


12-25-2017

An Expose of the Relationship between Paradigm, Method and Design in Research

Godswill Makombe Prof

Gordon Institute of Business Science-University of Pretoria, makombeg@yahoo.com

Follow this and additional works at: <http://nsuworks.nova.edu/tqr>

 Part of the [Other Education Commons](#), and the [Quantitative, Qualitative, Comparative, and Historical Methodologies Commons](#)

This How To Article has supplementary content. View the full record on NSUWorks here:

<http://nsuworks.nova.edu/tqr/vol22/iss12/18>

Recommended APA Citation

Makombe, G. (2017). An Expose of the Relationship between Paradigm, Method and Design in Research. *The Qualitative Report*, 22(12), 3363-3382. Retrieved from <http://nsuworks.nova.edu/tqr/vol22/iss12/18>

This How To Article is brought to you for free and open access by the The Qualitative Report at NSUWorks. It has been accepted for inclusion in The Qualitative Report by an authorized administrator of NSUWorks. For more information, please contact nsuworks@nova.edu.



Qualitative Research Graduate Certificate
Indulge in Culture
Exclusively Online • 18 Credits
LEARN MORE

NSU
NOVA SOUTHEASTERN
UNIVERSITY

NOVA SOUTHEASTERN

An Expose of the Relationship between Paradigm, Method and Design in Research

Abstract

It is crucial that any research inquiry be guided by a paradigm. However, many early career researchers do not mention the research paradigm guiding their inquiry. Furthermore, qualitative and quantitative methods are sometimes erroneously referred to as research paradigms or research designs. Experienced researchers often use the terms research paradigm, research methods and research design in a loose and confusing manner. Although it is reasonable to assume that experienced researchers do understand the distinction and relationship between the three concepts, the loose use of the concepts leads to confusion among early career researchers, especially Master's and PhD students. By using a literature review, this paper provides an expose of the relationship between these three concepts and highlights the sources of confusion from the literature. A qualitative approach, using a sample of 11 students from different South African universities, is used to provide an understanding of these concepts by early career researchers. The findings show that there is confusion in the understanding of these concepts. The study raises questions about what could be the possible sources of the confusion, besides the literature, and how the confusion could be addressed.

Keywords

Research Paradigm, Early Career Researchers, Research Methods, Research Design, Qualitative, Quantitative, Confusion, Interconnectedness

Creative Commons License



This work is licensed under a [Creative Commons Attribution-NonCommercial-Share Alike 4.0 License](https://creativecommons.org/licenses/by-nc-sa/4.0/).

An Expose of the Relationship between Paradigm, Method and Design in Research

Godswill Makombe
University of Pretoria, South Africa

It is crucial that any research inquiry be guided by a paradigm. However, many early career researchers do not mention the research paradigm guiding their inquiry. Furthermore, qualitative and quantitative methods are sometimes erroneously referred to as research paradigms or research designs. Experienced researchers often use the terms research paradigm, research methods and research design in a loose and confusing manner. Although it is reasonable to assume that experienced researchers do understand the distinction and relationship between the three concepts, the loose use of the concepts leads to confusion among early career researchers, especially Master's and PhD students. By using a literature review, this paper provides an expose of the relationship between these three concepts and highlights the sources of confusion from the literature. A qualitative approach, using a sample of 11 students from different South African universities, is used to provide an understanding of these concepts by early career researchers. The findings show that there is confusion in the understanding of these concepts. The study raises questions about what could be the possible sources of the confusion, besides the literature, and how the confusion could be addressed. Keywords: Research Paradigm, Early Career Researchers, Research Methods, Research Design, Qualitative, Quantitative, Confusion, Interconnectedness

Introduction

Although all researchers may benefit, the target audience for this paper is early career researchers, Master's and PhD students from whom confusion about the conceptual relationship between the research paradigm, research method and research design is commonly observed. Properly structuring research and clearly articulating these three critical components of research inquiry is important especially at the proposal stage because it illustrates a clear understanding of the research methodology.

There are three basic questions that form the structure of all research inquiry. Briefly, they are

1. The ontological question: What is there to be known about the form and nature of reality?
2. The epistemological question: What is the relationship between the researcher (would be knower) and that which can be known about the reality?
3. The methodological question: How can the researcher go about attempting to know that which can be known about the reality?

These structural questions are generously treated in Piele (1988), Guba and Lincoln (1994), Heron and Reason (1997), Tuli (2010), and Brennan, Voros, and Brady (2011). For the purposes of this paper, suffice to say that it is the answers to these questions that drive choices of the paradigm, method and design of any research. This is so because the concepts are interconnected to the extent that once an answer is provided to any one of these questions,

it restricts the possible responses to the other two (Guba & Lincoln, 1994). For instance, Guba and Lincoln (1994) posit that ontologically assuming a real reality, assumes objective detachment as the epistemological stance, positivism as the paradigm and quantitative as the method. This also means that if a researcher locates the research in a paradigm, say a normative paradigm, then a real reality cannot be the ontology, and objective detachment cannot be the epistemological stance. Although some argue that realism can apply to other epistemological stances other than objective detachment (Crotty, 1998), in this study I use the interpretation by Guba and Lincoln (1994). In analyzing the concepts, Crotty (1998) draws arrows that demonstrate concept relationships and mentions that an arrow cannot be drawn from subjectivism (as an epistemological stance) to positivism as a paradigm, thus also acknowledging that if one of these three questions is answered, the answer may restrict the possible responses to the other two.

This article was prompted by noticing that, in discussions with students, sometimes they refer to quantitative or qualitative methods as paradigms and yet others refer to them as designs. This is erroneous because by definition a paradigm is a “world view” (Creswell, 2009), whereas qualitative and quantitative are distinctions between research methods (Tuli, 2010) or the way the researcher goes about attempting to know what can be known (Guba & Lincoln, 1994) about the research problem. My interest in this article stems from the fact that from May 2013 to May 2016 I worked for the University of Limpopo as an associate professor in development economics. I was part of a team of four lecturers who taught the research methods class to Master’s students. During this time, I also attended the school higher degrees committee (SHDC) meetings at the Turfloop Graduate School of Leadership. At the SHDC Master’s level research proposals were reviewed and approved. During the proposal reviews I noticed some inconsistencies in the understanding and application of the concepts research paradigm, method and design. Furthermore, I was invited to research proposal presentations and reviews at the Stellenbosch University’s Sustainable Agriculture Programme. Although, in comparison to the University of Limpopo, the inconsistencies were less severe at Stellenbosch University, I still observed that students rarely mentioned their paradigm and or design. I also noticed that at the University of Limpopo (and probably at similar historically black universities (HBUs)), there is a serious shortage of supervision capacity. For instance, there was a time when I was supervising 26 Master’s students allocated to me at the University of Limpopo. This is an unsustainable situation which benefits neither the supervisor nor the student. I therefore think that the University of Limpopo and similar HBUs need to rapidly develop supervision capacity.

