in producing retrospective and prospective accounts or versions of their past or future actions, experiences, feelings and thoughts. Two types of interviews were used in this study, namely focus group interviews and structured interviews.

4.6.3.1 Focus group interviews

According to Rabiee (2004:655), a focus group is “...*a technique involving the use of in-depth group interviews in which participants are selected because they are a purposive, although not necessarily representative sampling of a specific population, this group being focused on a given topic.*” Lewis (2000) defines a focus group interview as a “...*carefully planned discussion designed to obtain perceptions in a defined area of interest in a permissive, non-threatening environment*”. According to Lewis (2000), this type of interview will yield both a more diversified array of responses, and afford a more extended basis for designing systematic research into the situation at hand.

The focus group interview can be used for a variety of reasons or to achieve a myriad of objectives in research. According to Stewart and Shamdasani (1990), focus group interviews can be used to obtain general background information about a topic of interest for generating research hypotheses that can be submitted to further research and testing using more quantitative approaches; to stimulate new ideas and creative concepts; to learn how respondents talk about the phenomenon of interest which may facilitate quantitative research tools; and to interpret previously obtained qualitative results.

According to Roberts (1997:79), purposive sampling is a commonly used procedure for focus group interviews. It is an approach that is frequently used as a method of extending knowledge by deliberately selecting sample participants who are known to be rich sources of data. Another advantage of using purposive sampling for interviews, according to Mastalgia, Toye and Kristjanson, (2003:281), is that individuals who have experienced the phenomenon of interest are invited to participate, contributing a wide range of domain descriptors and construct dimensions.

It is important to note, as Jamieson and Williams (2003:274) argue, that *“it is not usually the aim of a focus group study to achieve consensus on issues but to identify candid perceptions that may differ between participants.....thus the homogenous characteristics desired for each group should be based on a desire to promote open discussion”*. Ekblad, Marttila and Emilson, (2000:626) support this view by indicating that *“a sufficient measure of heterogeneity among the participants’ other characteristics is needed to encourage dynamic group interaction and allow contrasting opinions”*.

Jamieson and Williams (2003:272) argue that the philosophical underpinning of the focus group methodology is based on the premise that attitudes and perceptions are not developed in isolation but through interaction with other people. Based on this view, a focus group, according to Stewart and Shamdasani (1990), should ideally consist of 5 to 12 relatively homogenous participants. The focus groups should not be too small to allow the domination of one or two members over the others, and should not be too large and end up being unmanageable. The size of the group should not deny the participation of other members due to the constraints of time (Harvey-Jordan & Long, 2002:20).

Focus group interviews were conducted first, followed by the one-on-one interviews. The purpose of this exercise was to assist the researcher in formulating relevant questions for the one-on-one interviews.

4.6.3.2 Structured interviews

Structured interviews were conducted with five principals conveniently sampled from the 78 principals who participated in this study and the responses were recorded with their permission. This enabled me to induce first hand information from the principals with regard to their experiences, challenges, frustrations and opinions. An interview schedule

was compiled in which the interview questions are outlined (see Appendix H). The questions are mostly open ended, making it possible for the interviewer to add new questions during the interviewing process, depending on the responses of the participants.

4.6.3.3 Collecting the structured interview data

Collection of the structured interview data involved interaction between the researcher and the respondents which needed to be documented. For the purpose of this study, the interviews were tape recorded, and I took notes at the same time. After the interviews, I reviewed the tape and notes, and wrote down direct quotes that were found to be relevant. The tape and the notes were kept as records for future reference (see Appendix H). With regard to the setting for the interview, the following measures were taken into consideration.

I ensured that each interview was conducted in comfortable, secure, and private surroundings, preferably in the interviewees' office or any place which was convenient for them. This was necessary to ensure that the interviewees felt comfortable in their own surroundings and that they did not feel intimidated during the interviews. I assured them that the information which they were going to provide would be treated in the utmost confidence. This was achieved by allocating pseudonyms for each participant and securing their permission to record them as they responded to the questions. I sought informed consent by explaining the objectives of the study, confidentiality, and the procedure that would be adopted in conducting the interviews. I provided the letter of informed consent to the interviewees to read and sign and I also signed it in their presence.

As the interviewer, I served only as a facilitator who encouraged the interviewees to respond. This was achieved by my assuming a neutral stance and non-judgemental attitude towards them. I also assumed an invitational attitude by creating a friendly atmosphere where the interviewees were encouraged to request repetition of any question in the event that they did not understand a particular question.

