

Preface

Purpose of the Book

The basic idea of this book is to provide an introduction to the design and conduct of mixed methods research. In the past 30 years, we have seen a significant increase in interest in this approach to research. Although examples of researchers mixing quantitative and qualitative methods can be located throughout history, its use has expanded rapidly to many social, behavioral, and health science fields and to countries around the globe. This expanded use is in distinct contrast to the state of affairs when we wrote the first edition, which was published in 2007. In earlier times, researchers had little knowledge about this developing approach called *mixed methods*. Today, from our classes, workshops, and presentations, we know that people no longer wonder what this approach is and question whether it is a legitimate model of inquiry. Their interests now have shifted to the procedures of research—how to conduct a mixed methods study—and to the value mixed methods adds to their knowledge about complex problems. To this end, we have maintained our original premise for this book: Those reading about mixed methods need to know the steps in the process of designing and conducting a study, and they are often curious about the actual procedures involved and the many new techniques and strategies that have unfolded in the field of mixed methods research.

This book is a detailed examination of how to conduct a mixed methods study. We believe that good mixed methods studies rarely happen by chance and that researchers benefit from seeing examples of how others have applied mixed methods and learned about key mixed methods considerations. We fold into our discussion many examples of recently published mixed methods empirical articles as well as methodological discussions. We attempt to highlight the most important steps in mixed methods research through the ample use of bullet points, and we introduce the reader to some of the latest writings in the field. Since the 2007 inception of the *Journal of Mixed Methods Research (JMMR)*, which we helped to cofound and coedit, we have reviewed hundreds of manuscripts for publication from diverse disciplines, from different parts of the world, and from varied perspectives about this form of inquiry. From these articles and from our personal experiences in mixed methods research teams, classes, and presentations, we present a detailed rendering of how to design and conduct a mixed methods study. We expect that beginning mixed methods researchers will find useful techniques for designing their own studies and that experienced researchers will see applicable summaries of the latest thinking about mixed methods.

Audience for the Book

The primary audiences for this book are those who seek to conduct rigorous mixed methods studies to address their research questions. These individuals may be graduate students or established researchers who have some experience with both qualitative and quantitative research. The audience also includes scholars in the field of mixed methods who will find application of state-of-the-art ideas in this book. Policymakers, researchers, and practitioners also will find this book a useful introduction to mixed methods as they review published studies or establish their own mixed methods projects. With the ongoing discipline expansion of applying mixed methods, this text is applicable across many social, behavioral, and health science fields, and we have attempted to incorporate examples from diverse areas such as sociology, psychology, education, management, marketing, social work, family studies, communication studies, leadership, family medicine, mental health, and nursing. Finally, we see this book as core reading in a mixed methods research course—a type of course that is increasingly being offered on college and university campuses as part of the training for the next generation of researchers around the world.

Book Features

We have maintained many of the book features found in the previous editions. The general layout of the book follows the process of conducting a study. It begins with the initial assessment as to whether mixed methods is the best approach to study a research problem, moves to the philosophical assumptions and theoretical stances that inform research, and continues to the choice of a mixed methods design that can guide study planning and implementation. After these preliminary considerations, the book advances developing an introduction, sampling and collecting data, analyzing data, integrating and combining the mixed methods results, and drawing meaningful conclusions within a study. It ends with writing and evaluating the study proposal and final report. To augment this process approach, we highlight seven prominent designs in mixed methods research and provide procedures and examples that illustrate the use of each of the designs. Each step in the process is considered from the perspective of the different mixed methods designs. This is an approach that we use in our teaching, workshops, and research consulting.

In this work we do not favor either quantitative or qualitative research but instead see a balance between these two approaches within mixed methods research. Accordingly, we offer examples of both quantitatively oriented mixed methods studies and qualitatively oriented mixed methods projects throughout the text. We also balance the two approaches by intentionally discussing quantitative approaches first in some chapters and qualitative approaches first in others. In this edition, we have enhanced our emphasis on procedures unique to mixed methods—specifically mixed methods designs, integration techniques, and steps for drawing conclusions or insight from integrated results. We conclude each chapter by providing a summary of the content as well as suggestions for practical activities to make the concepts more concrete.