I would like to get involved in the training of South Africa’s next generation of researchers and supervisors and this article is part of my attempt to do so. Currently I am not a full time employee of any university in South Africa, but in the near future I am hoping that I will be able to contribute to this effort by teaching research methods at a South African university; otherwise, I will continue my contribution through collaborative associations like the one I have with the Gordon Institute of Business Science where I am a research associate involved with students supervision and collaborative research. I strongly feel that the next generation of South African researchers and supervisors needs to be well grounded in research principles, including, but not limited to, the relationship between research paradigm, method and design. I therefore would like to contribute towards reducing the confusion about the three concepts for the early career researchers, Master’s and PhD students. Although I am convinced that HBUs in South Africa will benefit from this work, I also hope that it will be of benefit to early career researchers, Master’s and PhD students in other South African universities and elsewhere.

The confusion I noticed among the students regarding the concepts research paradigm, method and design is, however, not without foundation. Observations from the literature show

that sometimes experienced researchers are a bit loose in their use of these terms to the extent that it confuses early career researchers. For instance, Ferguson (1993), in the abstract writes, "Qualitative research is both a set of methods for gathering and analyzing data and a world view or paradigm about the nature of knowing and inquiry." Although it is reasonable to believe Ferguson (1993) is not confused about the concepts of research paradigm and research methods, it is precisely such statements that are not very helpful to early career researchers, Master's and Ph.D. students who want to understand the concepts of and the distinction between paradigm (world view) and research methods (quantitative and qualitative). Betram and Christiansen (2014) observe in the literature there is reference to the qualitative versus the quantitative paradigm. Guba and Lincoln (1994,) recommend that the term qualitative be reserved for the description of method. For the early career researcher, Master's and PhD students, I am sure it is a welcome relief to get such unambiguous guidance. Gringeri, Barusch, and Cambron (2013, p. 761) quoting Marshall and Rossman (2006) state that it is essential to present "...logical and compelling connections between genre, overall strategy, the research questions, the design and the methods." I agree with this recommendation. It is the absence of such in the research proposals and theses of Master's and PhD students that prompted this study. Gringeri et al. (2013) further point out that paradigms are often left implicit in research.

Objective

This paper aims to provide a simple expose of the relationship between research paradigm, research methods and research designs so as to assist early career researchers, Masters' and Ph.D. students in understanding and correctly applying the concepts. It also aims to expose and discuss the confusion regarding these important research concepts that arises from the current body of literature. Finally, it presents the understanding of these concepts by Master's and PhD students in South Africa based on a qualitative approach.

Methodology

First, I provide an extensive discussion of the concepts research paradigm, research method and research design. This discussion is by no means meant to be exhaustive; however, I hope that, unlike the sometimes confusing literature, it provides some clarity for early career researchers regarding the relationship and interconnectedness between research paradigm, method and design. For this I use a tabular presentation. I review the literature around the concepts and where necessary highlight the possible sources of confusion that do not assist the early career researchers to understand and therefore appropriately apply the concepts to their research. Finally, I provide the understanding of these concepts by Master's and PhD students in South Africa based on a qualitative approach. The qualitative study includes a sample of 11 students comprising four doctoral students and seven Master's students from different universities in South Africa who were at different stages of their research. Data were collected from the sample using an interview guide and a voice recorder. For ethical considerations all the students signed an informed consent form which explained that; participation in the study was voluntary and could be terminated at any time, no harm would come to the participants, all the information collected would be treated confidentially, analysis would be performed without personal identifiers and that if participants observed any malpractice or unethical behavior, during the study they could anonymously report it by calling a number that was provided on the consent form. Only one of the participants was under my supervision.

During the interview, first the students were asked to describe their study programmes and then they were asked three questions as follows: What is your understanding of research paradigm, research methods, and research design? (as separate questions). Table 1 describes

the sample, the programmes they attended and the stage of their research at the time of interview. A common characteristic of the programmes is that they included a coursework and dissertation component and the coursework included a research methods class except for S6, S7 and S8 as shown in Table 1. After a thorough review of each concept, the understanding of the concept by the students is analyzed.

Table 1. Sample description

Serial number	Programme description indicating dissertation stage at time of interview
S1	Registered in the Master's programme at University of the Witwatersrand School of Governance, Johannesburg. Programme includes coursework and dissertation components. Coursework includes a research methods class. Writing dissertation. Concurrently registered in the Master of Development programme at Turfloop Graduate School of Leadership (TGSL), University of Limpopo. Programme also includes coursework and dissertation components. Coursework includes a research methods class. Dissertation in examination.
S2	Registered in the Master's programme at University of the Witwatersrand School of Governance, Johannesburg. Programme includes coursework and dissertation components. Coursework includes a research methods class. Completing writing dissertation.
S3	Registered in doctoral programme at Gordon Institute of Business Science (GIBS), University of Pretoria. Programme includes coursework and dissertation components. Coursework includes a research methods class split into quantitative and qualitative classes. Did Master's at Makerere University, Uganda. Completing dissertation writing.
S4	Just completed the doctoral programme at GIBS, University of Pretoria. Programme includes coursework and dissertation components. Coursework includes a research methods class split into quantitative and qualitative classes. Did MBA at TGSL, University of Limpopo. Completing dissertation writing.
S5	Registered in doctoral programme at GIBS, University of Pretoria. Programme includes coursework and dissertation components. Coursework includes a research methods class split into quantitative and qualitative classes. Did MBA at Oxford Brookes University, UK. Completing proposal writing.
S6	Registered in MBA programme at Regent Business School. Programme includes coursework and dissertation components. Coursework does not include a research methods class. About to submit dissertation for examination.
S7	Registered in MBA programme at Regent Business School. Programme includes coursework and dissertation components. Coursework does not include a research methods class. On Chapter 2 of dissertation.
S8	Registered in the doctoral programme at University of Limpopo Department of Biodiversity. Programme is based on dissertation only. Did Master's at University of Limpopo and another Master's at University of Free State. Completing dissertation writing.
S9	Registered in Master of Development programme at TGSL, University of Limpopo. Programme includes coursework and dissertation components. Coursework includes a research methods class. Submitted dissertation for examination.
S10	Registered in Master of Development programme at TGSL, University of Limpopo. Programme includes coursework and dissertation components. Coursework includes a research methods class. Had also attempted a Master's in Social Work at University of Johannesburg. Did not complete due to work circumstances. Programme included a research methods class.
S11	Registered for a Master's in the Sustainable Agriculture programme at Stellenbosch University. Programme has coursework and dissertation components. Coursework does not include a research methods class. Did Biometry and research methods were covered in different classes. Data collection stage.

Research Paradigms

Although not exhaustive, Table 2 presents the relationship between research paradigm, method and design. Paradigms are world views (Creswell, 2009; Gringeri et al., 2013). They

are sets of basic beliefs about the nature of reality, how we may know this reality, how knowledge is produced (Guba & Lincoln, 1994; Heron & Reason, 1996; Gringeri et al., 2013) including the assumptions involved (Harworth, 1984). According to Guba and Lincoln (1994),

A paradigm may be viewed as a set of basic beliefs (or metaphysics) that deals with ultimates or first principles. It represents a worldview that defines, for its holder, the nature of the “world,” the individual’s place in it and the range of possible relationships to that world and its parts, as, for example, cosmologies and theologies do. The beliefs are basic in the sense that they must be accepted simply on faith... (p. 107)

In agreement with parts of this extensive definition of paradigm, Piele (1988) notes that, paradigms do not represent hard and fast sets of rules but that they are, more accurately, loose and developing guidelines that assist the ongoing production and resolution of research problems

Table 2: Illustration of the relationship between paradigm, method and design in research.

