CHAPTER ONE

The Selection of a Research Design

Research designs are plans and the procedures for research that span the decisions from broad assumptions to detailed methods of data collection and analysis. This plan involves several decisions, and they need not be taken in the order in which they make sense to me and the order of their presentation here. The overall decision involves which design should be used to study a topic. Informing this decision should be the worldview assumptions the researcher brings to the study; procedures of inquiry (called strategies); and specific methods of data collection, analysis, and interpretation. The selection of a research design is also based on the nature of the research problem or issue being addressed, the researchers' personal experiences, and the audiences for the study.

THE THREE TYPES OF DESIGNS

In this book, three types of designs are advanced: qualitative, quantitative, and mixed methods. Unquestionably, the three approaches are not as discrete as they first appear. Qualitative and quantitative approaches should not be viewed as polar opposites or dichotomies; instead, they represent different ends on a continuum (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 and quantitative research is framed in terms of using words (qualitative) rather than numbers (quantitative), or using closed-ended questions (quantitative hypotheses) rather than open-ended questions (qualitative interview questions). A more complete way to view the gradations of differences between them is in the basic philosophical assumptions researchers bring to the study, the

types of research strategies used overall 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 up until the mid-20th century. During the latter half of the 20th century, interest in qualitative research increased and along with it, the development of mixed methods research (see Creswell, 2008, for more of this history). With this background, it should prove helpful to view definitions of these three key terms as used in this book:

● **Qualitative research** is a means for exploring and understanding the meaning individuals or groups ascribe to a social or human problem. The process of research 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 support a way of looking at research that honors an inductive style, a focus on individual meaning, and the importance of rendering the complexity of a situation (adapted from Creswell, 2007).

● **Quantitative research** is a means for testing objective theories by examining the relationship among variables. 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 consisting of introduction, literature and theory, methods, results, and discussion (Creswell, 2008). Like qualitative researchers, those who engage in this form of inquiry have assumptions about testing theories deductively, building in protections against bias, controlling for alternative explanations, and being able to generalize and replicate the findings.

● **Mixed methods research** is an approach to inquiry that combines or associates both qualitative and quantitative forms. It involves philosophical assumptions, the use of qualitative and quantitative approaches, and the mixing of both approaches in a study. Thus, it is more than simply collecting and analyzing both kinds of data; it also involves the use of both approaches in tandem so that the overall strength of a study is greater than either qualitative or quantitative research (Creswell & Plano Clark, 2007).

These definitions have considerable information in each one of them. Throughout this book, I discuss the parts of the definitions so that their meanings become clear to you.

THREE COMPONENTS INVOLVED IN A DESIGN

Two important components in each definition are that the approach to research involves philosophical assumptions as well as distinct methods or procedures. **Research design**, which I refer to as the *plan or proposal to conduct research*, involves the intersection of philosophy, strategies of inquiry, and specific methods. A framework that I use to explain the inter-action of these three components is seen in Figure 1.1. To reiterate, in planning a study, researchers need to think through the philosophical worldview assumptions that they bring to the study, the strategy of inquiry that is related to this worldview, and the specific methods or procedures of research that translate the approach into practice.

