# Chapter 1

# Research concepts

Kirsty Williamson
*Monash University and Charles Sturt University, Australia*

This chapter explores the major philosophical debates in the research field, and introduces and explains key research terms and concepts. A major argument is that an understanding of 'methodology', not only methods and techniques, is important for researchers. The major philosophical traditions discussed are positivism and interpretivism, which can also be described as umbrella paradigms that encompass, firstly, positivist and post-positivist paradigms, and, secondly, constructivist and phenomenological paradigms. The critical theory paradigm, although more closely associated with interpretivism, is discussed separately. Other strands to the chapter include an exploration of the ways in which the term, qualitative research, has been applied; and a discussion of the concept of mixed methods research.

**Research Methods: Information, Systems, and Contexts. DOI:** http://dx.doi.org/10.1016/B978-0-08-102220-7.00001-7

# Introduction

It is important to understand that there is a range of ways of conceptualising the foundations of research. I believe that understanding the ways in which research is not only conducted, but also conceptualised, is important and rewarding. Doing so yourself will make you aware of the implication of the methods choices you make and will provide you with deeper insight for understanding the implications of your research findings. You will thus be able to think in terms of 'research methodology', not just methods and techniques or tools. *Methodology*, the theory of method, implies making theoretical research choices, which this chapter sets out to help you do. The term is often misused in that many researchers "collapse methodology into methods" (Dervin, 2005, p. 26). Methodology is the entire framework or design of the research: the choice of paradigm, methods and tools or techniques to explore research questions and to create new knowledge.

You may find the variety of approaches to be daunting at first, especially because the use of terminology is fluid. Nevertheless, as I said in my research methods book (Williamson, 2002, p. 38), it is important for researchers to accept, and deal with, the fluidity and rich diversity of terminology and approaches. Case and Given (2016) provide a useful discussion, highlighting terminological and conceptual issues particularly with regard to information seeking research, including information needs and information behaviour.

The following discussion is intended to present research concepts simply and clearly. Should you want to delve deeply, and consider multiple viewpoints, I recommend *The Handbook of Qualitative Research* (1994 & 2000) and *The Sage Handbook of Qualitative Research* (2005 & 2011), all edited by Denzin and Lincoln.[1] Each of the editions is very different and warrants scrutiny (by the undaunted!) in its own right. The changes in thinking over time, especially of the editors themselves, are also interesting. *Sage Research Methods Online* is also a useful resource but you will need to access it through your academic library.

Williamson, Burstein and McKemmish (2002) discussed the two major philosophies or traditions of research, labelled *positivist* and *interpretivist* (also written as *interpretive*), which are also sometimes referred to as 'paradigms'. This is the dichotomous approach where the labels represent opposing groups each believing that theirs is the only reliable means of acquiring knowledge about social phenomena. However, in the third edition of *The Sage Handbook of Qualitative Research*, Denzin and Lincoln (2005) talked about all research being 'interpretive', that is, "it is guided by the researcher's set of beliefs and feelings

[1] The chapters in each of these tomes are reprinted in three-volume paperback editions a few years after the original publication. The reprint volumes are titled: *The Landscape of Qualitative Research: Theories and Issues; Strategies of Inquiry*; and *Collecting* and *Interpreting Qualitative Materials*.

about the world and how it should be understood and studied" (p. 22). In other words, all research is guided by beliefs about *ontology* and *epistemology*. Ontology is defined in Chapter 5: *The methodological landscape* as "the nature and existence of social reality". In research terms, it "refers to the claims or assumptions that a particular approach to social enquiry makes about the nature of social reality – claims about what exists, what it looks like, what units make it up and how these units interact with each other" (Blaikie, 1993, p. 6). It is important to note here that the assumptions under discussion are based on the social world as being different from the physical world, the domain of science.

The two major positions within ontology are termed *realist* and *nominalist* (Neuman, 2014). According to Neuman, "a realist assumes that the 'real world' exists independently of humans and their interpretations of it", while the *critical realist* takes precautions to control the effect of interpretations on the grounds of their modified position "that it is not easy to capture reality directly" as it can "easily become distorted or muddied" (p. 94). At the other end of the spectrum, the nominalist believes that experience of the so-called real world "is always occurring through a lens or scheme of interpretations and inner subjectivity" (p. 94). The epistemological function is rooted in ontological assumptions. Epistemology is the theory of knowledge; a concern with what constitutes knowledge and how knowledge is formed.

This chapter focusses principally on research and theoretical concepts. A glossary is included later in the book.

## Research paradigms

Denzin and Lincoln (2005, p. 22) suggested that "the net that contains the researcher's epistemological, ontological, and methodological premises may be termed a *paradigm* or an interpretive framework". A much cited definition of the key term paradigm is that it is "a set of interrelated assumptions about the social world which provides a philosophical and conceptual framework for the systematic study of that world" (Kuhn, 1970, p. 10). Bates (2005) saw meta-theory as closely related to this definition of paradigm: "Metatheory can be seen as the philosophy behind the theory, the fundamental set of ideas about how phenomena of interest in a particular field should be thought about and researched" (p. 2).[2] The major research paradigms used in the fields under discussion in this book are positivism, post-positivism, interpretivism and critical theory. Interpretivism is considered here as an umbrella paradigm, encompassing a range of other paradigms. Critical theory also involves a complex range of

[2] Bates (1999) has characterised information science as a meta-field. Her discussion of this, along with the associated concept of the 'double hermeneutic' (Giddens, 1984), are discussed in Chapter 4: *Archival and recordkeeping research: Past, present and future*.

approaches, for example, critical feminist and postmodern. As implied above, the positivist and interpretivist traditions of research have, by and large, been considered to be very different; in fact, dichotomous, with debate about them having taken place since at least the mid-nineteenth century (Hammersley, 1992, p. 39). Now the boundaries are not always seen as clear-cut. As also implied above, the debate is fundamentally *epistemological*, which means that it is concerned with questions such as: 'What constitutes knowledge?' and 'How is knowledge formed?'

## Reasoning styles

Before discussing positivism and interpretivism, it is necessary to examine two different styles of reasoning, 'deductive' and 'inductive'. The former is broadly associated with the scientific, or positivist, approach to research; the latter with interpretivist approaches. The examples, below, are slightly modified from those used in my earlier research methods book, in the chapter by Williamson *et al.* (2002, pp. 26–27).

*Deductive reasoning* is linked with the hypothesis-testing approach to research. With deductive reasoning, the argument moves from general principles to particular instances. An example is as follows:

1. People who are aged 60 and over are less likely than younger people to be users of the internet.
2. Tom Carter is aged 75.
3. Therefore Tom Carter is less likely than someone aged 25 to be a user of the internet.