Attribute	Paradigm			
	Empirical	Normative		
Components	Positivism (Verification) /Postpositivism (Falsification) Anti-positivism	Interpretivism: Social constructivism, Criticalism	Pragmatism	Critical theory Participatory (Other components of critical theory, neo-Marxism, feminism and materialism are not included here)
Ontology	Realism/critical realism Objectivity	Relativism Subjective Historical Constructed reality (Pragmatism has some objectivity)		Relativism. Subjective-Objective Constructed and historical reality
Epistemology	Detached	Transactional Participatory	Mix detached and participatory in predetermined sequence	Transactional. Experiential (PAR-Researcher must share common values with participants)
Approach	Empirical	Normative Advocacy Activism (.pragmatism mixes empirical and normative in predetermined sequence)		
Research Method	Quantitative (With statistical representativeness, a necessary condition for generalisation: Scientific method)	Qualitative (Statistical representativeness not always a requirement)	Qualitative and Quantitative (Statistical representativeness not always a requirement)	Qualitative. Cooperative inquiry Collaborative/Democratic dialogue
Research design/s	Experimental Descriptive Case control Case study Causal Cohort Cross-section Exploratory Longitudinal Observational Sequential Grounded theory	Descriptive Narrative Case study (Single/Multiple) Phenomenology Exploratory Historical (life/topical oral) Observational (participant/non participant) Philosophical Dialectic Ethnography Phenomenology Grounded theory (Pragmatism can have components of quantitative research designs)		Action Research. Epistemic/Political participation determines design
Research guide	Research questions and hypotheses Occam’s razor Describe, control and predict. Anti-Speculative	Sometimes research questions and hypotheses but mostly research questions only.		Research questions with intended action

		Ideals: Caution, clarity and precision		
	Principle	Uncover the universal laws (which exist) governing social events.	Describe, explain, and understand meanings, values and beliefs of social phenomena from (sometimes with) participants (experiential, contextual, historical, local, specific) and researcher's perspectives.	Co-creation of knowledge Subjects are participants and sometimes co-researchers
	Researcher's posture	Objective detachment or value freedom. Bias limitation. Measurement and testing. Reductionist. Deterministic.	Subjective. Can be interactive. Relativism/multiperspectives. Researcher can be immersed. Integration of knowledge and values. Insight and intuition. (Objective detachment not necessary but still a possibility) Research subjects can become researchers/co-researchers Blurry distinction between researcher and researched.	Blurry distinction between researcher and researched. Participants are co-researchers
	End result	Generalise from sample to population. Explanation. Prediction (Cause-Effect) . Control.	In-depth description and understanding of problem. Generalisation is not always possible therefore not always sought. Sometimes can generalise or transfer conclusion to different contexts, especially from one setting to another. More than one conclusion can be reached. Empowerment of stakeholders. Social reconstruction.	Critique and transformation of social structures Empowerment of stakeholders. Social reconstruction. Solve practical problems in a community. Shifting balance of power in favour of poor and marginalised groups. Restitution. Emancipation.

Source: Developed based on Giedymis (1975); Piele (1988), Mukherjee (1993); Ferguson (1993), Guba and Lincoln (1994); Heron and Reason (1996); Lincoln (2001); Creswell (2009); Tuli (2010); Betram and Christiansen (2014); Åge, 2010; Reason and Bradbury (2001)

Gringeri et al. (2013) argue that since paradigms influence the research method, instruments used and interpretations, it is, therefore, essential to state the research paradigm. Guba and Lincoln (1994, p. 116) argue, "Paradigm issues are crucial; no inquirer, we maintain, ought to go about the business of inquiry without being clear about just what paradigm informs and guides his or her approach." However, in a study of 75 social work doctoral dissertations from U.S. universities, Gringeri et al. (2013) found that only 13 percent specifically mentioned the paradigm.

Guba and Lincoln (1994) identify and describe four paradigms, namely; positivism, post-positivism, critical theory and constructivism. Gringeri et al. (2013) identify postpositivism, constructivism, critical theory and participatory action framework as paradigms applied in the social sciences. Piele (1988) makes reference to empirical paradigms and normative paradigms. Because of its ease of understanding, I will use Piele's distinction of empirical versus normative paradigms. Piele (1988) also explores the ontological and epistemological relationships between the empirical and normative paradigms. Proponents of the alternatives to empiricism argue that the precepts of empiricism are not methodologically adequate, are outdated and are too restrictive for the social sciences. They argue that there are some important concepts, for instance, love and faith which are very important to some social sciences, like Social Work, but which cannot be adequately empirically operationalized (Piele, 1988, p. 2).

Based on literature, I identify the following paradigms:

1. Empirical paradigms; namely, positivism/postpositivism and antipositivism
2. Normative paradigms; namely, interpretivism, social constructivism, criticism/critical theory and pragmatism.

Empirical Paradigms

Positivism/Postpositivism. Logical positivism was developed in the nineteen twenties and early nineteen thirties. The names that come to mind in this development are August

Comte, John Stuart Mill, Schlick, Neurath, Carnap and other scientists associated with the Vienna Circle (Giedymin, 1975). Generally positivism "...strongly emphasises the anti-speculative attitude in both scientific theorising and in philosophy, the ideals of caution, clarity and precision, the preference for scientifically solvable and practically useful problems" (Giedymin, 1975, p. 277). Positivism is also generally referred to as the scientific method. It is quite prescriptive about how to practice science. Positivists believe that strict adherence to methodological rules results in objective truth (Åge, 2010) and that that truth is extrinsic and discoverable (Xinping, 2002). Positivism "...advocates identifying the problems, putting forward theoretical hypotheses, and then using methods such as experimentation or investigation to test and verify hypotheses. The basic research process is: problem - hypothesis – proposition – verification - conclusion" (Xinping, 2002, p. 40). Positivists uphold the notion that this basic proposition or premise applies to all sciences no matter the diversity of the subject matter (Giedymin, 1975). However, some scientists from some disciplines of social sciences and humanities tend to regard positivism as, not only deterministic and mechanistic, but also to some extent, parochial. For instance difficulty is experienced in operationalizing cultural phenomena to concepts of a mechanistic nature and that for human activities of the nature similar to creative activities, no deterministic laws can be used to predict them (Giedymin, 1975).

Positivism transformed into postpositivism. Whereas positivism was concerned with verification of hypotheses, postpositivism is concerned with falsification of hypotheses. Guba and Lincoln (1994) write:

Indeed, it is this difficulty that led philosophers such as Popper (1968) to reject the notion of theory verification in favour of the notion of theory falsification. Whereas a million white swans can never establish, with complete confidence, the proposition that all swans are white, one black swan can completely falsify it. (p. 107)

Antipositivism. Frequently one comes across the term anti-positivists. Confusingly, antipositivists are empiricists, but those who are opposed to the narrow application of positivism. Giedymin (1975) observes that there is more agreement between positivists and antipositivists than there are differences. Therefore, antipositivists are, loosely speaking, and for lack of a better term, positivists.

