

The commonalities and differences between research paradigms

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Abstract

Research paradigm is a theoretical net within which a study is guided or undertaken. This article discusses literature on positivistic, interpretive and critical theory research paradigms and their related methodological approaches. The article summarises similarities and differences between positivistic, interpretive and critical theory research paradigms, and concludes that research is a process of making meaning from realities or truths to generate knowledge in order to combat new and existing issues, improve practices and create new knowledge.

Key words: Paradigm, research, theoretical, ontology, epistemology, positivistic, interpretive, critical theory

Introduction

Ontology and epistemology are branches of philosophy and the former refers to the reality or truth that exists, while the latter refers to the construction or generation of knowledge from reality or truth (Creswell, 2009; Punch, 2009). Maxwell (2005) views a paradigm as “a set of very general philosophical assumptions about the nature of the world (ontology) and how we can understand it (epistemology), assumptions that tend to be shared by researchers working in a specific field or tradition ... [and] specific methodological strategies linked to these assumptions” (p. 36). It involves an intersection of philosophical underpinnings, methodological approaches, including methods of data collection, and techniques and tools of data analysis (Creswell, 2009; Hitchcock & Hughes, 1995). Importantly, the research paradigm involves the whole research inquiry rather than just the outcome of the study (Cohen, Manion, & Morrison, 2007; Punch, 2009; Wolf, 1997). The three broad paradigms, which guide most education research are: positivism, interpretivism and critical theory (Cohen et al., 2007; Hitchcock & Hughes, 1995; Neuman, 2006), and these are discussed in turn.

Positivistic research paradigm

Positivism is the traditional (Ary, Jacobs, & Razavieh, 2002; Cohen et al. 2007; Creswell, 2009) or the “oldest and the most widely used” (Neuman, 2006, p. 81) research paradigm. The positivistic research paradigm has its roots in the natural sciences and was first applied in the nineteenth century using scientific approaches and later extended to education and social sciences (Ary et al., 2002; Cohen et al., 2007; Neuman, 2006). This research paradigm has been given many other names: for example, *realism* (Cohen et al., 2007; Lodico,

Spaulding, & Voegtle, 2010), *determinism* (Cohen et al., 2007; Creswell, 2009), *objectivism* (Bryman, 2008), *normativism* (Basit, 2010), *behaviourism* (Neuman, 2006), *nomothetical* (Cohen et al., 2007; Neuman, 2007) and *logical empiricism* (Neuman, 2006). The positivistic research tradition argues that the ontology or the nature of reality or truth exists out there in the physical and social environments (Cohen et al., 2007; Johnson & Christensen, 2008; Neuman, 2006). This research paradigm assumes that the nature of the physical world is a “hard reality, external to humans” (Basit, 2010, p. 79), while “social reality is made up [subjective] objective facts” (Neuman, 2007, p. 42). The positivistic research paradigm assumes that both physical and social realities are governed by “causal laws” which are there waiting to be unveiled or explored (Ary et al., 2002; Cohen et al., 2007; Neuman, 2006, 2007). Causal laws refer to “cause and effect relationships” of systems that exist in the physical and social worlds (Creswell, 2009; Lodico et al., 2010; Neuman, 2006).

However, in the social world, positivism recognises that realities or truths are caused by human beings themselves and reacting with each other as ‘agents’ (Lodico et al., 2010; Neuman, 2006). Being an agent means that humans are capable of producing or creating realities. Human agency refers to a person’s alignment of his or her behaviour with other fellow human beings’ behaviour. As a result, power relationships are created through their interactional behaviour and an end is achieved (Cohen et al., 2011; Neuman, 2006). Human beings are driven by self-desires, motivation, wants, needs, curiosity and interests, and in these processes they cause relationships in the social environments (Cohen et al., 2007; Lodico et al., 2010; Neuman, 2006). When human beings pursue the satisfaction of their wanted needs, desires, and interests, they take control by altering social relations to improve how things are done and to predict what will happen (Neuman, 2000, 2006). So within the positivistic view, human behaviour is assumed or believed to be caused by internal realities or truths and can be explored and documented by observing it (behaviour) (Bryman, 2008; Cohen et al., 2007; Neuman, 2006).