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. I suggest that individuals preparing a research proposal or plan make explicit the larger philosophical ideas they espouse. This information will help explain why they chose qualitative, quantitative, or mixed methods
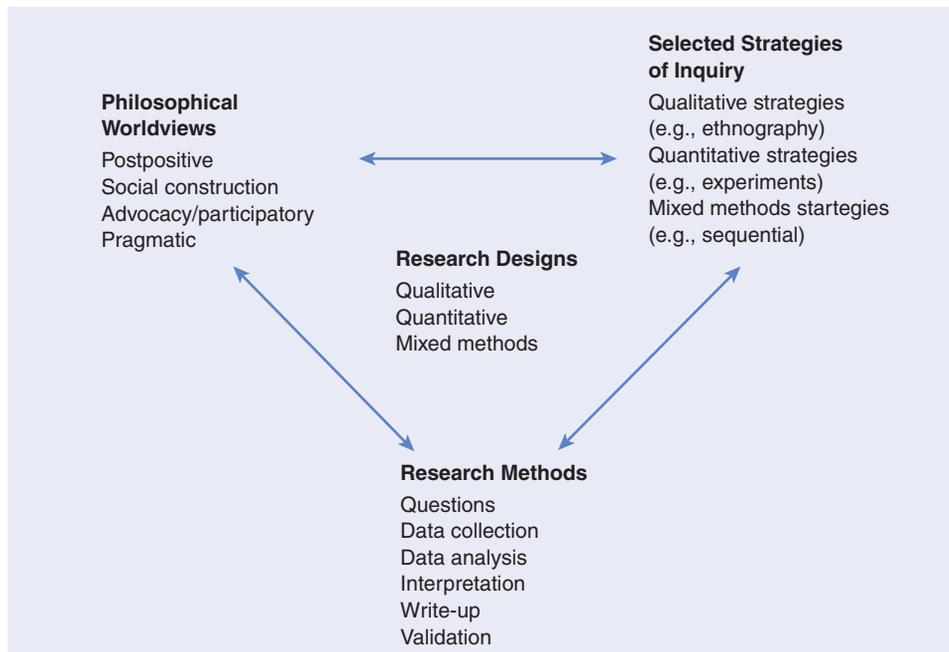
Figure 1.1   A Framework for Design—The Interconnection of Worldviews, Strategies of Inquiry, and Research Methods

approaches for their research. In writing about worldviews, a proposal might include a section that addresses the following:

● The philosophical worldview proposed in the study

● A definition of basic considerations of that worldview

● How the worldview shaped their approach to research

I 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 & Guba, 2000; Mertens, 1998); *epistemologies* and *ontologies* (Crotty, 1998), or *broadly conceived research methodologies* (Neuman, 2000). I see worldviews as a general orientation about the world and the nature of research that a researcher holds. These worldviews are shaped by the discipline area of the student, the beliefs of advisers and faculty in a student's area, and past research experiences. The types of beliefs held by individual researchers will often lead to embracing a qualitative, quantitative, or mixed methods approach in their research. Four different worldviews are discussed: postpositivism, constructivism, advocacy/participatory, and pragmatism. The major elements of each position are presented in Table 1.1.

The Postpositivist Worldview

The postpositivist assumptions 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 *postpostivism*. This last term is called postpositivism because it represents the thinking after positivism, challenging

Table 1.1 Four Worldviews	
Postpositivism	**Constructivism**
• Determination • Reductionism • Empirical observation and measurement • Theory verification	• Understanding • Multiple participant meanings • Social and historical construction • Theory generation
Advocacy/Participatory	**Pragmatism**
• Political • Empowerment Issue-oriented • Collaborative • Change-oriented	• Consequences of actions • Problem-centered • Pluralistic • Real-world practice oriented

the traditional notion of the absolute truth of knowledge (Phillips & Burbules, 2000) and recognizing that we cannot be "positive" 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 it has been most recently articulated by writers such as Phillips and Burbules (2000).

Postpositivists hold a deterministic philosophy in which 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 found in experiments. It is also reductionistic in that the intent is to reduce the ideas into a small, discrete set of ideas to test, such as the variables that comprise hypotheses and research questions. The knowledge that develops through a postpositivist lens is based on careful observation and measurement of the objective reality that exists "out there" in the world. Thus, developing numeric measures of observations and studying the behavior of individuals becomes paramount for a postpositivist. Finally, there are laws or theories that govern the world, and these need to be tested or verified and refined so that we can understand the world. Thus, in the scientific method, the accepted approach to research by postpositivists, an individual begins with a theory, collects data that either supports or refutes the theory, and then makes necessary revisions before additional tests are made.

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

1. Knowledge is conjectural (and antifoundational)—absolute truth can never be found. Thus, evidence established in research is always imperfect and fallible. It is for this reason that researchers state that they do not prove a hypothesis; instead, they indicate a failure to reject the hypothesis.

