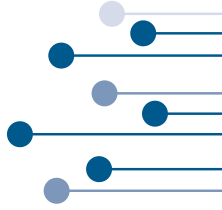


The Selection of a Research Approach



Learning Objectives

1. Define major research terms used in this book so that you can incorporate them into your projects.
2. Describe the three major methodologies and their differences to select an appropriate methodology for your study.
3. Describe the relationship among the terms, philosophical worldview assumptions, designs, and methods. How would you connect these three components in your study?
4. Appraise which one of the philosophical worldviews fits your experiences, training, and cultural orientation.
5. Identify which one of the types of research designs you will use in your study.
6. Describe the differences between quantitative methods, qualitative methods, and mixed methods research.
7. Identify the reasons for choosing either a quantitative, qualitative, or mixed methods approach to use in your study.

Introducing Key Terms in this Chapter

Research has its own language, and it is important to understand key terms to use in a study. The title of this book uses the term, research approaches. **Research approaches** (or methodologies) are procedures for research that span the steps from broad assumptions to detailed methods of data collection, analysis, and interpretation. This plan involves several decisions, and researchers need not take them in the order in which they are presented here. The overall decision involves which approach should be used to study a topic. Informing this decision should be the philosophical assumptions the researcher brings to the study; procedures of inquiry (called research designs); and specific research methods of data collection, analysis, and interpretation. The selection of a research approach includes the research

problem or issue being addressed, the researchers' personal experiences, and the audiences for the study. Thus, in this book, *philosophical assumptions*, *research approaches*, *research designs*, and *research methods* are four key terms representing a perspective about research flow from broad constructions of research to the narrow procedures of methods. Table 1.1 explains these key terms in more detail.

Table 1.1 Key Terms and Their Definitions as Used in This Chapter

Key Terms	Definitions
Philosophical Assumptions	Before a study begins, a researcher brings a point of view and a set of beliefs to the research process that informs their approach to conducting the study. Philosophical assumptions are these beliefs and values. They emphasize what the researcher holds to be most important in conducting a study. Philosophical assumptions develop from an individual's training in a specific discipline or field of study (e.g., psychology). They also emerge from prior experiences in research and the cultural environment of an individual.
Research Approach	We will use the term research approach synonymously with research methodology. This term represents different types of research to have historically emerged. In this chapter, we will present three broad methodologies: quantitative, qualitative, and mixed methods.
Research Design	We use the term research design to mean the ways of conducting research within a broad methodology. Thus, as seen in this chapter, broad methodologies can be subdivided into different types of designs. Each design has its own procedures used in conducting a study.
Research Methods	Within a particular design, the researcher gathers data, analyzes it, and makes an interpretation of its meaning. These are the methods in a study.

Three Approaches or Methodologies in Research

In this book, we advance three broad research approaches or methodologies: (a) qualitative, (b) quantitative, and (c) mixed methods. Unquestionably, the three approaches are not as discrete as they first appear. Researchers should not view *qualitative and quantitative approaches* as rigid, distinct categories, opposites, or dichotomies. Instead, they represent different ends on a continuum (Creswell & Guetterman, 2018; Newman & Benz, 1998). A study *tends* to be more qualitative than quantitative or vice versa. *Mixed methods research* resides in the middle of this continuum because it incorporates elements of both qualitative and quantitative approaches.

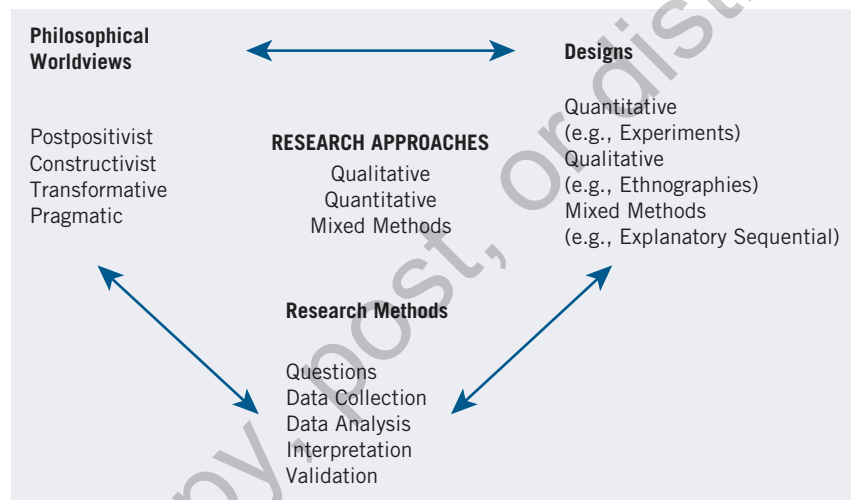
Often the distinction between qualitative research and quantitative research is framed in terms of using words (qualitative) rather than numbers (quantitative) or, better yet, using closed-ended questions and responses (quantitative hypotheses) or open-ended questions and responses (qualitative interview questions). A more complete way to view the gradations of differences between them is found in the basic philosophical assumptions researchers bring to the study, the types of research strategies used in the research (e.g., quantitative experiments or qualitative case studies), and the specific methods employed in conducting these strategies (e.g., collecting data quantitatively on instruments versus collecting qualitative data through observing a setting). Moreover, there is a historical evolution to both approaches—with the quantitative approaches dominating the forms of research in the social sciences from the late 19th century until the mid-20th century. During the latter half of the 20th century, interest in qualitative research increased and mixed methods research developed. With this background, it should prove helpful to view definitions of these three key terms as used in this book:

- **Qualitative research** is an approach for exploring and understanding the meaning individuals or groups ascribe to a social or human problem. The research process involves emerging questions and procedures, data typically collected in the participant's setting, data analysis inductively building from particulars to general themes, and the researcher making interpretations of the meaning of the data. The final written report has a flexible structure. Those who engage in this form of inquiry use an inductive style building from data to themes and a focus on individual meaning, and emphasize the importance of reporting the complexity of a situation.
- **Quantitative research** is an approach for testing objective theories by examining the relationship among variables or a comparison among groups. These variables, in turn, can be measured, typically on instruments, so that numbered data can be analyzed using statistical procedures. The final written report has a set structure comprising an introduction, methods, results, and discussion. Quantitative researchers test theories deductively, build into a study protections against bias, control for alternative or counterfactual explanations, and seek to generalize and replicate the findings.
- **Mixed methods research** is an approach to inquiry involving collecting both quantitative and qualitative data, using a specific procedure or design, combining (or integrating) the two forms of data within the design, and drawing conclusions (metainferences) about the insight to emerge from the combined databases. This description emphasizes a *methods perspective* focused on understanding mixed methods research from its data collection, data analysis, and interpretation. Also, in mixed methods a researcher brings philosophical assumptions and theories that inform the conduct of the research.

Three Major Components of a Research Approach

The broad research approach is the *plan or proposal to conduct research*, involving the intersection of philosophy, research designs, and specific methods. Figure 1.1 presents a framework that we use to explain the interaction of these three components. In planning a study, researchers need to think through the philosophical *worldview* assumptions that they bring to the study, the *research design* that is related to this worldview, and the specific *methods* or procedures of research that translate the approach into practice.

Figure 1.1 A Framework for Research—The Interconnection of Worldviews, Design, and Research Methods



Philosophical Worldviews

Although philosophical ideas remain largely hidden in research (Slife & Williams, 1995), they still influence the practice of research and need to be identified. We suggest that individuals preparing a research proposal or plan make the larger philosophical ideas they espouse explicit. This information will help explain why they chose qualitative, quantitative, or mixed methods approaches for their research. In writing about worldviews, a proposal might include a section that addresses the following:

- The philosophical worldview being used by the researcher
- A definition of basic ideas of that worldview
- An individual's worldview drawn on research experiences, training, or cultural environment
- How the worldview shaped their approach to research

We have chosen to use the term **worldview** as meaning “a basic set of beliefs that guide action” (Guba, 1990, p. 17). Others have called them *paradigms* (Lincoln et al., 2011; Mertens, 2010); *epistemologies* and *ontologies* (Crotty, 1998), or *broadly conceived research methodologies* (Neuman, 2009). We prefer the word “worldview” because it brings a global perspective to research in this era of international interconnections. We see worldviews as a general philosophical orientation about the world and the nature of research that a researcher brings to a study.

Individuals develop worldviews based on their discipline orientations and research communities, advisers and mentors, past research experiences, and cultural experiences. Individual researchers’ beliefs based on these factors will often lead to embracing a strong qualitative, quantitative, or mixed methods approach in their research. The philosophical beliefs are important to include in a study because a reader can best interpret the research knowing the biases and the particular stance being taken by the researcher. We recognize that in quantitative research the position of the researcher remains largely hidden and not expressed; still we feel that it needs to be presented in the open for readers to interpret a study.

Although there is ongoing debate about what worldviews or beliefs researchers bring to inquiry, we will highlight four widely discussed in the literature: postpositivism, constructivism, transformative, and pragmatism. The major elements of each position are presented in Table 1.2.

Postpositivism	Constructivism
<ul style="list-style-type: none"> • Determination • Reductionism • Empirical observation and measurement • Theory verification 	<ul style="list-style-type: none"> • Understanding • Multiple participant meanings • Social and historical construction • Theory generation
Transformative	Pragmatism
<ul style="list-style-type: none"> • Political • Power and justice oriented • Collaborative • Change oriented 	<ul style="list-style-type: none"> • Consequences of actions • Problem centered • Pluralistic • Real-world practice oriented

The Postpositivist Worldview

Postpositivist worldviews have represented the traditional form of research, and these assumptions hold true more for quantitative research than qualitative research. This worldview is sometimes called the *scientific method* or doing *science research*. It is also called *positivist/postpositivist research*, *empirical science*, and *postpositivism*. This last term is called postpositivism because it

represents the thinking after positivism, challenging the traditional notion of the absolute truth of knowledge (Phillips & Burbules, 2000) and recognizing that we cannot be certain about our claims of knowledge when studying the behavior and actions of humans. The postpositivist tradition comes from 19th-century writers such as Comte, Mill, Durkheim, Newton, and Locke (Smith, 1983) and more recently from writers such as Phillips and Burbules (2000).

Those who hold a **postpositivist worldview** hold a deterministic philosophy that causes (probably) determine effects or outcomes. Thus, the problems studied by postpositivists reflect the need to identify and assess the causes that influence outcomes, such as those found in experiments. It is also reductionistic in that the intent is to reduce the ideas into a small, discrete set to test, such as the variables that comprise hypotheses and research questions. Careful observation and measurement of the objective reality “out there” in the world represent a postpositivist lens. Thus, developing numeric measures of observations and studying the behavior of individuals become paramount for a postpositivist. Finally, laws or theories govern the world, and these theories need to be tested, verified, and refined so that we can understand the world. Thus, in the scientific method—the accepted approach to research by postpositivists—a researcher begins with a theory, collects data that either supports or refutes the theory, and then makes necessary revisions and conducts additional tests.