A positivistic research paradigm argues that the nature of understanding and generating knowledge is acquired by employing quantitative methods (Ary et al., 2002; Cohen et al., 2007; Lodico et al., 2010; Neuman, 2007). Quantitative research methods refer to the notion of measurement, where data is quantifiable using surveys and experiments, and a positivist researcher distances himself or herself from the participants of the study (Cohen et al., 2007; Johnson & Christensen, 2008; Lodico et al., 2010; Neuman, 2007). Typical quantitative approaches include experiments that are performed to collect data for cause and effect relationships (Ary et al., 2002; Lodico et al., 2010) and surveys where questionnaires are used to gather data (Lodico et al., 2010) from “situations where an experiment is impossible” (Neuman, 2007, p. 43). In positivistic educational research, data are collected using tests, observational checklists and surveys, and the data are analysed using mathematical calculations where presentations are often shown in numbers, graphs and tables (Ary et al., 2002; Cohen et al., 2007; Johnson & Christensen, 2008; Lodico et al., 2010). The

findings of the study can be generalised to a larger population (Lodico et al., 2010).

Interpretive research paradigm

The interpretive paradigm focuses on human actions and participants' understanding and meaning-making processes in everyday social activities (Lincoln & Guba, 1985; Neuman, 2006; Punch, 2009). There are three separate ways or traditions within which the interpretive paradigm unveils direct human actions and meaning-making processes (Cohen, Manion & Morrison, 2011; Flick, Kardorff, & Steinke, 2004).

The first tradition of the interpretive paradigm refers to the transformation process of human experiences into consciousness and language to create multiple realities. Human consciousness refers to a person's thinking, which is converted to mental thought processes and then transformed into intentional thoughts or mental acts which are facilitated internally and externally in everyday social life experiences (Cohen et al., 2011; Hitzler & Eberle, 2004; Vialle, Lysaght, & Verenikina, 2005; Vygotsky, 1962). This tradition explores how social realities are constructed in the minds of human beings, and how human beings create meanings from their observation of the actions of other human beings in a social activity. Human beings transform their everyday life experiences into consciousness and language, and again create and re-create everyday life experiences in a particular situation (Cohen et al., 2011; Creswell, 2007; Hitzler & Eberle, 2004). This tradition looks at "how human beings make sense of experience and transform experience into consciousness, both individually and as shared meaning" (Patton, 2002, p. 104).

When consciousness is transformed into experiences, the realities are 'socially constructed,' that is, created by human beings through social interactions in their everyday life experiences (Bryman, 2008; Cohen et al., 2007, 2011; Lincoln & Guba, 1985; Neuman, 2006). Lincoln and Guba (1985) discussed two social realities: constructed reality and created reality. Socially constructed reality refers to multiple realities constructed in the minds of human beings, which are related to human beings' thought processes and consciousness, while created realities relate to multiple realities created from observations of actions of other human beings (Lincoln & Guba, 1985). In other words, 'constructed reality' is the internal thinking and thought processes of human beings, while 'created reality' is the actual actions and behaviours they (human beings) produce and re-produce through social interactions in their everyday actions (Cohen et al., 2007, 2011; Flick et al., 2004; Lincoln & Guba, 1985; Neuman, 2006). This reasoning concludes that human beings intentionally construct and re-construct, and create and re-create, multiple social realities through meaningful interactions in the activities they undertake, and assign meanings through negotiation with others time after time in their everyday life in social settings (Cohen et al., 2007, 2011; Flick et al., 2004, 2007; Lincoln & Guba, 1985; Neuman, 2006).

The second tradition is related to making meaning from printed or written documents and how underlying meanings are drawn out (Flick et al., 2004; Soeffner, 2004). This tradition is concerned with unveiling human actions, and is called hermeneutics. Hermeneutic refers to how people make sense of their structured or ordered social world through the use of linguistic and non-linguistic human social activities (Cohen et al., 2011; Creswell, 2007; Flick et al., 2004; Soeffner, 2004). The individual participant's interpretations relate to lived-experiences in a particular context, and how they come to understand, create and re-create their social life (Bryman, 2008; Cohen et al., 2007, 2011). Linguistic social activities or lived experiences refer to the 'recorded language'- both spoken and written, or what is called 'texts' while non-linguistic relates to recorded text of behaviour or actions, such as bodily expressions and movements, which include facial expression and hand gestures, dressing and other body language. Creation and organisation of social environments through these activities illustrate underlying meanings, categories and relationships (Creswell, 2009; Lincoln & Guba, 1985; Soeffner, 2004).