4.6.3.4 Analyzing the structured interview data

For the purpose of this study, I used two methods to analyze the data from the structured interviews, namely: an *interpretative phenomenological analysis*, and a *hermeneutical analysis*. The interpretative phenomenological analysis refers to the structure and essence of

experience of the respondents with regard to the phenomenon being studied, in this case, instructional leadership and its impact on learner performance. The principals responded to questions which required them to express themselves in terms of their experiences as principals (Medico, 2005).

The hermeneutical analysis is also an interpretative approach which emphasizes the importance of the views of the participants based on their experience and their standpoint (Ozkan, Davis & Johnson, 2006:11). Implicit in hermeneutical analysis, according to Willis, Jost and Nilakanta (2003), is the concept of “hermeneutic circles” which suggests that:

“...we come to understand a complex whole from preconceptions about the meanings of its parts and their interrelationships...the movements of understanding are constantly from the whole to the part and back to the whole. Our task is to extend in concentric circles in unity of the understood meaning.”

Based on Willis *et al.* (2003), the purpose of structured interviews was to obtain the interviewees’ lived experiences with regard to their roles as instructional leaders, taking into consideration their subjectivity and their socio-historical backgrounds.

4.7 DATA COLLECTION

As indicated in the preceding paragraphs, data collection methods included conducting one-on-one interviews with five principals and distributing questionnaires to the 114 secondary school principals in the Bushbuckridge Region together with their deputy principals and Heads of Department.

The questionnaires were used to collect quantitative data that provided statistical descriptions, relationships and analysis. The one-on-one interviews with the five principals provided qualitative and exploratory data. De Vos (1998:358) indicates that when working from a qualitative perspective, the researcher attempts a first-hand, holistic understanding of a phenomenon and data collection is shaped as the investigation proceeds.

4.7.1 SAMPLE AND SAMPLING PROCEDURES FOR THE QUANTITATIVE RESEARCH

During the initial planning stages of the research, I had intended to involve all the secondary schools in the Mpumalanga Province but, due to the size of the province, the time available

to complete the research, and financial implications, I decided to limit my sample to the 127 secondary schools in the Bushbuckridge Region. I further decided to focus my investigation on public secondary schools only, which reduced my sample to 114 secondary schools since there are 12 private schools in the region, and one which does not offer grade 12 classes. The 114 secondary schools which I identified for this research have similar backgrounds with regard to their geographical location, school facilities, funding models, and more importantly, their performance patterns.

According to De Vos (1998:191), the implications and success of the design and related methodology have a bearing on the population and sample size, for example, the elements of the population considered for actual inclusion in the study. Prior to the sampling procedures, the questionnaire was piloted with a view to testing its validity and reliability. Since the interview questions were the same as those on the questionnaire, the piloting of the questionnaire included the interview questions. De Vos (1998:179) defines a pilot study as the process whereby the research design for a prospective survey is tested.

4.7.1.1 The pilot study

The pilot study was a small scale replication of the actual study, targeting a small number of persons with characteristics similar to those of the target group of respondents, namely principals, deputy principals and heads of department of post-primary schools. The construction of the questionnaire, as indicated above, was done with the assistance of the official statistician at the main campus of the University of Pretoria, who advised on the validity of items for statistical purposes.

The pilot sample consisted of 15 respondents (five principals, 5 deputy principals, and five HODs) who were purposively sampled from five secondary schools in the Ehlanzeni Region of the Mpumalanga Department of Education (MDoE). The purpose of the pilot study was to determine the feasibility of the study; to test the reliability and validity of the instrument and trustworthiness of respondents for data collection in the main study; to establish how appropriate, understandable and practical the instrument is; to address any problems prior to the main study; and to check the time required for the completion of the questionnaire. The pilot study demonstrated that the questionnaire did not contain any confusing items and the responding principals found it easy and quick to complete.

After the completion of the questionnaires, the services of the official statistician of the University of Pretoria were sought for the analysis of the data. The findings from this pilot study informed the reformulation of the objectives of the study; consideration of the research population; elimination and/or revision of ambiguous questions; and planning for the main research study.

4.8 ETHICAL CONSIDERATIONS

Clough and Nutbrown (2002:84) comment as follows with regard to ethics in research: “.....in order to understand, researchers must be more than technically competent. They must enter into chattered intimacies, open themselves to their subjects’ feeling worlds, whether these worlds are congenial to them or repulsive. They must confront the duality of represented and experienced selves simultaneously, both conflicted, both real.....” In concert with Clough and Nutbrown’s view above, it follows that in planning my research, I had to take into consideration, and protect the feelings, welfare, and rights of the participants (see Appendix A for a copy of the ethical clearance certificate from the Ethics Committee at the University of Pretoria).

In concert with the rules and regulations of the university with regard to conducting research using human subjects, the following ethical considerations were taken into account during the course of the research. These considerations applied to both the quantitative and qualitative research sections of this study.