Activities encourage the reader to apply the concepts to their reading of published examples of mixed methods research and to incorporate the ideas from the chapter into the active development of a mixed methods study. At the end of each chapter, we provide suggested readings so the ideas presented in the chapter might be further studied. We have attempted to define key terms throughout the text and provide a glossary of these terms at the end of the book to help readers understand the unique language of mixed methods research.

We have maintained an emphasis on using examples from the literature to augment our discussion of the steps in the mixed methods design process and have updated the references in this edition to include cutting-edge resources that readers should find helpful. From our experience of reading and reviewing many hundreds of mixed methods studies, we have found great value in examining the practice of other researchers as they implement and report on the mixed methods designs they used in their research studies. It is also helpful for researchers planning to use mixed methods to locate applicable studies published within their discipline to identify the language and designs that are common in that discipline. Researchers can also cite these studies as examples of the design in the methods section of their own proposals and reports. In addition, researchers who examine examples of mixed methods designs learn about different procedures used when conducting mixed methods research and are better able to anticipate challenges that can occur with a specific design. Published studies also provide models for how to write up and report the results of a specific mixed methods design.

New Features Added to the Fourth Edition

Since the writing of the third edition to this book, we have actively engaged with research teams applying mixed methods research, taught courses and workshops about mixed methods procedures, served on dissertation committees, and written extensively within the field of mixed methods research—all the time reflecting on the steps and nuances involved in designing and conducting mixed methods research. Thus, we drew on our ever-expanding knowledge of and experience with mixed methods as we made revisions in this book.

Specifically, here are changes you will find in this fourth edition:

- We extensively updated our references to the mixed methods literature and the examples we cited throughout the book. We wanted to include the latest thinking from authors writing about research methods today as well as provide applications found in recent research. The methodological writings and empirical examples have been drawn from diverse disciplines and contexts so they will be useful to a broad audience of scholars.
- Integration, which is the bringing together of the quantitative and qualitative data and results, remains the centerpiece of mixed methods research, and we emphasize integration throughout the book. Most notably, we crafted a new Chapter 7 that is focused specifically on data analysis, including integration analysis. We provide more procedural details about integration analysis within mixed methods studies and specify

prominent options for the integration analyses within the different mixed methods designs.

- A major shift in this book from previous editions involves our elevated emphasis on metainferences—the new knowledge that is generated from the mixing or integration of methods. The concept of metainferences now appears in our definition of mixed methods research in Chapter 1 and is defined and discussed in relation to the different designs in Chapter 3 and 4. We also discuss the procedures for drawing and representing metainferences in detail in Chapters 8. We view metainferences as the ultimate product and value of a mixed methods study, and provide guidance to help readers accomplish this essential step within quality mixed methods studies.
- Joint displays—visuals that explicitly link quantitative and qualitative results for joint interpretation of integration—have continued to gain in popularity since our writings in the previous edition as a useful strategy and tool in mixed methods studies. Because of their growing prominence in the field, we included a new Chapter 8 focused on creating joint displays and drawing metainferences. With examples from the literature, this chapter provides practical procedures for creating joint displays and describes joint display possibilities for the different mixed methods designs.
- Another topic we give more attention to in this edition is considerations for ethics and sampling within mixed methods designs. The ethical treatment of participants is essential for all research, and mixed methods designs introduce potential ethical dilemmas that should be anticipated and addressed. Likewise, sampling decisions are critically important in research because they provide the basis for gathering data, determining results, and drawing conclusions. As such, sampling decisions vary depending on the type of mixed methods design and need to be thoughtfully planned. We provided expanded discussions of ethics and sampling in Chapter 6.
- We find that many researchers benefit from having practical summaries of information and tools to aid application. Therefore, we have continued to add and refine practical features in this book. Specifically, we added Table 3.3, which summarizes and compares the characteristics of the three core mixed methods designs. We also added new templates for (a) developing an implementation matrix that frames data analysis procedures with study research questions (Table 7.2) and (b) creating joint displays that represent integration results (Tables 8.2 and 8.3). These practical features aim to help researchers understand and apply key tools for achieving integration within their own studies.
- We also felt that the example articles in the appendices could be more helpful if they included some annotations that comment about key mixed methods features found within the articles. Therefore, we have reduced the number of appendix articles to three that illustrate the core mixed methods designs, and we have added annotation comments throughout to make them more supportive of readers' learning and application.