Early career researchers who choose the paradigm/s discussed above can state their paradigm as positivist or positivism. Empiricism and related positivist paradigm, have dominated research for a long time. Thus, the relationship between the positivist paradigm and quantitative research methods is very strong and very clear.

One major criticism of positivism and quantitative methods, is the nomothetic or idiographic disjunction (Guba & Lincoln, 1994). This refers to the fact that generalization, the objective of positivism, is hardly applicable to the individual cases. This has given rise to scientific interest in alternative paradigms. Guba and Lincoln (1994) write, "It is certainly the case that interest in alternative paradigms has been stimulated by a growing dissatisfaction with the patent overemphasis on quantitative methods" (p. 105).

The normative paradigms are now discussed.

Normative Paradigms

The proponents of the normative paradigms pose the question "...whether scientific problems in the social sciences can be divorced from questions of value" (Giedymin, 1975, p. 288). Interpretivism is the most well-articulated normative paradigm but recent developments

have also seen the articulation of the participatory paradigm, which goes further than simply addressing the above question but treats research subjects as co-researchers.

Interpretivism. Qualitative research is interpretivist and in interpretivist research data collection and analysis can occur concurrently. Analysis is recursive and never ending (Upadhyay, 2012). In explaining the interpretivist paradigm, Ferguson (1993) writes:

At the risk of oversimplification, interpretivism might be simply characterized as the belief that “facts” are not things out in some objective world waiting to be discovered, but, rather, are the social constructions of humans who apprehend the world through interpretive activity. (p. 36)

It is difficult to explain it any better than this. This paradigm, also referred to as naturalistic inquiry, is widely used in anthropology, psychology and sociology (Ferguson, 1993; Guba & Lincoln, 1994).

Social Constructivism. Also referred to as naturalistic inquiry, constructivism “...denotes an alternative paradigm whose breakaway assumption is the move from ontological realism to ontological relativism” (Guba & Lincoln, 1994, p. 109). Reality is a mental construct of which many can exist and which can be incompatible and conflicting (Creswell, 2009, Guba & Lincoln, 1994, Heron & Reason, 1996, Upadhyay, 2012). The constructs are self-reflexive and what there is can be verbally articulated (Heron & Reason, 1997). Creswell (2009) observes that instead of starting with a theory (as in postpositivism), inquirers generate a pattern or inductively develop a theory that ascribes meaning. Critics argue that constructivism lacks experiential knowing (Heron & Reason, 1997).

Criticalism (Critical theory). Critical theory includes participatory inquiry, neo-Marxism, materialism and feminism (Guba & Lincoln, 1994) and critical race theory (Logan, 2016, Marri, 2007, Modiri, 2012) among others. The participatory paradigm is gaining momentum in application. Heron and Reason (1997) and Reason and Bradbury (2001) describe participative research in detail. They mention that participative research is subjective-objective and self-reflexive. It allows one to be part of the whole instead of being detached. The inquiry can be collaborative, experiential and living encounters are not adulterated by preconceptions. It acknowledges that a paradigm can be reframed and that what there is can be verbally articulated.

The participatory paradigm goes further and asserts that we cannot have any final or absolute experiential knowing of what is there: in the relation of knowing by acquaintance, the experiential knower shapes perceptually what is there.....the point about experiential knowing is that the very process of perceiving is also a meeting, a transaction, with what is there. When I hold your hand, my tactual imaging both subjectively shapes you and meets you. To encounter being or a being is both to image it in my way and to know that it is there. To experience anything is to participate in it, and to participate is both to mould and to encounter, hence experiential reality is always subjective-objective.... (and) relative to the knower. (Heron & Reason, 1997, p. 4).

According to Creswell the paradigm addresses issues of inequality, empowerment, domination, oppression and alienation. During the research process participants can assist in question design, data collection and analysis or reap the benefits of the research. Therefore, the research has an action agenda that may alter the lives of the respondents, the organizations in which respondents live and work as well as the researcher’s life. (Creswell, 2009). This, in my

opinion, is the major distinguishing feature between the participatory and constructivist paradigms.

There are other forms of research paradigms, including, action research, critical action research (CAR) and participatory action research (PAR; Lincoln, 2001), however, these bear similarities to the participatory paradigm so as not to warrant a separate treatment from the participatory paradigm as described above. In fact, Reason and Bradbury (2001) argue that action research is participative and all participative research is action research. About the differences between action research and constructivism Lincoln (2001) writes about convergences, confluences and sympathetic connections between the paradigms and argues that there are occasions where action research and constructivism might not be distinguishable in theory or practice. So, although the distinguishing factors exist, in choosing a paradigm one needs to consider these similarities.

Pragmatism. Pragmatism is the paradigm which accommodates mixed methods and is therefore applicable to both quantitative and qualitative methods. Doyle, Brady and Byrne (2009, p. 175) write, “The philosophical underpinning of pragmatism allows and guides mixed methods researchers to use a variety of approaches to answer research questions that cannot be addressed using a singular method.” The timing of the mixing of the methods and the emphasis given to the methods results in the following mixed methods as articulated by Doyle et al. (2009):

1. Partially mixed, concurrent, equal status design.
2. Partially mixed, concurrent, dominant status design.
3. Partially mixed, sequential, equal status design.
4. Partially mixed, sequential, dominant design.
5. Fully mixed, concurrent equal status design
6. Fully mixed, concurrent, dominant status design

The critics of pragmatism paradigm note that it mixes the empirical and normative approaches without providing a conceptual framework to hold the two together (Piele, 1988).

The reader may also note that the use of the concept “design” by Doyle et al. (2009) in this explanation of mixed method, is not exactly consistent the use of the concept in this article. To avoid confusion, I suggest that “design” in this case should be replaced with “method,” for instance, “Fully mixed, concurrent, dominant status method.”

Understanding of Research Paradigm by Students in South Africa

The following section presents the analysis of the responses by South African students to the question: What is your understanding of the concept research paradigm? Some students mentioned that they had no idea of what paradigm is. Students also mentioned that there is some confusion about the term paradigm, that some of the confusion stems from the literature and that the concepts were not mentioned in the research methods class. The failure to understand paradigm is illustrated by this quote: “A research paradigm is sort of a change towards focusing to a certain direction and the direction is that paradigm. A paradigm means you have to focus on a research which addresses current problems.”

There was also a struggle to mention specific paradigms. Despite this, there was some understanding of the relationship between paradigm and method. This is illustrated by the quote:

I suppose research paradigm is about the context within which the research takes place. I will have to remember those different paradigms that are there in

research which enables you to locate the research within the correct context. Every research differs. Some research is descriptive, some are called analytical and I cannot remember the third category but those are the paradigms. There are other names that have been used, very academic concepts which define the paradigms. Once you understand the paradigm, it makes it easy to choose the research design and research methods.