In reading Phillips and Burbules (2000), you can gain a sense of the key assumptions of this position, such as the following:

- Knowledge is conjectural (and antifoundational)—absolute truth can never be found.
- Thus, evidence established in research is always imperfect and fallible. For this reason, researchers state that they do not prove a hypothesis; instead, they indicate a failure to reject the hypothesis.
- Research is the process of making claims and then refining or abandoning some of them for other claims more strongly warranted. Most quantitative research, for example, starts with the test of a theory.
- Data, evidence, and rational considerations shape knowledge. In practice, the researcher collects information on instruments based on measures completed by the participants or by observations recorded by the researcher.
- Research seeks to develop relevant, true statements that explain the situation of concern or that describe the causal relationships of interest. In quantitative studies, researchers advance the relationships among variables and pose these as questions or hypotheses.

- Being objective is an essential aspect of competent inquiry; researchers must examine methods and conclusions for bias. For example, standards of validity and reliability are important in quantitative research.

The Constructivist Worldview

Others hold a different worldview. A constructivist or social constructivist worldview (often combined with interpretivism) is a philosophical position used in qualitative research. The ideas came from Mannheim and from works such as Berger and Luckmann's (1967) *The Social Construction of Reality* and Lincoln and Guba's (1985) *Naturalistic Inquiry*. More recent writers who have summarized this position are Lincoln et al. (2011), Mertens (2010), and Crotty (1998), among others. Those who hold a **constructivist worldview** believe that individuals seek understanding of the world in which they live and work. Individuals develop subjective meanings of their experiences—meanings directed toward certain objects or things. These meanings are varied and multiple, leading the researcher to look for the complexity of views rather than narrowing meanings into a few categories or ideas. The goal of the research relies as much as possible on the participants' views of the situation. The questions become broad and general so that the participants can construct the meaning of a situation, typically forged in discussions or interactions with other persons. The more open-ended the questioning, the better because the researcher listens carefully to what people say or do in their life settings. Often these subjective meanings are negotiated socially and historically. They are not simply imprinted on individuals but are formed through interaction with others (hence social constructivism) and through historical and cultural norms that operate in individuals' lives. Thus, constructivist researchers often address the processes of interaction among individuals. They also focus on the specific contexts in which people live and work to understand the historical and cultural settings of the participants. Researchers recognize that their own backgrounds shape their interpretations, and they position themselves in the research to acknowledge how their interpretations flow from their personal, cultural, and historical experiences. The researcher's intent is to make sense of (or interpret) the meanings others have about the world. Rather than starting with a theory (as in postpositivism), inquirers generate or inductively develop a theory or pattern of meaning.

For example, in discussing constructivism, Crotty (1998) identified several assumptions:

- Human beings construct meanings as they engage with the world they are interpreting. Qualitative researchers tend to use open-ended questions so that the participants can share their views.

- Humans engage with their world and make sense of it based on their historical and social perspectives—we are all born into a world of meaning bestowed upon us by our culture. Thus, qualitative researchers seek to understand the context or setting of the participants through visiting this context and gathering information personally. They also interpret what they find, an interpretation shaped by the researcher's own experiences and background.
- The basic generation of meaning is always social, arising in and out of interaction with a human community. The process of qualitative research is largely inductive; the inquirer generates meaning from the data collected in the field.

The Transformative Worldview

Another group of researchers holds to the philosophical assumptions of the transformative approach. This position arose during the 1980s and 1990s from individuals who felt that the postpositivist assumptions imposed structural laws and theories that did not fit marginalized individuals in our society or issues of power and social justice, discrimination, and oppression. There is no uniform body of literature characterizing this worldview, but it includes groups of researchers that are critical theorists, participatory action researchers, community-based participatory researchers, Marxists, feminists, and racial and ethnic minorities. It also includes persons with disabilities, indigenous and postcolonial peoples, and members of the lesbian, gay, bisexual, transsexual, and queer communities. Historically, the transformative writers have drawn on the works of Marx, Adorno, Marcuse, Habermas, and Freire (Neuman, 2009). Fay (1987), Heron and Reason (1997), Kemmis and Wilkinson (1998), Kemmis and McTaggart (2000), and Mertens (2009, 2010) are additional authors writing about this perspective.

In the main, these inquirers felt that the constructivist stance did not go far enough in advocating for an action agenda to help marginalized people. A **transformative worldview** holds that research inquiry needs to be intertwined with politics and a political change agenda to confront social oppression at whatever levels it occurs (Mertens, 2010). Thus, the research contains an action agenda for reform that may change the lives of the participants, the institutions in which individuals work or live, and the researcher's life. Moreover, researchers need to address specific important social issues of the day, issues such as empowerment, inequality, oppression, domination, suppression, and alienation. The researcher often begins with one of these issues as the focal point of the study. This research also assumes that the inquirer will proceed collaboratively to not further marginalize the participants as a result of the inquiry. In this sense, the participants may help design questions, collect data, analyze information, or reap the rewards of the research. Transformative research provides a voice for these participants, raising their

consciousness or advancing an agenda for change to improve their lives. It becomes a united voice for reform and change.