- Because we regularly interact with graduate students, we know that there is great interest in conducting mixed methods research by graduate students planning their dissertations. Therefore, in addition to general advice for graduate students throughout the chapters, we have enhanced our discussion of the content of dissertation proposals and dissertations in Chapter 9. We now include example outlines for two common dissertation formats: the traditional chapter format (Table 9.2) and the multiple-paper format (Table 9.3). These features aim to support graduate students in successfully planning and communicating their mixed methods research dissertations and theses to their committees.

Chapter 1

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The Nature of Mixed Methods Research

What is it about the nature of mixed methods that draws researchers to its use? Its global popularity can be easily documented through journal articles, conference proceedings, books, and the formation of professional associations, journals, and special interest groups (Creswell, 2011b, 2014; Fetters & Molina-Azorin, 2021; Plano Clark, 2010). It has been called the “third methodological movement” following the developments of first quantitative and then qualitative research (Tashakkori & Teddlie, 2003a, p. 5), the “third research paradigm” (Johnson & Onwuegbuzie, 2004, p. 15), and “a new star in the social science sky” (Mayring, 2007, p. 1). A recent commentary noted that “the mixed methods bandwagon is rolling” (Morgan, 2023, p. 135). Why does it merit such enthusiasm? One answer is that mixing methods is an intuitive way of doing research that is constantly being displayed throughout our everyday lives.

Consider for a moment how many professionals go about their practice. Physicians consider quantitative lab results along with a patient’s qualitative life history and symptoms when making a diagnosis and treatment plan. Financial consultants analyze market trends along with stories of individual values and priorities when offering advice. Politicians use both statistical trends from their districts and the personal stories of their constituents when choosing a course of action. Examples of combining quantitative and qualitative information pervade many aspects of professional life. Listen closely to television broadcasters report about hurricanes or about the votes cast in elections. The trends are again supported by 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 the audience about the individual stories and highlights of the personnel on the playing field (a qualitative perspective). Again, both quantitative and qualitative information come together in these broadcasts.

In these commonplace instances, we see mixed methods thinking in ways that Greene (2007) called the “multiple ways of seeing and hearing” (p. 20). Multiple ways of making sense of situations occur in everyday life, and mixed methods research provides multiple ways to address a research problem. Other factors also contribute to this interest in mixed methods. Researchers recognize it as a practical 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.

Building on one's intuition for mixing quantitative and qualitative information, the first preliminary consideration for using mixed methods in research is to understand the nature of mixed methods research. This chapter provides a good understanding of mixed methods research and its use for designing and conducting a mixed methods study. By the end of this chapter, you will be able to:

- Define mixed methods research.
- Describe examples of mixed methods studies.
- Recognize the types of research problems calling for a mixed methods study.
- Identify advantages of using mixed methods.
- Acknowledge challenges of using mixed methods.

Defining Mixed Methods Research

Several definitions for mixed methods research have emerged over the years that incorporate elements of methods, research processes, research purposes, and philosophies. These different stances are summarized in Table 1.1 for seven definitions we present and discuss in this section.

Table 1.1 ■ Authors and the Focus or Orientation of Their Definition of Mixed Methods Research	
Author(s) and Year	Focus of the Definition
Greene et al. (1989)	Methods (data collection) and philosophy (paradigms)
Tashakkori and Teddlie (1998, 2003a)	Methodology (worldview, vocabulary, methods, and inferences)
Johnson et al. (2007)	Methodology (data collection, analysis, and inferences), philosophy (viewpoints), and mixing purpose
Tashakkori and Creswell (2007b)	Methodology (data collection, analysis, integration, and inferences), methods (qualitative and quantitative), and research scope (study or program of inquiry)
Greene (2007)	Philosophy (standpoints) and methods (multiple ways of seeing, hearing, and making sense of the social world)
Hesse-Biber (2015)	Methods, research scope (one or more projects), and contested terrain

Author(s) and Year	Focus of the Definition
Creswell and Plano Clark (adapted from 2018)	Core characteristics that include methods (data collection, analysis, and integration), methodology (research questions, methods, and inferences), philosophy, and a design orientation

Source: Adapted from Creswell and Plano Clark (2011, 2018).