However, there was also failure to understand the link between paradigm and methods: “I remember positivism being explained to us and I know there is a link between positivism and doing qualitative research”

Consistent with (Harworth, 1984), there was some understanding that paradigm referred to a philosophical background to a study, that there are assumptions associated with a paradigm and that a paradigm is associated with ontological and epistemological perspectives as illustrated by the following quote:

I first heard about paradigm at the Gordon Institute of Business Science class even though I had taken a research methods class at the University of Limpopo. These are confusing terms. My understanding of research paradigm is that these are the assumptions that we make for us to perceive or understand the way we view the world. In my research I used the positivist and social constructivist assumptions. If I am part of the social sphere I participate in the creation of knowledge, whereas from the positivist perspective when things happen I am an observer. When I tried to understand the research paradigm I also had to understand the philosophies that are related to how is knowledge created and what is the nature of knowledge. The research paradigm will tell me about the assumptions that I am going to make starting from the theoretical perspective for example with the theories because with positivism I have to state my theory upfront because it is already known, it is already out there but from the social constructivism perspective the theory would emerge from the subject that I am looking at. And these force me to understand the nature of knowledge creation. That is when you talk about ontology and epistemology.

And yet some thought that paradigm was based on their own experience: “My understanding of paradigm is basically, from my experience, how I view the world, how I understand the world. It is a world view based on past experience.”

This analysis raises some concerns about the understanding of the concept paradigm by students in South Africa. Firstly, the students have identified some confusion stemming from the literature. In my literature review of paradigm, I identify the same concern. Secondly, there is some concerns about how the concepts are taught in research method classes or if they are taught at all.

Research Methods

Although Crotty (1998) argues that the assumed great divide between quantitative and qualitative research methods is not sufficiently justified, many agree that these are the two major research methods (Tuli, 2010). Tuli (2010) gives a very good account of these two research methods, so there is no good reason to discuss them in detail. Although not inherent to any particular paradigm, qualitative methods are usually associated with the normative paradigms (Ferguson, 1993) and quantitative methods are usually associated with the positivist/postpositivist paradigms.

From my observations, besides sometimes being referred to as paradigms and or designs, the choice of research method appears to be the least confusing part even for early career researchers, Master's and PhD students. There is a third research method which is a mixture of the two methods. Oftentimes it is referred to as mixed methods. Sometimes high quality research results from a combination of the two methods (Upadhyay, 2012). Crotty (1998) refers to the existence of countless methods. I agree with this only to the extent that, for mixed methods, there is a spectrum between qualitative and quantitative methods and therefore an innumerable number of ways of addressing a mixed methods research.

Many Master's and PhD students mention the research method but it is important to also demonstrate that the paradigmatic implications of the research question are understood, especially for qualitative research where there are a number of paradigms to choose from. Doyle et al. (2009) urge researchers to locate their research in a paradigm.

It is important to note that for any research problem the choice of research method always lies with the researcher. Crotty (1998) notes that it is possible to address every research problem using quantitative, qualitative or mixed methods. I interpret this to mean that the researcher decides whether to address a problem quantitatively, qualitatively or to use mixed methods. Referring to the relationship between paradigm and methods Guba and Lincoln (1994) write, "Questions of methods are secondary to questions of paradigm..." (p. 105). I conclude from this statement that it is the paradigm that determines the method, not the other way around. Despite the observation that any research problem can be addressed using any of the methods, Crotty does contend that there are associations that are "typical" between paradigms and methods but also is quick to note the caveat that "typical" does not mean "mandatory." Using my scheme in Table 2, it is the paradigm which drives the choice of method. If we accept this, therefore, the question that arises is, if the researcher does not state a research paradigm, as is sometimes the case with early career researchers, Master's and PhD students, how then do they choose the appropriate method for their proposed research?

For example, if a problem concerns the generation of the nitrogen fertilizer recommendations for maize production in an area of smallholder maize producers where they do not have recommendations, the positivist/postpositivist, quantitative approach would start by identifying whether recommendations exist in an agro-ecologically similar area where they could be generalised to the area of interest. If the answer to this question is "yes" then the need for the research might be questioned or the research takes a different direction. If the answer is "no," then the experimental approach might be used. The experiments might start with multiple site randomised complete block design trials of different nitrogen levels which can then be narrowed down to demonstrations to farmers for the most effective nitrogen levels that will generate the nitrogen recommendations. Thus, the quantitative method appears quite appropriate. However, one can imagine a situation where a researcher is more familiar with qualitative approaches and therefore prefers to tackle this problem qualitatively through focus groups with farmers and extension workers. I think we can agree that the latter may be less effective in addressing this specific problem.

However, flipping the same example; if the problem was to find out the perceptions of smallholder farmers about existing maize nitrogen fertiliser recommendations which were adopted from a commercial sector it may be more effective to start with the focus group discussions than experiments of how effective existing recommendations are. The distinction does get fuzzier than this in social science which is the reason why for social scientists it is important to note that the choice of research method lies with the researcher and not necessarily with the problem. The above examples describe cases where a convincing argument can be made as to the suitability of one of the methods. However, there are cases where either method could be equally suitable. For example in a study of rice flavor enhancers, an experimental approach may be used. A control and treatment group may be selected using statistical methods

like random selection. The control group is given the rice cooked without the flavor enhancer and the treatment group is given the rice cooked with the flavor enhancer. If more than one enhancer is being evaluated the experimental designs like completely randomized design could be applied. However, because of the difficulty of measuring taste, a Likert scale may be used to evaluate taste thus making the study quantitative but it is conceivable that the taste may also be assessed qualitatively. The quantitative analyst is more inclined to use the Likert scale whereas the qualitative analyst is more likely to use the qualitative method to evaluate taste. Lincoln (2001) observes that although action researchers and constructivists rely heavily on qualitative methods, both action research and constructivism can easily apply either quantitative or qualitative methods. Ferguson (1993) notes that:

The methods used for collecting data does not determine the kind of study; it is the approach to inquiry and knowledge claims that guide not only the way that ideas as questions are framed, but also the kind of responses that will be judged adequate. (p. 36)

I interpret this to mean that the “approach” is the research method (qualitative or quantitative) and the “knowledge claims” are the paradigms (positivist/postpositivist) or any choice of the normative paradigms.

Although the state is changing until recently, quantitative methods (generally referred to as the scientific method) have not only dominated research in the so called hard sciences but also in the social sciences. Gringeri et al. (2013), commenting on social work doctoral research in the USA, write, “Prior to the 2003 revisions, the Group for the Advancement of Doctoral Education’s (GADE) guidelines emphasized research using quantitative methods and gave rather short shrift to qualitative methods in doctoral training...” (p. 760). However, they do mention that the revisions encouraged doctoral students to use both quantitative and qualitative methods.

The expected rigor and how to achieve it is well understood for quantitative research. In order to achieve rigor in a qualitative research study, researchers are recommended to articulate a reasoned selection of at least two among the following strategies; audit trail, prolonged engagement, thick description, persistent observation, negative or deviant case analysis, member checking, data triangulation and peer review or debriefing (Gringeri et al., 2013).

