and adapted within disciplines. Through her work in the research service center, she engages in research in the areas of education, family research, counseling psychology, family medicine, and nursing. Prior to focusing on applied research methods, she served 12 years as laboratory manager in UNI's Department of Physics and Astronomy, working with the Research in Physics Education Group to develop and evaluate innovative curricular materials to help students understand introductory physics concepts. In her spare time, she is currently working with her husband, Mark, to develop their own understanding of quilt making, the game of golf, and home remodeling.

CHAPTER 1

THE NATURE OF MIXED METHODS RESEARCH

What is it about the nature of mixed methods that draws researchers to its use? Its popularity can be easily documented through journal articles, conference proceedings, books, and the formation of special interest groups (Creswell, in press-b, Plano Clark, 2010). It has been called the "third methodological movement" following the developments of first quantitative and then qualitative research (Eshkolov & Teddlie, 2000a, p. 5), the "third research paradigm" (Johnson & Onwuegbuzie, 2004, p. 15), and "a new star in the social science sky" (Mayring, 2007, p. 1). Why does it merit such superlatives? One answer is that it is an intuitive way of doing research that is constantly being displayed through our everyday lives.

Consider for a moment An Inconvenient Truth, the award-winning documentary on global warming featuring the former U.S. vice president and Nobel Prize winner Al Gore (http://www.climatecrisis.net/an-inconvenient-truth.php). In the documentary, Gore narrated both the statistical trends and the stories of his personal journey related to the changing climate and global warming. This documentary brings together both quantitative and qualitative data to tell the story. Also, listen closely to CNN's broadcast reports about hurricanes or about the votes cast in elections. The trends are again supported by the individual stories. Or listen to commentators at sporting events. There is often a play-by-play commentator who describes the somewhat linear unfolding of the game (a quantitative perspective) and then the additional commentary by the "color" announcer who tells us about the
individual stories and highlights of the personnel on the playing field. Again, both quantitative and qualitative data come together in these broadcasts.

In these instances, we see mixed methods thinking in ways that Greene (2007) called the “multiple ways of seeing and hearing” (p. 20). Multiple ways are visible in everyday life, and mixed methods becomes a natural outlet for research. But other factors also contribute to this interest in mixed methods. Researchers recognize it as an accessible approach to inquiry. They have research questions (or problems) that can best be answered using mixed methods, and they see the value of using it (as well as the challenges it poses).

Understanding the nature of mixed methods research is an important first step to using it in research. This chapter reviews several preliminary considerations necessary before a researcher designs a mixed methods study. This chapter addresses the following considerations:

- Understanding what mixed methods research means
- Viewing examples of mixed methods studies
- Recognizing what types of research problems merit a mixed methods study
- Knowing the advantages of using mixed methods
- Realizing the challenges of using mixed methods

## DEFINING MIXED METHODS RESEARCH

Several definitions for mixed methods have emerged over the years that incorporate various elements of methods, research processes, philosophy, and research design. These different stances are summarized in Table 1.1.

An early definition of mixed methods came from writers in the field of evaluation. Greene, Caracelli, and Graham (1989) emphasized the mixing of methods and the disentanglement of methods and philosophy (i.e., paradigms) when they said,

In this study, we defined mixed-method designs as those that include at least one quantitative method (designed to collect numbers) and one qualitative method (designed to collect words), where neither type of method is inherently linked to any particular inquiry paradigm. (p. 256)

Ten years later, the definition shifted from mixing two methods to mixing in all phases of the research process—a methodological orientation (Tashakkori & Teddlie, 1998). Included within this orientation would be mixing philosophical (i.e., worldview) positions, inferences, and the interpretations of results. Thus, Tashakkori and Teddlie (1998) defined mixed methods as the combination of “qualitative and quantitative approaches in the methodology of a study” (p. 10). These authors reinforced this methodological orientation in their preface to the SAGE Handbook of Mixed Methods in Social & Behavioral Research by writing “mixed methods research has evolved to the point where it is a separate methodological orientation with its own worldview, vocabulary, and techniques” (Tashakkori & Teddlie, 2002a, p. x).

In a highly cited Journal of Mixed Methods Research (JMRR) article, Johnson, Onwuegbuzie, and Turner (2007) sought a consensus about a definition by suggesting a composite understanding based on 19 different definitions provided by 21 highly published mixed methods researchers. The authors commented about the definitions, citing the variations in them, from what was being mixed (e.g., methods, methodologies, or types of research), the place in the research process in which mixing occurred (e.g., data collection, data analysis), the scope of the mixing (e.g., from data to worldview), the purpose or rationale for mixing (e.g., breadth, corroboration), and the elements driving the research (e.g., bottom-up, top-down, a core

### Table 1.1 Authors and the Focus or Orientation of Their Definition of Mixed Methods

<table>
<thead>
<tr>
<th>Author(s) and Year</th>
<th>Focus of the Definition</th>
</tr>
</thead>
</table>
| Greene, Caracelli, and Graham (1989) | Methods  
| Philosophy |
| Tashakkori and Teddlie (1998) | Methodology |
| Johnson, Onwuegbuzie, and Turner (2007) | Qualitative and quantitative research  
| Purpose |
| Journal of Mixed Methods Research (JMRR)  
(call for submissions) | Qualitative and quantitative research  
| Methods |
| Greene (2007) | Multiple ways of seeing, hearing, and making sense of the social world |
| Creswell and Plano Clark (2007) | Methods  
| Philosophy |
| Core characteristics (presented and used in this book) | Methods  
| Philosophy  
| Research design |
component. Incorporating these diverse perspectives, Johnson et al. (2007) ended with their composite definition:

Mixed methods research is the type of research in which a researcher or team of researchers combines elements of qualitative and quantitative research approaches (e.g., use of qualitative and quantitative viewpoints, data collection, analysis, inference techniques) for the purposes of breadth and depth of understanding and corroboration. (p. 123)

In this definition, the authors did not view mixed methods simply as methods but more as a methodology that spanned viewpoints and that included the combination of qualitative and quantitative research. They incorporated diverse viewpoints but did not specifically mention paradigms (as in the Greene et al., 1999 definition). Their purposes for mixed methods—breadth and depth of understanding and corroboration—meant that they related the definition of mixed methods to a rationale for conducting it. Most importantly, perhaps, they suggested that there is a common definition that should be used.

When the call for paper submissions to the JMMR was issued for our first issue, we, as editors, felt that a general definition of mixed methods should be provided. Our approach incorporated both a general qualitative and quantitative research orientation as well as a methods orientation. Our intent was also to cast our definition within accepted approaches to mixed methods, to encourage submissions as broad as possible, and to “keep the discussion open about the definition of mixed methods” (Kishskakori & Creswell, 2007a, p. 3). Hence, the definition announced in the first issue of the journal was

mixed methods research is defined as research in which the investigator collects and analyzes data, integrates the findings, and draws inferences using both qualitative and quantitative approaches or methods in a single study or a program of inquiry. (Kishskakori & Creswell, 2007b, p. 4)

Then, Greene (2007) provided a definition of mixed methods that conceptualized this form of inquiry differently as a way of looking at the social world... that actively invites us to participate in dialogue about multiple ways of seeing and hearing, multiple ways of making sense of the social world, and multiple standpoints on what is important and to be valued and cherished. (p. 20)

Defining mixed methods as “multiple ways of seeing” opens up broad applications beyond using it as only a research method. It can be used, for example, as an approach to think about designing documentaries (Creswell & McCoy, in press) or as a means for “seeing” participatory approaches to HIV-infected populations in the Eastern Cape of South Africa (Olivier, de Lange, Creswell, & Wood, 2010).

Also in 2007, in the first edition of this book, we provided a definition that had both a methods and a philosophical orientation. We said,

Mixed methods research is a research design with philosophical assumptions as well as methods of inquiry. As a methodology, it involves philosophical assumptions that guide the direction of the collection and analysis and the mixture of qualitative and quantitative approaches in many phases of the research process. As a method, it focuses on collecting, analyzing, and mixing both qualitative and quantitative data in a single study or series of studies. Its central premise is that the use of qualitative and quantitative approaches, in combination, provides a better understanding of research problems than either approach alone. (Creswell & Plano Clark, 2007, p. 5)

This definition was patterned on describing an approach using multiple meanings, such as found in Stake’s (1995) definition of a case study in which he talked about case study research as stemming from several distinct ideas.

At present, we feel that a definition for mixed methods should incorporate many diverse viewpoints. In this spirit, we rely on a definition of core characteristics of mixed methods research. It is a definition that we suggest in our workshops and in our presentations on mixed methods research. It combines methods, a philosophy, and a research design orientation. It also highlights the key components that go into designing and conducting a mixed methods study; thus, it will be the one emphasized in this book. In mixed methods, the researcher

- collects and analyzes persuasively and rigorously both qualitative and quantitative data (based on research questions);
- mixes (or integrates or links) the two forms of data concurrently by combining them (or merging them), sequentially by having one build on the other, or embedding one within the other;
- gives priority to one or both forms of data (in terms of what the research emphasizes);
- uses these procedures in a single study or in multiple phases of a program of study;
- frames these procedures within philosophical worldviews and theoretical lenses; and
- combines the procedures into specific research designs that direct the plan for conducting the study.
Those core characteristics, we believe, adequately describe mixed methods research. They evolved from many years of reviewing mixed methods articles and determining how researchers use both quantitative and qualitative methods in their studies.