This philosophical worldview focuses on the needs of groups and individuals in our society that may be marginalized or disenfranchised. Therefore, theoretical perspectives may be integrated with philosophical assumptions that construct a picture of the issues being examined, the people studied, and the changes needed, such as in feminist perspectives, racialized discourses, critical theory, queer theory, and disability theory. An important development around the world has been the expansion of interest in indigenous methodologies that respect and honor the culture of individuals being studied. For example, in a study in Botswana, Chilisa and Tshoko (2014) discussed the importance of attending to cultural language of participants (e.g., gestures, tones, expressions) and using conversational modes of data collection (e.g., talking circles, storying). Also important is seeking out “knowers” of the language for proverbs, myths, and folktales, including participants as co-researchers, and engaging in respectful principles of accountability toward the participants.

Although these are diverse groups and our explanations here are generalizations, it is helpful to view the summary by Mertens (2010) of key features of the transformative worldview or paradigm:

- It places central importance on the study of lives and experiences of diverse groups that have traditionally been marginalized. For these groups, their lives have been constrained by oppressors, leading to strategies to resist, challenge, and subvert these constraints.
- In studying these diverse groups, the researcher focuses on inequities based on gender, race, ethnicity, disability, sexual orientation, and socioeconomic class that result in asymmetric power relationships.
- The research in the transformative worldview links political and social action to these inequities.
- Transformative research uses a program theory of beliefs about how a program works and why the problems of oppression, domination, and power relationships exist.

The Pragmatic Worldview

Another position about worldviews comes from the pragmatists. Pragmatism derives from the work of Peirce, James, Mead, and Dewey (Cherryholmes, 1992). Other writers include Murphy (1990), Patton (1990), and Rorty (1990). There are many forms of a **pragmatic worldview**, but it arises out of actions, situations, and consequences rather than antecedent conditions (as in postpositivism). There is a concern with applications—what works—and solutions to problems (Patton, 1990). Instead of focusing on

methods, researchers emphasize the research problem and question and use all approaches available to understand the problem (see Rossman & Wilson, 1985). As a philosophical underpinning for mixed methods studies, Morgan (2007), Patton (1990), and Tashakkori and Teddlie (2010) convey its importance for focusing attention on the research problem in social science research and then using pluralistic approaches to gather data about the problem. Using Cherryholmes (1992), Morgan (2007), and our own views, pragmatism provides a philosophical basis for research:

- Pragmatism is not committed to any one system of philosophy and reality. This idea applies to mixed methods research in that inquirers draw liberally from both quantitative and qualitative assumptions when they engage in their research.
- Individual researchers have a freedom of choice. In this way, researchers are free to choose the methods, techniques, and procedures of research that best meet their needs and purposes.
- Pragmatists do not see the world as an absolute unity. In a similar way, mixed methods researchers look to many approaches for collecting and analyzing data rather than subscribing to only one way (e.g., quantitative or qualitative).
- Truth is what works at the time. It is not based in a duality between reality independent of the mind or within the mind. Thus, in mixed methods research, investigators use both quantitative and qualitative data because they provide the best understanding of a research problem.
- The pragmatist researchers look to the *what* and *how* to research based on the intended consequences. Mixed methods researchers need to establish a purpose for their mixing, a rationale for reasons why quantitative and qualitative data need to be mixed in the first place.
- Pragmatists agree that research always occurs in social, historical, political, and other contexts. In this way, mixed methods studies may include a postmodern turn, a theoretical lens that reflects social justice and political aims.
- Pragmatists believe in an external world independent of the mind as well as that lodged in the mind. But they believe that we need to stop asking questions about reality and the laws of nature (Cherryholmes, 1992). “They would simply like to change the subject” (Rorty, 1990, p. xiv).
- Thus, for the mixed methods researcher, pragmatism opens the door to multiple methods, different worldviews, assumptions, and forms of data collection and analysis.

Research Designs

Of the three-part framework—philosophical assumptions, research designs, and research methods—our focus now turns to the second element, the research designs. The researcher not only selects a qualitative, quantitative, or mixed methods study to conduct; the inquirer also decides on a type of study design within these three choices. Research designs are types of inquiry within qualitative, quantitative, and mixed methods approaches that provide specific direction for procedures in a research study. Others have called them *strategies of inquiry* (Denzin & Lincoln, 2011). The designs available to the researcher have grown over the years as computer technology has advanced our data analysis, our ability to analyze complex models, and our capacity to engage in new procedures for conducting social science research. Select types will be emphasized in the methods discussions of Chapters 8, 9, and 10, types frequently used in the social and health sciences. Here we introduce the designs that will be discussed later and that are cited in examples throughout the book. An overview of these designs is shown in Table 1.3.