In this example (a syllogism), the first two statements are the premises, and include a general and a specific statement. The third statement, or conclusion, is specific. The truth of the premises guarantees the truth of the conclusion. Positivist researchers often deduce hypotheses from the literature for testing in their studies.

*Inductive reasoning* begins with particular instances and concludes with general statements or principles. An example is: *Tom Carter, Jim Brown and Pam Eliot, who are all aged 60 and over, are not users of the internet.* If there were many other instances which were identical and only a few that were not, it could be concluded: *People who are aged 60 and over are unlikely to be users of the internet.*

Inductive reasoning is associated with the generation of hypotheses and also of theory of a more complex nature, as occurs in grounded theory. With the inductive approach, field work and observations occur initially and hypotheses, or theory, are developed. Thus if the data were to show that a large majority of people aged 60 and over were not using the internet (in comparison with those aged under 60), it could be hypothesised that, at this time, *older people (60 aged and over) are*

*less likely than younger people (aged under 60) to be users of the internet.* If it were also found that there were variations according to a range of factors and/or contexts, theory might be generated to help understand these findings and as a basis for further research.

## Positivism

The term *positivist* was first used in 1830 by the philosopher Comte, one of the founding fathers of sociology. Later, in the 1920s, a brand of positivism known as logical positivism was developed by a group of scholars known as the Vienna circle, members of which moved to the USA in the 1930s. Proclaiming the benefits of science, seen as 'value-free' (Cecez-Kecmanovic, 2011), this group began the movement to apply scientific research methods to the social sciences. Like scientific researchers, positivist researchers seek to link cause and effect (Dick, 1991, p. 232) and consider that knowledge can only be based on what can be observed and experienced (empiricism).

Positivists, also sometimes referred to as 'rationalists' (Guba, 1981) or 'realists' (as discussed above), believe that there is a 'reality', or truth, to be discovered. In order to make this discovery, 'measurement' and 'objectivity' are key positivist tenets. The focus is on quantitative data, deductive reasoning and generalisability or "the extent to which the findings and conclusions of one particular study can be applied to other similar situations or settings or the population at large" (Gilliland & McKemmish, 2004, p. 172). Positivist researchers usually begin with theories and models, single out certain variables for study and predict their relationships by framing hypotheses which are then tested. The assumption is that researchers are independent of the subjects or objects of their inquiry (Guba, 1981, p. 77). Generalisations, "enduring truth statements that are context free" (Guba, 1981, p. 77), are eventually made.

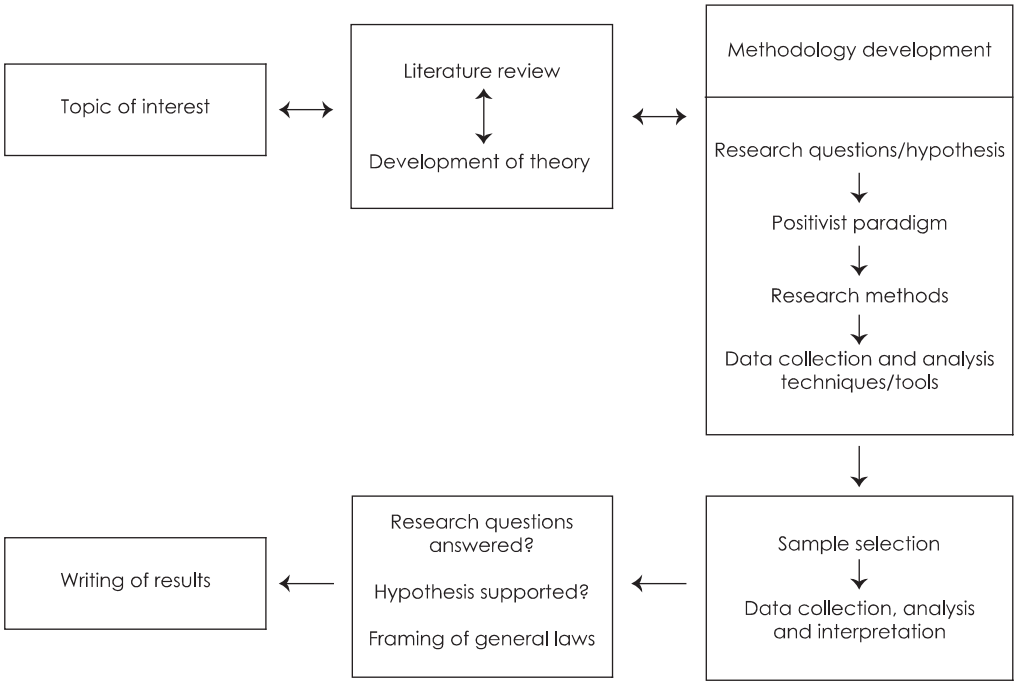
The positivist approach combines "deductive logic with precise empirical observations of individual behaviour in order to discover and confirm a set of probabilistic causal laws that can be used to predict general patterns of human activity" (Neuman, 2014, p. 97). This search for general laws, central to the positivist approach, is termed *nomothetic*, which means literally "pertaining to the search for general laws" (*Macquarie Dictionary*, 1987, p. 1158). The elements of the process of positivist research, as illustrated in Figure 1.1, combine mostly in a linear manner (except in the earlier stages).

The aim of positivist researchers is to verify their hypotheses (Guba & Lincoln, 2005, p. 196). This is despite the stance of Popper (1959), originally writing in 1934, who emphasised that hypotheses can only be refuted with certainty; they can only be considered true as long as they are not proven to be false. It is best, nevertheless, to take the approach that hypotheses and theories are ***supported*** by the data, ***not*** proved. The required degree of 'proof' – to use a legal dictum – is

the balance of probabilities, rather than beyond reasonable doubt. Connaway and Powell (2010, pp. 47–60) provide a detailed discussion of the processes involved in the positivist research process, which they refer to as the scientific method.

Common positivist research designs are 'experimental design', with its emphasis on cause and effect, and 'survey', which must be carried out according to scientific principles. For example, the sample must be randomly selected according to the scientific definition: where each element in the sample must have an equal and independent chance of being included. Also important are the principles of validity and reliability. The former is concerned with accuracy of various kinds. For example, *internal validity* refers to the extent to which a research instrument measures what it is designed to measure. *External validity* refers to the extent to which findings are generalisable. *Reliability* is concerned with obtaining consistent, stable research results when the study is repeated, that is with replication. Connaway and Powell (2010, pp. 60–67) discuss these concepts in considerable depth.