Interpretive researchers in this tradition try to get into the recorded texts of human social lives, and often unveil and understand the participants' lived-experiences from inside and within the context of a social system (Cohen et al., 2007, 2011; Lincoln & Guba, 1985; Neuman, 2006). The interpretive researcher also tries to focus on direct human behaviour and actions where the researcher tries to interpret underlying multiple meanings, concepts, categories, methods and relationships constructed and created by human behaviour and actions in an activity (Cohen et al., 2007, 2011; Creswell, 2009; Lincoln & Guba, 1985; Neuman, 2006). Everyday life experiences are structured by both spoken and written language (Cohen et al., 2011; Neuman, 2006). People intentionally interact on the basis of meanings the language (both written and spoken) presents in order to construct and create multiple subjective meanings in their everyday life experiences (Cohen et al., 2011; Hitzler & Eberle, 2004). So, there are inner subjective meanings for individuals based on opinions that underlie written and spoken languages in everyday activities in social settings (Cohen et al., 2007, 2011; Lincoln & Guba, 1985).

The third interpretive tradition concerns the use of language in constructing symbolic meanings and how these meanings are interpreted and constructed (Cohen et al., 2007, 2011; Denzin, 2004). Human beings draw on semiotics to gain insights into meanings (Cohen et al., 2007, 2011; Denzin, 2004; Flick et al., 2004; Meltzer, Petras & Reynolds, 1975). Semiotic refers to the creation and use of signs and symbols in language to communicate meaning. This way of communication is pertinent to "the social world where the existence of symbols, like language, enables them to give meaning" (Cohen et al., 2011, p. 20). Language as a tool is used in constructing symbols for a particular social context and making subjective and objective meanings (Cohen et al., 2011; Denzin, 2004; Meltzer et al., 1975). This process occurs through intentional social interactions (Cohen et al., 2011; Denzin, 2004), and human behaviours which are "caused not so much by forces within themselves (drives, needs, etc.), or by external forces impinging upon them (social forces, etc.), but what

lies in between, a reflective and socially derived interpretation of the internal and external stimuli that are present” (Meltzer et al., 1975, p. 2). Thus, through action processes, an “individual [person] constructs, modifies, pieces together, weighs up the pros and cons and bargains” (Cohen et al., 2011, p. 20) and makes “meanings [which] are modified and handled through an interpretive process that is used by each individual in dealing with the signs he/she encounters” (Meltzer et al., 1975, p. 1). Further, individual human beings align their thoughts and actions with other fellow human beings, and through interactions they create and re-create meanings for certain symbols/signs (Cohen et al., 2011; Denzin, 2004).

Within each of these traditions, the interpretive paradigm usually applies qualitative research methods with methodological approaches such as *ethnography* (Fielding, 2008; Wallen & Fraenkel, 2001), *grounded theory* (Birks & Mills, 2011; Butterfield, 2009; Glaser, 1978, 1992, 1994; Glaser & Strauss, 1967; Hodkinson, 2008), *mixed methods* (Bryman, 2008; Cohen et al., 2011; Fraenkel, Wallen, & Hyun, 2012; Creswell, 2002) or *case study* (Bryman, 2008; Gerring, 2007; Gillham, 2000; Merriam, 1998; Woodside, 2010; Yin, 1994, 2003).

An *ethnographic approach* is concerned with studies which are undertaken in the field over longer periods of time to unveil a complete picture of cultural practices, belief systems, customs, rituals, and traditions. The ethnographic researchers become part of the study group, where ongoing relationships are created with participants, and they undertake the activities, observe actual practices and listen to what participants say (Fielding, 2008; Fraenkel et al., 2012; Wallen & Fraenkel, 2001). According to Fraenkel et al., (2012), “ethnographic researchers do their best to see beyond the immediate scene or event occurring ... in a location in order to understand the larger picture of which the particular event may be a part” (p. 509).

The *grounded theory approach* is used to generate “theories [that] are not available, or the field is dominated by many contradictory theoretical positions” (Sarantakos, 2005, p. 119). The interpretive researchers in this approach gather data in the field and analyse them by looking for themes related to a theoretical framework or research questions. Based on the major themes of the findings, the researchers again enter the field to collect data to expand upon and refine these themes. Theory is developed as it emerges from the data (Glaser, 1992, 1994; Glaser & Strauss, 1967). The *mixed methods approach* is an application of both qualitative and quantitative data gathering methods in a single study. The purpose of using two methods is that “the strengths of the two methods will complement each other and offset each method’s respective weaknesses” (Fraenkel et al., 2012, p. 561). A *case study approach* is limited to a particular or specific unit, group or organisation, and the findings illustrate or describe that particular setting. Typical methods of data gathering and analysis in the above research approaches include in-depth interviews, observations and documents, and emergent theory (Birks & Mills, 2011; Gerring, 2007; Gillham, 2000; Merriam, 1998; Yin, 1994, 2003).