Quantitative Designs	Qualitative Designs	Methods Designs
<ul style="list-style-type: none"> • Experimental and quasi-experimental • Single-subject • Nonexperimental such as surveys • Longitudinal 	<ul style="list-style-type: none"> • Descriptive method • Narrative research • Phenomenology • Grounded theory • Ethnography • Case study 	<ul style="list-style-type: none"> • Convergent • Explanatory sequential • Exploratory sequential • Complex designs with embedded core designs

Quantitative Designs

During the late 19th and throughout the 20th century, designs associated with quantitative research invoked the postpositivist worldview and originated mainly in physiology and psychology. These include *true experiments* and *quasi-experiments* (see an original, early treatise on this, Campbell & Stanley, 1963). An additional experimental design is *applied behavioral analysis or single-subject experiments*. This type of experiment involves a treatment administered over time to a single individual or a small number of individuals (Cooper et al., 2007; Neuman & McCormick, 1995). One type of nonexperimental quantitative research is *causal-comparative research*. The investigator compares two or more groups in terms of a cause (or independent variable) that has already happened. Another nonexperimental form of research is the *correlational design* in which investigators use the correlational statistic to describe and measure the degree or association (or relationship) between two or more variables or sets of scores (Creswell & Guetterman, 2018). These designs

involve more complex relationships among variables found in techniques of structural equation modeling, hierarchical linear modeling, and logistic regression. More recently, quantitative strategies have involved complex experiments with many variables and treatments (e.g., factorial designs and repeated measure designs). Designs often employ longitudinal data collection over time to examine the development of ideas and trends. Designs have also included elaborate structural equation models that incorporate causal paths and the identification of the collective strength of multiple variables. Rather than discuss these quantitative approaches, we will focus in this book on two primary designs: surveys and experiments.

- **Survey research** provides a quantitative or numeric description of a population's trends, attitudes, or opinions by studying a sample of that population. It includes cross-sectional and longitudinal studies using questionnaires or structured interviews for data collection to generalize from a sample to a population (Fowler, 2008).
- **Experimental research** seeks to determine if a specific treatment influences an outcome. The researcher assesses this by providing a specific treatment to one group, withholding it from another, and then determining how both groups scored on an outcome. Experiments include true experiments, the random assignment of subjects to treatment conditions, and quasi-experiments that use nonrandomized assignments (Keppel, 1991). Included experiments are single-subject designs in which a single individual or group is observed over a period of time and interventions administered and then withheld (Gast & Ledford, 2014).

Qualitative Designs

In qualitative research, the numbers and types of approaches have also become more clearly visible during the 1990s and into the 21st century. The historic origin for qualitative research comes from anthropology, sociology, the humanities, and evaluation. Books have summarized the various types, and complete procedures are now available on specific qualitative inquiry approaches (Creswell & Poth, 2018). For example, Clandinin and Connelly (2000) constructed a picture of what narrative researchers do. Moustakas (1994) discussed the philosophical tenets and the procedures of the phenomenological method; Charmaz (2006), Corbin and Strauss (2007, 2015), and Strauss and Corbin (1990, 1998) identified the procedures of grounded theory. Fetterman (2010) and Wolcott (2008) summarized ethnographic procedures and the many faces and research strategies of ethnography, and Stake (1995) and Yin (2009, 2012, 2014) suggested processes involved in case study research. In this book, illustrations are drawn from the following qualitative designs, recognizing that approaches such as participatory action research (Kemmis & McTaggart, 2000), discourse analysis (Cheek, 2004), and others not mentioned are also viable ways to conduct qualitative studies:

- **Descriptive method** in qualitative research is an approach to analysis where the researcher stays close to the data, uses limited frameworks and interpretation for explaining the data, and catalogues the information into themes.
- **Narrative research** is a design of inquiry from the humanities in which the researcher studies the lives of individuals and asks one or more participants to provide stories about their lives (Riessman, 2008). This information is then often retold or restoried by the researcher into a narrative chronology. Often, in the end, the narrative combines views from the participant's life with those of the researcher's life in a collaborative narrative (Clandinin & Connelly, 2000).
- **Phenomenological research** is a design of inquiry coming from philosophy and psychology in which the researcher describes the lived experiences of individuals about a phenomenon as described by participants. This description culminates in the essence of several individuals who have all experienced the phenomenon. This design has strong philosophical underpinnings and typically involves conducting interviews (Giorgi, 2009; Moustakas, 1994).
- **Grounded theory** is a design of inquiry from sociology in which the researcher derives a general, abstract theory of a process, action, or interaction grounded in the views of participants. This process involves using multiple stages of data collection and the refinement and interrelationship of categories of information to form a theory (Charmaz, 2006; Corbin & Strauss, 2007, 2015).
- **Ethnography** is a design of inquiry coming from anthropology and sociology. The researcher studies the shared patterns of behaviors, language, and actions of an intact cultural group in a natural setting over a prolonged period of time. Data collection often involves observations and interviews (Wolcott, 1994).
- **Case studies** are a design of inquiry found in many fields, especially evaluation, in which the researcher develops an in-depth analysis of a case, often a program, event, activity, process, or one or more individuals. Cases are bounded by time and place (or setting), and researchers collect detailed information using a variety of data collection procedures over a sustained period of time (Stake, 1995; Yin, 2009, 2012, 2014).

Mixed Methods Designs

Mixed methods research involves collecting quantitative and qualitative data and combining or integrating the data to yield insights or inferences from the combined data. Qualitative data tends to be open-ended without predetermined responses, whereas quantitative data usually includes closed-ended

responses such as those found on questionnaires or psychological instruments. As we know it today, the field of mixed methods research began in the middle to late 1980s. Its origins, however, go back further. In 1959, Campbell and Fisk used multiple methods to study psychological traits—although their methods were only quantitative measures. Their work prompted others to collect multiple forms of data, such as observations and interviews (qualitative data) with traditional surveys (Sieber, 1973). Early thoughts about the value of multiple methods—called mixed methods—resided in the idea that all methods had bias and weaknesses. The collection of both quantitative and qualitative data neutralized the weaknesses of each form of data. Combining data sources—a means for seeking convergence across qualitative and quantitative methods—was born (Jick, 1979). By the early 1990s, mixed methods turned toward the systematic *integration* of quantitative and qualitative data and the idea of ways to combine the data through different types of research designs. These types of designs were extensively discussed in a major handbook addressing the field in 2003 and reissued in 2010 (Tashakkori & Teddlie, 2010).