2. 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.

3. 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.

4. Research seeks to develop relevant, true statements, ones that can serve to explain the situation of concern or that describe the causal relationships of interest. In quantitative studies, researchers advance the relationship among variables and pose this in terms of questions or hypotheses.

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

The Social Constructivist Worldview

Others hold a different worldview. Social constructivism (often combined with interpretivism; see Mertens, 1998) is such a perspective, and it is typically seen as an approach to qualitative research. The ideas came from Mannheim and from works such as Berger and Luekmann'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 and Guba (2000), Schwandt (2007), Neuman (2000), and Crotty (1998), among others. **Social constructivists** hold assumptions 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 is to rely as much as possible on the participants' views of the situation being studied. 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, as 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, in order to understand the historical and cultural settings of the participants. Researchers recognize that their own backgrounds shape their interpretation, and they position themselves in the research to acknowledge how their interpretation flows 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:

1. Meanings are constructed by human beings 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.

2. 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

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they find, an interpretation shaped by the researcher's own experiences and background.

3. 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, with the inquirer generating meaning from the data collected in the field.

The Advocacy and Participatory Worldview

Another group of researchers holds to the philosophical assumptions of the advocacy/participatory approach. This position arose during the 1980s and 1990s from individuals who felt that the postpostivist assumptions imposed structural laws and theories that did not fit marginalized individuals in our society or issues of social justice that needed to be addressed. This worldview is typically seen with qualitative research, but it can be a foundation for quantitative research as well. Historically, some of the advocacy/participatory (or emancipatory) writers have drawn on the works of Marx, Adorno, Marcuse, Habermas, and Freire (Neuman, 2000). Fay (1987), Heron and Reason (1997), and Kemmis and Wilkinson (1998) are more recent writers to read for 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 peoples. An **advocacy/participatory worldview** holds that research inquiry needs to be intertwined with politics and a political agenda. 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, specific issues need to be addressed that speak to 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 so as 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. Advocacy 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 the philosophical assumptions that construct a picture of the issues being examined, the people to be studied, and the changes that are needed, such as feminist perspectives, racialized discourses, critical theory, queer theory, and disability theory—theoretical lens to be discussed more in Chapter 3.

Although these are diverse groups and my explanations here are generalizations, it is helpful to view the summary by Kemmis and Wilkinson (1998) of key features of the advocacy or participatory forms of inquiry:

1. Participatory action is recursive or dialectical and focused on bringing about change in practices. Thus, at the end of advocacy/participatory studies, researchers advance an action agenda for change.

2. This form of inquiry is focused on helping individuals free themselves from constraints found in the media, in language, in work procedures, and in the relationships of power in educational settings. Advocacy/participatory studies often begin with an important issue or stance about the problems in society, such as the need for empowerment.

3. It is emancipatory in that it helps unshackle people from the constraints of irrational and unjust structures that limit self-development and self-determination. The advocacy/participatory studies aim to create a political debate and discussion so that change will occur.

4. It is practical and collaborative because it is inquiry completed *with* others rather than *on* or *to* others. In this spirit, advocacy/participatory authors engage the participants as active collaborators in their inquiries.

The Pragmatic Worldview

Another position about worldviews comes from the pragmatists. Pragmatism derives from the work of Peirce, James, Mead, and Dewey (Cherryholmes, 1992). Recent writers include Rorty (1990), Murphy (1990), Patton (1990), and Cherryholmes (1992). There are many forms of this philosophy, but for many, **pragmatism** as a worldview 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 use all approaches available to understand the problem (see Rossman & Wilson, 1985). As a philosophical underpinning for mixed methods studies, Tashakkori and Teddlie (1998), Morgan (2007), and Patton (1990) convey its importance for focusing attention on the research problem in social science research and then using pluralistic approaches to derive knowledge about the problem. Using Cherryholmes (1992), Morgan (2007), and my own views, pragmatism provides a philosophical basis for research:

● Pragmatism is not committed to any one system of philosophy and reality. This 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 work to provide the best understanding of a research problem.

