

---

# Epistemological Paradigms in Social Research

Chris Shisanya

## Introduction

In this chapter, I explain what a research paradigm is, which includes ontology, epistemology, and methodology, and why it is important for PhD research. The chapter is a summary of my understanding of the research paradigm, which I hope will be helpful. I forewarn the reader that there are many disagreements among philosophers and epistemologists about what a paradigm is and there is, therefore, no one answer that is acceptable to everyone.

## The Meaning of Paradigm

The word paradigm has been so overly-defined that many people do not understand its full meaning. The origin of the term can be traced to the 15<sup>th</sup> Century via late Latin from Greek *paradeigma*, from *paradeiknunai* 'show side by side', from *paral*'beside' + *deiknunai* 'to show' (Iacob et al. 2015). The *Merriam-Webster Dictionary* (2008) defines paradigm as (a) a model or pattern for something that may be copied; and (b) a theory or a group of ideas about how something should be done, made or thought about ([www.merriam-webster.com](http://www.merriam-webster.com)). The *Thesaurus Dictionary* defines paradigm as (a) a set of forms all of which contain a particular element, especially the set of all inflected forms based on a single stem or theme; (b) an example serving as a model; pattern; (c) a framework containing the basic assumptions, ways of thinking, and methodology that are commonly accepted by members of a scientific community; and (d) a cognitive framework shared by

members of any discipline or group (www.dictionary.com). Bob Proctor in his book titled *It's Not About Money* (2009) sees paradigm as nothing more than a multitude of habits. Essentially, a paradigm is a collection of beliefs that are held by a group of people.

From the preceding definitions, we can conclude that a paradigm is the way you see something, your point of view, frame of reference or belief. It is the way we perceive, understand and interpret the world. A paradigm is like a *map* in our head. We assume that the way we 'see' things is the way they really are or the way they should be. The following are listed as synoptic views of paradigm: (a) a mental model; (b) a way of seeing; (c) a filter for one's perceptions; (d) a framework of thought or beliefs through which one's world or reality is interpreted; and (d) a commonly held belief among a group of people, such as scientists of a given discipline (Howell 2014).

## Paradigmatic Shift

In 1962, Thomas Kuhn wrote *The Structure of Scientific Revolution* and fathered, defined and popularized the concept of *paradigmatic shift* (1962:10). Kuhn argued that scientific advancement is not evolutionary, but rather is a 'series of peaceful interludes punctuated by intellectually violent revolutions', and in those revolutions 'one conceptual world view is replaced by another' (p. 10). One can think of a paradigmatic shift as a change from one way of thinking to another. It is a revolution, transformation, a sort of metamorphosis. It just does not happen, but rather it is driven by agents of change.

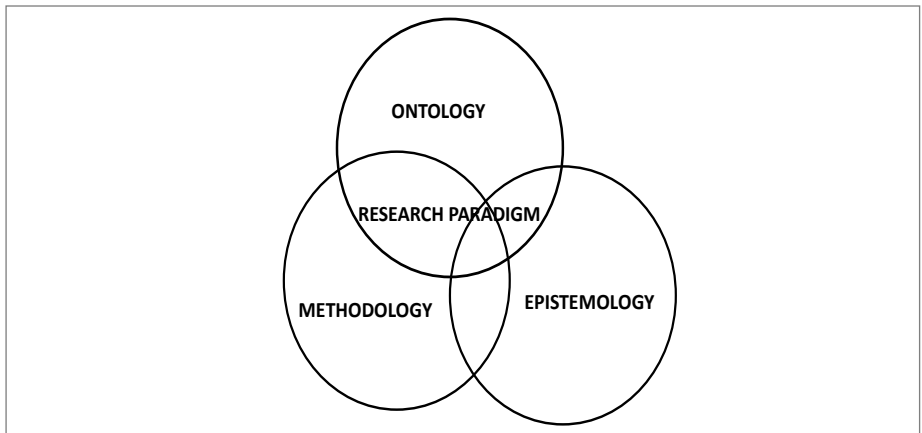
## Research Paradigm

A research paradigm is 'the set of common beliefs and agreements shared between scientists about how problems should be understood and addressed' (Kuhn 1962:43). According to Gubba and Lincoln (1994) and TerreBlanche and Durrheim (1999), a research paradigm consists of the following components (see Figure 3.1 for a diagrammatic representation):

- a. *Ontology*: Assumptions about the nature of reality. What is reality? The term ontology refers to a branch of philosophy concerned with articulating the nature and structure of the world (Gubba and Lincoln 1994: 9). It specifies the form and nature of reality and what can be known about it.
- b. *Epistemology*: How a researcher comes to know a reality. How do you know something? Epistemology refers to the nature of the relationship between