As the field developed, specific mixed methods designs emerged complete with diagrams to help the reader understand the designs (Creswell & Plano Clark, 2018; Creswell, 2022). Practical issues are being widely discussed today in terms of examples of “good” mixed methods studies and evaluative criteria, the use of teams to conduct this form of inquiry, and the expansion of mixed methods worldwide. Although many designs exist in the mixed methods field, this book will focus on the three primary designs, called core design, and several complex designs that involve the embedding of core designs into processes or frameworks.

- A **convergent mixed methods design** is a core form of mixed methods design. The researcher converges or merges quantitative and qualitative data to provide a comprehensive analysis of the research problem. In this design, the investigator typically collects both forms of data at roughly the same time and then integrates the information in the interpretation of the overall results. Contradictions or incongruent findings are explained or further probed in this design.
- An **explanatory sequential mixed methods design** is a core design in which the researcher first conducts quantitative research, analyzes the results, and then builds on the results to explain them in more detail with qualitative research. It is considered explanatory because the initial quantitative data results are explained further with the qualitative data. It has a sequential structure because the initial quantitative phase follows the qualitative phase. This type of design is popular in fields with a strong quantitative orientation (because the project begins with quantitative research), but it presents challenges of identifying the quantitative results and explaining the sample selection process in the study.

- An **exploratory sequential mixed methods design** is the reverse sequence from the explanatory sequential design. In the exploratory sequential design the researcher first begins with a qualitative research phase and explores the views of participants. The data are then analyzed and the information used to build into a second, quantitative phase. The qualitative phase may be used in several ways. It can help build an instrument that best fits the sample under study, identify appropriate instruments to use in the follow-up quantitative phase, and develop an intervention for an experiment. The qualitative phase can also help design an app or website or to specify variables that need to go into a follow-up quantitative study. Challenges to this design reside in focusing in on the appropriate qualitative findings to use in the quantitative design and the sample selection for both phases of research.
- A **complex mixed methods design** involves embedding one or more core designs into a framework or a process. For example, the core designs can augment an experiment by collecting qualitative data after the experiment to help explain the quantitative outcome results. The core designs can be used within a case study framework to deductively document cases or to generate cases for further analysis. The core designs can inform a theoretical study drawn from social justice (see Chapter 3) as an overarching perspective within a design that contains both quantitative and qualitative data. The core designs can also be used in the different phases of an evaluation procedure that spans from a needs assessment to a test of a program or experimental intervention.

Research Methods

The third major element in the philosophy-design-methods framework is the specific research methods that involve the forms of data collection, analysis, and interpretation that researchers propose for their studies. As shown in Table 1.4, it is useful to consider the full range of possibilities of data collection and to organize these methods, for example, by their degree of predetermined nature, their use of closed-ended versus open-ended questioning, and their focus on numeric versus nonnumeric data analysis. These methods will be developed further in Chapters 8 through 10.

Researchers collect data on an instrument or test (e.g., a set of questions about attitudes toward self-esteem) or gather information on a behavioral checklist (e.g., observation of a worker engaged in a complex skill). On the other end of the continuum, collecting data might involve visiting a research site and observing the behavior of individuals without predetermined questions or conducting an interview in which the individual talks openly about a topic, largely without the use of specific questions. The choice of methods turns on whether the intent is to specify the type of information to be

Table 1.4 Quantitative, Mixed, and Qualitative Methods

Quantitative Methods	Mixed Methods	Qualitative Methods
Predetermined	Both predetermined and emerging methods	Emerging methods
Instrument-based questions	Both open- and closed-ended questions	Open-ended questions
Performance data, attitude data, observational data, and census data	Multiple forms of data drawing on all possibilities	Interview data, observation data, document data, and audiovisual data
Statistical analysis	Statistical and text analysis	Text and image analysis
Statistical interpretation	Across databases interpretation	Themes, patterns, and interpretation

collected in advance of the study or to allow it to emerge from participants in the project. Also, the type of data analyzed may be numeric information gathered on scales of instruments or text information recording and reporting the voice of the participants. Researchers make interpretations of the statistical results, or they interpret the themes or patterns that emerge from the data. In some forms of research, both quantitative and qualitative data are collected, analyzed, and interpreted. Instrument data may be augmented with open-ended observations, or census data may be followed by in-depth exploratory interviews. In this case of mixing methods, the researcher makes inferences across both the quantitative and qualitative databases.

Interconnecting Worldviews, Designs, and Methods

The worldviews, the designs, and the methods all contribute to a research approach that *tends* to be quantitative, qualitative, or mixed. Table 1.5 creates distinctions that may be useful in choosing an approach. This table also includes practices of all three approaches that we emphasize in the remaining chapters of this book.

Typical scenarios of research can illustrate how these three elements combine into a research design.