### EXAMPLES OF MIXED METHODS STUDIES

One way to better understand the nature of mixed methods research beyond a definition is to examine published studies in journal articles. Although philosophical assumptions often lie in the background of published mixed methods studies, the core characteristics of our definition can be seen in the following examples:

- A researcher collects data on quantitative instruments and on qualitative data reports based on focus groups to see if the two types of data show similar results but from different perspectives (see the study of developing a health promotion perspective for older driver safety in the occupational science area by Classen et al., 2007).

- A researcher uses data collected using qualitative methodological procedures and follows up with interviews with a few individuals who participated in the experiment to help explain their scores on the experimental outcomes (see the study of college students' coping-achievement note taking by Jiao, Kwon, & Borming, 2009).

- A researcher explores how individuals describe a topic by starting with interviews, analyzing the information, and using the findings to develop a survey instrument. This instrument, in turn, is administered to a sample from a population to see if the qualitative findings can be generalized to a population as a whole (see the study of the study of lifestyle behaviors of Japanese college women by Takashiro, 2002; see also the psychological study of the tendency to perceive the self as significant to others in young adults’ romantic relationships by Mak & Marshall, 2004).

- A researcher conducts an experiment in which quantitative measures are used to assess the impact of a treatment on an outcome. Before the experiment begins, the researcher collects qualitative data to help design the treatment or, alternatively, to better design strategies to recruit participants to the trial (see the study of physical activity and diet for families in one community by Brown, Weinrindler, Boender, Morin, & Marshall, 2002).

- A researcher seeks to bring about change in understanding the issues facing women. The researcher gathers data through interviews and focus groups to explore the meaning of the issues for women. The larger frame work of change guides the researcher and informs all aspects of the study (see the issues being studied, to the data collection, and to the call for reform at the end of the study (see the study exploring student-athlete culture and understanding specific rape myths by McMahon, 2007).

- A researcher seeks to evaluate a program that has been implemented in the community. The first step is to collect qualitative data in a needs assessment to determine what questions need to be addressed. This is followed by the design of an instrument to measure the impact of the program. This instrument is then used to compare certain outcomes both before and after the program has been implemented. From this comparison, follow-up interviews are conducted to determine why the program did or did not work. This multiphase mixed methods study is often found in long-term evaluation projects (see the study of the long-term impacts of interpretive programs at a historical site by Farmer & Knapp, 2008).

These examples all illustrate the collection of both quantitative and qualitative data, their integration or mix, and an underlying assumption that mixed methods research could be a useful approach to research.

### WHAT RESEARCH PROBLEMS FIT MIXED METHODS?

Authors of the example studies crafted their research as mixed methods projects based on their assumption that mixed methods could also best address their research problems. When preparing a research study employing mixed methods, the researcher needs to provide a justification for the use of this approach. Not all situations justify the use of mixed methods. There are times when qualitative research may be best, because the researcher aims to explore a problem, honor the voices of participants, map the complexity of the situation, and convey multiple perspectives of participants. At other times, quantitative research may be best, because the researcher seeks to understand the relationship among variables or determine if one group performs better on an outcome than another group. In our discussion of mixed methods, we do not want to minimize the importance of choosing either a quantitative or qualitative approach when it is merited by the situation. Further, we would not limit mixed methods to certain fields of study or topics. Mixed methods research seems applicable to a wide variety of disciplines in the social and health sciences. Certainly some disciplinary content specialists may select not to use mixed methods because of a lack of interest in qualitative research, but most content area problems can be addressed using mixed methods. Instead of thinking about fitting different methods to specific content topics, we suggest thinking about fitting methods to different types of research problems. For example, we find that a survey best fits a quantitative approach because of the
A Need Exists Because One Data Source May Be Inadequate

We know that qualitative data provide a detailed understanding of a problem while quantitative data provide a more general understanding of a problem. This qualitative understanding arises out of studying a few individuals and exploring their perspectives in great depth whereas the quantitative understanding arises from examining a large number of people and assessing responses to a few variables. Qualitative research and quantitative research provide different pictures, or perspectives, and each has its limitations. When researchers study a few individuals qualitatively, the ability to generalize the results to many is lost. When researchers quantitatively examine many individuals, the understanding of any one individual is diminished. Hence, the limitations of one method can be offset by the strengths of the other method, and the combination of qualitative and quantitative data provide a more complete understanding of the research problem than either approach by itself.

There are several ways in which one data source may be inadequate. One type of evidence may not tell the complete story, or the researcher may lack confidence in the ability of one type of evidence to address the problem. The results from the quantitative and qualitative data may be contradictory, which could not be known by collecting only one type of data. Further, the type of evidence gathered from one level in an organization might differ from evidence obtained at other levels. There are all situations in which using only one type of evidence is insufficient.

A Need Exists to Explain Initial Results

Sometimes the results of a study may provide an incomplete understanding of a research problem and there is a need for further explanation. In this case, a mixed methods study is used with the second database helping to explain the first database. A typical situation is when quantitative results require an explanation as to what they mean. Qualitative results can give general explanations for the relationships among variables, but the more detailed understanding of what the statistical tests or effect sizes actually mean is lacking. Qualitative data and results can help build that understanding. For example, Wein et al. (2005) conducted a mixed methods study investigating family factors and processes involved in Bosnian refugees engaging in multiple-family support and education groups in Chicago. The first quantitative phase of the study addressed the factors that predicted engagement while the second qualitative phase consisted of interviews with family members to assess the family processes involved in engagement as multiple-family groups. The rationale for using mixed methods to study this situation was "quantitative analysis addressed the factors that predicted engagement. In order to better understand the processes by which families experience engagement, we conducted a qualitative content analysis to gain additional insight" (Wein et al., 2005, p. 560).

A Need Exists to Generalize Exploratory Findings

In some research projects, the investigators may not know the questions that need to be asked, the variables that need to be measured, and the theories that may guide the study. These unknowns may be due to the specific, remote population being studied (e.g., Native American in Alaska) or the newness of the research topic. In these situations, it is best to explore qualitatively to learn what questions, variables, theories, and so forth need to be studied and then follow up with a quantitative study to generalize and test what was learned from the exploration. A mixed methods project is ideal in these situations. The researcher begins with a qualitative phase to explore and then follows up with a quantitative phase to test whether the qualitative results generalize. For example, Kurzer, Steiner, Cobert, Jahnigen, and Burton (1999) studied issues important to...
for gathering both quantitative and qualitative data in the use of complementary and alternative medicine. He gathered survey and interview data in the first strand, analyzed statistical population health data in the second strand, and analyzed interviews in the third strand. Fries (2009) concluded that “this study has presented a case study from the sociology of alternative medicine to show how, if a case study might provide a theoretical basis for mixed methods research oriented toward understanding the interplay of structure and agency in social behavior” (p. 349).

A Need Exists to Understand a Research Objective Through Multiple Research Phases

In projects that span several years and have many components, such as evaluation studies and multiyear health investigations, the researchers may need to connect several studies to reach an overall objective. These studies may involve projects that gather both quantitative and qualitative data simultaneously or gather the information sequentially. We can consider them multiphase or multi-project mixed methods studies. These projects often involve teams of researchers working together over many phases of the project. For example, Ames, Duke, Moore, and Cannon (2009) conducted a multiphase study of the drinking patterns of young U.S. military personnel during their first year of service. To understand the drinking patterns, they conducted a study over a 5-year period, gathered data to develop an instrument in one phase, and replicate their model in another phase, and to analyze their data through a final phase. Ames et al. (2009) presented a figure of the phases of their research over 5 years and introduced the implementation sequence this way:

The complexity of the resulting research design, consisting of both longitudinal survey data collection with a highly mobile population coupled with qualitative interviewing in diverse settings, required the formation of a methodologically diverse research team and a clear delineation of the temporal sequence by which qualitative and quantitative findings would be used to inform and enrich one another. (p. 130)

These scenarios serve to illustrate situations in which mixed methods research fits the problems under study. They also begin to lay the groundwork for understanding the designs of mixed methods that will be discussed later and the reasons authors cite for undertaking a mixed methods study. Although we cite a single reason for mixed methods in each illustration, many authors cite multiple reasons, and we recommend that aspiring (and experienced) researchers begin to take note of the rationales in published studies cited by authors for using mixed methods approaches.
Chapter 1. The Nature of Mixed Methods Research

Mixed methods research encourages the use of multiple worldviews, or paradigms (i.e., beliefs and values), rather than the typical association of certain paradigms with quantitative research and others for qualitative research. It also encourages us to think about a paradigm that might encompass all of quantitative and qualitative research, such as pragmatism. These paradigm changes will be discussed further in the next chapter.

Mixed methods research is “practical” in the sense that the researcher is free to use all methods possible to address a research problem. It is also “practical” because individuals tend to solve problems using both numbers and words, combine inductive and deductive thinking, and employ skills in observing people as well as recording behavior. It is natural, then, for individuals to employ mixed methods research as a preferred mode for understanding the world.

WHAT ARE THE CHALLENGES IN USING MIXED METHODS?

We must admit that mixed methods is not the answer for every researcher or every research problem. Its use does not diminish the value of conducting a study that is exclusively either quantitative or qualitative. It does, however, require having certain skills, time, and resources for extensive data collection and analysis, and perhaps, most importantly, educating and convincing others of the need to employ a mixed methods design so that a researcher’s mixed methods study will be accepted by the scholarly community.