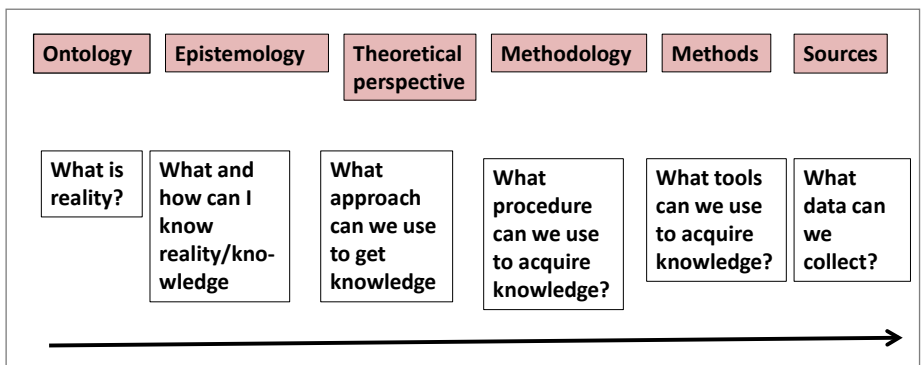
a researcher (the knower) and it denotes ‘the nature of human knowledge and understanding that can possibly be acquired through different types of inquiry and alternative methods of investigation’ (TerreBlanche and Durrheim 1995:10).

- c. *Methodology*: How a researcher accesses and reports what is learnt about a reality. How do you go about finding out? Methodology refers to how the researcher goes about practically finding out whatever s/he believes can be known.



**Figure 3.1:** Components of a Research Paradigm

Source: Self-generated by the Author



**Figure 3.2:** The Relationships among the Components of a Research Paradigm

Source: Self-generated by the Author

The origin of the term *ontology* can be traced to the early 18<sup>th</sup> Century from modern Latin *ontologia*, from Greek *on, ont/*‘being’ + *logy*. *Ontology* is the starting point of all research, after which one’s epistemological and methodological positions logically flow. A dictionary definition of the term on the one hand may describe it as the image of social reality upon which theory is based. The term *epistemology* on the other hand originated in the mid-19<sup>th</sup> Century from the Greek *episteme* ‘knowledge’, from *epistasthai* ‘know, know how to do’. *Epistemology* is the branch of philosophy that studies knowledge, by attempting to distinguish between ‘True’ (and adequate) knowledge and ‘False’ (inadequate) knowledge (Erikson and Kovalainen 2008:14).

### **The Importance of a Research Paradigm**

One view on the importance of a research paradigm is that a researcher’s intentions, goals and philosophical assumptions are inextricably linked with the research s/he conducts. Grix (2004) warns that people who want to conduct clear, precise research and evaluate others’ research need to understand the philosophical underpinnings that inform their choices of research questions, methodologies, and intentions. Therefore, how researchers view the constructs of social reality and knowledge affects how they will go about uncovering knowledge of relationships among phenomena and social behaviours, and how they evaluate their own and others’ research. Crotty (1998) opines that researchers can select which stage to begin their research, ontology, epistemology, or methodology. Other authors are of the view that research is best carried out by identifying your ontological assumptions first. According to Grix (2004:68), research is done by ‘setting out clearly the relationship between what a researcher thinks can be researched (his/her ontological position) linking it to what we can know about it (his/her epistemological position) and how to go about acquiring it (his/her methodological approach)’ (see also Figure 5.2 above).

Your ontology and epistemology establish a holistic view of how knowledge is perceived and how we can see ourselves in relation to this knowledge, and the methodological strategies we use to uncover or discover it. Awareness of philosophical assumptions will increase the quality of research and can contribute to the creativity of a researcher.

### **Types of Research Paradigms used in Social Science Research**

In simple terms, the four common research paradigms used in social science research are as follows: (1) Positivism = Quantitative: discovery of the laws that govern behavior; (2) Constructivist = Qualitative: understandings from an insider perspective; (3)

Critical-Postmodernism: investigate and expose the power relationships; and (4) Pragmatic: Interventions, interactions and their effect in multiple contexts (Grix 2004:68). These research paradigms are elucidated in the subsections that follow.

**Positivism**

The positivist paradigm is also called the scientific paradigm. The purpose of research in this paradigm is to accept/validate or reject/invalidate a hypothesis. Other characteristics of positivist research include a strong emphasis on the scientific method, statistical analysis, and generalizable findings. Positivist research normally has a control and experimental group and a pretest and post-test method. Thus, positivism does not allow for the subjective opinions of a researcher as the approach deals with verifiable observations and measurable relationships between those observations, not with speculation and conjecture. It is, therefore, the more scientific perspective with no room for the subjective opinions of a researcher as the approach deals with verifiable observations and measurable relations among them.

The term positivism was first coined by August Comte (Cohen et al. 2007), a French philosopher who believed that reality could be observed. Cohen et al. claim that ‘Comte’s position was to lead to a general doctrine of positivism which held that all genuine knowledge is based on sense experience and can be advanced only by means of observations and experiment’ (Cohen et al. 2007:9). Positivism maintains that a scientist is an observer of an objective reality. From this understanding of ontology, the methodology for observation in the natural sciences was adopted for social science research. Table 3.1 highlights the main thinkers who espoused positivism and the concomitant philosophies, all of which were influential in some way to the formation of present-day positivism.