● The pragmatist researchers look to the *what* and *how* to research, based on the intended consequences—where they want to go with it. Mixed methods researchers need to establish a purpose for their mixing, a rationale for the 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 is reflective of social justice and political aims.

● Pragmatists have believed 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, 1983, p. xiv).

● Thus, for the mixed methods researcher, pragmatism opens the door to multiple methods, different worldviews, and different assumptions, as well as different forms of data collection and analysis.

Strategies of Inquiry

The researcher not only selects a qualitative, quantitative, or mixed methods study to conduct, the inquirer also decides on a type of study within these three choices. **Strategies of inquiry** are types of qualitative, quantitative, and mixed methods designs or models that provide specific direction for procedures in a research design. Others have called them *approaches to inquiry* (Creswell, 2007) or *research methodologies* (Mertens, 1998). The strategies available to the researcher have grown over the years as computer technology has pushed forward our data analysis and ability to analyze complex models and as individuals have articulated new procedures for conducting social science research. Select types will be emphasized in Chapters 8, 9, and 10, strategies frequently used in the social sciences. Here I introduce those that are discussed later and that are cited in examples throughout the book. An overview of these strategies is shown in Table 1.2.

Table 1.2 Alternative Strategies of Inquiry		
Quantitative	**Qualitative**	**Mixed Methods**
• Experimental designs • Non-experimental designs, such as surveys	• Narrative research • Phenomenology • Ethnographies • Grounded theory studies • Case study	• Sequential • Concurrent • Transformative

Quantitative Strategies

During the late 19th and throughout the 20th century, strategies of inquiry associated with quantitative research were those that invoked the postpositivist worldview. These include true experiments and the less rigorous experiments called *quasi-experiments* and *correlational studies* (Campbell & Stanley, 1963) and specific single-subject experiments (Cooper, Heron, & Heward, 1987; Neuman & McCormick, 1995). More recently, quantitative strategies have involved complex experiments with many variables and treatments (e.g., factorial designs and repeated measure designs). They have also included elaborate structural equation models that incorporate causal paths and the identification of the collective strength of multiple variables. In this book, I focus on two strategies of inquiry: surveys and experiments.

● **Survey research** provides a quantitative or numeric description of trends, attitudes, or opinions of a population by studying a sample of that population. It includes cross-sectional and longitudinal studies using questionnaires or structured interviews for data collection, with the intent of generalizing from a sample to a population (Babbie, 1990).

● **Experimental research** seeks to determine if a specific treatment influences an outcome. This impact is assessed by providing a specific treatment to one group and withholding it from another and then determining how both groups scored on an outcome. Experiments include true experiments, with the random assignment of subjects to treatment conditions, and quasi-experiments that use nonrandomized designs (Keppel, 1991). Included within quasi-experiments are single-subject designs.

Qualitative Strategies

In qualitative research, the numbers and types of approaches have also become more clearly visible during the 1990s and into the 21st century. Books have summarized the various types (such as the 19 strategies identified by Wolcott, 2001), and complete procedures are now available on specific qualitative inquiry approaches. 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, and Strauss and Corbin (1990, 1998) identified the procedures of grounded theory. Wolcott (1999) summarized ethnographic procedures, and Stake (1995) suggested processes involved in case study research. In this book, illustrations are drawn from the following strategies, recognizing that approaches such as participatory action research (Kemmis & Wilkinson, 1998), discourse analysis (Cheek, 2004), and others not mentioned (see Creswell, 2007b) are also viable ways to conduct qualitative studies:

● **Ethnography** is a strategy of inquiry in which the researcher studies an intact cultural group in a natural setting over a prolonged period of time by collecting, primarily, observational and interview data (Creswell, 2007b). The research process is flexible and typically evolves contextually in response to the lived realities encountered in the field setting (LeCompte & Schensul, 1999).