Example 1. Quantitative Approach: Postpositivist Worldview, Experimental Design, and Pretest and Posttest Measures of Attitudes

In this scenario, the researcher tests a theory by specifying narrow hypotheses and the collection of data to support or refute the hypotheses. The researcher uses an experimental design to assess

Table 1.5 Qualitative, Quantitative, and Mixed Methods Approaches

Tends to or Typically	Qualitative Approaches	Quantitative Approaches	Mixed Methods Approaches
Uses these philosophical assumptions	Constructivist/transformative knowledge claims	Postpositivist knowledge claims	Pragmatic knowledge claims
Employs these designs	Phenomenology, grounded theory, ethnography, case study, and narrative	Surveys and experiments (true, quasi-experimental, single-subject)	Sequential, convergent, and complex designs
Employs these methods	Open-ended questions, emerging approaches, text or image data	Closed-ended questions, predetermined approaches, numeric data (may include some open-ended questions)	Both open- and closed-ended questions, both emerging and predetermined approaches, and both quantitative and qualitative data and analysis
Uses these practices of research	Positions themselves 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 or reform Collaborates with the participants Employs text analysis procedures	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	Collects both quantitative and qualitative data Develops a rationale for mixing Integrates the data at different stages of inquiry Presents visual pictures of the procedures in the study Employs the practices of both qualitative and quantitative research

attitudes both before and after an experimental treatment. The data are collected on an instrument that measures attitudes, and the information is analyzed using statistical data analysis procedures and hypothesis testing.

Example 2. Qualitative Approach: Constructivist Worldview, Ethnographic Design, and Observation of Behavior

In this situation, the researcher seeks to establish the meaning of a phenomenon from participants' views. This means identifying a culture-sharing group and studying how it develops shared patterns of behavior over time (i.e., ethnography). One of the key elements of collecting data in this way is to observe participants' behaviors during their engagement in activities.

Example 3. Qualitative Approach: Transformative Worldview, Narrative Design, and Open-Ended Interviewing

For this study, the inquirer seeks to examine an issue related to oppression of individuals. To study this, the researcher collects stories about individual oppression using a narrative approach. Individuals are interviewed to determine how they have personally experienced oppression.

Example 4. Mixed Methods Approach: Pragmatic Worldview, Collection of Both Quantitative and Qualitative Data Sequentially in the Design

The researcher bases the inquiry on the assumption that collecting diverse types of data best provides a more complete understanding of a research problem than quantitative or qualitative data alone. The study begins with a broad survey to generalize results to a population and then, in a second phase, focuses on qualitative, open-ended interviews to collect detailed views from participants to help explain the initial quantitative survey.

Criteria for Selecting a Research Approach

Given the possibility of qualitative, quantitative, or mixed methods approaches, what factors affect a choice of one approach over another for the design of a proposal? To make this choice, we need to add to worldview, design, and methods the research problem, the personal experiences of the researcher, and the audience(s) for the report.

The Research Problem and Questions

A research problem, more thoroughly discussed in Chapter 5, is an issue or concern that needs to be addressed (e.g., the issue of racial discrimination). The problem comes from voids, conflicts in research results, and topics neglected in the literature. It also can arise from the need to emphasize the voice of marginalized participants and real-life problems found in the workplace, the home, the community.

Certain types of social research problems call for specific approaches. For example, if the problem requires for (a) the identification of factors that influence an outcome, (b) the utility of an intervention, or (c) understanding the best predictors of outcomes, then a quantitative approach is best. It is also the best approach to use to test a theory or explanation. On the other hand, if a concept or phenomenon needs to be explored and understood because little research has been done on it or involves an understudied sample, it merits a qualitative approach. Qualitative research is especially useful when the researcher does not know the important research questions or variables to examine. This type of approach may be needed because the topic is new, the subject has never been addressed with a certain sample or group of people, and existing theories do not apply with the sample or group under study (Morse, 1991). A mixed methods design is useful when the quantitative or qualitative approach, each by itself, is inadequate to study a research problem and the strengths of both quantitative and qualitative research (and its data) can provide the best understanding. For example, a researcher may want to generalize the findings to a population and develop a detailed view of the meaning of a phenomenon or concept for individuals. In this research, the inquirer first explores to learn what variables to study and then examines them with a large sample of individuals. Alternatively, researchers may first survey a large number of individuals and then follow up with a few participants to obtain their specific views and their voices about the topic. In these situations, collecting both closed-ended quantitative data and open-ended qualitative data proves advantageous.

Personal Experiences

Researchers' personal training and experiences also influence their choice of approach. An individual trained in technical, scientific writing, statistics, and computer statistical programs and familiar with quantitative journals in the library would most likely choose the quantitative design. In contrast, individuals who enjoy writing in a storytelling or literary way, conducting personal interviews, or making up-close observations may gravitate to the qualitative approach. The mixed methods researcher is an individual familiar with both quantitative and qualitative research. This person also has the time and resources to collect and analyze both quantitative and qualitative data.

Because quantitative studies are the traditional mode of research, carefully worked out procedures and rules exist for them. Researchers may be more comfortable with the highly structured procedures of quantitative research. Also, it can be uncomfortable for some individuals to challenge accepted approaches among some faculty by using qualitative and transformative approaches to inquiry. In contrast, qualitative approaches allow room to be innovative and to work more within researcher-designed frameworks. They allow more creative, literary-style writing, a form that individuals may like to use. For those researchers undertaking social justice or community involvement studies, a qualitative approach is typically best, although this form of research may also incorporate mixed methods designs.