4.8.1 PERMISSION

I obtained written permission from the Head of the Department of Education in the province and the Regional Director to conduct this research, in order to ensure that it is a legal exercise. The letters of permission for each questionnaire are provided in Appendix D.

4.8.2 CONFIDENTIALITY AND PRIVACY

Confidentiality refers to handling the information concerning the respondents in a confidential manner. Respondents were assured that their names and the names of their schools would be dealt with in the strictest confidence. This aspect includes the principle of trust in which I assured the participants that their trust would not be exploited for personal

gain or benefit, by deceiving or betraying them in the research route or its published outcomes (Lubbe, 2003:41).

4.8.3 VOLUNTARY PARTICIPATION AND INFORMED CONSENT

The principle of voluntary participation was explained to the respondents and they were also informed that they had the right to withdraw from the study at any time. The principle of informed consent was attached to the questionnaires and verbally explained to the interviewees. Both principles entailed explaining the research process and its purposes to the participants.

4.9 DATA ANALYSIS

Three sources of data were identified for this study, namely interviews and a questionnaire which are referred to as primary sources of data, and a literature review as secondary data. (Mouton, 2006:164). Secondary data is collected for the primary purpose of re-analyzing the data, and has the advantage of compelling the researcher to be explicit about the underlying assumptions and theories pertaining to the data.

Onwuegbuzie and Teddlie (2003) state that when analyzing qualitative and quantitative data within a mixed methods framework, researchers undergo at least seven stages, which is the procedure that I adopted in this study. The following table represents the operation of the seven stages in the data analysis process:

TABLE 4.5: Seven steps in the data analysis process

Stages in the mixed methods data analysis process	Description of each stage	Application in quantitative data analysis	Application in qualitative data analysis
1. Data Reduction	Reducing the dimensionality of the qualitative and quantitative data	Via descriptive statistics, exploratory factor analysis and cluster analysis	Via exploratory thematic analysis
2. Data Display	Pictorially describing both the qualitative and quantitative data	Using tables and graphs	Using matrices, charts, graphs, networks, lists, rubrics, and Venn diagrams
3. Data Transformation		Quantitative data are converted into narrative data that can be analyzed qualitatively	Qualitative data are converted into numerical codes that can be represented statistically
4. Data Correlation		Quantitative data is correlated with qualitative data	Qualitative data is correlated with quantitative data
5. Data Consolidation	Both qualitative and quantitative data are combined to create new or consolidated variables		
6. Data Comparison	Involves comparing data from both the qualitative and quantitative data sources		
7. Data Integration	This is a final stage, wherein both qualitative and quantitative data are integrated into either a coherent whole or two separate sets of coherent wholes		

4.10 ENSURING VALIDITY AND RELIABILITY

As this study entails the use of both qualitative and quantitative research data, the concepts used to express validity and reliability are broader than those traditionally associated with quantitative research. When working with qualitative data, the concepts of trustworthiness, dependability, transferability, and credibility are also used. According to MacMillan and Schumacher (2001:407), validity is the degree to which the interpretations and concepts have mutual meanings between the participants and the researcher. Reliability, on the other hand, according to Silverman (2004:285), is the degree to which the findings of the research

are independent of accidental circumstances. It is closely related to assuring the quality of field notes and guaranteeing the public access to the process of the publication of the research results. Joppe (2001:1) defines reliability as the extent to which results are consistent over time, and are an accurate representation of the total population under study. If the results of a study can be reproduced under a similar methodology, then the instrument is considered to be reliable.

In order to ensure the validity and reliability of the content of the two questionnaires, the questionnaires were reviewed by the official statisticians from the Department of Statistics at the University of Pretoria. The two questionnaires were piloted with five secondary schools in the Ehlanzeni Region of the Mpumalanga Department of Education to test their validity and reliability. The following processes for ensuring validity and reliability, legitimizing the data, and finally lending credibility to the research report were used for this study.

4.10.1 TRIANGULATION

Cohen, Manion and Morrison (2000:112) define triangulation as the use of two or more methods of data collection to study a particular phenomenon. Bailey-Beckett and Turner (2001:2) refer to the work of Jakob (2001) who indicates that “...*by combining multiple observers, theories, methods, and empirical materials, researchers can hope to overcome the weakness or intrinsic biases and the problems that come from single-method, single-observer, and single-theory studies. Often the purposes of triangulation in specific contexts are to obtain confirmation of findings through convergence of different perspectives. The point at which the perspectives converge is seen to represent reality.*”

Triangulation is viewed as a verification procedure whereby researchers search for convergence among multiple and different sources of information to form themes or categories in a study. It is a system of sorting through the data to find common themes or categories by eliminating overlapping areas. Triangulation was employed in this study. The 114 principals and 228 deputy principals and HODs who were identified to complete the questionnaires, the 60 principals for the focus group interviews, and the 5 principals for the structured interviews were male and female, from secondary schools in the Bushbuckridge region, from different schools of different sizes with different community backgrounds, thus providing multiple sources of information from which to form themes.