**Figure 1.1** Positivist research process




## Post-positivism

Although *post-positivists* assume that reality exists, in keeping with the 'critical realist' position they believe it is not easy to discover. This is because "only

partially objective accounts of the world can be produced, for all methods for examining such accounts are flawed" (Denzin & Lincoln, 2005, p. 27). Post-positivists therefore believe that reality must be subjected to the widest possible critical examination. Qualitative methods are seen as important in achieving this goal. Research methods involve the use of more natural settings and the soliciting of *emic* (or insider) views, as opposed to a reliance on outsider or the *etic* perspective. While post-positivists develop hypotheses, they sometimes use propositions instead. Propositions are broad statements drawn from theory or "a theoretical statement that two or more factors or concepts are related and the type of relationship it is" (Neuman, 2014, p. 68), A proposition may be considered by some researchers as sufficient for comparison with empirical evidence or data. Other researchers might prefer to use hypotheses which are more specifically formulated statements that are empirically testable. The now frequently-used term, 'knowledge claim', appears to be in tune with the opinion of Popper, discussed above: non-falsified hypotheses are considered "probable facts or laws" (Guba & Lincoln, 2005, p. 196), in other words, a claim for the time being. Post-positivism has some similarities with interpretivist perspectives (discussed below).

If you are interested in understanding the post-positivist approach further, Wildemuth (2009) provides two examples of post-positivist research.

## Interpretivism: Its paradigms and research designs

*Interpretivism*, which I labelled an 'umbrella term' in my first research methods book, receives lengthier discussion here than positivism. This is because there are a number of approaches, also often labelled as *paradigms*, fitting within the ambit of the broader paradigm, interpretivism, also referred to as the naturalistic inquiry paradigm (Guba, 1981). These include constructivism and phenomenology, both of which are discussed further below. To add to the confusion, Denzin and Lincoln (2005, p. 22) discussed constructivism rather than interpretivism as one of their four major paradigms, the others being positivism, post-positivism and critical theory. In my first research methods book, I treated *critical theory* as a paradigm within the interpretivist umbrella. This time critical theory will be treated as a paradigm in its own right, the more common approach in the literature.

Emerging from hermeneutics, an intellectual tradition concerned originally with the interpretation of texts but later of social life, all interpretivist approaches share an interest in the meanings and experiences of human being. Since the central tenet of interpretivism is that people are constantly involved in interpreting their ever-changing world, researchers who are interpretivists believe that the social world is constructed by people (the nominalist position) and is therefore different from the world of nature. They favour *naturalistic inquiry* (where field work usually takes place in a natural setting), embrace an inductive style of reasoning, emphasise qualitative data and are aware of the impact of context.

Because of their belief in the role played by people, the key task of interpretivist researchers is to come to understand how the various participants in a social setting construct their world (Glesne & Peshkin, 1992, p. 6). As recognised by interpretivists, people invariably have different perspectives which means that researchers need to learn to deal with what are referred to as 'multiple realities'. Guba and Lincoln (1981) described the latter as the layers of an onion, nesting within or complementing each other: "Each layer provides a different perspective of reality, and none can be considered more 'true' than any other" (p. 57). These multiple realities are gauged through an exploration of the beliefs, feelings and interpretations of research participants, who are also sometimes referred to as actors. In contrast to the positivist approach, interpretivists espouse the view that researchers and participants are interrelated, with each influencing each other (Guba, 1981, p. 77). This is in keeping with Giddens' (1984) view:

> For their part, lay actors are social theorists, whose theories help to constitute the activities and institutions that are the object of study of specialized social observers or social scientists. There is no clear dividing line between informed sociological reflection carried on by lay actors and similar endeavours on the part of specialists. I do not want to deny that there are dividing lines, but they are inevitably fuzzy, and social scientists have no absolute monopoly either upon innovative theories or upon empirical investigations of what they study (Giddens, 1984, pp. xxxii-xxxiii).

Giddens' suggestion of the 'blurring of boundaries' between lay actor and social scientists has implications for the traditional constructs of 'researcher' and 'researched'. These are particularly addressed by participatory action research (see Chapter 8: *Action research*) and postmodern approaches to ethnography, for example, autoethnography (see Chapter 13).

Good interpretivist researchers are aware that there can be difficulties in understanding fully the perspectives of others very different from themselves. Glesne and Peshkin (1992) discussed this problem at length, also examining the impact of postmodernism.

> The researcher becomes the main research instrument as he or she observes, asks questions and interacts with research participants. The concern with researcher objectivity is replaced by a focus on the impact of subjectivity on the research process. ... [Postmodernists look] carefully for ways in which the historical and cultural context shapes the researcher's preconceptions. Postmodernists are particularly concerned with issues of 'intersubjectivity', that is, how researcher and researched affect each other (pp. 6 & 10).

As Sutton (1993, p. 423) pointed out: "one can understand something observed only through the tinted lens of one's own experience." He saw the fact that the researcher inevitably has a point of view as a strength, as a source of insight and understanding, as long as there is an awareness of it (p. 425).

Good interpretivist researchers therefore record the perspectives of participants as accurately as possible, sometimes providing them with some opportunity to comment on what has been recorded about them (referred to as 'member checking'). They then "develop concepts, insights and understanding from patterns in the data" (Reneker, 1993, p. 499), attempting not to allow "initial interpretations to overly confine analytical possibilities" (Patton, 2015, p. 524). There is an assumption that generalisations are not possible, the aim being to develop *idiographic* knowledge, focussing on differences as much as similarities in perspectives, "the consensus and the dissonance" (Williamson 2006, p. 131). For further discussion of the issue of generalisations in interpretivist research, see Chapter 15: *Populations and samples*.

A rigorous process developed for this kind of inductive research is *grounded theory* where theory is built literally from the ground upwards, that is, from the data of participants. Original proponents of grounded theory were Glaser and Strauss (1967). Much later, a constructivist approach to grounded theory was developed (Charmaz, 2014) and is discussed in Chapter 9: *Constructivist grounded theory*.

Other interpretivist methods include ethnography and phenomenography, the former of which, in its many variations, is discussed in Chapter 13: *Ethnographic research*. *Ethnography* or *participant observation* is a key method used by interpretivists. Originally developed by anthropologists for the study of culture, it has now been adapted by some researchers to encompass a range of techniques to enable rich description of the views, experiences and behaviour of research participants (Bow, 2002). Techniques used by ethnographers include interviews – individual and focus group – observation, and examination of documents. As Saule (2002, pp. 184–185) stated, ethnography is validated through triangulation – the use of multiple methods and theoretical constructs to add rigour, breadth and depth to a study.

*Phenomenography*, according to Edwards (2007, p. 88, citing a combination of Marton, 1988, p. 179 and Marton, 1986, p. 31), is "a research method adopted for mapping the qualitatively different ways in which people experience, conceptualise, perceive, and understand various aspects of, and phenomena in, the world around them". Edwards pointed out that it is not individual experiences that matter, but rather "the collective experiences of the group who are considered in an attempt to find the distinctly different ways of seeing the experience" (p. 88). A description of a phenomenographic study is included as one of the examples of methodology in Chapter 2: *The fundamentals of research planning*.