The Question of Skills

We believe that mixed methods is a realistic approach if the researcher has the requisite skills. We strongly recommend that researchers first gain experience with both quantitative research and qualitative research separately before undertaking a mixed methods study. At a minimum, researchers should be acquainted with both quantitative and qualitative data collection and analysis techniques. This point was emphasized in our definition of mixed methods. Mixed methods researchers should be familiar with common methods of collecting quantitative data, such as using measurement instruments and closed-ended attitudinal scales. Researchers need an awareness of the logic of hypothesis testing and the ability to use and interpret statistical analyses, including common descriptive and inferential procedures available in statistical software packages. Finally, researchers need to understand essential issues of rigor in quantitative research, including reliability, validity, experimental control, and generalizability. In later chapters, we will delve into what constitutes a rigorous quantitative approach.
A similar set of qualitative research skills is necessary. Researchers should be able to identify the central phenomenon of their study; pose qualitative, meaning-oriented research questions; and to consider participants as the experts. Researchers should be familiar with common methods of collecting qualitative data, such as semistructured interviews using open-ended questions and qualitative observations. Researchers need basic skills in analyzing qualitative text data, including coding text and developing themes and descriptions based on those codes, and should be acquainted with a qualitative data analysis software package. Finally, it is important that researchers understand essential issues of persuasiveness in qualitative research, including credibility, trustworthiness, and common validation strategies.

Finally, those undertaking this approach to research should have a solid grounding in mixed methods research. This requires reading the literature on mixed methods that has accumulated since the late 1980s and noting the best procedures and the latest techniques for conducting a good inquiry. It may also mean taking courses in mixed methods research that are beginning to appear both online and in residence on many campuses. It may mean apprenticing with someone familiar with mixed methods who can provide an understanding of the skills involved in conducting this form of research.

The Question of Time and Resources

Even when researchers have basic quantitative and qualitative research skills, they should ask themselves if a mixed methods approach is feasible, given time and resources. These are important issues to consider early in the planning stage. Mixed methods studies may require extensive time, resources, and effort on the part of the researchers. Researchers should consider the following questions:

- Is there sufficient time to collect and analyze two different types of data?
- Are there sufficient resources from which to collect and analyze both quantitative and qualitative data?
- Are the skills and personnel available to complete this study?

In answering these questions, researchers must consider how long it will take to gain approval for the study, to gain access to participants, and to complete the data collection and analytic. Researchers should keep in mind that qualitative data collection and analysis often require more time than that needed for quantitative data. The length of time required for a mixed methods study is also dependent on whether the study will be using a one-phase, two-phase, or multiphase design. Researchers need to think about the expenses that will be part of the study. These expenses may include, for example, printing costs for qualitative instruments, recording and transcription costs for qualitative interviews, and the cost of qualitative and quantitative software programs.

Because of the increased demands associated with mixed methods designs, mixed methods researchers should consider working in teams. We realize that this is impractical for graduate students who are expected to work independently. If a team can be formed, however, it has the advantage of bringing together individuals with diverse methodological and content expertise and of involving more personnel in the mixed methods project. Working with a team can be a challenge. It can increase the costs associated with the research. In addition, individuals with the necessary skills need to be located, and team leaders need to create and maintain a successful collaboration among team members. However, the diversity of a team may be a strength because of enhanced communications among members representing different specialties and content areas.

The Question of Convincing Others

Mixed methods research is relatively new in terms of methodologies available to researchers. As such, others may not be convinced of or understand the value of mixed methods. Some may see it as a "new" approach. Others may feel that they do not have time to learn a new approach to research, and some may object to mixed methods on philosophical grounds regarding the mixing of different philosophical positions, as we will see in the next chapter. Still others might be so ensconced in their own methods and approaches to research that they might not be open to the possibility of mixed methods research.

One way to help convince others of the utility of mixed methods is to locate exemplary mixed methods studies in the literature on a topic or in a content area and share these studies to educate others. These studies can be selected from prestigious journals with a national and international reputation. How does a researcher find these mixed methods studies?

Mixed methods studies can be difficult to locate in the literature, because only recently have researchers begun to use the term mixed methods in their titles or in their methods' discussions. Also, some disciplines may use different terms for naming this research approach. Based on our extensive work with the literature, we have developed a short list of terms that we use to search for mixed methods studies within electronic databases and journal archives. These terms include:

- mixed method* (where * is a wildcard that will allow hits for "mixed method," "mixed methods," and "mixed methodology").
quantitative AND qualitative,
multimethod, and
survey AND interview.

Note that the second search term uses the logic operator AND (i.e., quantitative AND qualitative). This requires that both words appear in the document so it will satisfy the search criteria. If too many articles are found, try limiting the search so that the terms must appear within the abstract or restricting it to recent years. If not enough articles result, try searching for combinations of common data collection techniques, such as “survey AND interview.” By using these strategies, researchers may locate a few good examples of mixed methods research that illustrate the core characteristics introduced in this chapter. Sharing these examples with stakeholders can be helpful when convincing them of the utility and feasibility of a mixed methods approach.

**SUMMARY**

Before deciding on a mixed methods study, the researcher needs to consider several preliminary considerations about the nature of mixed methods research. First, the researcher needs some understanding as to what constitutes a mixed methods study to determine if this approach is the best to use for their particular study. Several core characteristics have been recommended: the collection and analysis of both quantitative and qualitative data; the mixing of the two types of data either by merging them, having one build on the other, or embedding one within the other; the emphasis or priority of one or both forms of data; the use of the two forms of data in a single study or a sustained line of research inquiry; the use of a philosophical or theoretical orientation that informs all aspects of the study; and the use of a specific type of mixed methods design for procedures. Most important in this list of characteristics is whether the research problem is one that fits mixed methods. Many topics and problems are suitable for mixed methods (e.g., violence has escalated in our schools or children have poor nutrition in their families). Consider if the research problem can be best addressed using mixed methods procedures. Some problems are best suited by using two data sources and collecting only one may provide an incomplete understanding. Another study may need a second database to help explain the first database. Another type of problem may require that the researcher first explore qualitatively before undertaking a quantitative study. Use a theoretical lens to study the problem, or conduct multiple phases of studies to build an overall understanding of the problem.

Chapter 1. The Nature of Mixed Methods Research

Not only are multiple data sources helpful in understanding research problems but there are other advantages of using mixed methods. The strength of one method may offset the weaknesses of the other. Using multiple sources of data simply provides more evidence for studying a problem than a single method of data. Oftentimes research questions are posed that require both an exploration as well as an explanation drawn from different data sources. Mixed methods also is well suited for interdisciplinary research that brings scholars together from different fields of study, and it enables researchers to employ multiple philosophical perspectives that guide their research. Finally, mixed methods is both practical and intuitive in that it helps offer multiple ways of viewing problems—something found in everyday living.

This does not mean that using mixed methods will be easy. It requires that the researchers have skills in several areas: quantitative research, qualitative research, and mixed methods research. Because of the extensive data collected, it takes time to gather data from both quantitative and qualitative sources, and it takes resources to fund these data collection (and data analysis) efforts. Perhaps most importantly, individuals planning a mixed methods study need to convince others of the value of mixed methods. It is a relatively new approach to inquiry, and it requires openness to using multiple perspectives in research. A search through the literature will yield good examples of mixed methods studies today, and these can be shared with important stakeholders to help educate them about mixed methods studies.

**ACTIVITIES**

1. Locate a mixed methods study in your field or discipline. Engage in these steps:
   a) Select your interest in the content of the articles, and focus instead on the research methods used.
   b) Review the core characteristics of a mixed methods study, and identify how the study represents a good mixed methods study because it addresses the core characteristics.

2. Consider the value of mixed methods research for different audiences, such as policy makers, graduate advisors, individuals with jobs in the workplace, and graduate students. Discuss the value for each audience.

3. Consider whether a mixed methods approach is feasible for your study. List out the skills, resources, and time that you have available for the project.
Consider designing a mixed methods project. State in your own words how you will define mixed methods research, mention why mixed methods is well suited to address your research problem, and cite both the advantages and challenges of using it as an approach to research.

**ADDITIONAL RESOURCES TO EXAMINE**

For definitions of mixed methods, consult the following resources:

For the rationale or purpose for using mixed methods to address problems, see the following resources:

For the advantages of mixed methods research, see the following resources:

For the skills needed to conduct mixed methods research, see the following resource:

**CHAPTER 2**

**THE FOUNDATIONS OF MIXED METHODS RESEARCH**

Prior to designing a mixed methods study, researchers need to consider more than whether their research problems or questions are best suited for mixed methods. They also should develop a deep understanding of mixed methods so that they can not only define and justify mixed methods and recognize its essential characteristics but also so that they can reference important works that have established this approach. This means understanding some of the history of mixed methods and key writings that have informed its development. Another step prior to designing a study is to understand what assumptions about knowledge and the acquisition of knowledge a researcher makes when selecting mixed methods. This understanding requires knowing philosophical assumptions. Finally, mixed methods researchers today often select a theory as a lens in their study, which threads through an entire study. Thus, an initial step in planning a mixed methods study is to give some consideration to whether a theory will be used in a study and how the theory is incorporated into a project.
This chapter reviews historical, philosophical, and theoretical foundations for planning and conducting a mixed methods study. In this chapter, we will address:

- the historical foundations of mixed methods,
- the philosophical assumptions made when choosing a mixed methods study; and
- theoretical lenses that may be used in mixed methods research.

HISTORICAL FOUNDATIONS

In planning a mixed methods project, researchers need to know something about its history, how it has evolved, and the current interest in mixed methods. Besides providing a definition for mixed methods, a mixed methods plan or study includes references to the literature, a justification for its use, and documentation about its previous use in a particular field of study. This all requires some knowledge of the historical foundations of mixed methods research, such as knowing when it began, who has been writing about it, and recent applications of its use.

When Did Mixed Methods Begin?