For the purpose of this study, the three sources of data are placed at the points of a triangle, where each data source provides a philosophical starting point for the other data sources. The three data sources for this study, and how they were triangulated, are represented in the diagram below.

FIGURE 4.4: Representation of the triangulation of data sources

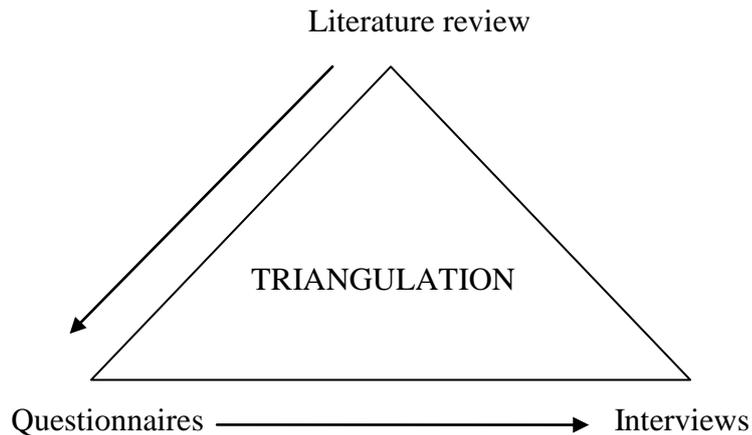


Figure 4.4 represents the three data sources used in this study, namely: literature review, questionnaires, and interviews. The literature review was used to provide secondary data which assisted the researcher to formulate questions for the questionnaires; the questions for the deputy principals' and HODs' questionnaires were drawn directly from the literature. The findings from the analyzed questionnaires informed the types of questions which were included in the interview schedule for principals. Four types of triangulation are identified by Denzin (1994). Only two of these were used for the purposes of this study, namely *data triangulation* and *methodological triangulation*.

Data triangulation concerns itself with the use of various data sources, and in this study, interviews, questionnaires, and an in-depth literature review were conducted. Methodological triangulation concerns itself with the use of both qualitative and quantitative methods in the same study. A detailed exploration of the two research methods has already been provided in the preceding sections of this study.

Triangulation offered the following benefits for this study: it provided additional sources of valuable insight that could not be obtained from the literature review alone; it minimized the inadequacies of single-source research by engaging three data sources which complemented

and verified each other, and it also provided richer and more comprehensive information in the sense that the researcher was able to draw information from various sources including the face-to-face interviews which provided first hand, lived experiences of the principals. In my study, I undertook to conduct focus group interviews as well as face-to-face structured interviews with principals and principals in training, to triangulate my quantitative data.

4.10.2 THICK DESCRIPTION

Thick description is a procedure that is used in qualitative research to ensure validity and reliability. This procedure is concerned with describing the setting, the participants, and the themes of a qualitative study in rich detail. Thick description has been used in this study in the presentation of the qualitative research findings where the actual words of the participants have been used constantly. The purpose of thick description is that it creates “verisimilitude”, that is, statements that produce for the readers the feeling that they have experienced, or could experience, the events being described in the study.

The purpose of reporting the findings using thick description is to provide as much detail as possible for the readers. It also enables the readers to make decisions about the applicability of the findings to other settings or similar contexts. In this study, I have described in detail the two main concepts in chapter 1, which are instructional leadership and learner performance, the background of Bushbuckridge where the research took place, and all the samples of participants have been thoroughly described.

4.10.3 PEER REVIEW

The third and last procedure for ensuring validity and reliability in this study is peer review (Creswell & Miller, 2000). Peer review is the review of the data and research process by someone who is familiar with the research or the phenomena being explored. A peer reviewer provides support, plays devil’s advocate, challenges the researcher’s assumptions, pushes the researcher to the next step, and asks in-depth questions about methods and interpretations (Lincoln & Guba, 1985). This procedure was used during both phases of my data collection and interpretation. The peer reviewer was an experienced friend who has already completed his PhD and is a lecturer in one of the South African universities. The peer reviewer has expertise and knowledge of the subject matter of the thesis and provided quality advice and feedback.

4.11 SUMMARY AND CONCLUSION

This chapter has focused on the research design and methodology that underpin this study. Detailed information regarding the mixed methods design, its origins, its relevance to this study and its general characteristics, were explored in this chapter. The following chapters build on from the methodological propositions made in this chapter by employing the proposed data presentation and analysis approaches to analyze the quantitative and qualitative data.

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