Critical theory research paradigm

The critical theory research paradigm lies between positivist and interpretive research paradigms (Basit, 2010; Neuman, 2006). In other words, the critical theory research paradigm shares some characteristics with positivist and interpretive research paradigms but also introduces other features of its own (Cohen et al., 2007, 2011; Creswell, 2007; Neuman, 2006, 2007). Similarities are highlighted in Creswell's (2009) observation that the critical theory research paradigm "is typically seen with[in] qualitative research, but it can be a foundation for quantitative [positivism] research as well" (p. 9). For example, critical theorists like positivists believe that social realities are already constructed in the social systems and are there waiting to be unveiled (Cohen et al., 2007; Neuman, 2006). Additionally, the critical theory paradigm proposes that human beings are driven by self-desires, motivation, wants, needs and interests, and in these processes they create cause-effect relationships in the social environments (Cohen et al., 2011). In relation to the interpretive paradigm, critical theory agrees that social realities are constructed and created by human beings themselves as proposed by the interpretive paradigm (Cohen et al., 2011; Neuman, 2006). Human beings construct and create multiple realities time after time through social interactions. Further, the critical theory believes that language, human behaviour and actions are key elements in creating multiple realities (Cohen et al., 2011; Lincoln & Guba, 1985; Neuman, 2006).

What is unique to critical research theory is the belief that social realities are shaped by historical events, such as politics, society, culture and ideological shifts (Basit, 2010; Cohen et al., 2007; Neuman, 2006). The critical theory research paradigm also assumes that reality evolves in a process of change through human relationships, and is impacted by tensions, conflicts, disagreements and disparities over time in society (Basit, 2010; Cohen et al., 2007; Neuman, 2006, 2007). These conflicts or contradictions relate to gender inequality, power relations, exploitation, discrimination and racism as a result of political, social, economic and cultural activities impinging on the everyday lives of people (Basit, 2010; Cohen et al., 2007; Neuman, 2006, 2011). The critical theory research paradigm proposes that these disparities are rooted deeply in social institutions, such as family, church, communities, formal organisations like educational institutions and other organisations (Cohen et al., 2007; Neuman, 2006, 2007). In their research pursuits critical theorists uncover the underlying unfair structures in these social institutions and push for reform of policies and laws to be enacted to promote equality, justice, fairness, equal distribution of resources and empowerment in people's lives (Neuman, 2007). "Critical research aims to emancipate and empower the disempowered and those who are facing inequality and discrimination" (Basit, 2010, p. 15), and to bring about a more just, egalitarian society in which individual and collective freedoms are practised, and to eradicate the exercise and effects of illegitimate power (Cohen et al., 2007). For example, in education, critical theory informs policies and laws, which are enacted to alleviate gender disparities and provide

more and equal opportunities, as well as encouraging many females to be enrolled and educated at all levels of education.

The critical research paradigm uses action research as a key methodological approach (Cohen et al., 2007; Creswell, 2007; Neuman, 2011). Action research involves the “blending of theory and concrete action; theory informs one about the specific real-world actions one should take to advance social change, and one uses the experiences of engaging in action for social change to reformulate the theory” (Neuman, 2007, p. 44). Additionally, action research can be a self-reflective study to improve one’s current practices and to unveil actions and practices of others to offer possible solutions to improve and overcome current social issues or problems (Basit, 2010; Cohen et al., 2007, 2011; Punch, 2009).

Summary

The positivistic, interpretive and critical theory research paradigms are tenet in which a study sits or guides. The three research paradigms agree that research is a process of making meaning from realities or truths to generate knowledge in order to combat new and existing issues, improve practices and create new knowledge. The relationship between positivistic research paradigm, interpretive research paradigm and critical theory research paradigm is illustrated in Figure 1 below, and their similarities, differences and commonalities are discussed in the following paragraphs.

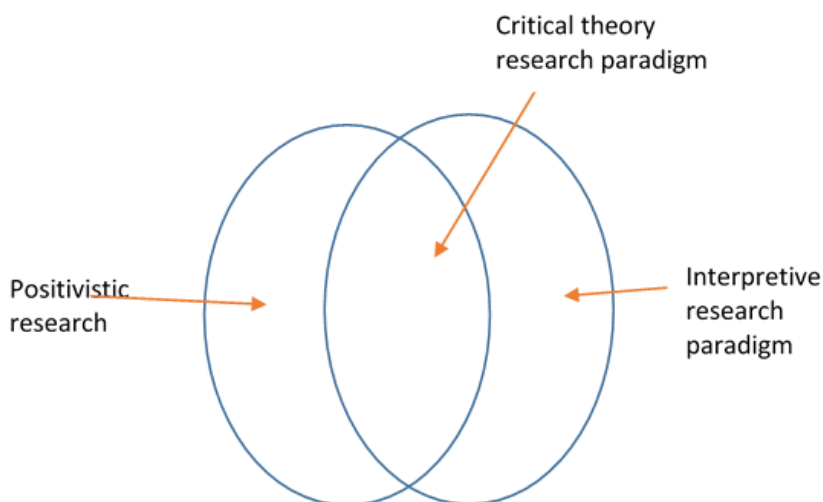


Figure 1: A framework showing the relationship between positivistic research paradigm, interpretive research paradigm and critical theory research paradigm