## Interpretivist paradigms

The interpretivist paradigms discussed here are constructivism (personal construct theory and social constructionism) and phenomenology.

### *Constructivism*

One of several interpretivist paradigms, constructivism is concerned with the ways in which people construct their worlds. Constructivist researchers investigate constructions or meanings about broad concepts such as cultural values; or more specific issues or ideas, for example, the possible ingredients of the dynamic, creative public library of the future and how to create it. They commonly use ethnographic techniques, such as interviews and observation. There are two major constructivist approaches, one focussing on individual, personal constructions; the other on shared meanings or social constructions. It is important to note the slightly different labels usually applied, viz., personal *constructivists* and social *constructionists*, with the umbrella term for both being *constructivist.*

*Personal constructivists*, of whom Kelly (1963) was an early and key exemplar, believe people make sense of their world on an individual basis, that is, they personally construct reality, with each person's reality differing to some extent from another person's. Some later cognitive researchers in the information-seeking field are theoretically closest to this form of constructivism. They were those who moved beyond study of external, observable behaviour to try to understand individuals from their own points of view. Brenda Dervin's 'sense making' theory, for example, Dervin (1992) and Dervin and Nilan (1986), are examples. Carol Kuhlthau (2004) is a prominent researcher in the library and information studies/ science (LIS) field.

Social constructionists place emphasis on people developing meanings for their activities together, that is, socially constructing reality, as analysed in the famous book, *The Social Construction of Reality* (Berger & Luckman, 1967). Shared meanings are seen to be developed through social processes involving people, language and religion. According to Schwandt (2000, p. 197), "we do not construct our interpretations in isolation but against a backdrop of shared understandings, practices, language, and so forth". Language is considered very important as "we produce and organise social reality together by using language" (Talja, Tuominen & Savolainen, 2005, p. 89).

Constructivist grounded theory is a method linked to the constructivist paradigm. It was developed by Charmaz (2003 & 2014) who postulated that, unlike the original grounded theory, constructivist grounded theory is not 'objectivist'. In keeping with the view that the social world is constructed by people, it

"recognises that the viewer creates the data and ensuing analysis through interaction with the viewed" and therefore the data do not provide a window on an objective reality (Charmaz, 2003, p. 273). Thus, there is recognition that researchers' backgrounds will influence their interpretations of the data. They cannot avoid being influenced by 'disciplinary emphases' and 'perceptual proclivities' (p. 259). There is "acceptance that researchers shape their data collection and redirect their analysis as new issues emerge" (p. 271).

### *Phenomenology*

Although phenomenology has seldom been used in information research, it is an important philosophical approach because of its influence on the general interpretivist proposition that individuals interpret phenomena.

Like phenomenography, phenomenology has human experience as its object but, whereas the former is an empirical method for exploring the different ways in which people experience phenomena, phenomenology is philosophically based, supposedly penetrating the essences of human experiences by focussing on phenomena or the "things themselves" (Sutton, 1993, p. 414). It "aims to capture the richness of experience, the fullness of all the ways in which a person experiences and describes the phenomena of interest" (Marton & Booth, 1997, p. 117). According to Marton and Booth, the founder of modern phenomenology, Edmund Husserl, saw it as "logically preceding the empirical sciences, aimed at clarifying their experiential foundations" (p. 117). Husserl set out "to investigate the structures of consciousness that make it possible to apprehend an empirical world" (Holstein & Gubrium, 2005, p. 485).

Patton (2015) emphasised that phenomenology requires the description, explication, and interpretation of experience: "There is no separate (or objective) reality for people. There is only what they know their experience is and means. The subjective experience incorporates the objective thing and a person's reality" (p. 116).

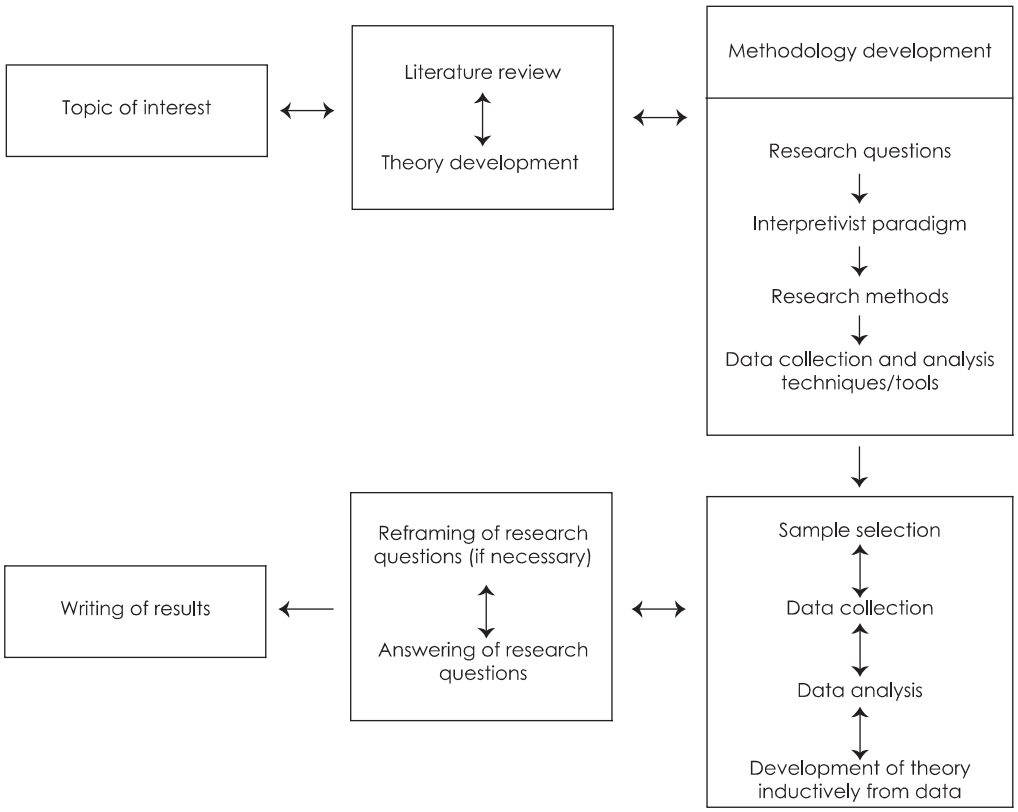
Smith, Flowers and Larkins (2009) provide a useful introduction to phenomenology in both a theoretical and practical sense as attested by Gorichanaz (2015) who used interpretative phenomenological analysis as a key component of his research design for information research. Gorichanaz's work is interesting in that it also draws on autoethnography which will be discussed in Chapter 13.