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

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 combining all phases of the research process—a methodological orientation (Tashakkori & Teddlie, 1998). This methodological orientation included philosophical (i.e., worldview) positions, methods, and the inferences or 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. ix). 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, 2003a, p. x).

In a highly cited *Journal of Mixed Methods Research* (JMMR) article, Johnson et al. (2007) sought consensus on 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 or data analysis); the scope of the mixing (e.g., from data to worldviews); the purpose or rationale for mixing (e.g., breadth or corroboration); and the elements driving the research (e.g., bottom-up, top-down, or a core 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 from viewpoints to inferences and that included the combination

of qualitative and quantitative research. They incorporated diverse viewpoints but did not specifically mention paradigms or philosophy. Their purposes for mixed methods—breadth and depth of understanding and corroboration—meant 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 first issued, the editors felt that a general definition of mixed methods should be provided. Their approach incorporated both a general qualitative and quantitative research methodological orientation and a methods orientation. It also added explicit consideration of the scope of the research. The intent was also to cast a 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” (Tashakkori & Creswell, 2007b, p. 3). Hence, the definition announced in the first issue of the journal was as follows:

[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. (Tashakkori & Creswell, 2007b, p. 4)

Around the same time, Greene (2007) provided a definition of mixed methods that conceptualized this form of inquiry differently as a way of thinking and learning about the social world

that actively invites [us] to participate in dialogue . . . 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 broad applications beyond using it as only a research method. It can be used, for example, as an approach to disrupt traditional approaches to evaluation for a more democratic and just society (Hall et al., 2023), as an opportunity to apply arts-based methods (Archibald & Gerber, 2018), or as a means for “seeing” quantitative and qualitative thinking within approaches such as Q methodology (Ramlo, 2022).

In *The Oxford Handbook of Multimethod and Mixed Methods Research Inquiry* (Hesse-Biber & Johnson, 2015), the editors take the position that the definition of mixed methods continues to be contested both within and outside the mixed methods community. However, Hesse-Biber (2015) stated the following in the introduction:

what most approaches to mixed methods have in common is the mixing of at least one qualitative and one quantitative method in the same research project or set of related projects (e.g., in a longitudinal study). (p. xxxix)

Our approach to defining mixed methods research has also evolved over the years as it has been informed by our work with scholars across disciplines and countries through our teaching, workshops, presentations, consulting, and reviewing about mixed methods research (Creswell & Plano Clark, 2023). In 2007, we provided a definition in the first edition of this book with both

a methods and a methodological orientation. In the 2011 second edition, we added an emphasis on the priority of the quantitative and qualitative data in a study. In 2018, we concluded that priority is too often a vague and confusing idea and removed reference to it as a defining feature in our third edition. Further, we wanted to maintain a definition that could incorporate many diverse viewpoints, so we provided a list of core characteristics to serve as our definition.

We continue to believe that a list of core characteristics works well for conveying the definition of mixed methods research and reflecting how researchers use both qualitative and quantitative approaches in their studies. Our current thinking combines a methods, research design, and philosophy orientation. It also highlights the key components that go into designing and conducting a mixed methods study and adds the drawing of metainferences as a defining characteristic in this edition. This **definition of core characteristics of mixed methods research** is the one used in this book. In mixed methods research, the researcher

- collects and analyzes both qualitative data and quantitative data in response to research questions and hypotheses,
- intentionally integrates (or mixes or combines) the two forms of data and their results,
- draws metainferences (or conclusions or interpretations) from the integrated results,
- organizes these procedures into specific research designs that provide the logic for conducting the study, and
- frames these procedures within theory and philosophy.