**Table 3.1:** Positivist Thinkers and Philosophies

Main proponent	Underpinning philosophy
Aristotle	Deductive reasoning
Descartes	Realism
Galileo	Scientific method
Auguste Comte	Positivism
Vienna Circle	Logical positivism
Francis Bacon	Inductive reasoning
Karl Popper	Post positivist

*Source:* Self-generated by the Author

The typical positivist research questions include ‘What?’, ‘How much?’, ‘[What is the]Relationship between?’ ‘[What] Causes this effect?’ These questions are best answered with numerical precision, often formulated as hypotheses. Reliability reigns high as some results can be obtained at different times by different researchers. Validity, too, is paramount as results accurately measure and reliably answer research questions.

The ontological and epistemological assumptions of this positivist paradigm tend to overlap. Thus, as Crotty notes, ‘to talk of the construction of the meaning is to talk of the construction of meaningful reality’ (1998:10). The ontological and epistemological assumptions of positivism can be summarised as follows: (a) reality is external to a researcher and represented by objects in space; (b) objects have meaning independent of any consciousness of them; (c) reality can be captured by our senses and predicted; (d) methodology of the natural sciences should be employed to study social reality (Mack 2010:7); (e) truth can be attained because knowledge rests on a set of firm, unquestionable, indisputable truths from which our beliefs may be deduced (Iacobs et al. 2015); (f) knowledge is generated deductively from a theory or hypothesis; and (g) knowledge is objective (Iacobs et al. 2015).

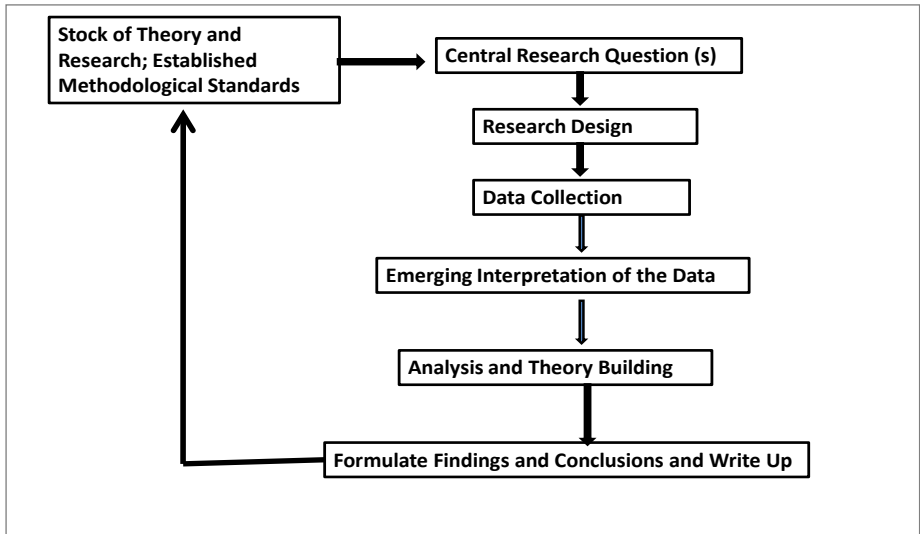
*Positivists’ View of the Research Process*

Table 3.2 and Figure 3.3 provide an overview of how a positivist approaches the social science research process.

**Table 3.2:** Positivism and Research

Aspect	Positivism
The researcher	Independent, objective Detached, irrelevant
Human interest, intuition, reflection	Demonstrate causality
Research process	Progress made through hypotheses and deductions
Concepts and variables	Must be operationalized for measurement and quantitative analysis
Unit of analysis	Identifiable and reduced to simplest terms
Generalization patterns	Probability sampling with adequate sampling size
Sampling requirements	

Source: Self-generated by the Author



**Figure 3.3:** Positivist View of The Research Process

Source: Self-generated by the Author

### *Post-positivism*

There has been criticism (Guba and Lincoln 2005; Biesta and Barbules 2004) of the positivist paradigm for applying the scientific method to undertake research on human affairs. These opponents have argued that uniform causal links that can be established in the study of natural science cannot apply in the world of the classroom situation where instructors and learners construct meaning (Guba and Lincoln 2005)). Karl Popper, however, argued that we should not quickly disregard all the good qualities of the scientific method. Rather, we can make small adjustments that can be improved upon to provide objective research within the social sciences. In his famous book, *The Logic of Scientific Discovery* (1959), Popper declared that there are no absolute truths. Moreover, he claimed that scientific theories cannot be confirmed but only falsified. Theories can never obtain the real truths but can only get closer to the truth (Popper 1959). Today, positivism 'claims a certain level of objectivity rather than absolute objectivity and seeks to approximate the truth rather than aspiring to grasp it in its totality or essence' (Crotty 1998:29). Generally, when people refer to themselves as positivists, they are talking more about probability than absolute certainty.