The positivistic research paradigm is criticised for manipulating human behaviour and choices rather than reflecting human beings constructing their own learning and development (Bryman, 2008; Cohen et al., 2011; Lodico et

al., 2010; Neuman, 2006). Additionally, the positivist paradigm is denounced for not considering the construction and creation of social realities in social systems (Cohen et al., 2011). It is criticised for not taking into account human beings' experiences and their actions which impact on their learning and development (Cohen et al., 2007, 2011; Lodico et al., 2010). As a consequence of these concerns, the interpretive research paradigm has emerged (Cohen et al., 2011).

The aim of an interpretive research paradigm is to uncover the knowledge that is constructed and re-constructed, and created and re-created, through social interactional behaviour and actions in contemporary social settings. The human beings' behaviour, actions, and their use of language are interpreted by the fellow human beings in social settings to create multiple realities (Cohen et al., 2011; Newby, 2010). The interpretive paradigm concerns with three traditions. The first tradition of the interpretive paradigm concerns how human beings transform their experiences into consciousness and use language to create multiple realities such as observation of the actions of other human beings in a social activity, while the second tradition is related to how human beings mediate printed or written documents to draw out underlying meanings. The third interpretive tradition concerns the use of language in constructing symbolic meanings and how these meanings are interpreted. Like the positivist paradigm, there are criticisms linked to the interpretive paradigm which has been questioned for neglecting power relations of external structures and forces that shape human behaviour (action) (Bryman, 2008; Cohen et al., 2011; Neuman, 2006, 2007). This power relation concerns how "the power of others [is used] to impose their own definitions of situations upon participants" (Cohen et al., 2011, p. 21). These concerns have led to the rise of the critical theory research paradigm.

Adherents of the critical theory research paradigm criticise the two earlier paradigms. For example, critical theorists view the positivist research paradigm "as being narrow, antidemocratic, and nonhumanist in its use of reason" (Neuman, 2006, p. 94) and blame the paradigm for ignoring or excluding the social contexts and assuming that social organisations or societies do not change (Creswell, 2007; Neuman, 2006). As for the interpretivist paradigm, critical research theory argues that it is too subjective, and meaning-making systems may present false knowledge about a particular context and describe micro-level social realities for only a short period of time (Basit, 2010; Cohen et al., 2007; Neuman, 2006). It also argues that the interpretive research paradigm assumes participants' views as equal rather than singling out different conditions or realities (Neuman, 2006). Despite the similarities and differences discussed above, the critical research paradigm shares a commonality with positivist and interpretive paradigms that research is a process of making meaning from realities or truths to generate knowledge in order to combat new and existing issues, improve practices and create new knowledge (Cohen et al., 2011; Neuman, 2006). The critical theory research paradigm aims to unveil power relational issues, such as gender inequality, exploitation, discrimination and racism created by political, socio-cultural and economic activities (Cohen et al., 2011; Neuman, 2011). Additionally, the

critical theory paradigm assumes that social realities have already been created and are there waiting to be discovered, while interpretive paradigm proposes to unveil ‘live actions’ of human beings in a social activity from human beings’ perspectives (Cohen et al., 2007; Neuman, 2006).

Conclusively, research is concerned with systematic searching for reality or truth to solve existing problems that improve practices, inform policy discussion and formulation, and generate new knowledge (Cohen et al., 2011; Creswell, 2009; Johnson & Christensen, 2008). In order to systematically unveil the reality, a paradigm for research is needed, because the paradigm guides a study (Cohen et al., 2011). A research paradigm is a theoretical net or framework within which a study sits (Cohen et al., 2011; Hitchcock & Hughes, 1995; Neuman, 2006). A paradigm can be defined as “an integrated set of assumptions, beliefs, models of doing good research, and techniques for gathering and analysing data” (Neuman, 2007, p. 41) that encompasses ontological, epistemological and methodological considerations (methods of data gathering and analysis) (Cohen et al., 2007, 2011; Creswell, 2002, 2009).

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