Epistemologically, the quantitative analyst is detached and value free. In contrast, as observed by Harworth (1984), the human connectedness of the researcher to research subjects is more openly dealt with in qualitative research. Harworth (1984, p. 350) further notes that, “Maruyama makes the powerful point that most research has relevance dissonance for the group being studied, which yields data more related to compliance or resistance to the research techniques than to the substance of the research question.” Therefore, “If quantification is used, it has to make sense in the situation, and not be imposed through the use of ritualistic statistical procedures.” This, in my opinion, should be the guideline for the choice between quantitative and qualitative methods.

Positivism is concerned with the falsification of theoretical propositions or hypotheses (Giedymin, 1975, Guba & Lincoln, 1994, Xinping, 2002), and since quantitative method is associated with positivism, it is, therefore, a requirement that quantitative research be guided by hypotheses. However, it is generally acceptable that in qualitative research, research questions can adequately guide inquiry; therefore stating a hypothesis is not usually a requirement. This, however, makes some (quantitative) scientists doubt the robustness of conclusions drawn from studies guided by questions only without hypotheses (Upadhyay, 2012). It is important to understand that hypotheses are not appropriate in some qualitative

studies, for instance in phenomenological studies, where the process of epoch and bracketing is a fundamental step in the research process. Even in the cases where hypotheses can be stated, for instance in qualitative case studies, it should be noted that the hypotheses should not restrict the generation of theories, other hypotheses and or knowledge that extends beyond the stated hypotheses. Daniel and Onwuegbuzie (2002) write “Indeed as noted by Constat (1992, p. 255), unless methods for examining rival hypotheses in qualitative research are developed, “the research community will be entitled to question the analytical rigor of qualitative research”...” (p. 6). Given these observations, I recommend that qualitative researchers should always carefully examine their methodology and research goals to determine whether stating hypotheses can add analytical rigor to their work.

Understanding of Research Methods by Students in South Africa

The following section presents the analysis of the responses by South African students to the question: What is your understanding of the concept research method? There was a general understanding of the two research methods, quantitative and qualitative methods and that the two can be combined in mixed methods. This is consistent with the distinction made by Tuli (2010). There was even some demonstration of understanding the relationship between paradigm and research method as illustrated by the quote:

Now the paradigm basically shapes the method, because the way I understand research methods is the approach. It is the broad approach to how I am going to conduct the research but informed by my paradigm. Research methods are quantitative, qualitative and mixed methods. If you choose the quantitative method, you cannot use a design, which does not have a scientific protocol. If you choose qualitative then you are coming from a view that there are several meanings about the same thing so you have the opportunity to probe without interference, what is the reality out there, without being constrained.

Although different terms like protocol are used, this is consistent with the position presented by Guba and Lincoln (1994) on the relationship between paradigm and method. There was also the loose use of the terms methodology and design as demonstrated by the quote, “You see there is always a challenge when you deal with research methodology. This challenge arises wherein sometimes the research design is confused with research method.” Some students, although they identified quantitative and qualitative as research methods, in their articulation of the concept they confused research methods with research design as follows:

For me research method is the process of how I am going to conduct the research starting with my sampling, my sample size, the collection of the data and the analysis. Research method is how I collect my data, so I either do interviews, or do a survey and do an experiment.

And yet some showed a lack of understanding of the concept: “It’s too broad. I think it composes of methods, tools that we use from data collection, processing to analysis.” and

Where do I begin? I know of like in research methods there are different kinds of them where first you need to know how to prepare a proposal and then know how to collect data and determine if you are using an interview or questionnaire. Then you know how to analyse, interpret and discuss the data where you need to indicate the mean the variance and the median.

In addition to the concerns raised under paradigm which also apply to this concept, one wonders, if a researcher does not understand the concept of research method, how then do they go about the process of selecting a method as is necessary in any research.

Research Design

Creswell (2009, p. 3) under the heading “Three types of designs” writes; “In this book three types of designs are advanced: qualitative, quantitative and mixed methods.” Furthermore, Creswell (2009, p. 15) under the heading “Research methods,” in the presented Table 1.3 discusses qualitative, quantitative and mixed methods. It is clear that Creswell (2009) refers to qualitative, quantitative and mixed methods as both designs and methods. Under the heading “Strategies of inquiry” Creswell (2009, p. 11) discusses survey and experimental research under the heading “Quantitative strategies” and ethnography, grounded theory, case studies, phenomenological research and narrative research under the heading “Qualitative strategies.” Based on the interpretation of several authors summarized in Table 2, I recommend that what Creswell (2009) refers to as “strategies of inquiry” be referred to as, “research designs” as depicted in Table 2.

Based on Creswell’s scheme discussed above, in my Table 2 under the row “Research methods” I would include qualitative, quantitative and mixed method. Furthermore, I would include the same under research design! I would also need to add a row for “Research strategies” under which I would list what I refer to as designs. Similarly, as in my observation regarding Ferguson (1993) which I discussed earlier, it is difficult for me to conclude that Creswell might be confused about these concepts (methods and designs). However, clearly Creswell’s presentation of these concepts certainly confuses the early career researchers, Master’s and PhD students. I also observe that whereas Ferguson (1993) interprets quantitative and qualitative to be methods and worldviews, Creswell (2009) interprets the same concepts to be methods and designs! Crotty (1998) refers to ethnography as a methodology which guides a researcher to choose a method. I however argue that ethnography is a design which can be selected after the decision of method (qualitative) is made, not the other way around. I agree with Crotty’s (1998) observation that concepts like constructionism, interactionism, and ethnography are sometimes lumped together as if they are comparable. This certainly does not assist the early career researchers, Master’s and PhD students to understand and correctly apply these concepts. Based on the scheme I suggest in this article, some of these are paradigms and some are designs (Table 2).

Research design addresses questions similar to the following: Is an experiment the best way to conduct the study (experimental design), is the study a descriptive one (descriptive design), has a similar question not been explored before (exploratory design) or is it a philosophical expose of events or relationships (philosophical design). From these few simple examples I observe that research design provides an instrument or a combination of instruments by which the research will be conducted. Table 2 shows that there are several designs. Although design should not be explicitly associated with certain methods it is true that qualitative and quantitative methods tend to be associated with certain designs. For example, nothing prohibits qualitative research to be done by experimental design. In the rice experiment described earlier, the experimental design can be used for both the quantitative and the qualitative research method. It is the measurement aspect that leads to the association between the experimental design and quantitative research. On the other hand, as shown in Table 2, the case study approach can be used for both quantitative and qualitative research, however Table 2 also shows that there are research designs like ethnography, phenomenology and grounded theory, to name a few, that are associated only with qualitative research. Ferguson (1993) notes

that, if one is identified as an ethnographer, in a study which uses interviews only, without any participant observation, this would be curious and questions would be asked, rightly so, about the researcher's methods.