### ***Some Criticisms of the Positivist Approach to Social Science Research***

It is impossible for any theory in social science to be simple and precise because the world in which we live, and people's multiple perspectives and interpretations of events make theories complex and chaotic (Mack 2010). There are myriad variables that affect different events and people's actions that it is impossible to determine an absolute truth. Thus, the following criticisms have been leveled against the positivist paradigm: (a) it treats individuals as if they are passive and unthinking—human beings are less predictable than positivists suggest; (b) interpretivists argue that people's subjective realities are complex and this demands in-depth qualitative methods; (c) the statistics positivists use to find their 'laws of society' might themselves be invalid because of the bias in the way they are collected; and (d) by remaining detached, we actually get a very shallow understanding of human behaviour. These criticisms led to the development of a different paradigm—i.e. the interpretivist paradigm discussed in the ensuing subsection.

### ***Interpretivist or Constructivist***

Interpretivism, also known as post-positivism, is a term given to a contrasting epistemology to that of positivism (Bryman 2008:16). It concerns the theory and method of the interpretation of human action. While the positivist's point of departure is to explain human behaviour, the social sciences are more concerned with understanding human behaviour. As Max Weber (1864-1920) stated, the time has come for us to 'understand' social dynamics (translated from the German word *verstehen*, meaning 'to understand') and not simply to 'measure' it. Interpretivism is a philosophical position within an epistemological stance that treats reality as being fluid, knowledge is subjective, everyone has a 'common sense thinking', and the truth lies within the interpretation of a person's reality upon which s/he accordingly acts, reacts, and interacts with that 'reality'. This phenomenon is subject to a person's beliefs, values, culture, standing, language, shared meaning, and consciousness (see, for example, Bryman 2008:17; Grbich 2010). Interpretivism or Interpretive Theory, according to Charmaz (2006), calls for the imaginative understanding of the studied phenomenon. This type of theory assumes emergent, multiple realities, indeterminacy, facts and values linked, truth as provisional, and social life as processual (Chamaz 2006). The interpretivist paradigm has been heavily influenced by hermeneutics and phenomenology. Hermeneutics is the study of meaning and interpretation of historical texts (Ernest 1994). This meaning-making cyclical process is the basis upon which the interpretivist paradigm was established (Ernest 1994). Another strong influence



is the philosophical movement of phenomenology. A phenomenologist advocates the ‘need to consider human beings’ subjective interpretations, their perceptions of the world (their life-worlds) as our starting point in understanding social phenomena’ (Ernest 1994: 25).

Therefore, the ontological assumptions of interpretivism are that social reality is seen by multiple people and these multiple people interpret events differently, leaving multiple perspectives of an incident. Table 3.3 shows some of the main thinkers and their philosophies associated with interpretivism.

**Table 3.3:** Interpretivist Thinkers and Philosophies

Main Thinkers	Underpinning Philosophy
Edmund Husserl, Arthur Schulty Wilhelm Dilthey, Han-Georg Gadamer Herbert Blumer Harold Garfinkel	Phenomenology Hermeneutics Symbolic interaction Ethnomethodology

*Source:* Self-generated by the Author

Interpretivism’s main standpoint is that research can never be objectively observed from the outside; rather, it must be observed from inside through the direct experience of the people. Furthermore, uniform causal links that can be established in the study of natural science cannot be made in the world of the classroom where teachers and learners construct meaning. Therefore, the role of the scientist in the interpretivist paradigm is to ‘understand, explain, and demystify social reality through the eyes of different participants’ (Cohen et al. 2007:19). Researchers employing this paradigm seek to understand rather than explain phenomena. The main epistemological and ontological assumptions of the interpretivist paradigm can be summarised as follows: (a) reality is indirectly constructed based on individual interpretation and is subjective, (b) people interpret and make their own meaning of events, (c) events are distinctive and cannot be generalized, (d) there are multiple perspectives of an incident, (e) causation in the social sciences is determined by interpreted meaning and symbols, (f) knowledge is gained through a strategy that ‘respects the differences between people and the objects of natural sciences and therefore requires the social scientist to grasp the subjective meaning of social action’ (Mack 2010:8), (g) knowledge is gained inductively to create a theory, (h) knowledge arises from particular situations and is not reducible to

simplistic interpretation, and (i) knowledge is gained through personal experience (Iacob et al. 2015).

The typical interpretivist research questions include the following: Why? How does a subject understand? What is the ‘lived experience’? What meaning does the intervention have? To answer these questions, the methodology entails a combination of qualitative methods including, but not limited to, narrative, key informant interviews, focus group discussions, observations, ethnography, case study, and phenomenology.