## Interpretivist research designs

The need to be open and responsive to the setting as well as the participants involved in their studies, means that interpretivist researchers are much less linear

in their approach than are positivist researchers. Interpretivist research designs are mainly based on inductive reasoning and tend to be *iterative*, with various elements in the research being interwoven: the development of one influences decisions about the others. The literature review is still usually developed for background understanding of the topic and some tentative theory may be considered by researchers without imposing pre-existing expectations. Research questions are developed, although they will usually be less specific and more flexible than in a positivist study, allowing for adjustment if new insights emerge as data are collected and analysed. Data analysis takes place on an on-going basis, not just at the conclusion of the study. Figure 1.2 illustrates the interpretivist research process, emphasising the interconnectedness especially within the sample selection/data collection/data analysis/theory development stage.

**Figure 1.2** Interpretivist research process




In comparing Figures 1.1 and 1.2, there are notable differences apart from the iterative nature of the latter, indicated by the two-way arrows. There is no mention of hypotheses in Figure 1.2 as they are not part of the repertoire of

interpretivists; nor of generalisation which, as mentioned above, is not a goal of interpretivist studies. In contrast to positivism, there are also not the same demands about the capacity to replicate research. There is recognition that certain phenomena are confined in time and place, and that the particular styles of observation and explanation relevant in one case may not be capable of repetition. Samples tend to be quite small and the need for random sampling is not emphasised or required as in the positivist paradigm. The form of sampling which is popular in interpretive research is *purposive sampling*, a term which literally means a sample suited to the purposes of the study. Purposive sampling is not intended to be representative or typical but governed by what is important and relevant to the study. *Theoretical sampling* is defined as the process of selecting "incidents, slices of life, time periods, or people on the basis of their potential manifestation or representation of important theoretical constructs" (Patton, 2015, p. 288). There are different approaches to theoretical sampling, which is widely used in grounded theory. See, for example, Chapter 9.

Nevertheless, interpretivist research needs to be rigorous. In interpretivist research, validity and reliability are constructed rather differently than they are in positivist research. In discussing qualitative research design, Maxwell (2013) explained validity in terms of a researcher's openness to alternative explanations. He identified a key validity threat as researcher bias where the findings are constrained by pre-conceived ideas and do not emerge idiographically from the data. Reliability in positivist terms is more difficult where each context is likely to be quite different.

Guba (1981) discussed rigour in terms of 'trustworthiness' of findings and proposed four constructs which he considered to be comparable to those used by positivists to establish rigour:

1. *Credibility*, ensuring that findings and interpretations reflect the multiple realities of research participants, is the equivalent of internal validity (p. 80).
2. *Transferability*, where there are some similarities between contexts, meaning that some findings may be transferable, is comparable to external validity (p. 81).
3. *Dependability*, comparable to the positivist construct of reliability where consistent, stable results are obtained over time, focusses on the fact that, with the acceptance of multiple realities and varying contexts, there will be variance but that this must be tracked and explained. For this to happen, research design must be reported in detail (p. 81).
4. *Confirmability*, is related to positivist 'objectivity', where researchers are independent of their subjects or objects. Since interpretivists accept that researchers and participants are interrelated, researchers need to establish that the results are not the results of their own biases, interests and perspectives (p. 80).

The role of *triangulation* plays an important part in all four of these constructs and therefore in establishing trustworthiness. Triangulation involves the use of multiple methods of data collection, multiple sources of data, and theoretical constructs. Shenton (2004) provides an in-depth discussion of the four constructs, including the ways in which researchers can address these criteria.

## Critical theory

Critical theorists share similarities with interpretivists in that they are critical of positivist approaches and believe that reality is interpreted or constructed by social actors as individuals or in social groups. Nevertheless, they have some points of disagreement with interpretivists and mix nomothetic and idiographic approaches (Neuman, 2014, p. 110). One key difference is that:

> a critical social theory is concerned in particular with issues of power and justice and the ways that the economy, matters of race, class, and gender, ideologies, discourses, education, religion and other social institutions, and cultural dynamics interact to construct a social system (Kincheloe & McLaren, 2003, pp. 436–437).

Critical emancipation has been a key role of critical researchers who attempt "to expose the forces that prevent individuals and groups from shaping the decisions that crucially affect their lives" (p. 437). There are strong links between critical theory, postmodernism and postcolonialism. Thus critical theorists see interpretivists as "being too subjective and relativist, treating people's ideas as more important than actual conditions (e.g., real poverty, oppression, violence)"… [and focussing] "too much on localized, microlevel, short-term settings while ignoring the broader and long-term structural conditions" (Neuman, 2014, p. 110). Neuman summarises what he terms 'critical social science': "A critical process of inquiry that goes beyond surface illusions to uncover the real structures in the material world in order to help people change conditions and build a better world for themselves" (p. 110).

In relation to information systems research, Cecez-Kecmanovic (2001) pointed to the differences between the approaches of interpretive researchers and critical theorists. Whereas interpretive researchers seek to understand and describe the influences on an information system in context, "critical IS researchers go further to expose inherent conflicts and contradictions, hidden structures and mechanisms accountable for these influences" (p. 143). This includes attempts to "deceive, manipulate, exploit, dominate and disempower people" through information systems design (p. 143).

## Other conceptual approaches

Not everyone who favours either quantitative or qualitative methods (or a combination thereof) espouses, or may even be aware of, the paradigms, with their implications, outlined above – at least not precisely as discussed. This chapter partly aims to persuade you that understanding the full complexity of 'methodology' is important but, in reality, some researchers simply label their research quantitative, qualitative or mixed methods research, without explaining the theoretical foundations. In addition to the terminological problem, there is a wide variety of views about how the landscape of research should be configured. This is particularly evident in the field of inquiry labelled 'qualitative research' which, because of the range of methods and techniques available, is widely discussed in the literature. (See, e.g., Denzin & Lincoln, 1994, 2000, 2005, 2011; Given, 2008; Gorman & Clayton, 1997, 2005; Marshall & Rossman, 2016; Maxwell, 2013; Mellon, 1990; Patton, 2015.) Maxwell (2013) provides a step-by-step guide to planning qualitative research. The two-volume *Sage Encyclopedia of Qualitative Research Methods* (Given, 2008) is particularly useful where multi-disciplinary projects – spanning the humanities, social and health sciences – are involved.

## Qualitative research

While Denzin and Lincoln (2003) emphasised the 'interpretive' nature of qualitative research, theirs is a broad, historical conceptualisation and is not synonymous with interpretivist research. For them, "qualitative research is a field in its own right… 'crosscutting' disciplines, fields, and subject matters" (p. 3). Other comments they made were that qualitative research "is difficult to define clearly", "has no theory or paradigm that is distinctly its own" (p. 9), and historically is surrounded by:

> a complex, interconnected family of terms, concepts, and assumptions … [that] include the traditions associated with foundationalism, positivism, postpostivism, poststructuralism, and the many qualitative research perspectives, and/or methods, connected to cultural and interpretive studies (p. 3).