It is within the research design that the data that will be collected, how it will be collected and analysed is determined. Besides confusing research design with research methods, generally students do not mention the research design. To illustrate this I use two theses from two business schools, one from Africa (Turloop Graduate School of Leadership at the University of Limpopo in South Africa) and the other from Europe (Mälardalenes Högskola Eskilstuna Västerås in Sweden) as examples. Under "Approach to Research" Kashif and Kelly (2013) write, "The purpose of this thesis is to describe and analyse the knowledge management and sharing in a project team... qualitative research is an effective way to collect this data" (p. 16). This gives us the idea that the research design is descriptive in part but the design of the analytical part is not given. Under "Research Method," Mabina (2014) writes, "Quantitative research is one of the research designs which relies heavily on numbers..." (p. 33). As mentioned earlier, this is typically the confusion between research method and research design shown by students. Gringeri et al. (2013) also refer to grounded theory, phenomenology, case study and ethnography as methods. In order not to confuse early career researchers, I advise referring to these as designs within the qualitative research method as illustrated in Table 2.

Betram and Christiansen (2014) describe research design as follows:

The research design should answer the following questions: what evidence or data must the researcher collect in order to answer the research question? How will the researcher collect the data (or what data collection method will be used)? What will the researcher do with the data once they have been collected? How will the researcher analyse and make meaning from the data? (p. 40)

It is also important to note that, although it may not be a requirement, it is very important for researchers to mention the software that they will use for analysis because these tools are readily available nowadays and can address the analytical requirements of most research designs. In fact, with the availability of software, I do not understand why this is not a requirement, for students to mention both design and software in their proposals. It is my observation from the students' proposals that the choice of software for quantitative studies was, for the most part, appropriate, usually a statistical package like SPSS or Stata. However, the challenge arose when students mentioned that they would use a statistical package SPSS to analyse qualitative data collected by using a recorder. I conclude that this signals a lack of understanding of the link between the study method, design and choice of software. I therefore recommend that Master's and PhD students be required to mention the software they will use and how they will use it in order to demonstrate that they understand the relationship of the tools they will use to the method and design or, if the use of software is not necessary, that the analytical procedures be adequately detailed so as to demonstrate the appropriateness of the analytical procedures to the selected method and design. I have witnessed cases where a student used a qualitative method and a descriptive design with a sample of three reporting that 33 percent of the sample expressed such and such an opinion. This clearly shows a lack of understanding of method and design and therefore analytical procedures.

Understanding of Research Design by Students in South Africa.

This section presents the analysis of the responses to the question: What is your understanding of the concept research design? The confusion caused by the literature about

design was articulated by this student: “This is where the terminology in the literature becomes confusing. Some literature refers to quantitative and qualitative as designs whereas others refer to them as methods.” But all hope is not lost because the same student continues, “The designs would be more the process that you embark on to collect the data. Case study and ethnography are examples of designs in qualitative methods.” In my scheme in Table 2, this is exactly the definition of design that is implied and recommend to be adopted by early career researchers, Master’s and PhD students. This provides evidence to the effect that, although the confusion in the literature is noticeable, some students are able to wade through it and understand the concepts. Yet others confuse method and design: “I stated the research design in my proposal. Was it not quantitative?” Some of the confusion is related to the reference of the whole research process as design like Creswell (2009) does. This quote clearly illustrates this confusion:

I struggle to define research design at this point I must be honest. Would research design not encompass all that we have spoken about now? It would encompass your method. Maybe not your paradigm but it would encompass your sample size and your sampling technique. My research design is a quantitative based study with a sample of 20 people.

It is this confusion that makes me recommend that for early career researchers, Master’s and PhD students, that the terms should be reserved so as to specifically refer to the concepts as structured in Table 2. The reference to strategy as part of research design by Creswell (2009) is also a source of confusion. There is also evidence of the confusion of the relationship between method and design. This is illustrated by this quote:

Research strategy is part of research design. Examples of research strategy are case study or ethnography. In qualitative studies they have many of these nice names. The research design includes research philosophy, the research paradigm, the research approach which is inductive or deductive and it will have the research strategy which I will be adopting. It does not include research method. From the design then I get the research method.

This shows confusion regarding which determines which between method and design. This confusion also emanates from the literature. I argue that once the ontological and epistemological questions are addressed, then the method has been determined. It, therefore, cannot be design determining method and early career researchers, Master’s and PhD students need to be aware of such relationships and interconnectedness of the concepts.

Some students showed glimpses of understanding the concept of research design, but it seemed it was the articulation that was questionable as illustrated by the quote:

Research design manifests itself in the way of developing a roadmap for the research and there are options that must be taken. There are two common research designs which I am struggling to remember. They help you to develop a road map or blueprint where you would also make a determination of the choice of the data collection method. When you do the design you choose the method of analysis, you choose the sample size, the population also you get whatever limitations maybe there to affect the study. Those are the components of research design.”

Given the reference to two common designs I cannot help second guessing that the student might have been referring to research methods not designs. However, some students understood that design was associated with the choice of data collection, sample selection and analytical method, which is encouraging. There was also evidence of students' complete failure to understand the concept: "A research design is when you describe the method that you are going to apply in your research."

Similar concerns are raised as for paradigm and method, but the lack of understanding of the relationship between design and data collection and analytical method is particularly concerning.

Concluding Remarks

A general question that arises from this study is whether the concerns raised in this study only apply to South Africa or whether there are similar concerns elsewhere. For South Africa specifically, the study raises two questions about the students:

1. Is it a question of the students actually not understanding the concepts and their relationships or
2. Is it just a failure, by the students, to articulate the concepts

From the responses by the students, I feel it may be the former. However, I do feel that the questions should be asked and possibly addressed. If it is a failure to understand the concepts, then the question that arises is what is the source of the lack of understanding? From the literature review, I can conclude that part of the problem is from the confusion from the literature but another source of the problem could be from those who teach the research methods classes. Regarding this issue, the questions to be addressed relate to whether those who teach the research methods classes:

1. Understand these concepts and their relationship but do not teach them sufficiently for students to be able to articulate them or
2. Do not, themselves, understand the concepts sufficiently to teach them so that the students may be able to articulate them.

I certainly hope that it is number (1) above but it could also be (2) or both. What is clear is that when the generation of researchers who do not understand the concepts and their relationship then become the research methods teachers and supervisors, the problem may become intractable.

In conclusion I would like to end with the observation made by Tuli (2010, p. 106) that "...there is no single absolutely correct methodology to social science research but rather the methodologies represent different ways of looking at the world - ways to observe measure and understand social reality." However, Tuli (2010) also observes "...what is critical is the selection of the appropriate research methodology for an inquiry..." (p. 106). I hope that by my attempt to explain the relationship between paradigm, method and design in research, I make this decision of research method easier especially for early career researchers, Master's and PhD students.

Given the comment above by Tuli (2010) I do understand that there are other ways of organizing the concepts of paradigm, method and design, as is quite obvious from the reviewed literature and observations by Crotty (1998). However, I think it is unfortunate that experienced researchers, for instance Creswell (2009), often call the whole process from placing the research problem in a paradigm, the decision about the research method and design

as a “research design.” I believe that experienced researchers do not find this at all confusing but early career researchers, Master’s and PhD students may or, worse still, do find this confusing. I therefore recommend that early career researchers, Master’s and PhD students avoid this confusion by referring to the whole process as research methodology and leaving the terms research paradigm, research method and research design to identify the concepts as depicted in Table 2. I agree with Crotty’s (1998) characterization of methodology as a plan of action or a strategy with the caveat that I regard methodology as the whole process and not a constituent part of the process as implied by Crotty (1998).