● **Grounded theory** is a strategy of inquiry 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 (Charmaz, 2006; Strauss and Corbin, 1990, 1998). Two primary characteristics of this design are the constant comparison of data with emerging categories and theoretical sampling of different groups to maximize the similarities and the differences of information.

● **Case studies** are a strategy of inquiry in which the researcher explores in depth a program, event, activity, process, or one or more individuals. Cases are bounded by time and activity, and researchers collect detailed information using a variety of data collection procedures over a sustained period of time (Stake, 1995).

● **Phenomenological research** is a strategy of inquiry in which the researcher identifies the essence of human experiences about a phenomenon as described by participants. Understanding the lived experiences marks phenomenology as a philosophy as well as a method, and the procedure involves studying a small number of subjects through extensive and prolonged engagement to develop patterns and relationships of meaning (Moustakas, 1994). In this process, the researcher brackets or sets aside his or her own experiences in order to understand those of the participants in the study (Nieswiadomy, 1993).

● **Narrative research** is a strategy of inquiry in which the researcher studies the lives of individuals and asks one or more individuals to provide stories about their lives. This information is then often retold or restoried by the researcher into a narrative chronology. 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).

Mixed Methods Strategies

Mixed methods strategies are less well known than either the quantitative or qualitative approaches. The concept of mixing different methods originated in 1959 when Campbell and Fisk used multimethods to study validity of psychological traits. They encouraged others to employ their multimethod matrix to examine multiple approaches to data collection. This prompted others to mix methods, and soon approaches associated with field methods, such as observations and interviews (qualitative data), were combined with traditional surveys (quantitative data; Sieber, 1973). Recognizing that all methods have limitations, researchers felt that biases inherent in any single method could neutralize or cancel the biases of other methods. Triangulating data sources—a means for seeking convergence across qualitative and quantitative methods—was born (Jick, 1979). By the early 1990s, the idea of mixing moved from seeking convergence to actually integrating or connecting the quantitative and qualitative data. For example, the results from one method can help identify participants to study or questions to ask for the other method (Tashakkori & Teddlie, 1998). Alternatively, the qualitative and quantitative data can be merged into one large database or the results used side by side to reinforce each other (e.g., qualitative quotes support statistical results; Creswell & Plano Clark, 2007). Or the methods can serve a larger, transformative purpose to advocate for marginalized groups, such as women, ethnic/racial minorities, members of gay and lesbian communities, people with disabilities, and those who are poor (Mertens, 2003).

These reasons for mixing methods have led writers from around the world to develop procedures for mixed methods strategies of inquiry, and these take the numerous terms found in the literature, such as *multimethod, convergence, integrated,* and *combined* (Creswell & Plano Clark, 2007), and shape procedures for research (Tashakkori & Teddlie, 2003).

In particular, three general strategies and several variations within them are illustrated in this book:

● **Sequential mixed methods** procedures are those in which the researcher seeks to elaborate on or expand on the findings of one method with another method. This may involve beginning with a qualitative interview for exploratory purposes and following up with a quantitative, survey method with a large sample so that the researcher can generalize results to a population. Alternatively, the study may begin with a quantitative method in which a theory or concept is tested, followed by a qualitative method involving detailed exploration with a few cases or individuals.

● **Concurrent mixed methods** procedures are those in which the researcher converges or merges quantitative and qualitative data in order to provide a comprehensive analysis of the research problem. In this design, the investigator collects both forms of data at the same time and then integrates

the information in the interpretation of the overall results. Also, in this design, the researcher may embed one smaller form of data within another larger data collection in order to analyze different types of questions (the qualitative addresses the process while the quantitative, the outcomes).

● **Transformative mixed methods** procedures are those in which the researcher uses a theoretical lens (see Chapter 3) as an overarching perspective within a design that contains both quantitative and qualitative data. This lens provides a framework for topics of interest, methods for collecting data, and outcomes or changes anticipated by the study. Within this lens could be a data collection method that involves a sequential or a concurrent approach.