Examples of Mixed Methods Studies

One way to better understand the nature of mixed methods research beyond a definition is to examine examples of mixed methods studies found in published reports. At this point, it is most helpful to focus on the procedures for data collection, analysis, integration, and inferences and how these procedures are organized (such as whether one type of data is gathered and analyzed before the other type). We will not focus on philosophical assumptions and theoretical stances (which we discuss in Chapter 2) because they often exist in the background of published mixed methods studies. We will also save discussion of specific research designs until later chapters. With those caveats, the core characteristics of our definition can be seen in the following examples:

- Stenger et al. (2014) examined food safety in Hispanic families with young children by collecting and analyzing quantitative data from instruments while also collecting and analyzing qualitative data from focus groups during the same time period. The researchers compared the two types of findings to determine whether they showed similar results. From the comparison, they made conclusions about the complexity of food safety knowledge and practices (an example of a convergent mixed methods design, which will be discussed in Chapter 3).

- Clark and Plano Clark (2019) examined the relationship between individuals' grit and their career success. The researchers first collected and analyzed quantitative data using an online survey. Based on the quantitative survey results, they followed up with and interviewed a few gritty, successful individuals about their experiences. They used the qualitative findings to help explain the reasons behind and meaning of the quantitative survey results and drew conclusions about the role of grit in career success (an example of an explanatory sequential mixed methods design, which will be discussed in Chapter 3).
- Walker et al. (2023) assessed how the components of a whole-school approach to physical activity are implemented in school settings. The researchers first explored physical activity implementation by conducting interviews with school staff and analyzing the information. They used the qualitative findings to develop a survey instrument, which was then administered to a large sample of staff across many schools. The researchers quantitatively analyzed the survey data for quantitative trends and relationships and drew conclusions about the generalizability of the physical activity implementation results (an example of an exploratory sequential mixed methods design, which will be discussed in Chapter 3).
- Bradt et al. (2015) pilot tested an experiment to compare cancer patients' responses to two different music-based treatments. The researchers gathered quantitative data on the outcomes before and after the treatments and qualitative interviews about the patients' experiences with the treatments. The researchers analyzed the quantitative outcome data and the qualitative experience data. They combined the different results to uncover how and why individual patients responded differently to the treatments and drew conclusions about treatment efficacy and feasibility (an example of a mixed methods experimental design, which will be discussed in Chapter 4).
- Shaw et al. (2013) wanted an in-depth description and comparison of medical clinics attempting to enhance their cancer screening rates. The researchers considered each clinic as a case, gathered quantitative data from patient health records and staff surveys, and gathered qualitative observation and interview data from the doctors, nurses, and medical assistants. They analyzed the quantitative and qualitative data for each case and compared the cases to identify high and low performers. From the combined information, they made conclusions about clinic factors that contribute to differences in how patients are treated (an example of a mixed methods case study design, which will be discussed in Chapter 4).
- Anderson et al. (2024) were concerned about youth well-being in their local urban environment. The researchers engaged in a participatory form of inquiry in which the participants—youth living in Nashville, Tennessee—played a major role in helping understand the problem. The larger need for gaining local knowledge to support change guided the researchers' engagement with the youth to understand how youth well-being is experienced and influenced by locations within the local community. The researchers

worked in collaboration with a youth-led collective to create and gather geospatial, quantitative, and qualitative data about youth well-being and perspectives about the local environment to understand the complexity of urban planning issues and to identify suggestions for involving youth perspectives in future policymaking (an example of a mixed methods participatory-action research design, which will be discussed in Chapter 4).

- Kimber et al. (2022) wanted to develop, implement, and evaluate an educational intervention to improve providers' response to individuals subjected to family violence. They used a multiphase process in which the results of each phase informed what happened in the next phase. The first phase was to interview and survey social workers and physicians to assess the needs. In the second phase, the researchers developed an online educational intervention and tested its usability with qualitative think-aloud recordings and quantitative pre- and post-assessments. They refined the intervention based on the combined results. In a third phase, they implemented the intervention more broadly, gathered quantitative and qualitative information about the feasibility and outcomes of the intervention, and drew conclusions about the perceived value and impact of the refined educational intervention (an example of a mixed methods evaluation design, which will be discussed in Chapter 4).