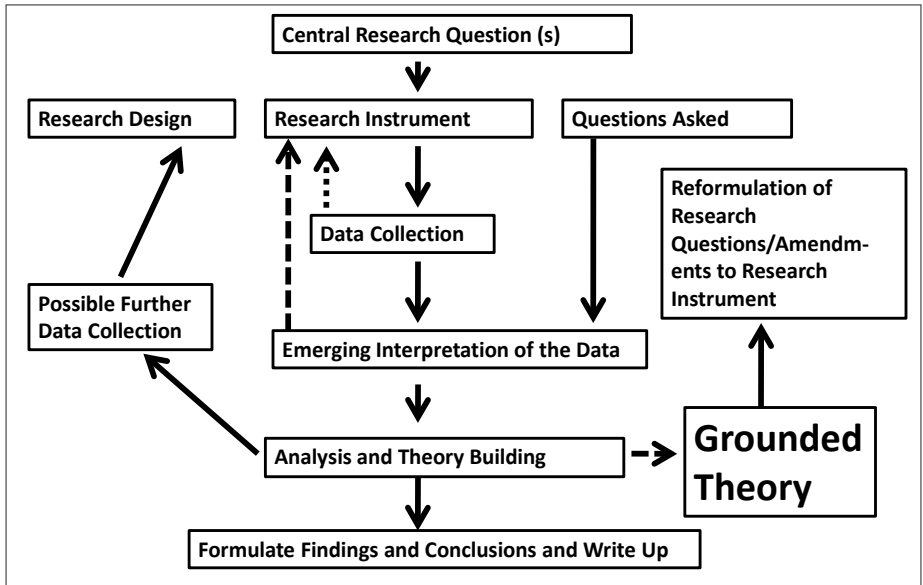
***The Interpretivist View of the Research Process***

Table 3.4 and Figure 3.4 provide an overview of how an interpretivist approaches a social science research process.

**Table 3.4:** Interpretivism and Research

Aspect	Positivism
The researcher Human interest, intuition, reflection Research goal Research process Concepts and variables Unit of analysis Generalization patters Sampling requirements	Part of what s/he is studying Crucial to research process and investigation Increase general understanding of situation Probing rich data to increase understanding May include complexity of whole theoretical abstraction May be non-probability sampling method with a small number of cases for specific reasons

*Source:* Self-generated by the Author



**Figure 3.4:** Interpretivist View of the Research Process

Source: Self-generated by the Author

***Limitations of the Interpretivist Approach to Social Science Research***

One of the limitations to interpretive research is that it abandons the scientific procedures of verification and therefore, results cannot be generalized to other situations. Therefore, many positivists question the overall benefit of interpretivist research. We respond to this question by pointing out that the research will resonate with other teachers, so it will be similar to other peoples’ work. For example, action research, one of the methodologies from the interpretivist paradigm, shows teachers how issues can be interrogated and addressed in practical ways. It deliberately intervenes in the research setting to achieve change or improvement. Its goal is the development of local theories for practice rather than generalizable findings. Another criticism of interpretivism is that its ontological assumption is subjective rather than objective. As mentioned in the positivist paradigm section, I believe that all research is subjective. By selecting your paradigm, you are being subjectively oriented toward one way of doing research. You cannot divorce yourself from your perspective as a researcher. In qualitative research, you are being more subjective in the sense that you are not using a hypothesis and you are involving yourself in the research. However, interpretivists still take an objective

stance when analysing the data they collect. By bracketing their assumptions, they look at the data thoroughly so that the data informs them about what is going on in the environment, instead of their own perceptions.

Perhaps, the strongest criticism of interpretivism is that it neglects to acknowledge the political and ideological influences on knowledge and social reality. Moreover, interpretivism is not radical enough. While the positivist seeks to explain social phenomena and the interpretivist seeks to understand social phenomena, a researcher who seeks to change and to challenge social phenomenon is not represented.

### *The Critical Paradigm*

In contrast to positivist or post-positivist perspectives oriented to understanding or explaining the world, critical theory is oriented toward critiquing and changing society as a whole. The critical paradigm stems from critical theory and the belief that research is conducted for 'the emancipation of individuals and groups in an egalitarian society' (Coehen et al. 2007:26). The critical paradigm embodies ideologies such as postmodernism, neo-Marxism, and feminism. Table 3.5 highlights the main thinkers and their philosophies that are associated with the critical paradigm.

**Table 3.5:** Critical Theorist Thinkers and Philosophies

<b>Main Thinker</b>	<b>Underpinning Philosophy</b>
Theodor Adorno, Max Horkheimer, Herbert Marcus, Erich Fromm	Frankfurt School and Critical Theory (1930s)
Karl Appel, Jurgen Habermas	Critical Theory (1970s)
Paulo Friere	Critical Pedagogy
Michel Foucault	Structuralism
Alastair Pennycook	Critical Applied Linguistics
Norman Fairclough	Critical Discourse Analysis
Eve Kosofsky Sedgwick, Judith Butler	Queer theory
Simone de Beauvoir, Betty Friedan	Feminism
Thomas Kuhn, Jacques Derrida	Post modernism