We often date the beginnings of mixed methods back to the late 1960s with the coming together of several publications all focused on describing and defining what is now known as mixed methods. Several writers working in different disciplines and countries all came to the same idea at roughly the same time. Writers from sociology in the United States (Brewer & Hunter, 1969) and in the United Kingdom (Fielding & Fielding, 1966), from evaluation (Greene, Caracelli, & Graham, 1989) in the United States, from management in the United Kingdom (Bryman, 1988), from nursing in Canada (Morse, 1991), and from education in the United States (Creswell, 1994) were sketching out the concept of mixed methods during the late 1980s to the early 1990s. All of these individuals were writing books, how-to chapters, and articles on an approach to research that moved beyond simply using quantitative and qualitative methods as distinct, separate strands in a study. They were giving serious thought to ways to link or combine these methods. The authors began a discussion about how to integrate, or “mix,” the data and their reasons for it; Bryman (2005) would pull these integrative approaches together several years later. The authors also discussed the possible research designs and the names for designs; Creswell and Plano Clark (2007) would later assemble a list of the classifications of types of design. A shorthand notation system was developed to convey these designs; Morse (1991) gave specific attention to the notation. Debates emerged about the philosophy behind this form of inquiry; Reichard and Ballis (1994) would make explicit the debate forming in the United States.

It is true that antecedents to these procedural and philosophical developments in mixed methods had taken form much earlier than the late 1980s (Creswell, in press-a). As early as 1959, Campbell and Fiske had discussed the inclusion of multiple sources of quantitative information in the validation of psychological traits. Others had advocated the use of multiple data sources—both quantitative and qualitative this time—to conduct scholarly studies (Denzin, 1978), and several well-known figures in qualitative research, such as Campbell (1974) and Grunbach (1975), advocated for the inclusion of qualitative data in quantitative experimental studies. The combination and interplay of survey research and fieldwork was a central feature in the writings of Sieber in 1973. In the field of evaluation, Patton, in 1980, suggested “methodological mixes” for experimental and naturalistic designs, and he advanced several diagrams to illustrate different combinations of these mixes. In short, these developments signaled key antecedents to what would later be more systematic attempts to forge mixed methods into a complete research design and to create a distinct approach to research (Creswell, in press-a).

Why Mixed Methods Emerged

A number of factors have contributed to the evolution of mixed methods research, as we know it today following the early 1990s period of research. The complexity of our research problems calls for answers beyond simple numbers in a quantitative sense or words in a qualitative sense. A combination of both forms of data provides the most complete analysis of problems. Researchers situate numbers in the contexts and words of participants, and they frame the words of participants with numbers, trends, and statistical results. Both forms of data are necessary today. In addition, qualitative research has evolved to a point where writers consider it a legitimate form of inquiry in the social and human sciences (see Denzin & Lincoln, 2005). On the other hand, quantitative researchers, we believe, recognize that qualitative data can play an important role in quantitative research. Quantitative researchers, in turn, realize that reporting only qualitative participant views of a few individuals may not permit generalizing the findings to many individuals. Audiences such as policy makers, practitioners, and others in applied areas need multiple forms of evidence to document and inform the research.
problems. A call for increased sophistication of evidence leads to a collection of both quantitative and qualitative data.

The Development of the Name

There has been much discussion about the name for this form of inquiry. During the past 50 years, writers have used different names, making it difficult to locate specific research studies that we would call “mixed methods” research. It has been called “integrated” or “combined” research, advancing the notion that two forms of data are blended together (Stekler, Marrow, Goodman, Bird, & McCormick, 1992), and it is sometimes called “qualitative and quantitative methods” (Fielding & Fielding, 1986), which acknowledges that the approach is actually a combination of methods. It has been called “hybrid” research (Ragin, Nagel, & White, 2004) or “methodological triangulation” (Morse, 1991), which recognizes the convergence of quantitative and qualitative data, “combined research” (Greswell, 1994), and “mixed methodology” which acknowledges that it is both a method and a philosophical worldview (Tashakkori & Teddlie, 1998). Along the same line, it has recently been called “mixed research” to reinforce the idea that this approach is more than simply methods and des into other facets of research, such as philosophical assumptions (Greswell & Leech, 2005). Today, we believe that the most frequently used name is “mixed methods research,” a name associated with the Handbook of Mixed Methods in Social and Behavioral Research (Tashakkori & Teddlie, 2002a, b) as well as with the SAGE journal, the Journal of Mixed Methods Research (JMMR). Although the term mixed methods is becoming increasingly used by a large number of social, behavioral, and human science scholars, its continued use will encourage researchers to see this approach as a distinct model of inquiry.

Stages in the Evolution of Mixed Methods

Our approach to mixed methods research has grown out of the work of others as well as the historical and philosophical discussions of the last several decades. For those designing and conducting mixed methods studies, a historical overview is not an idle exercise in recapping the past. Knowing this history helps researchers defend their use of this approach, justify their use of it as a research approach, and cite leading proponents of the approach in their “methods” discussions.

There have been several stages in the history of mixed methods (Tashakkori & Teddlie, 1998). Here we will review this history and organize it into five, often overlapping, time periods, as shown in Table 2.1.

<table>
<thead>
<tr>
<th>Selected Writers and Their Contributions to the Development of Mixed Methods Research</th>
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</thead>
<tbody>
<tr>
<td><strong>Stage of Development</strong></td>
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<tr>
<td>-----------------------------------------------</td>
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<tr>
<td>Formative period</td>
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<tr>
<td>Paradigm debate period</td>
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<tr>
<td>Procedural development period</td>
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(Continued)
<table>
<thead>
<tr>
<th>Period</th>
<th>Author(s) and Year</th>
<th>Contribution</th>
<th>Methodological Framework</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advocacy and expansion period</td>
<td>Tashakkori and Teddlie (1998)</td>
<td>Presented topical overview of mixed methods research</td>
<td>Critiqued mixed methods as marginalizing nonpositivist research methodologies and privileging the positivist tradition</td>
</tr>
<tr>
<td></td>
<td>Bamberg (2000)</td>
<td>Provided an international policy focus to mixed methods research</td>
<td>Critiqued the ways in which mixed methods research were described by mixed methods writers</td>
</tr>
<tr>
<td></td>
<td>Tashakkori and Teddlie (2003a)</td>
<td>Provided a comprehensive treatment of many aspects of mixed methods research</td>
<td>Interrogated the assumptions underpinning mixed methodology and its discourse using a postmodern perspective</td>
</tr>
<tr>
<td></td>
<td>Johnson and Owuvarhile (2004)</td>
<td>Positioned mixed methods research as a natural complement to traditional quantitative and qualitative research</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Creswell (2009c)</td>
<td>Compared quantitative, qualitative, and mixed methods approaches in the process of research</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Greene (2007)</td>
<td>Emphasized the rationales, purposes, and potential for mixing methods in social research and evaluation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Plano Clark and Creswell (2008)</td>
<td>Compiled published methodological and empirical studies in mixed methods</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Teddlie &amp; Tashakkori (2009)</td>
<td>Chronicled changes that have occurred over the past 5 to 10 years in mixed methods research</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Morse &amp; Niehaus (2009)</td>
<td>Argued for mixed methods designs that had a core component and a supplemental component</td>
<td></td>
</tr>
<tr>
<td>Reflective period</td>
<td>Tashakkori &amp; Teddlie (2003b)</td>
<td>Presented issues and priorities in the mixed methods field</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Greene (2008)</td>
<td>Identified four methodological domains and discussed what we know and what we need to know to consider mixed methods a distinctive methodology</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Creswell (2008a, 2008b, in press-b)</td>
<td>Developed a map of the mixed methods literature</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Howe (2004)</td>
<td>Critiqued mixed methods as constraining qualitative methods to a largely auxiliary role and failing to use qualitative research in an interpretive way</td>
<td></td>
</tr>
</tbody>
</table>
the links between the methods of data collection and the larger philosophical assumptions are not as tightly drawn as envisioned in the 1990s. Denzin and Lincoln (2005), for example, have advanced the idea that different types of methods can be associated with different types of worldviews or philosophies. Other perspectives have also developed, such as the situationalists, who adapted their methods to the situation, and pragmatists, who believed that multiple paradigms can be used to address research problems (Russman & Wilson, 1985). Although the issue of reconciling paradigms is still apparent (see the writings of Gutman, 2006; Holmes, 2006), calls have been made to embrace pragmatism as the best philosophical foundation for mixed methods research (see Tashakkori & Teddlie, 2003a) and to use different paradigms in mixed methods research but to honor each and be explicit about when each is used (Greene & Caracelli, 1997).

Procedural development period. Although the debate about which paradigms provide a foundation for mixed methods research has not disappeared, attention during the 1990s began to shift toward the procedural development period in the history of mixed methods in which writers focused on methods of data collection, data analysis, research designs, and the purposes for conducting a mixed methods study. In 1999, Greene et al. authored a classic article in the field of evaluation that laid the groundwork for mixed methods research design. In their article, they analyzed 57 evaluation studies, developed a classification system of five types, and talked about the design decisions that go into each of the types. Following this article, many authors have identified types of mixed methods designs. At roughly the same time, two sociologists, Brewer and Hunter (1989), contributed to the discussion by linking multimethod research to the steps in the process of research (e.g., formulating problems, sampling, and collecting data). Bryman (1988) also discussed the reasons for combining quantitative and qualitative data. By 1991, Morse, a nursing researcher, had designed a matrix system to convey how the quantitative and qualitative components of a study were implemented. Building on these classifications and matrices, writers began discussing specific types of mixed methods designs. For example, Creswell (1994) created a parsimonious set of three types of designs and found studies that illustrated each type. Morgan (1998) provided a decision matrix for determining the type of design to use, and books, such as those of Bamberger (2000), Newman and Benz (1998), and Tashakkori and Teddlie (1998), began to map the contours of mixed methods procedures in policy research and in attending to issues such as validity and inferences.