These examples all illustrate the collection and analysis of both quantitative and qualitative data, the integration or mixing of the two types of data and the results, drawing inferences from the combined results, and an underlying assumption that mixed methods research could be a useful approach to address important research problems.

What Research Problems Call for Mixed Methods?

Authors of the example studies crafted their research as mixed methods projects based on their assumption that mixed methods could best address their research problems. An important preliminary consideration for using mixed methods involves recognizing the types of research problems suited for mixed methods research. When preparing a research study employing mixed methods, the researcher needs to provide a rationale or justification for why mixed methods is best able to address the topic and the research problem.

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 whether 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 is

applicable to a wide variety of disciplines in the social, behavioral, and health sciences. Although some disciplinary researchers may select not to use mixed methods because of a lack of interest in qualitative or in quantitative research, most topic areas have research problems that can be addressed using mixed methods.

Instead of thinking about fitting different methods to specific content topics, we advise thinking about fitting methods to different types of research problems (or research questions). For example, we find a quantitative survey approach fits when a need exists to describe the views of participants in an entire population. A quantitative experiment approach fits the need to determine whether a treatment works better than a control condition. Likewise, a qualitative ethnography approach is suitable when there is a need to understand how a culture-sharing group works. What situations, then, warrant an approach that combines quantitative and qualitative research—a mixed methods inquiry? In general, **research problems calling for mixed methods** are those in which the researcher feels one type of data may be insufficient to fully address the problem. For example, different kinds of data may be needed to provide a comprehensive understanding of the problem, or statistical results may need to be explained using qualitative data. In other studies, quantitative data may be needed to generalize exploratory findings to a large quantitative sample, or qualitative data is needed to enhance a quantitative experiment. Also, an examination of multiple cases may call for both quantitative and qualitative data, and both quantitative and qualitative data may be needed to generate change in a community or develop and evaluate a program. Over the years, authors in the mixed methods field have enumerated multiple reasons (also called rationales) for using mixed methods research (Bryman, 2006). We will focus here on the major reasons why researchers decide there is a need to gather both quantitative and qualitative data and mix them to address research problems.

A Need to Obtain Complete and Corroborated Results

Qualitative and quantitative research provide different pictures, or perspectives, because of the different kinds of information they generate. When researchers gather open-ended qualitative data to study a few individuals, they can generate rich description and a detailed understanding of a problem. However, they do not have reliable measures or the ability to generalize the results to many people. When researchers gather quantitative measures to examine many individuals, they can generate evidence of relationships and generalizability, but the understanding of any one individual or context diminishes. Hence, the limitations of one method can be offset by the capabilities of the other, and the combination of quantitative and qualitative data provides 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 agree or may be contradictory, which would not be discovered by collecting only one type of data. Further, the type of evidence gathered from one level in an organization (e.g., teachers) might differ from evidence examined from other levels (e.g., students and principals). These are all situations in which using only one approach to address the research problem would be deficient,

and thus a need exists for a mixed methods approach to obtain complete and corroborated findings. For example, when Shannon-Baker (2015) studied the experience of culture shock for undergraduate students participating in a short-term study abroad program, she collected both quantitative survey data and qualitative data in the form of reflective journals, self-portraits, and artist statements. Reflecting on the use of both forms of data to understand the problem because a single form alone would have been inadequate, she wrote,

The implications of using limited approaches in any line of inquiry result in investigating a problem from only a single angle. As a result, we can only investigate information that is connected to those lines of inquiry. By instead engaging in multiple forms of inquiry, we can explore information that is not accessible through a single approach alone. (Shannon-Baker, 2015, p. 36)