*Source:* Self-generated by the Author

Critical theory originated from the criticism that educational research was too technical and concerned itself only with the efficiency and rationality of the research design, neglecting social inequalities and issues of power (Gage 1989). According to the critical theorists, researchers should be looking for the 'political and economic foundations of our construction of knowledge, curriculum and teaching' (Gage 1989:5). Schools play an explicit part in this construction of knowledge-based power in society. In other words, education serves the interests of those who have power, usually the rich. Schools function to reproduce these inequalities and maintain the status quo (Gage 1989). Educational research in the critical paradigm should challenge these reproductions of inequalities. People must challenge dominant discourses. Educational research and schools, 'like other social institutions, such as the media and legislatures, must be the scenes of the necessary struggles for power' (Gage 1989:5). Moreover, this research paradigm has an agenda to change the participants' lives or the structures of the institutions. The main epistemological and ontological assumptions of critical theory can be summarised as follows: (a) social reality is defined by persons in society; (b) social reality is socially constructed through media, institutions and society; (c) social behaviour is the outcome of "particular illegitimate, dominy and repressive factors, illegitimate in the sense that they do not operate in general interest—one person's or group's freedom and power are bought at the price of another's freedom and power" (Mack 2010:9-10); (d) knowledge is socially constructed through media, institutions and society; (e) 'What counts as worthwhile knowledge is determined by the social and positional power of the advocates of that knowledge'; and (f) knowledge is produced by power and is an expression of power rather than truth (Cohen et al. 2007: 26-27).

The typical critical paradigm's research questions include the following: Who gains power? How can this injustice be rectified? Can the exploited be helped to understand the oppression that undermines them? Who benefits from or exploits the current situation?

### ***Critical Theorists' View of the Research Process***

In critical theory, a researcher takes on the role of facilitator, raising not only their own level of consciousness about the object of study but also that of others. A researcher may facilitate change in the study group by providing greater insight into its members' situation and providing a stimulus for their community to take control of their future and initiate action and change. A novice critical researcher must first be 'resocialised' from previous exposures to positivism. This involves the conscious re-education about positivism and post-positivism and their limitations.

New researchers need to understand the perspective differences and understand both quantitative and qualitative methods so that they can understand how the perspectives differ and how the research is conducted. New researchers also need to understand the role that social issues have in the context and structure and uphold the values of empowerment and altruism in their work.

### *Limitations of the Critical Paradigm to Research*

Critical theory is criticized for its elitism. By assuming that everyone needs to be emancipated, critical theorists proffer the view that they have been emancipated and therefore are better equipped to analyse society and transform it than anyone else (Jacob et al. 2015). Furthermore, there is a lack of evidence that illustrates what happens when you become emancipated and gain a critical consciousness. Is there any evidence that shows that once someone attains a critical consciousness, s/he stops reproducing inequalities that subtly oppress people? Furthermore, positivists criticize critical researchers for their deliberate political agenda and failure to remain objective neutral researchers.

### *Pragmatism*

Pragmatism is not committed to any one system of philosophy or reality. Pragmatist researchers focus on the *what* and *how* questions of a research problem (Creswell 2003:11). Early pragmatists 'rejected the scientific notion that social inquiry was able to access the 'truth' about the real world solely by virtue of a single scientific method' (Mertens 2005:26). While pragmatism is seen as the paradigm that provides the underlying philosophical framework for mixed-methods research (Tashakkori and Teddlie 2003; Somekh and Lewin 2005), some mixed-methods researchers align themselves philosophically with the transformative paradigm (Mertens 2005). It may be said, however, that mixed methods could be used with any paradigm. The pragmatic paradigm places 'the research problem' as central and applies all approaches to understanding the problem (Creswell 2003: 11). With the research question being 'central', data collection and analytical methods are chosen from those most likely to provide insights into the question with no philosophical loyalty to any alternative paradigm. Therefore, Morgan points out that 'Pragmatism presents a radical departure from age-old philosophical arguments about the nature of reality and the possibility of truth' (2014:1049). As Hall also concluded, pragmatism offers 'an alternative epistemological paradigm. (2013:19). In this new worldview, knowledge consists of warranted assertions (Dewey 1941/2008) that result from taking action and experiencing the outcomes.

Three types of pragmatism have been distinguished. The first is *functional pragmatism*, which entails (a) knowledge should be gained and used for action, (b) knowledge should be useful for action and change, and (c) functional means that knowledge should be useful and applicable in action. The second is *referential pragmatism*, which encompasses (a) knowledge about action and (b) describing the world in action-oriented ways. It is postulated that ‘the essence of society lies in an ongoing process of action, not in a posited structure of relations. Without action, any structure of relations between people is meaningless. To be understood, a society must be seen and grasped in terms of the action that comprises it’ (Blumer 1969: 19). Action-oriented theories include social action theories, symbolic interactionism, activity theory, structuration theory, speech act theory/communicative action theory, affordance theory, and socio-instrumental pragmatism. The third is *methodological pragmatism*, which comprises (a) knowledge gained *through* action; (b) we learn about the world through action; (c) knowledge is based on actions, experiences, and reflections on actions; and (d) the ‘true’ nature of phenomena is shown first when we try to change them.