Advocacy and expansion period. In recent years, we have moved into an advocacy and expansion period in the history of mixed methods in which many authors have advocated for mixed methods research as a separate methodology, method, or approach to research, and interest in mixed methods has extended to many disciplines and many countries. We have become advocates for mixed methods as well, providing workshops on the topic to disciplines and fields seeking to learn more about this approach, and noting unfolding developments that span from conferences, to journals, to fields of study, and to international countries. Much growth in the field of mixed methods research has occurred since the publication of the 2003 768-page Handbook of Mixed Methods in Social & Behavioral Research (Tashakkori & Teddlie, 2003a), a compendium of writings including 26 chapters devoted to controversies, methodological issues, applications in different discipline fields, and future directions. As this handbook suggested back in 2003, we have seen much evidence for growth of interest in mixed methods through funding initiatives, publications, conferences, applications in different disciplines and countries. In the second edition of the handbook (Tashakkori & Teddlie, in press), the range of topics now has expanded to include 31 chapters and new writers to the field.

In funding initiatives, the National Institutes of Health (NIH) took the lead several years ago in discussing guidelines (National Institutes of Health, 1999) for "combined" quantitative and qualitative research, although these guidelines, as seen from the present-day perspective, are in need of a revision and update. In 2004, NIH held a workshop titled "Design and Conduct of Qualitative and Mixed-Methods Research in Social Work and Other Health Professions," which was sponsored by seven NIH institutes and two research offices. In 2003, the U.S. National Science Foundation (NSF) held a workshop on the scientific foundations of qualitative research with several papers devoted to the topic of combining quantitative and qualitative methods (Rajin et al., 2004). The National Research Council (2002) discussed scientific research in education and concluded that three questions need to guide inquiries: "Description—What is happening? Cause—Is there a systematic effect? And the process or mechanism—Why or how is it happening?" (p. 99). These questions, in combination, suggest both a quantitative and a qualitative approach to scientific inquiry. Private U.S. foundations, such as the Robert Wood Johnson Foundation and the W.T. Grant Foundation, have funded workshops on mixed methods research. In the United Kingdom, the Economic and Social Research Council (ESRC) has funded through its Research Methods Programme inquiries into the use of mixed methods research (Bryman, 2007). Plano Clark (2010) examined funded projects by the NIH and their use of the mixed methods terms in the proposal abstracts. Examining only the new
available in the field of evaluation (Greene et al., 1989), in higher education studies (Creswell, Goodchild, & Turner, 1996), in educational research (Johnson & Onwuegbuzie, 2004), in family medicine, physics education, and counseling psychology (Plano Clark, 2005), in four social science disciplines (Bryman, 2005), in marketing research (Harrison, 2010), in family research (Plano Clark, Huddleston-Casas, Churchill, Green, & Garrett, 2008), and in multicultural counseling research (Plano Clark & Wang, 2010).

There is increased use of mixed methods, as these journals indicate, in different discipline fields. Intervention researchers are incorporating qualitative data into their clinical trials in evidence-based medicine (see the discussion about mixed methods intervention trials, Creswell, Fetters, Plano Clark, & Morales, 2009). Although such experimental trials have raised questions about the subversion of qualitative research to the dominant, quantitative methodology in the health sciences (see Hsow, 2004), they do serve to bring qualitative research into the health sciences—where it has not gained much entry—in an acceptable manner to many investigators. Also, discipline-based approaches, such as geographic information systems (GIS) are being seen as applications of mixed methods procedures in fields, such as sociology (Fielding & Cisneros-Puebla, 2009). Books on mixed methods up until now have been general in scope, aimed broadly at the social or health sciences (e.g., Creswell, 2009c; Creswell & Plano Clark, 2007; Greene, 2007; Morse & Niehaus, 2009; Plano Clark & Creswell, 2008; Teddlie & Tashakkori, 2009).

More recently, discipline-based books on research methods and mixed methods have emerged with a chapter on mixed methods or with the entire book focused on mixed methods, such as in media and communication (Berger, 2000), education and psychology (Mertens, 2005), social work (Engel & Schutt, 2009), family research (Greenstein, 2006), and nursing and the health sciences (Andrew & Halcomb, 2009).

On the international scene, interest has grown in mixed methods in many countries around the world. Recent publications in JMMR attest to strong international participation from such countries as Sri Lanka (Nastasia et al., 2007), Germany (Bernardi, Reim, & von der Lippe, 2007), Japan (Fetters, Yabokita, Groenberg, Gorenflo, & Yeo, 2007), and the United Kingdom (O’Cathein, Murphy, & Nicholl, 2007). The Mixed Methods Conference, now hosted by Leeds University in the United Kingdom and based in England, has completed five successful conferences. Over the years, American scholars have been involved in this conference, thus lessening the ‘Atlantic gap’ that often occurs between the U.S. academics and those from other countries. An international community is forming around mixed methods, with discussions about the quantitative and qualitative skills needed to undertake this form of inquiry and the need, especially in countries such as South Africa (Olivier,
de Lange, Creswell, & Wood, 2010), for involvement of individuals with quantitative skills amidst the preponderance of qualitative talent. Such an international community is also assembling through conference groups, such as the Special Interest Group on Mixed Methods Research formed in the American Educational Research Association. Its initial meeting was held in April 2005 in Montreal, Canada. In addition, SAGE Publications has started an online network, Methodspace, to link researchers, including mixed methods scholars, worldwide (see http://www.methodspace.com/group/mixedmethodresearchers).

For teaching about mixed methods, courses have developed on college and university campuses encouraged by commentary about the content and instructional approaches of the courses (Creswell, Tashakkori, Jenson, & Shapley, 2003), teaching graduate students to learn, use, and appreciate both quantitative and qualitative research within a mixed methods framework (Onwuegbuzie & Leech, 2009) and identifying the strengths, challenges, and lessons learned from teaching such courses (see Christ, 2009). Several international online mixed methods courses are now available, offered in the United States at the University of Nebraska-Lincoln (UNL), the University of Arkansas, and the University of Alabama at Birmingham. Articles such as Christ’s (2009) highlight the importance of examining pedagogical issues.

Reflective period. We feel that in the last 5 to 7 years, mixed methods has entered into a new historical period. This reflective period in the history of mixed methods is characterized by two intersecting themes: (1) a current assessment of the field and a look into the future and (2) constructive criticisms challenging the emergence of mixed methods and what it has become.

Three discussions have appeared in recent years that help to map the current stage of the field of mixed methods: Creswell (2008a, 2008b), Greene (2008), and Tashakkori and Teddlie (2003b). The issues and topics in these three discussions are summarized in Table 2.2. The first discussion was presented by Tashakkori and Teddlie (2003b) in the beginning and ending chapters of the first edition of their handbook. It detailed five major unresolved issues and controversies in the use of mixed methods in social and behavioral research. A few years later, Greene (2008) published an analysis of key domains in mixed methods in the JMBR based on a keynote address presented to the Mixed Methods Special Interest Group at the American Educational Research Association in 2007. In setting forth her domains, Greene (2008) asked, “What important questions remain to be engaged?” and raised questions about “priorities for a mixed methods research agenda” (p. 8). Creswell’s (2008a) mapping of topics in the field of mixed methods was first presented as a keynote address to the 2008 Mixed Methods Conference.
<table>
<thead>
<tr>
<th>Procedures domain</th>
<th>Design issues in mixed methods research</th>
<th>How can mixed methods design be conceptualized (stages of research as conceptualization, method, and inference)?</th>
<th>Inquiry logics</th>
<th>What are the particular strengths and limitations of various methods of data collection?</th>
<th>Techniques of mixed methods</th>
</tr>
</thead>
</table>

- False distinction between qualitative and quantitative research
- Thinking in a mixed methods way—mental models
- Unusual blends of methods
- Joint displays of quantitative and qualitative data
- Longitudinal, evaluation studies
- Transforming qualitative data into counts
- Process steps of research (theory, questions, sampling, interpretation)

<table>
<thead>
<tr>
<th>Adoption and use domain</th>
<th>The logistics of conducting mixed methods research</th>
<th>What is involved in collaborating on a mixed methods project?</th>
<th>Guidelines for practice</th>
<th>What are the unique aspects of mixed methods practice that deal specifically with mixing?</th>
<th>Adoption and use of mixed methods</th>
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<tr>
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<td></td>
<td>Fields and disciplines using it</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Team approaches</td>
</tr>
</tbody>
</table>
Chapter 2. The Foundations of Mixed Methods Research

at Cambridge University in England. He compared papers being presented at the conference with his developing understanding of the field called from over 300 submissions during three years as coordinator and co-founder of JMIR. From this conference presentation, he then drafted a shorter version as an editorial for JMIR focusing on a few specific issues (Creswell, 2008).

As shown in Table 2.2, there are some common themes appearing across all three writings. These themes are foundational issues, the procedures in conducting a mixed methods study, and the adoption and use of mixed methods. As for the philosophical issues, all three discussions point to understanding the foundational foundations of mixed methods, with the last recent writings (Creswell, 2008a, 2009b; Greene, 2008) focusing much more on the practice of using philosophical perspectives in mixed methods studies (e.g., how to combine them, how they influence inquiry decisions).