A Need to Explain Statistical 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 mixed method situation, a qualitative database can help explain the results from a quantitative database. A typical situation is when quantitative results require an explanation as to what they mean. Quantitative results can net general descriptions of the trends and relationships among variables, but the results lack a more detailed understanding of what the statistical tests or effect sizes mean or the mechanisms behind the results. Qualitative data and results can help generate that understanding. For example, Singh et al. (2020) conducted a mixed methods study investigating the circumstances of falls experienced by wheelchair users with spinal cord injury. The researchers tracked the number and circumstance of falls during a 6-month period in the first quantitative phase of the study. Then, in the second qualitative phase, they gathered photos, individual interviews, and a focus group discussion from a subset of the individuals who reported having at least one fall. The rationale for using mixed methods to study this situation was stated as follows:

The circumstances surrounding falls experienced by wheelchair users with [spinal cord injury (SCI)] remain unclear [12] and there is a need to collect first person experiences in the form of qualitative data . . . along with quantitative data (e.g. number of falls) to fully understand the quantitative findings. For example, a survey can assess the breadth of the circumstances surrounding falls; however, in order to generate customized fall prevention programs for an individual/specific condition, there is a need to explain fall circumstances in more depth to understand the idiosyncrasies of each situation. (Singh et al., 2020, p. 3)

A Need to Explore Before Administering Instruments

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 Americans in Alaska) or the newness of the research topic. These situations may call first for exploring qualitatively to

learn what questions, variables, theories, and so forth need to be studied and then following up with a quantitative examination 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, Sever and Özdemir (2021) studied how stigma occurs in the hiring processes of organizations in Turkey. Their study began with interviews with hiring managers, and they used the themes from the interviews to develop an instrument. The authors then administered the instrument to large samples of hiring managers and employers to test the generalizability of the themes with the larger sample. The authors explained,

The mixed methods research methodology, instead of addressing a research issue through the binary lens of either quantitative or qualitative analysis, has the potential to advance the academic discourse by building on the strengths of both methodologies. In this study, an exploratory sequential mixed method research (MMR) design was adopted in order to broadly explore and understand employer stigma practices in organizations in Turkey. (p. 710)

A Need to Enhance an Experimental Study Beyond Measured Outcomes

Experimental studies provide quantitative tests of the effectiveness of a treatment for producing certain outcomes. In some situations, a qualitative research method needs to be added to an experimental study to provide an enhanced understanding of some aspect of the intervention. In this situation, the quantitative and qualitative methods are applied within a primary experimental methodology. For example, Tunji-Ajayi et al. (2020) conducted an experimental trial comparing the outcomes for patients with gallstone disease receiving different treatment procedures. A significant challenge for the trial was having good rates of retention throughout the full trial by the enrolled patients. In addition to the outcome data, the authors gathered quantitative data about retention (e.g., response rates for each follow-up point) and qualitative recordings of the initial trial consultations with potential participants. The authors analyzed the different datasets in combination to determine how best to retain participants in the trial (e.g., how best to organize and present the information). Toward the end of their article, the authors reflected on the value of this mixed methods component for the trial and noted: “Embedding a mixed-methods methodological evaluation within a clinical trial context maximizes opportunities to identify (and resolve) the problems with trial conduct” (Tunji-Ajayi et al., 2020, p. 57).

A Need to Describe and Compare Cases

When examining and describing cases of interest, researchers may need multiple forms of data to best describe each case and compare them if there are multiple cases. Researchers use mixed methods research to develop an in-depth understanding of one or more cases and to make a comparison of the cases in terms of certain criteria. Often both the qualitative and quantitative data are gathered at the same time and then brought together to form distinct cases for analysis.

For example, Walton (2014) used a case study approach to examine a cross-sector partnership that was working to lead science education reform. In addition to her qualitative interviews and document analysis, she included a quantitative survey to measure the collaboration occurring among different members within the partnership. She described the rationale for this approach by stating,

The use of multiple data sources in this study facilitated a holistic understanding of the [partnership's] work and progress toward creating an infrastructure for change. . . . The quantitative findings enhanced the qualitative and promoted the creation of a more comprehensive and nuanced description of the case than would have been possible using qualitative interview data in isolation. (p. 70)