Research Methods

The third major element in the 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 1.3, 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 is allowed to talk openly about a topic, largely without the use of specific

Table 1.3   Quantitative, Mixed, and Qualitative Methods

Quantitative Methods ⟶	Mixed Methods ⟵	Qualitative Methods
• Pre-determined • Instrument based questions • Performance data, attitude data, observational data, and census data • Statistical analysis • Statistical interpretation	• Both pre-determined and emerging methods • Both open- and closed-ended questions • Multiple forms of data drawing on all possibilities • Statistical and text analysis • Across databases interpretation	• Emerging methods • Open-ended questions • Interview data, observation data, document data, and audio-visual data • Text and image analysis • Themes, patterns interpretation

questions. The choice of methods turns on whether the intent is to specify the type of information to be collected in advance of the study or 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.

RESEARCH DESIGNS AS WORLDVIEWS, STRATEGIES, AND METHODS

The worldviews, the strategies, and the methods all contribute to a research design that *tends* to be quantitative, qualitative, or mixed. Table 1.4 creates distinctions that may be useful in choosing an approach. This table also includes practices of all three approaches that are emphasized in remaining chapters of this book.

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

● *Quantitative* approach—Postpositivist worldview, experimental strategy of inquiry, and pre- and post-test 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. An experimental design is used in which attitudes are assessed both before and after an experimental treatment. The data are collected on an instrument that measures attitudes, and the information is analyzed using statistical procedures and hypothesis testing.

● *Qualitative* approach—Constructivist worldview, ethnographic design, and observation of behavior

In this situation, the researcher seeks to establish the meaning of a phenomenon from the views of participants. 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 by engaging in their activities.

● *Qualitative* approach—Participatory 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, stories are collected of individual oppression

Table 1.4 Qualitative, Quantitative, and Mixed Methods Approaches			
Tend to or Typically . . .	**Qualitative Approaches**	**Quantitative Approaches**	**Mixed Methods Approaches**
• Use these philosophical assumptions	• Constructivist/ advocacy/ participatory knowledge claims	• Post-positivist knowledge claims	• Pragmatic knowledge claims
• Employ these strategies of inquiry	• Phenomenology, grounded theory, ethnography, case study, and narrative	• Surveys and experiments	• Sequential, concurrent, and transformative
• Employ these methods	• Open-ended questions, emerging approaches, text or image data	• Closed-ended questions, predetermined approaches, numeric data	• Both open- and closed-ended questions, both emerging and predetermined approaches, and both quantitative and qualitative data and analysis
• Use these practices of research as the researcher	• Positions him- or herself • Collects participant meanings • Focuses on a single concept or phenomenon • Brings personal values into the study • Studies the context or setting of participants • Validates the accuracy of findings • Makes interpretations of the data • Creates an agenda for change or reform • Collaborates with the participants	• 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

using a narrative approach. Individuals are interviewed at some length to determine how they have personally experienced oppression.

● *Mixed methods* approach—Pragmatic worldview, collection of both quantitative and qualitative data sequentially

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

CRITERIA FOR SELECTING A RESEARCH DESIGN

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? Added to worldview, strategy, and methods would be the research problem, the personal experiences of the researcher, and the audience(s) for whom the report will be written.

The Research Problem

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). Certain types of social research problems call for specific approaches. For example, if the problem calls 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 understood because little research has been done on it, then it merits a qualitative approach. Qualitative research is exploratory and is useful when the researcher does not know the important variables to examine. This type of approach may be needed because the topic is new, the topic has never been addressed with a certain sample or group of people, and existing theories do not apply with the particular sample or group under study (Morse, 1991).

A mixed methods design is useful when either the quantitative or qualitative approach by itself is inadequate to best understand a research problem or the strengths of both quantitative and qualitative research can provide the best understanding. For example, a researcher may want to both generalize the findings to a population as well as develop a detailed view of the meaning of a phenomenon or concept for individuals. In this research, the inquirer first explores generally to learn what variables to study and then studies those variables 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 language and voices about the topic. In these situations, collecting both closed-ended quantitative data and open-ended qualitative data proves advantageous.