## Methodology and Paradigms

In my own research, I was surprised to discover that a large number of texts did not provide definitions for the terms *methodology* or *method*. Some texts use the terms interchangeably and others present them as having different meanings. According to the third edition of the *Macquarie Dictionary*, ‘methodology is the science of methods, a branch of logic. One which deals with the logical principles underlying the organisation of the various special sciences, and the conduct of scientific inquiry’ (2001:718). This definition is consistent with much of the literature from Leedy and Ormrod 2005 and Schram 2006, despite it being a generic definition as opposed to one which is discipline or research specific. Somekh and Lewin define methodology as both ‘the collection of methods or rules by which a particular piece of research is undertaken’ and the ‘principles, theories and values that underpin a particular approach to research’ (2005:346), while Walter argues that methodology is the frame of reference for the research which is influenced by the ‘paradigm in which our theoretical perspective is placed or developed’ (2006:35). The most common definitions suggest that *methodology* is the overall approach to research linked to the paradigm or theoretical framework while the *method* refers to systematic modes, procedures or tools used for the collection and analysis of data.

## **Matching Paradigms and Methods**

Readers are advised by the literature that research which applies the positivist or post-positivist paradigm tends to predominantly use quantitative approaches (methods) to data collection and analysis, although not necessarily exclusively, while the interpretivist/constructivist paradigm generally operates using predominantly qualitative methods (Mertens 2005). The pragmatic paradigm provides an opportunity for 'multiple methods, different worldviews, and different assumptions, as well as different forms of data collection and analysis in the mixed methods study' (Creswell 2003:12). Likewise, the transformative paradigm allows for the application of both qualitative and quantitative research methods. Deconstructivist, and, in particular, poststructuralist research 'seeks to understand the dynamics of relationships between the knowledge/meaning, power and identity' (MacNaughton et al. 2001:46) applying data collected and analysed using qualitative methods. Poststructuralists emphasize the local nature of knowledge placing strict limits on the validity of the knowledge gathered and produced (MacNaughton et al. 2001). Table 3.6 provides a summary of the ways in which research paradigms transcend knowledge-claim boundaries.



**Table 3.6** Summary of Paradigms, Knowledge Claims and Methods

Research Approach	Knowledge Claims	Strategy of Inquiry	Method	Use of These Practices of Research as a Researcher
Quantitative	Post-positivist assumptions	Experimental design Quasi-experimental design	Predetermined Closed-ended questions Performance, attitude, observation and census data Statistical analysis	Tests or verifies theories or explanations Identifies variables to study Relates variables in questions or hypotheses Uses standards of validity and reliability Observes and measures information numerically Uses unbiased approaches Employs statistical procedures
Qualitative	Constructivist assumptions	Ethnographic design	Emerging methods Open-ended questions Field observation, document data Text and image analysis	Positions himself or herself collects participant meanings Focuses on a single concept or phenomenon Brings personal values into the study Studies the context or setting of participants Validates the accuracy of findings Makes interpretations of the data Creates an agenda for change/reform
Qualitative	Advocacy/ Participatory assumptions	Narrative design	Open-ended interview and audio-visual data Text and image analysis	
Mixed Methods	Pragmatic assumptions	Mixed-methods design	Both predetermined and emerging methods Both open and closed-ended questions Multiple forms of data drawing on all possibilities Statistical and text analysis	Collects both quantitative and qualitative data Develops a rationale for mixing Presents visual picture of the procedure in the study Employs the practices of both qualitative and quantitative research

*Source:* Self-generated by the Author

## Conclusion

From the discussions presented in this chapter and the literature reviewed, it should be clear to readers that paradigms as positions about epistemology, ontology and axiology, exert significant influences on the methodology to be used in a research project. Because each paradigm is undergirded by specific assumptions as discussed earlier, choice of a paradigm for your research implies that the research will be nested in a particular epistemology, ontology, and axiology, and that these elements will therefore guide you towards a particular methodology. Thus, the choice of a paradigm implies a near certainty about particular methodologies that flow from that paradigm. This relationship is very important because the methodological implications of paradigm choice permeate the research question/s, participants' selection, data collection instruments and collection procedures, as well as data analysis. Thus, research located in any of the four primary paradigms has a wide range of research methodologies to choose from. It is also worth noting, that it is quite possible to combine several research methodologies within one research paradigm. However, choice of the right methodologies needs to be informed by a good understanding of the different aspects of research paradigms discussed in this chapter.

## References

- Biesta, Gert, Barbules, Nicholas, 2004, *Pragmatism and Educational Research*, New York, NY: Rowman & Littlefield.
- Bryman, Allan, 2008, *Social Research Methods 4th ed.*, Oxford, UK: Oxford University Press.
- Charmaz Kathy, 2006, *Constructing Grounded Theory: A Practical Guide Through Qualitative Analysis*, London, UK: Sage Publications.
- Cohen, Louis, Lawrence Manion and Keith Morrison Keith, 2007. *Research Methods in Education 6<sup>th</sup> ed.*, London, UK: Routledge.
- Creswell, John William, 2003, *Research Design: Quantitative, Qualitative and Mixed Approaches*, Thousand Oaks, CA: Sage Publications.
- Crotty, Michael, 1998, *The Foundations of Social Research: Meaning and Perspective in the Research Process*, London, UK: Sage Publications.
- Dewey John, 2008 (original work published in 1941), 'Propositions, Warranted Assertibility and Truth', in J. Boydston, ed., *The Later Works of John Dewey, 1925-1953*, Carbondale, IL: Southern Illinois University Press.
- Eriksson, Paivi and Anne Kovalainen 2008, *Qualitative Methods in Business Research 2nd ed.*, Helsinki, Finland: Sage Publications.
- Ernest, Paul, 1994, 'Social Constructivism and the Psychology of Mathematics Education', in E. Ernest, ed., *Constructing Mathematical Knowledge: Epistemology and Mathematics Education*, London, UK: Falmer Press.