Surprisingly positivism is listed here, especially since Denzin and Lincoln (2003) critiqued the views about reality on which positivist research is based, making it seem at odds (as indeed it is) with the interpretive approach with its emphasis on the "value-laden nature of inquiry" (p. 13). But, viewed historically, the earliest ethnographers were positivist qualitative researchers who "asserted that through a scientific and rigorous analysis, universal truths could be discerned that lay beneath the superficial diversities of different culture" (Saule, 2002, p. 179). As noted above, Charmaz (2014) labelled the original grounded theory (Glaser & Strauss, 1967) and the later version (Strauss & Corbin, 1998) as 'objectivist'. As

also noted above, particularly post-positivists place an emphasis on qualitative research (Myers, 1997; Denzin & Lincoln, 1994).

Denzin and Lincoln (2003) spoke of qualitative research as using "a variety of empirical materials – case study; personal experience; introspection; life story; interview; artifacts; cultural texts and productions; observational, historical, interactional, and visual texts" (p. 5). At another point, they stated that qualitative researchers "draw upon and utilize the approaches, methods, and techniques of ethnomethodology, phenomenology, hermeneutics, feminism, rhizomatics, deconstructionism, ethnography, interviews, psychoanalysis, cultural studies, survey research, and participant observation, among others" (p. 10). In other words, all forms, methods and practices of social inquiry can come under the banner of 'qualitative research'.

Not all writers agree with Denzin and Lincoln's portrayal of qualitative research. For example, Gorman and Clayton (1997), in their handbook of qualitative research for the information professional stated that the qualitative approach "lies within the interpretivist paradigm, which focuses on social constructs" (p. 23). My view, as stated in Williamson (2007, p. 6), is that the terms 'positivist' and 'interpretivist' distinguish two different epistemological views: first, of researchers who believe that there is a measurable social reality and, second, of those who postulate that reality is constructed by individuals and groups. While data are most likely to be quantitative with positivist researchers and qualitative with interpretivists, this will not be exclusively the case. Understanding this distinction enables researchers to gauge whether they think there is an objective reality for a particular set of phenomena; or whether the associated meanings are constructed by people. The use of qualitative data by those with the former mindset does not mean that the study is necessarily interpretivist. As Myers (1997) expressed it: "the word 'qualitative' is not a synonym for 'interpretive' – qualitative research may or may not be interpretive, depending upon the underlying philosophical assumptions of the researcher". In other words, it is the approach to the research and how data are used that make the distinction. The labeling of research simply by the type of data collected (as do Creswell (2003), Gorman and Clayton (1997) and Gorman and Clayton (2005), for example) is often inadequate. I agree with Greene and Caracelli's (2003) point, which I present again below, in relation to mixed methods: "there is merit in different paradigmatic traditions" (p. 107). Being aware of paradigmatic distinctions will sharpen your powers of discernment and deepen your understanding.

I also believe, however, that the paradigms should not be 'straight-jackets'. Accommodation is required for those who postulate that there are some aspects of life, although not all, which are measurable and see the findings from the study of these aspects to be generalisable (given sufficient rigour in data collection), at least at a particular point in time. They are likely to favour the use of mixed paradigms, and of quantitative or qualitative methods as appropriate. However, there is always a need

to understand, and explicate lucidly, the philosophical assumptions of chosen research methods and techniques. Cecez-Kecmanovic (2011) presented a cogent argument for the return to a focus on 'research methodology'. This means not just the selection of research methods and techniques, but concern with "the ontological, epistemological, and normative assumptions behind research methods and their inherent limitations". These assumptions need to be made overt.

## Mixed methods research

As with other research conceptualisations, there is a lack of agreement about what constitutes mixed methods research. At the simplest level, it involves the use of quantitative and qualitative methods in the same study. The use of mixed methods is a popular approach with some researchers who believe that this is a good way to gain a deeper understanding of issues and experience. For example, Ford (1987) suggested that it is possible for researchers to use either quantitative or qualitative approaches, or both, according to the research problem, or problems, under consideration. He made a strong case for integration because the use of different kinds of thinking involved in positivist and interpretivist approaches make a full understanding of topics more likely.

Other writers, while appreciating the benefits of mixed methods research, have urged consideration of the assumptions behind different epistemologies which constitute "different ways of seeing, knowing, and valuing" (Greene & Caracelli 2003, p. 107). Because of the different nature and role of various paradigms, Greene and Caracelli argued that mixed methods research should be undertaken "in a thoughtful and defensible manner" (p. 94). Mellon (1990) postulated that methodologies can be profitably combined, but warned that great care needs to be taken because they "are separate and distinct from one another, with different purposes, methods and outcomes" (p. 5). Morse (2003) also saw value in mixed methods but warned of the need for awareness that the *ad hoc* mixing of strategies or methods may lead to the violation of methodological assumptions.

Greene and Caracelli (2003) reviewed a small sample of social research and concluded that "inquiry decisions are rarely, if ever, consciously rooted in philosophical assumptions or beliefs" (p. 107). This also appears to be the case in single method research although, along with Greene and Caracelli (p. 95), I have argued (Williamson, 2002, p. 58) that all researchers have some kind of mental model of the social world, whether or not they are consciously aware of it, or make it explicit. Greene and Caracelli lamented this lack of philosophical underpinnings, proposing that:

> there is merit in different paradigmatic traditions in that each has something valuable to offer to our understanding of our complex social world. If such differences are not attended to in practice, then the full potential of mixed methods inquiry will remain unfulfilled (p. 107).

An example of mixed methods research, using different paradigms as well as methods, is presented in Chapter 2.

## Matching research questions to appropriate designs

A golden rule for all researchers is that choosing an appropriate research design should be based on the kinds of research questions that will be the focus of the research, that is, the questions should be determined first before the research design is considered. One approach is to consider whether a question implies measurement or whether straightforward, factual information is involved. Such questions may begin with 'what', 'who', 'how many', 'how much', 'where', 'when' which can often be measured at a particular point in time. For example, 'what' are the rules for eligibility for the aged pension in Australia? The rules may change over time, but they can be reliably ascertained (barring misinterpretation) on a particular day of a specific year. What proportion of a random sample (assuming it is a true random sample) of Victorians bought *The Age* newspaper on a particular date? This can be reliably measured and positivist concepts of measurement are appropriate. On the other hand, complex questions, which involve 'why', 'how', and in some cases 'what', lend themselves to in-depth exploration (Williamson, 2002, p. 34). If the proposed research asks a series of complex questions, where it will be not possible to measure and obtain an objective result, then an interpretivist paradigm and qualitative data collection should be chosen. For example, the questions of one of my PhD students focussed on the information needs and information seeking of the very oldest people in society, people in the Fourth Age. He, appropriately, chose a constructivist paradigm along with interpretivist ethnography. It would have been impossible to obtain reliable survey results from a random sample of this population and in-depth perceptions would have been impossible without the use of techniques associated with an ethnographic approach, viz., interviews and observation.