With the understanding that there are several ways of organizing these concepts (Crotty, 1998), in this article I am offering a way of organizing the concepts that is easy to understand and apply, especially for early career researchers, Master’s and PhD students. Even given my recommendations, if a researcher chooses a different organizational structure for these concepts, what is most important is for the individual researcher to define how they are using the terms within their own research, proposals and reports. I recommend that early career researchers, Master’s and PhD students should apply my simple and easy to understand organizational scheme of the concepts paradigm, method and design early in their research careers and then, if need be, relax the restrictive assumptions underpinning my suggested structure as their understanding of the concepts deepens and broadens. So why is it so important for a researcher to think the way I suggest (in terms of paradigm, method, design and their interconnectedness), especially the early career researchers, Master’s and PhD students? Well, the responses from the students provide some insights but this is also a question yet to be answered. However, I feel that, at least, part of the reason for the need to think this way is that this thought process provides the golden thread for the research process. The golden thread which grounds the whole research thought process from study inception to conclusion without leaving anything to chance. If any one of the concepts, ontology, epistemology, paradigm, method and design, is misunderstood (especially the latter three), then it is difficult to understand their interconnectedness which may lead to failure to make the appropriate decisions for the research. It is not unusual, as stated earlier, for a student to mention in a proposal that the research method is qualitative and then go on to describe a research design associated with quantitative method. It is also not unusual for the method to be stated as qualitative, but the results to be reported in percentages as if a quantitative research method was used. The question is: Are these observations disturbing enough to warrant the need to address them in South Africa, if so, how should they be addressed?

References

- Äge, L. (2010). Grounded theory methodology: Positivism, hermeneutics, and pragmatism. *The Qualitative Report*, 16(6), 1599-1615. Retrieved from <http://nsuworks.nova.edu/tqr/vol16/iss6/8>
- Betram, C., & Christiansen, I. (2014). *Understanding research. An introduction to reading research*. Pretoria, South Africa: Van Schaik Publishers.
- Brennan, L. J., Voros, J., & Brady, E. (2011). Paradigms at play and its implications for validity in social marketing research. *Journal of Social Marketing*, 1(2), 100-119.
- Creswell, J. W. (2009). *Research design. Qualitative, quantitative and mixed methods approaches*. Los Angeles, CA: Sage.
- Crotty, M. (1998). *The foundations of social research: Meaning and perspective in the research process*. Thousand Oaks, CA: Sage.
- Daniel, L. G., & Onwuegbuzie, A. J. (2002). *Reliability and qualitative data: Are psychometric concepts relevant within an interpretivist research paradigm*. Paper presented at the annual meeting of the Mid-South Educational Research Association, Chattanooga, TN.

- Doyle, L., Brady, A.-M., & Byrne, G. (2009). An overview of mixed methods research. *Journal of Research in Nursing, 14*(2), 175-185.
- Ferguson, D. L. (1993). Something a little out of the ordinary: Reflections on becoming an interpretivist researcher in special education. *Remedial and Special Education, 14*(4), 35-43.
- Heron, J., & Reason, P. (1997). A participatory inquiry paradigm. *Qualitative Inquiry, 3*(3), 274-294.
- Giedymin, J. (1975). Antipositivism and contemporary philosophy of social science and humanities. *The British Journal for the Philosophy of Science, 26*, 275-301.
- Gringeri, C., Barusch, A., & Cambron, C. (2013). Examining foundations of qualitative research: A review of social work dissertations, 2008-2010. *Journal of Social Work Education, 49*, 760-773.
- Guba, E. G., & Lincoln, Y. S. (1994). Competing paradigms in qualitative research. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research* (pp. 105-117). Thousand Oaks, CA: Sage.
- Harworth, G. O. (1984). Social work research, practice and paradigms. *Social Service Review, 58*(3), 43-57.
- Kashif, M., & Kelly, K. (2013). *Knowledge management and sharing within project teams. A qualitative study of Ericsson* (Master's thesis). Mälardalenes Högskola Eskilstuna Västerås, Sweden.
- Lincoln, Y. S. (2001). Engaging sympathies: Relationships between action research and social constructivism. In P. Reason & H. Bradbury (Eds.), *Handbook of action research: Participative inquiry and practice* (pp. 124-133). Thousand Oaks, CA: Sage.
- Mabina, D. P. (2014). *Factors contributing to non-performance of SMEs in Sekgose, Greater Letaba Municipality* (Master's thesis). Turfloop Graduate School of Leadership, University of Limpopo, South Africa.
- Marshall, C., & Rossman, G. B. (2006). *Designing qualitative research* (4th ed.). Thousand Oaks: Sage.
- Mukherjee, B. N. (1993). Toward a rapprochement between the two basic paradigms of educational research. *Quality and Quantity, 27*, 383-410.
- Piele, C. (1988). Research paradigms in social work: From stalemate to creative synthesis. *Social Service Review, 62*(1), 1-19.
- Reason, P., & Bradbury, H. (Eds.). (2001). *Handbook of action research: Participative inquiry and practice*. Thousand Oaks, CA: Sage.
- Tuli, F. (2010). The basis of distinction between qualitative and quantitative research in social science: Reflection on ontological, epistemological and methodological perspectives. *Ethiopian Journal of Education and Sciences, 6*(1), 97-108.
- Upadhyay, P. (2012). Interpretivist tradition in qualitative anthropological research writings. *Himalayan Journal of Sociology & Anthropology, V*, 123-137.
- Xinping Z. (2002). Interpretivist research, positivist research, and field research. *Chinese Education and Society, 35*(2), 39-46.

Author Note

Godswill Makombe was an associate professor in the Master of Development Department, Turfloop Graduate School of Leadership, University of Limpopo, Limpopo, South Africa. He taught Research Methods, Regional and Local Economic Development and Agriculture and Rural Development. He has more than 20 years of research on development issues in Africa, mainly from the Sub-Saharan African countries. He has worked with academics, international and national institutions in Sub-Saharan Africa. He has field

experience in design, implementation and analysis of large data sets. He has strong quantitative analysis skills and has both the training and experience of working in multidisciplinary teams. Over time he has developed an appreciation of the strength of the complementarity between quantitative and qualitative research. Currently he is an independent researcher, a research associate at Gordon Institute of Business Science, University of Pretoria, and a Research Associate at Stellenbosch University, Sustainable Agriculture Programme. Correspondence regarding this article can be addressed directly to: makombeg@yahoo.com.

Copyright 2017: Godswill Makombe and Nova Southeastern University.

Article Citation

Makombe, G. (2017). An expose of the relationship between paradigm, method and design in research. *The Qualitative Report*, 22(12), 3363-3382. Retrieved from <http://nsuworks.nova.edu/tqr/vol22/iss12/18>