- Gage, Nathaniel Lees, 1989, 'The Paradigm Wars and Their Aftermath: A 'Historical' Sketch of Research on Teaching Since 1989', *Educational Researcher* 18, 7:4-10.
- Grbich, Carol, 2010, *Qualitative Data Analysis: An Introduction*, London, UK: Sage Publications.
- Grix, Jonathan, 2004, *The Foundations of Research*, London, UK: Palgrave Macmillan.
- Guba, G. Egon and Yvonna S. Lincoln, 2005, 'Pragmatic Controversies, Contradictions, and Emerging Confluences', in N. K. Denzin and Y. S. Lincoln, eds., *Handbook of Qualitative Research*, Thousand Oaks, CA: Sage Publications.
- Guba, G. Egon and Yvonna S. Lincoln, 1994, 'Competing Paradigms in Qualitative Research', in N. K. Denzin and Y. S. Lincoln, eds., *Handbook of Qualitative Research*, Thousand Oaks, CA: Sage Publications.
- Hall, Jonathan, 2013, 'Pragmatism, Evidence and Mixed Methods Evaluation' (Special Issue: Mixed Methods and Credibility of Evidence in Evaluation), *New Directions for Evaluation*, 138:15-26.
- Hirschheim, Rudy, Heinz K. Klein and Kalle Lyytinen, 1995, *Information Systems Development and Data Modeling: Conceptual and Philosophical Foundations*, Cambridge, UK: Cambridge University Press.
- Jacobs, Silvia, Popescu Constanta and Ristea Ana Lucia, 2015, 'The Role of Epistemological Paradigms in Research in Social Sciences and Humanities', *Theoretical and Applied Economics* 4, 605: 247-252.
- Howell, Jennifer, 2014, *Teaching & Learning: Building Effective Pedagogies*, London, UK: Oxford University Press.
- Kuhn, Thomas S., 1962, *The Structure of Scientific Revolution*, Chicago, IL: The University of Chicago Press.
- Leedy, Paul D. and Jeannie Ellis Omrod, 2005, *A Handbook for Teacher Research from Design to Implementation*, Upper Saddle River, NJ: Pearson Education.
- Mack, Lindsay, 2010, 'The Philosophical Underpinnings of Educational Research', *Polyglossia* 19:5-11.
- Macquarie Dictionary* (3rd edition), n.d., North Ryde, Australia: Macquarie Library, retrieved on May 24, 2017 from <https://www.macquariedictionary.com.au/>
- McNaughton, Glenda, Sgarne A. Rolf and Iram Siraj-Blatchford, 2001, *Doing Early Childhood Research: International Perspectives on Theory and Practice*, Canberra, Australia: Allen & Unwin.
- Mertens, Donna, 2005, *Research and Evaluation in Education and Psychology: Integrating Diversity with Quantitative, Qualitative and Mixed Methods* 2nd ed., Boston, MA: Sage Publications.
- Morgan, David L., 2014, 'Pragmatism as a Paradigm for Social Research', *Qualitative Inquiry* 20, 8:1045-1053.
- Popper, Karl, 1959, *The Logic of Scientific Discovery*, London, UK and New York, NY: Routledge.
- Proctor, Bob, 2009, *It's Not About Money*, Scarborough, Canada: Burman Books Inc.

- Schram, Thomas Heinz, 2006, *Conceptualizing and Proposing Qualitative Research* 2nd ed., Upper Saddle River, NJ: Pearson Education.
- Somekh, Bridget and Cathy Lewin, 2005, *Research Methods in Social Sciences*, London, UK: Sage Publications.
- Tashakori, Abbas and Charles Teddlie Charles, eds., 2003, *Handbook of Mixed Methods in Social & Behavioral Research*, Thousand Oaks, CA: Sage Publications.
- TerreBlanche, John Martin and Kevin Durrheim, 1999, *Research in Practice: Applied Methods for the Social Sciences*, Capetown, South Africa: University of Capetown Press.
- Walter, Magiie, 2006, *Social Science Methods: An Australian Perspective*, Oxford, UK and New York, NY: Oxford University Press.
- Wand, Yair and Ron Webern, 1993, 'On the Ontological Expressiveness of Information Systems Analysis and Design Grammars', *Information Systems*, 3, 4: 217-237.