In terms of procedures, Tashakkori and Teddlie (2003b) focused on the broader design issues, while Greene (2008) and Creswell (2008a, 2009a) went into the detailed areas of methods. This analysis suggests that discussions are becoming more analytic about how to conduct a study. This reinforces the assumption that many of us hold that the techniques of conducting mixed methods research have received considerable attention in the field. On the adoption and use of mixed methods, while the earlier discussions by Tashakkori and Teddlie (2003b) focused on collaboration and teaching mixed methods, the more recent writings by Greene (2008) and Creswell (2008a, 2009b) have examined increased use of mixed methods by new disciplines and across fields of inquiry practice. This analysis does suggest the trend of mixed methods spreading to many fields and being adapted to suit unique discipline approaches to research methodology.

As these writings indicate, the growth and interest in mixed methods has accelerated in recent years. It is not surprising, then, that it has drawn attention from individuals willing to challenge and critique its approaches. In the field of education, Howe (2004) addressed whether mixed methods privileged postpositivist thinking and marginalized qualitative interpretive approaches. His concern was mainly directed toward the National Research Council (2002), mentioned earlier, and how their report assigned a prominent role to quantitative experimental research and a lesser role to qualitative interpretive research. Within this schema—which he called "mixed methods experimentalism" (p. 53)—not only was qualitative research limited to an auxiliary role but it also minimized the use of qualitative research in an interpretive role that included voices of stakeholders and dialogue.

From the field of nursing research have come several critiques. Giddings (2006), from New Zealand, challenged the claims made by mixed methods writers about inclusiveness and about how qualitative and quantitative methods
would produce the “best of both worlds” (p. 195). She also challenged the use of binary terms in mixed methods, such as qualitative and quantitative, which reduced methodological diversity, the use of mixed methods as a “cover” for the concerning hegemony of positivism, and the use of mixed methods as a “quick fix” in response to economic and administrative pressures (p. 195). An Australian, Holmes (2000), also in nursing, critiqued the way in which mixed methods was being described. Like the others, he was concerned about the marginalization of qualitative interpretive frameworks in mixed methods and recommended that the mixed methods community provide a clearer concept of their terms and include a qualitative interpretive framework.

Another voice from nursing, Freshwater (2003), provided a postmodern critique of mixed methods. She was concerned about how mixed methods was being “read” and the discourse that followed. Discourse was defined as a set of rules or assumptions for organizing and interpreting the subject matter of an academic discipline or field of study in mixed methods. The unreflective acceptance of mixed methods as an emerging dominant discourse (“is reaching becoming a metanarrative,” Freshwater, 2003, p. 139) impacts how it is located, positioned, presented, and perceived. Freshwater (2003) called on mixed methods to move away from “juxtaposing and moving toward understandability” (p. 137), citing as examples the objective third-person style of writing, the lack of fluidity, and the disallowance for competing interpretations to coexist. She requested that mixed methods researchers adopt a “sense of incompleteness” (p. 138) and recommended that reforms require a

<table>
<thead>
<tr>
<th>Eleven Key Controversies and Questions Being Raised in Mixed Methods Research</th>
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</thead>
<tbody>
<tr>
<td>Question</td>
</tr>
<tr>
<td>1. The changing and expanding definitions of mixed methods research</td>
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<td>2. The questionable use of qualitative and quantitative descriptors</td>
</tr>
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<td>3. Is mixed methods a “new” approach to research?</td>
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<tr>
<td>4. What drives the interest in mixed methods?</td>
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<td>5. Is the paradigm debate still being discussed?</td>
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<tr>
<td>6. Does mixed methods privilege postpositivism?</td>
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<tr>
<td>7. Is there a fixed discourse in mixed methods?</td>
</tr>
<tr>
<td>8. Should mixed methods adopt a bilingual language for its terms?</td>
</tr>
<tr>
<td>9. Are there too many confusing design possibilities for mixed methods procedures?</td>
</tr>
<tr>
<td>10. Is mixed methods research misappropriating designs and procedures from other approaches to research?</td>
</tr>
<tr>
<td>11. What value is added by mixed methods beyond the value gained through quantitative or qualitative research?</td>
</tr>
</tbody>
</table>

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PHILOSOPHICAL FOUNDATIONS

Just as mixed methods has a history that can be chronicled, it also has a philosophy or perhaps philosophies that provide a foundation for conducting research. In fact, all research has a philosophical foundation, and inquiries should be aware of assumptions they make about gaining knowledge during their study. These assumptions shape the processes of research and the conduct of inquiry. Knowledge of these assumptions is especially important for graduate students who need to be able to identify and articulate the assumptions that they bring to research. Granted, philosophical assumptions often do not become explicit statements in published journal articles or books, but they do frequently arise at conference presentations or in graduate student committee meetings. As a general rule, we suggest that mixed methods researchers not only be aware of these assumptions but also clearly articulate their assumptions in their mixed methods projects.

What is involved in articulating philosophical assumptions in a mixed methods study? We believe that it includes acknowledging the worldviews providing a foundation for the study, describing the elements of the worldview, and relating these elements to specific procedures in a mixed methods project.

Philosophy and Worldviews

A framework is needed for thinking about how philosophy fits into the design of a mixed methods study. We like to use Crotty's (1998) conceptualization (as adapted) to position philosophy within a mixed methods study. As shown in Figure 2.1, Crotty contends that there are four major elements in developing a proposal or designing a study. At the broadest level are the issues of philosophical assumptions, such as the epistemology behind the study or how researchers gain knowledge about what they know. These philosophical assumptions, in turn, inform the use of a theoretical “stance” that the researcher might use (later we will refer to these stances as lenses drawn from social science theory or emancipatory theory). This stance then informs the methodology used, which is a strategy, a plan of action, or a research design. Finally, the methodology incorporates the methods, which are techniques or procedures used to gather, analyze, and interpret the data.

As we discussed in Chapter 1, mixed methods is largely a method, but it also involves a strategy for conducting research, and it could therefore be assigned in Crotty's classification at the level of a methodology.

Surrounding a mixed methods project, then, are philosophical assumptions that operate at a broad, abstract level. Philosophical assumptions in mixed methods research consist of a basic set of beliefs or assumptions that guide inquiries (see Guba & Lincoln, 2005). A term that we would use to describe these assumptions is worldview, and we say that mixed methods researchers bring to their inquiry a worldview composed of beliefs and assumptions about knowledge that informs their study. A term that is often used synonymously with worldview would be paradigm. Going back to the original use of the term by Thomas Kuhn (1970), a paradigm is a set of generalizations, beliefs, and values of a community of specialists. Although Kuhn himself pointed out the many uses of paradigm, the term that we favor is worldview, which may or may not be associated with a specific discipline or community of scholars but which suggests the shared beliefs and values of researchers. The most noted work on worldviews is available in qualitative research (Guba & Lincoln, 2005), but philosophical discussions are available for quantitative approaches as well (Phillips & Burbules, 2000). Most of these writings are by authors from the fields of social foundations of research.
or the philosophy of education (for overviews of many different worldviews in research, see Guha & Linna, 2005; Paul, 2005; Silke & Williams, 1995).

What worldviews might inform the practices of mixed methods researchers? Various writers have offered worldview possibilities, but we feel that four possible worldviews can inform mixed methods research. Like Cratty (1998), who holds that these different stances are not "watertight compartments" (p. 9), these worldviews provide a general philosophical orientation to research and, as we see later, they can be combined or used individually.

The four worldviews in Table 2.4 provide a good starting point. Postpositivism is often associated with quantitative approaches. Researchers make claims for knowledge based on (1) determinism or cause-and-effect thinking; (2) reductionism, by narrowing and focusing on select variables to produce results with clear meaning and measure of variables; and (4) testing of theories that are continually refined (Silke & Williams, 1995).

Constructivism, typically associated with qualitative approaches, works from a different worldview. The understanding or meaning of phenomena, formed through participants and their subjective views, make up this worldview. When participants provide their understandings, they speak from meanings shaped by social interaction with others and from their own personal histories. In this form of inquiry, research is shaped "from the bottom up"—from individual perspectives to broad patterns and, ultimately, to broad understandings.

**Table 2.4. Basic Characteristics of Four Worldviews Used in Research**

<table>
<thead>
<tr>
<th>Philosophical Worldview</th>
<th>Constructivist Worldview</th>
<th>Participatory Worldview</th>
<th>Pragmatist Worldview</th>
</tr>
</thead>
<tbody>
<tr>
<td>Determinism</td>
<td>Understanding</td>
<td>Political</td>
<td>Consequences of actions</td>
</tr>
<tr>
<td>Reductionism</td>
<td>Multiple participant meanings</td>
<td>Empowerment and issue oriented</td>
<td>Problem centered</td>
</tr>
<tr>
<td>Empirical observation and measurement</td>
<td>Social and historical construction</td>
<td>Collaborative</td>
<td>Pluralistic</td>
</tr>
<tr>
<td>Theory verification</td>
<td>Theory generation</td>
<td>Change oriented</td>
<td>Real-world practice oriented</td>
</tr>
</tbody>
</table>

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Participatory worldviews are influenced by political concerns, and this perspective is more often associated with qualitative approaches than quantitative approaches, although it does not always have this association. The need to improve our society and those in it characterizes these views. Issues such as empowerment, marginalization, hegemony, patriarchy, and other issues affecting marginalized groups need to be addressed, and researchers collaborate with individuals experiencing these injustices. In the end, the participatory researcher plans for the social world to be changed for the better, so that individuals will feel less marginalized. A final worldview, pragmatism, is typically associated with mixed methods research. The focus is on the consequences of research, on the primary importance of the question asked rather than the methods, and on the use of multiple methods of data collection to inform the problems under study. Thus, it is pluralistic and oriented toward "what works" and practice.