It must be noted that for some researchers, whose goal is eventually 'measurement' and 'generalisation', 'why' and 'how' questions need to be answered in an initial, exploratory stage. For example, Shanks, Rouse and Arnott (1993) suggested that:

> exploratory research (sometimes termed formulative research) is aimed at formulating more precise questions that future research can answer. It is used in the theory-building stage of research. Exploratory researchers frequently use qualitative research methods such as case studies and phenomenological studies (p. 7).

## Conclusion

The three major research paradigms in the social sciences are broadly labelled positivism, interpretivism and critical theory. The first attempts to apply scientific

methods to the social sciences, and is most usually associated with deductive reasoning and quantitative data collection. Because of their use of natural settings and greater emphasis on qualitative data collection, post-positivists have some characteristics in common with interpretivists, although they still believe that there is a reality which can be measured. Interpretivists, on the other hand, are concerned with meanings constructed by individuals and groups, use principally inductive reasoning and collect qualitative data. The interpretivist umbrella paradigm, sometimes called the naturalistic inquiry paradigm, includes other paradigms such as constructivism and phenomenology. Critical theory, while having more in common with interpretivists than positivists, stands apart in its emphasis on changing the structures of society and empowering disadvantaged groups.

Another way of conceptualising research approaches is through the labels, nomothetic (concerned with discovery of general laws) or idiographic (concerned with the individual). Bates (2005, p. 8) saw this as "the most fundamental orienting strategies of all". Bates (pp. 10–12) provides a deep discussion of meta-theories in LIS in relation to whether they are nomothetic, idiographic or mixed approaches.

To many researchers, combined paradigmatic and methodological approaches are acceptable, and even desirable. There is a strong case to argue that research designs should be matched to the questions to be investigated. Triangulation is a popular approach which enables the checking of findings by the use of different data-collection methods, sources and using different theoretical constructs. Whatever approach is chosen, I urge researchers to apply 'methodological' thinking, making clear the theoretical assumptions regarding the choices that are made.

## References

Bates, M. J. (1999). The invisible substrate of Information Science. *Journal of the American Society for Information Science*, *50*(12), 1043–1050.

Bates, M. J. (2005). An introduction to theories, metatheories and models. In K. E. Fisher, S. Erdelez, & E. F. McKechnie (Eds.), *Theories of information behavior* (pp. 1–24). Medford, NJ: Information Today.

Berger, P. L., & Luckmann, T. (1967). *The social construction of reality: A treatise in the sociology of knowledge*. New York: Anchor Press.

Blaikie, N. (1993). *Approaches to social enquiry*. Cambridge: Polity Press.

Bow, A. (2002). Ethnographic techniques. In K. Williamson (Ed.), *Research methods for students, academics and professionals: Information management and systems* (2nd ed., pp. 265–279). Wagga Wagga, NSW: Centre for Information Studies, Charles Sturt University.

Case, D. O., & Given, L. M. (2016). *Looking for information: A survey of research on information seeking, needs and behavior* (4th ed.). Bingley, UK: Emerald.

Cecez-Kecmanovic, D. (2001). Doing critical IS research: The question of methodology. In E. Trauth (Ed.), *Qualitative research in information science: Issues and trends* (pp. 142–163). Hershey, PA: Idea Group Publishing.

Cecez-Kecmanovic, D. (2011). *On methods, methodologies and how they matter*. Paper presented at the European Conference on Information Systems. Retrieved from http://aisel.aisnet.org/ecis2011/233/.

Charmaz, K. (2003). Grounded theory: Objectivist and constructivist methods. In N. K. Denzin, & Y. S. Lincoln (Eds.), *Strategies of qualitative inquiry* (2nd ed., pp. 249–291). Thousand Oaks, CA: Sage.

Charmaz, K. (2014). *Constructing grounded theory: A practical guide through qualitative analysis* (2nd ed.). London: Sage.

Connaway, L. S., & Powell, R. (2010). *Basic research methods for librarians* (5th ed.). Santa Barbara, CA: Libraries Unlimited.

Creswell, J. (2003). *Research design: Qualitative, quantitative, and mixed method approaches* (2nd ed.). Thousand Oaks, CA: Sage.

Denzin, N. K., & Lincoln, Y. S. (1994). *The handbook of qualitative research*. Thousand Oaks, CA: Sage.

Denzin, N. K., & Lincoln, Y. S. (2000). *The handbook of qualitative research* (2nd ed.). Thousand Oaks, CA: Sage.

Denzin, N. K., & Lincoln, Y. S. (2003). Introduction: The discipline and practice of qualitative research. In N. K. Denzin, & Y. S. Lincoln (Eds.), *Strategies of qualitative inquiry* (2nd ed., pp. 1–45). Thousand Oaks, CA: Sage.

Denzin, N. K., & Lincoln, Y. S. (2005). *The Sage handbook of qualitative research* (3rd ed.). Los Angeles: Sage.

Denzin, N. K., & Lincoln, Y. S. (2011). *The Sage handbook of qualitative research* (4th ed.). Los Angeles: Sage.

Dervin, B. (1992). From the mind's eye of the user: The sense-making qualitative-quantitative methodology. In J. D. Glazier, &. In R. R. Powell (Ed.), *Qualitative research in information management* (pp. 61–84). Englewood, CO: Libraries Unlimited.

Dervin, B. (2005). What methodology does to theory. In K. E. Fisher, S. Erdelez, & E. F. McKechnie (Eds.), *Theories of information behavior* (pp. 25–36). Medford, NJ: Information Today.

Dervin, B., & Nilan, M. (1986). Information needs and uses. *Annual Review of Information Science and Technology (ARIST), 21*, 3–33.

Dick, A. I. (1991). Influence of positivism on the designs of scientific techniques. Implications for library and information science techniques. *South African Journal of Library and Information Science, 59*(4), 231–239.

Edwards, S. (2007). Phenomenography: 'Follow the yellow brick road!'. In S. Lipu, K. Williamson, & A. Lloyd. (Eds.), *Exploring methods in information literacy*

*research* (pp. 87–110). Wagga Wagga, NSW: Centre for Information Studies, Charles Sturt University.

Ford, N. (1987). Research and practice in librarianship: A cognitive view. In B. Katz, & R. Kinder (Eds.), *Current trends in information research and theory* (pp. 21–47). New York: Haworth.

Giddens, A. (1984). *The constitution of society: Outline of the theory of structuration*. Berkeley, CA: University of California Press.

Gilliland, A., & McKemmish, S. (2004). Building an infrastructure for archival research. *Archival Science*, *4*(3–4), 149–199.

Given, L. M. (2008). *Sage Encyclopedia of qualitative research methods*. Thousand Oaks, CA: Sage.