Personal Experiences

Researchers' own 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. On the other hand, individuals who enjoy writing in a literary way or 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 both quantitative and qualitative data and has outlets for mixed methods studies, which tend to be large in scope.

Since 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 systematic procedures of quantitative research. Also, for some individuals, it can be uncomfortable to challenge accepted approaches among some faculty by using qualitative and advocacy/participatory approaches to inquiry. On the other hand, 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 advocacy/participatory writers, there is undoubtedly a strong stimulus to pursue topics that are of personal interest—issues that relate to marginalized people and an interest in creating a better society for them and everyone.

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 both the structure of quantitative research and the flexibility of qualitative inquiry.

Audience

Finally, researchers write for audiences that will accept their research. These audiences may be journal editors, journal readers, graduate 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 this choice.

SUMMARY

In planning a research project, researchers need to identify whether they will employ a qualitative, quantitative, or mixed methods design. This design is based on bringing together a worldview or assumptions about research, the specific strategies of inquiry, and research methods. Decisions about choice of a design are further influenced by the research problem or issue being studied, the personal experiences of the researcher, and the audience for whom the researcher writes.

Writing Exercises

1. Identify a research question in a journal article and discuss what design would be best to study the question and why.

2. Take a topic that you would like to study, and using the four combinations of worldviews, strategies of inquiry, and research methods in Figure 1.1, discuss a project that brings together a worldview, strategies, and methods. Identify whether this would be quantitative, qualitative, or mixed methods research.

3. What distinguishes a quantitative study from a qualitative study? Mention three characteristics.

ADDITIONAL READINGS

Cherryholmes, C. H. (1992, August-September). Notes on pragmatism and scientific realism. *Educational Researcher, 14,* 13–17.

Cleo Cherryholmes discusses pragmatism as a contrasting perspective from scientific realism. The strength of this article lies in the numerous citations of writers about pragmatism and a clarification of one version of pragmatism. Cherryholmes's version points out that pragmatism is driven by anticipated consequences, reluctance to tell a true story, and the embrace of the idea that there is an external world independent of our minds. Also included in this article are numerous references to historical and recent writers about pragmatism as a philosophical position.

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

Michael Crotty offers a useful framework for tying together the many epistemological issues, theoretical perspectives, methodology, and methods of social research. He interrelates the four components of the research process and shows in a table 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.

Kemmis, S., & Wilkinson, M. (1998). Participatory action research and the study of practice. In B. Atweh, S. Kemmis, & P. Weeks (Eds.), *Action research in practice: Partnerships for social justice in education* (pp. 21–36). New York: Routledge.

Stephen Kemmis and Mervyn Wilkinson provide an excellent overview of participatory research. In particular, they note the six major features of this inquiry approach and then discuss how action research is practiced at the individual level, the social level, or both levels.

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

Yvonna Lincoln and Egon Guba have provided the basic beliefs of five alternative inquiry paradigms in social science research: positivism, postpositivism, critical theory, constructivism, and 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 seven issues, such as the nature of knowledge, how knowledge accumulates, and goodness or quality criteria.

Neuman, W. L. (2000). *Social research methods: Qualitative and quantitative approaches.* Boston: Allyn & Bacon.

Lawrence Neuman provides a comprehensive research method text as an introduction to social science research. Especially helpful in understanding the alternative meaning of methodology is Chapter 4, titled, "The Meanings of Methodology," in which he contrasts three methodologies—positivist social science, interpretive social science, and critical social science—in terms of eight questions (e.g., What constitutes an explanation or theory of social reality? What does good evidence or factual information look like?).

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

D. C. Phillips and Nicholas Burbules summarize the major ideas of postpostivist thinking. Through two chapters, "What is Postpositivism?" and "Philosophical Commitments of Postpositivist Researchers," the authors advance major ideas about postpositivism, especially those that differentiate it from positivism. These include knowing that human knowledge is conjectural rather than unchallengeable and that our warrants for knowledge can be withdrawn in light of further investigations.