All four worldviews have common elements but take different stances on these elements. Worldviews differ in the nature of reality (ontology), how we gain knowledge of what we know (epistemology), the role values play in research (axiology), the process of research (methodology), and the language of research (rhetoric) (Creswell, 2009c; Lincoln & Guba, 2000). These different stances influence how researchers conduct and report their inquiries. Examples of these common elements, the different worldviews, and how the elements and worldviews are translated into practice are shown in Table 2.5. Ontology refers to the nature of reality (and what is real) when researchers conduct their inquiries. The postpositivist tends to view reality as singular. An example would be a theory that hovers above the research study and helps to explain (in a single reality) the findings in the study. Another illustration would be the postpositivist tendency to reject or fail to reject a hypothesis. On the other hand, the constructivist views reality as multiple and actively looks for multiple perspectives from participants, such as perspectives developed through multiple interviews. The participatory researcher finds reality always negotiated and cast within a political context, while the pragmatist views reality as both singular (e.g., there may be a theory that operates to explain the phenomenon of study) as well as multiple (e.g., it is important to assess varied individual input into the nature of the phenomenon as well).

As another example of differences among the worldviews, consider the methodological differences (i.e., the process of research). In postpositivist research, the investigator works from the "top down," from a theory to hypotheses to data to add to or contradict the theory. In constructivist approaches, the inquirer works more from the "bottom up," using the participants' views to build broader themes and generate a theory interconnecting
<table>
<thead>
<tr>
<th>Worldview</th>
<th>Reality</th>
<th>Constructivism</th>
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</thead>
<tbody>
<tr>
<td>Ontology (What is the nature of reality?)</td>
<td>Singular reality (e.g., researchers reject or fail to reject hypotheses)</td>
<td>Multiple realities (e.g., researchers provide quotes to illustrate different perspectives)</td>
<td>Political reality (e.g., findings are negotiated with participants)</td>
<td>Singular and multiple realities (e.g., researchers test hypotheses and provide multiple perspectives)</td>
</tr>
<tr>
<td>Epistemology (What is the relationship between the researcher and that being researched?)</td>
<td>Distance and impartiality (e.g., researchers visit participants at their sites to collect data)</td>
<td>Closeness (e.g., researchers actively involve participants as collaborators)</td>
<td>Collaboration (e.g., researchers actively involve participants as collaborators)</td>
<td>Practicality (e.g., researchers collect data by “what works” to address research question)</td>
</tr>
<tr>
<td>Axiology (What is the role of values?)</td>
<td>Unbiased (e.g., researchers use checks to eliminate bias)</td>
<td>Biased (e.g., researchers actively talk about their biases and interpretations)</td>
<td>Negotiated (e.g., researchers negotiate their biases with participants)</td>
<td>Multiple stances (e.g., researchers include both biased and unbiased perspectives)</td>
</tr>
<tr>
<td>Methodology (What is the process of research?)</td>
<td>Deductive (e.g., researchers test an a priori theory)</td>
<td>Inductive (e.g., researchers start with participants’ views and build “up” to patterns, theories, and generalizations)</td>
<td>Participatory (e.g., researchers involve participants in all stages of the research and engage in cyclical reviews of results)</td>
<td>Combining (e.g., researchers collect both quantitative and qualitative data and mix them)</td>
</tr>
<tr>
<td>Rhetoric (What is the language of research?)</td>
<td>Formal style (e.g., researchers use agreed-on definitions of variables)</td>
<td>Informal style (e.g., researchers write in a literary, informal style)</td>
<td>Advocacy and change (e.g., researchers use language that will help bring about change and advocate for participants)</td>
<td>Formal or informal (e.g., researchers may employ both formal and informal styles of writing)</td>
</tr>
</tbody>
</table>

Chapter 2: The Foundations of Mixed Methods Research

Up until this point, we have reviewed four different worldviews and discussed how they might differ in terms of broad philosophical elements of ontology, epistemology, axiology, methodology, and rhetoric. Which worldview best fits a mixed methods study? Answers to this question have occupied the attention of mixed methods researchers for some time (Tashakkori & Teddlie, 1998, 2003a), and their responses have varied. In designing and conducting mixed methods research, researchers need to know the alternative stances on worldviews and mixed methods research and to be able to articulate the stance they are using. They might convey their stance in a separate section of a project, titled “philosophical assumptions” or in the methods section of their plan or study. Mixed methods researchers might consider which of the following four stances best relate to their studies and convey the stance that they have embraced in the philosophical assumptions section of their study.

One “best” worldview for mixed methods. Although some individuals still seek to participate in the paradigm debate, many mixed methods writers have moved on to identify the “best” worldview that provides a foundation for mixed methods research. Tashakkori and Teddlie (2003a) suggested that at least 13 different authors embrace pragmatism as the worldview or paradigm for mixed methods research. Although we have already introduced pragmatism, because of its importance, it merits further discussion.

Pragmatism is a set of ideas articulated by many people, from historical figures, such as John Dewey, William James, and Charles Sanders Peirce, to contemporaries, such as Cherryholmes (1995) and Murphy (1999). It draws on many ideas, including employing “what works,” using diverse approaches, and valuing both objective and subjective knowledge. Tashakkori and Teddlie (2003a) formally linked pragmatism and mixed methods research, arguing the following points:

- Both quantitative and qualitative research methods may be used in a single study.
The research question should be of primary importance—more important than either the method or the philosophical worldview that underlies the method.

- The forced-choice dichotomy between postpositivism and constructivism should be abandoned.
- The use of metaphysical concepts such as “truth” and “reality” should also be abandoned.
- A practical and applied research philosophy should guide methodological choices.

Another “best” paradigm approach is found in the transformative—emanicipatory paradigm of Mertens (2003; see also Sweezen, Badree, & Creswell, 2010). Mertens (2003) provided an original, insightful contribution to the mixed methods literature by bridging the philosophy of inquiry (i.e., paradigms) with the practice of research. In discussing this perspective, she said.

Transformative ... scholars recommend the adoption of an explicit goal for research to serve the ends of creating a more just and democratic society that permeates the entire research process, from the problem formulation to the drawing of conclusions and the use of results. (Mertens, 2003, p. 159)

Indeed, Mertens (2003) has given us a framework that has immediate applicability for assessing the inclusion of an emancipatory perspective in mixed methods studies. She has suggested that the name for this framework is the “transformative” framework and that it includes a person’s worldview and implicit value assumptions. These assumptions are that knowledge is not neutral and is influenced by human interests. Knowledge reflects the power and social relationships within society, and the purpose of knowledge construction is to aid people to improve society. Issues, such as oppression and domination—found in critical theory perspectives—become important to study. She cited several groups that have extended the thinking about the place of values in research, including feminists, members of diverse ethnic and racial groups, and people with disabilities (Mertens, 2003). By 2009, Mertens expanded her list of marginalized groups to also include lesbian, gay, bisexual, transgender, and queer communities and enlarged her theoretical perspectives to include positive psychology and resilience theory.

The critical realist perspective is also being discussed as a potential contribution to mixed methods research (Maxwell & Mitropalli, in press). It is a philosophical perspective that validates and supports key aspects of both quantitative and qualitative approaches. While identifying some specific limitations of each, realism, they contended, can constitute a productive stance for mixed methods research and facilitate collaboration between quantitative and qualitative researchers. They discussed critical realism as an integration of a realistic ontology (there is a real world that exists independently of our perceptions, theories, and constructions) with a constructivist epistemology (our understanding of this world is inevitably a construction from our own perspectives and standpoint). The authors, however, acknowledged that explicit use of realist perspectives in mixed methods research was still relatively uncommon except in Europe (and cited examples in accounting, economics, psychiatry, and nursing). We would add that it confounds the use of theory and the use of paradigms since “critical” is often associated with a theoretical lens more than a worldview and that it offers a challenge to the status quo (see the next section on the use of theoretical lens).

Multiple worldviews in mixed methods. This position states that multiple paradigms may be used in mixed methods research; researchers must simply be explicit in their use. This “dialectical” perspective (Greene & Caranci, 1997) recognizes that different paradigms give rise to contradictory ideas and contested arguments—features of research that are to be honored but cannot be reconciled. These contradictions, tensions, and oppositions reflect different ways of knowing about and valuing the social world. This stance emphasizes using multiple worldviews (e.g., constructivism and participatory) during the study instead of using a single worldview, such as pragmatism.

Worldviews relate to the type of mixed methods design. In this third stance, a stance we embrace, we suggest that more than one worldview might be used in a mixed methods study (in contrast to Stance 1), and that the selection of multiple worldviews relate to the type of mixed methods design used rather than a worldview based on how the researcher attempts to “know” the social world (as stated in Stance 2). We believe that multiple paradigms can be used in a mixed methods study and that they best relate to type of mixed methods designs. Although a worldview is not always “linked” to procedures in research, the guiding assumptions of worldviews often shape how mixed methods researchers conduct their procedures. Qualitative methods (e.g., surveys, experiments) are typically used within a postpositivist worldview in which some guiding determining theory is advanced at the beginning, and the study is delimited to certain variables that are empirically measured and observed. Therefore, if a study begins with a survey, the researcher is implicitly using a postpositivist worldview to inform the study beginning with specific variables, empirical measures, and often framed within a prior theory that is being tested in the survey project.
Chapter 2. The Foundations of Mixed Methods Research

Referring back to Cratty’s (1998) model in Figure 2.1, we find theory operating at a narrower perspective than worldview. A theoretical foundation in mixed methods is a stance (or lens or standpoint) taken by the researcher that provides direction for many phases of a mixed methods project. How does the researcher incorporate it into a study? What type of theory might the researcher use? We see two types of theory that might inform a mixed methods study: a social sciences theory and an emancipatory theory.