Glaser, B. G. & Strauss, A. L. (1967). *The discovery of grounded theory: Strategies of qualitative research*. Chicago: Aldine.

Glesne, C. & Peshkin, A. (1992). *Becoming qualitative researchers: An introduction*. White Plains, NY: Longman Publishing Group.

Gorichanaz, T. (2015). Information on the run: experiencing information during an ultramarathon. *Information Research: An International Electronic Journal*, *20*(4). Retrieved from http://www.informationr.net/ir/20-4/paper697.html#.WHf6uXrzJnk.

Gorman, G. E., & Clayton, P. (1997). *Qualitative research for the information professional: A practical handbook*. London: Library Association Publishing.

Gorman, G. E., & Clayton, P. (2005). *Qualitative research for the information professional: A practical handbook* (2nd ed.). London: Facet.

Greene, J. C., & Caracelli, V. J. (2003). Making paradigmatic sense of mixed methods practice. In A. Tashakkori, & C. Teddlie (Eds.), *Handbook of mixed methods in social and behavioral research* (pp. 91–110). Thousand Oaks, CA: Sage.

Guba, E. G. (1981). Criteria for assessing the trustworthiness of naturalistic inquiries. *Educational Communication and Technology*, *29*(2), 75–91.

Guba, E. G., & Lincoln, Y. S. (1981). *Effective evaluation*. San Francisco: Jossey-Bass.

Guba, E. G., & Lincoln, Y. S. (2005). Paradigmatic controversies, contradictions, and emerging influences. In N. K. Denzin, & Y. S. Lincoln (Eds.), *The Sage handbook of qualitative research* (3rd ed., pp. 191–215). Thousand Oaks, CA: Sage.

Hammersley, M. (1992). Deconstructing the qualitative-quantitative divide. In J. Brannen (Ed.), *Mixing methods: Qualitative and quantitative research* (pp. 39–55). Aldershot, Hants: Avebury.

Holstein, J. A., & Gubrium, J. K. (2005). Interpretive practice and social action. In N. K. Denzin, & Y. S. Lincoln (Eds.), *The Sage handbook of qualitative research* (3rd ed., pp. 483–505). Los Angeles: Sage.

Kelly, G. (1963). *A theory of personality: The psychology of personal constructs*. New York: W. W. Norton.

Kincheloe, J. L., & McLaren, P. (2003). Rethinking critical theory and qualitative research. In N. K. Denzin, & Y. S. Lincoln (Eds.), *The landscape of qualitative*

*research: Theories and issues* (2nd ed., pp. 433–488). Thousand Oaks, CA: Sage Publications.

Kuhlthau, C. C. (2004). *Seeking meaning: A process approach to library and informaiton services* (2nd ed.). Westport, CT: Libraries Unlimited.

Kuhn, T. S. (1970). *The structure of scientific revolutions* (2nd ed.). Chicago: University of Chicago Press.

Marshall, C. & Rossman, G. B. (2016). *Designing qualitative research* (6th ed.). Thousand Oaks, CA: Sage Publications.

Marton, F., & Booth, S. (1997). *Learning and awareness*. Mahwah, NJ: Lawrence Erbaum Associates.

Maxwell, J. A. (2013). *Qualitative research design: an interactive approach* (3rd ed.). Thousand Oaks, CA: Sage Publications.

Mellon, C. (1990). *Naturalistic inquiry for library science: Methods and applications for research, evaluation and teaching*. New York: Greenwood Press.

Morse, J. M. (2003). Principles of mixed methods and multimethod research design. In A. Tashakkori, & C. Teddlie (Eds.), *Handbook of mixed methods in social and behavioral research* (pp. 189–208). Thousand Oaks, CA: Sage.

Myers, M. (1997). Qualitative research in information systems. *MIS Quarterly*, *21*(2), 241–242.

Neuman, W. L. (2014). *Social research methods: Qualitative and quantitative approaches* (7th ed.). Harlow, Essex: Pearson New International.

Patton, M. Q. (2015). *Qualitative research and evaluation methods* (4th ed.). Los Angeles, CA: Sage Publications.

Popper, K. R. S. (1959). *The logic of scientific discovery*. London: Hutchinson.

Reneker, M. H. (1993). A qualitative study of information seeking among members of an academic community: Methodological issues and problems'. *Library Quarterly*, *63*(4), 487–507.

Saule, S. (2002). Ethnography. In K. Williamson (Ed.), *Research methods for students, academics and professionals: Information management and systems* (2nd ed., pp. 177–193). Wagga Wagga, NSW: Centre for Information Studies, Charles Sturt University.

Schwandt, T. (2000). Three epistemological stances for qualitative inquiry: interpretivism, hermeneutics, and constructionism. In N. K. Denzin, & Y. S. Lincoln (Eds.), *Handbook of qualitative research* (2nd ed., pp. 189–213). Thousand Oaks, CA: Sage Publications.

Shanks, G., Rouse, A., & Arnott, D. (1993). *A review of approaches to research and scholarship in information systems*. Caulfield, VIC: Department of Information Systems, Monash University.

Shenton, A. K. (2004). Strategies for ensuring trustworthiness in qualitative research projects. *Education for Information*, *22*, 63–75.

Smith, J. A., Flowers, P., & Larkin, M. (2009). *Interpretative phenomenological analysis: Theory, method and research*. London: Sage.

Strauss, A., & Corbin, J. (1998). *Basics of qualitative research: Grounded theory procedures and techniques* (2nd ed.). Newbury Park, CA: Sage.

Sutton, B. (1993). The rationale for qualitative research: A review of principles and theoretical foundations. *Library Quarterly*, *63*(4), 411–429.

Talja, S., Tuominen, K., & Savolainen, R. (2005). "Isms" in information science: constructivism, collectivism and constructionism. *Journal of Documentation*, *61*(1), 79–101.

Wildemuth, B. M. (2009). *Applications of social research methods to questions in information and library science*. Westport, CT: Libraries Unlimited.

Williamson, K. (Ed.). (2002). *Research methods for students, academics and professionals: Information management and systems.* Wagga Wagga, NSW: Centre for Information Studies, Charles Sturt University.

Williamson, K. (2006). Research in constructivist frameworks using ethnographic techniques. *Library Trends*, *55*(1), 83–101.

Williamson, K. (2007). The broad methodological contexts of information literacy research. In S. Lipu, K. Williamson, & A. Lloyd (Eds.), *Research methods in information literacy research* (pp. 1–12). Wagga Wagga, NSW: Centre for Information Studies, Charles Sturt University.

Williamson, K., Burstein, F., & McKemmish, S. (2002). The two major traditions of research. In K. Williamson (Ed.), *Research methods for students, academics and professionals: Information management and systems* (2nd ed., pp. 25–47). Wagga Wagga, NSW: Centre for Information Studies, Charles Sturt University.