For the mixed methods researcher, the project will take extra time because of the need to collect and analyze both quantitative and qualitative data. It fits a person who enjoys and has the skills in quantitative, qualitative research, and mixed methods research.

Audience

Finally, researchers write for audiences that will accept their research. These audiences may be journal editors and readers, faculty committees, conference attendees, or colleagues in the field. Students should consider the approaches typically supported and used by their advisers. The experiences of these audiences with quantitative, qualitative, or mixed methods studies can shape the decision made about the choice of design.

SUMMARY

In designing a research proposal or a research project, start by understanding the definitions for philosophical assumptions, research approach (or methodology), research design, and research method. Understand that this book will address three broad approaches to inquiry: quantitative, qualitative, and mixed methods. Then, a framework is helpful to proceed with a study. This framework involves understanding the philosophical assumptions

the researcher brings to a study; the designs or procedures available in quantitative, qualitative, and mixed methods research; and the specific methods to be used. In choosing a specific design for a project, consider these three components. In addition, a choice of approach involves the research problem or issue being studied, the personal experiences of the researcher, and the audience for whom the researcher writes.

KEY TERMS

Case studies	15	Narrative research	15
Complex mixed methods design	17	Phenomenological research	15
Constructivist worldview	9	Philosophical assumptions	4
Convergent mixed methods design	16	Postpositivist worldview	8
Descriptive method	15	Pragmatic worldview	11
Ethnography	15	Qualitative research	5
Experimental research	14	Quantitative research	5
Explanatory sequential mixed methods design	16	Research approach	4
Exploratory sequential mixed methods design	17	Research design	4
Grounded theory	15	Research methods	4
Mixed methods research	5	Survey research	14
		Transformative worldview	10
		Worldview	7

Writing Exercises

1. Why are philosophical assumptions necessary as a prerequisite for conducting a research study? What philosophical approach best fits your research project?
2. Discuss your choice of a research approach—quantitative, qualitative, or mixed methods—for your study. Why did you choose it?
3. What are the distinctions among the quantitative research, qualitative research, and mixed methods research approaches?

Additional Readings

Crotty, M. (1998). *The foundations of social research: Meaning and perspective in the research process*. SAGE.

A hierarchical relationship exists among philosophy, theory, methodology, and methods. Michael Crotty offers a useful framework to see these relationships. He ties together the many epistemological issues, theoretical perspectives, methodology, and methods of social research. He interrelates the four components of the research process and shows a representative sampling of topics of each component. He then goes on to discuss nine different theoretical orientations in social research, such as postmodernism, feminism, critical inquiry, interpretivism, constructionism, and positivism.

Lincoln, Y. S., Lynham, S. A., & Guba, E. G. (2011). Paradigmatic controversies, contradictions, and emerging confluences revisited. In N. K. Denzin & Y. S. Lincoln, *The SAGE handbook of qualitative research* (4th ed., pp. 97–128). SAGE

Philosophical assumptions are often confusing to researchers and need to be carefully studied. Yvonna Lincoln, Susan Lynham, and Egon Guba have provided distinctions among the different philosophical positions. They advance the basic beliefs of five alternative inquiry paradigms in social science research: (a) positivism, (b) postpositivism, (c) critical theory, (d) constructivism, and

(e) participatory. These extend the earlier analysis provided in the first and second editions of the handbook. Each is presented in terms of ontology (i.e., nature of reality), epistemology (i.e., how we know what we know), and methodology (i.e., the process of research). The participatory paradigm adds another alternative paradigm to those originally advanced in the first edition. After briefly presenting these five approaches, they contrast them in terms of several issues, such as the nature of knowledge, how knowledge accumulates, and goodness or quality criteria.

Mertens, D. (2009). *Transformative research and evaluation*. Guilford.

In many countries around the world, a transformative research approach helps establish change in communities and groups. Donna Mertens provides a guide for this transformation. She has devoted an entire text to advancing the transformative paradigm and the process of transformative research. She discusses the basic features of the transformative paradigm as an umbrella term, provides examples of groups affiliated with this paradigm, and links the paradigm to quantitative, qualitative, and mixed methods approaches. In this book, she also discusses the research procedures of sampling, consent, reciprocity, data collection methods and instruments, data analysis and interpretation, and reporting.

Phillips, D. C., & Burbules, N. C. (2000). *Postpositivism and educational research*. Rowman & Littlefield.

In research, the philosophy behind quantitative research is typically neither expressed in studies nor well-known. Thus, it is helpful for D. C. Phillips and Nicholas Burbules to summarize the major ideas of postpositivist thinking. Through two chapters, “What Is Postpositivism?” and “Philosophical Commitments of Postpositivist Researchers,” the authors advance major ideas about postpositivism and differentiate it from positivism. Postpositivism suggests that human knowledge is conjectural rather than unchallengeable and that our warrants for knowledge can be withdrawn through further investigations.

Shannon-Baker, P. (2016). Making paradigms meaningful in mixed methods research. *Journal of Mixed Methods Research*. 10(4), 319–334.

Understanding the specific elements used to describe different worldviews helps a researcher apply the worldview to their study. Peggy Shannon-Baker provides a useful, current assessment of four paradigms (or worldviews): pragmatism, transformative-emancipation, dialectics, and critical realism. Granted, she does not cover the many possibilities used today, and her assessment of paradigms focuses on applications in mixed methods research. However, her discussion of the elements of the paradigms and how they can be applied in research makes an important contribution to the area of philosophical assumptions in research.