A theoretical orientation for a mixed methods study would be the use of an explanatory framework from the social sciences that predicts and shapes the direction of a research study. A social science theory is positioned at the beginning of a mixed methods study, and it provides a framework or theory from the social sciences that guides the nature of the questions asked and answered in a study. The data collected may be either quantitative or qualitative or both. This theory may be a leadership theory, an economic theory, a marketing theory, a theory of behavioral change, a theory of adoption or diffusion, or any number of social science theories. It may be presented as a literature review, as a conceptual model, or as a theory that helps to explain what the researcher seeks to find in a study.

An example of a social science theory can be found in a mixed methods study about chronic pain and its management through learned resourcefulness by Kennett, O’Hagan, and Cooze (2008). These authors presented a mixed methods study to understand how learned resourcefulness empowers individuals. In this study, they gathered measures on Rosenbaum's...
Self-Control Schedule (SCS) and through interviews with patients coping with chronic pain. In the opening paragraph of their study, they advanced the purpose of their study:

Taking a critical realist perspective informed by Rosenbaum’s (1990, 2000) model of self-control, we combine a quantitative measure of learned resourcefulness with a qualitative text-based analysis to characterize the processes that come into play in the self-management of pain for high- and low-resourceful clients following a multimodal treatment-based pain program. (Kennett et al., 2006, p. 318)

Rosenbaum’s model was used because it challenged the status quo about health programs, as well as stimulated the transformation of practice. The authors first introduced the major components of Rosenbaum’s model. This was followed by the research literature on resourcefulness as an important predictor of adopting healthy behavior and a discussion of one of Rosenbaum’s experiments relating resourcefulness to coping with pain. The authors discussed the factors of the model leading to self-control, such as factors related to process-regulating cognitions (e.g., supporting family and friends), coping strategies (e.g., ability to cope with pain), such as diverting attention and reinterpretation, and staying in (or dropping out of) programs. The authors at this point might have drawn a diagram of these factors that influenced self-control as a guiding theoretical framework for their theory. They provided next, however, a series of questions drawn from Rosenbaum’s model and the literature that guided their study examining the impact of a cognitive-behavioral chronic pain management program on self-management and how resourcefulness and a sense of self-directedness influence self-management skills for chronic pain. Toward the end of the article, they revisited the factors leading to self-management and provide a diagram of the most salient factors.

Stepping back from this discussion, we can see how a mixed methods researcher might incorporate a social science theoretical lens into a mixed methods study (see Creswell, 2009c):

- Include a diagram of the theory that indicates the direction of the causal links in the theory and the major concepts, or variables, in the theory.
- Have the theory provide a framework for both the quantitative and the qualitative data collection efforts in the study.

In contrast to a social science theory as a guiding explanation in a mixed methods study, an emancipatory theory in mixed methods involves taking a theoretical stance in favor of underrepresented or marginalized groups, such as a feminist theory, a racial or ethnic theory, a sexual orientation theory, or a disability theory (Mertens, 2009) and calling for change. With one goal of qualitative research to address issues of social justice and the human condition (Denzin & Lincoln, 2005), this emphasis has come to be expected from some scholars in mixed methods research. However, not a couple of years ago that few studies incorporated this theoretical emancipatory lens (Creswell & Pano Clark, 2007). Today, mixed methods studies with an emancipatory lens are becoming more frequently reported in the mixed methods literature. For example, recent mixed methods studies have addressed topics such as African American girls’ interest in science (Buck, Cook, Quigley, Eastwood, & Lucas, 2009), women’s social capital in Australia (Hodgkin, 2008), and women’s understanding of community-specific rape myths (McMahon, 2007). Methodological writings about linking feminist standpoint epistemology to mixed methods have also been recently published (Hesse-Biber & Leavy, 2006).

From a review of articles incorporating an emancipatory lens, we can see numerous examples as to how to incorporate this lens into a mixed methods study. A recent study analyzed 13 mixed methods studies (Sweetman, Bailey, & Creswell, 2010) that incorporated an emancipatory theoretical lens. Results showed a wide variety of social science journals that published these studies (e.g., Women and Health, Families in Society, Social Work Research, Urban Studies), and six different theoretical lenses were used by the authors. Feminism was the most common (six studies), with socioeconomic status as the next (two studies), followed by disability, human ecology, and general gender. Some articles spanned multiple social categorizations, such as income, ethnicity, and gender. From reviewing these studies, the authors made recommendations for incorporating an emancipatory lens into a mixed methods study:

- Introduce the emancipatory lens at the beginning of the study.
- Apply it when discussing the literature.
- Make it explicit in discussing the research problem.
Write it into the research questions using emancipatory, advocacy language.
Discuss collecting data in a way that will not further marginalize the community.
Position the researchers in the study.
Suggest a plan of action or change to end the study.

Even with these suggestions, more work needs to be done to establish how the procedures of mixed methods might change depending on the type of emancipatory lens used (e.g., feminist, racial). As more methods studies begin incorporating an emancipatory lens, we can learn more about how to include such a lens and the variety of studies that use this type of theoretical lens.

SUMMARY

In planning a mixed methods study, researchers need to cite references to the latest literature, justify its use, and recognize how their study fits into the evolving field of mixed methods research. Although some of the elements of mixed methods approaches were evident prior to the 1980s, several writers from different disciplines and different countries came to the idea of mixed methods at roughly the same time—the late 1980s. Thus, the field is a little over 20 years old, and it has evolved because of the complexity of research problems, the legitimization of qualitative inquiry, and the need for more evidence in applied settings. Its evolution has gone through five phases: (1) the formative period of considering multiple forms of data; (2) the paradigm debate period in which heated discussions occurred about whether mixed methods appropriately integrated different philosophical perspectives; (3) the procedural phase in which writers pushed for increased understanding about conducting a mixed methods study; (4) the advocacy and expansion phase in which writers suggested mixed methods was a distinct methodology and its popularity spread to diverse disciplines and different countries around the world; and (5) the current reflective phase in which writers discussed the priorities, issues, and controversies surrounding mixed methods research.

Further, researchers bring to their mixed methods study philosophical assumptions that need to be made explicit and discussed. Researchers need to acknowledge the philosophical worldview they bring to a project, identify the components of their worldview, and relate them to the specific elements of their mixed methods study. Worldviews are beliefs and values that researchers bring to a study, and they may be drawn from at least one or more perspectives, such as postpositivism, constructivism, participatory worldviews, and pragmatism. The elements for each worldview differ, and they are reflected in different philosophical assumptions, such as ontology, epistemology, axiology, methodology, and rhetoric. In response to these philosophical ideas, mixed methods researchers have taken different stances of the use of worldviews in their research. Some believe that there is a single worldview that informs mixed methods, such as pragmatism, transformative approaches, or critical realism. Others hold that multiple worldviews can inform a mixed methods study and that the choice of worldview is related to the type of mixed methods design chosen. A recent stance is that worldviews form within scholarly communities and that they may vary from community to community. Regardless of worldview, the assumptions behind a mixed methods study need to be identified and stated in mixed methods projects.

Mixed methods researchers may also use a theoretical lens in their study, one drawn from social sciences theories or from an emancipatory perspective, such as a feminist, disability, or ethnic viewpoint. Social science theories are often positioned at the beginning of a mixed methods study, and they inform the questions asked and the interpretation of the results. Empirical theories are often threaded throughout a project, and they inform the lens being used, the types of research questions asked, the procedures used in data collection, and the call for action advanced at the end of studies.

ACTIVITIES

1. Do a search of the literature using databases to find books and articles on mixed methods research. Note recent writers who describe the essential characteristics of mixed methods research. Compile a list of authors who you would cite as recent writers about mixed methods as you define mixed methods in your study.
2. What philosophical worldview(s) will inform your mixed methods study? Identify one or more worldviews, discuss the elements that comprise the worldviews, and state specifically how the worldview will inform the conduct of your mixed methods research study.
3. Select a mixed methods study with a feminist lens and analyze it. Look at the article by McMahon (2007) on understanding community-specific rape myths. Identify how the authors incorporated a feminist lens into the research problem, the research questions, the data collection, and in the call for change or action at the end of the article.
For a historical analysis of mixed methods research, consult the following resources:


For a discussion of philosophical worldviews related to mixed methods research, see the following resources:


For discussions of the use of a theoretical lens in mixed methods research, see the following resources:


R esearch designs are procedures for collecting, analyzing, interpreting, and reporting data in research studies. They represent different models for doing research, and these models have distinct names and procedures associated with them. Research designs are useful, because they help guide the methods decisions that researchers must make during their studies and set the logic by which they make interpretations at the end of their studies. Once the researcher has identified that the research problem calls for a mixed methods approach and reflected on the philosophical and theoretical foundations of the study, the next step is to choose a specific design that best fits the problem and the research questions in the study. What designs are available, and how do researchers decide which one is appropriate for their studies? Mixed methods researchers need to be acquainted with the major types of mixed methods designs and the key decisions behind these designs to adequately consider available options. Each major design has its own history, purpose, considerations, philosophical assumptions, procedures, strengths, challenges, and variants. With an understanding of the basic designs in hand, researchers are equipped to choose and describe the mixed methods design best suited to address a stated problem.

This chapter introduces the basic designs available to the researcher planning to engage in mixed methods research. It will address:

- principles for designing a mixed methods study;
- decisions necessary in choosing a mixed methods design;