A Need to Involve Participants and Create Change

A situation may exist in which participants need to help shape the study and the data gathered so that useful change can occur in their lives. Their involvement may occur in many phases of the research, from identifying the problem to using the results to make changes. The participants are involved because the researchers need to work with and learn from the individuals who are experiencing the problem and identify workable solutions. In these situations, the researcher works with participants to gather both quantitative and qualitative data to best engage the community and bring about change. For example, Greysen et al. (2012) worked with community members throughout a study to improve the transition of care for individuals experiencing homelessness from the hospital to a shelter. Through initial conversations with key service providers and individuals experiencing homelessness, the researchers identified transition of care as a key problem. Community members became involved in developing survey and interview data forms, assisting with data gathering, and discussing the accuracy of the findings and recommendations for hospitals and shelters. The authors commented, “This feedback process was critical for shaping our interpretations and presentation of data collected from study participants in the context of the community to which they belong” (p. 1486).

A Need to Develop, Implement, and Evaluate a Program

In projects that span several years and have many components, such as evaluation studies, researchers may need to connect several studies to reach an overall objective. These studies may involve projects that gather quantitative and qualitative data concurrently and gather both types of information sequentially. We can consider them multiphase or multiproject examples of mixed methods research. These projects often involve teams of researchers working together over many phases of the project. For example, Ivankova et al. (2024) conducted a multiphase evaluation study to adapt and test an existing intervention aimed at healthy eating and exercise for cancer survivors to a web-based delivery format. They began with a formative assessment to explore opinions and potential features by conducting a qualitative study in the first phase. Based on the qualitative results, they adapted and beta-tested the intervention in the next phase, which included quantitative surveys and qualitative think-aloud interviews. In the final phase

the team tested the efficacy of the adapted intervention and monitored participants' engagement and outcomes using both quantitative and qualitative data. Ivankova et al. (2024) presented a figure of the three phases spanning 6 years and described the need for this multiphase approach this way: "Mixed methods data collection and analysis were pragmatically tailored to specific goals of each adaptation phase to ensure the content and the web-based delivery format of the adapted intervention met cancer survivors' needs and preferences" (p. 3).

These different scenarios illustrate situations in which the research problem is best studied using mixed methods because there is a need to combine quantitative and qualitative information. This discussion begins 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 using mixed methods in each illustration, many authors provide multiple reasons, and we recommend that aspiring (and experienced) researchers begin to take note of these many rationales in published studies.

What Are the Advantages of Using Mixed Methods?

Understanding the nature of mixed methods involves more than knowing its definition and when it should be used. In addition, at the outset of selecting a mixed methods approach, researchers should consider the advantages that accrue from using it so they can convince others of these advantages. We now enumerate some of the advantages.

Mixed methods research provides a way to harness strengths that offset the weaknesses of both quantitative and qualitative research. This has been the historical argument for mixed methods research for more than 40 years (e.g., see Jick, 1979). One might argue that quantitative research is weak in understanding the context or setting in which people live. Also, the voices of participants are not directly heard in quantitative research. Further, quantitative researchers are in the background, and their own personal biases and interpretations are seldom discussed. Qualitative research can make up for these weaknesses. In contrast, qualitative research might be seen as weak because of personal interpretations made by the researcher, the ensuing bias created by this, and the difficulty in generalizing findings to a large group because of the purposeful selection and limited number of participants studied. Quantitative research, it is argued, can avoid these weaknesses. Thus, the strengths of one approach can make up for the weaknesses of the other.

Mixed methods research provides more evidence for studying a research problem than either quantitative or qualitative research alone. Researchers can use all the tools of data collection available rather than being restricted to those types typically associated with quantitative research or qualitative research, thereby broadening the scope of the data in a study.

Mixed methods research helps answer questions that cannot be answered by quantitative or qualitative approaches alone. For example, "Do participant views from interviews and from standardized instruments converge or diverge?" is a mixed methods research question. Other examples would be, "In what ways do qualitative interviews explain the quantitative results of a study?" (using qualitative data to explain the quantitative results) and "How can a treatment be

adapted to work with a particular sample in an experiment?” (exploring qualitatively to develop a culturally appropriate intervention before an experiment begins). To answer these questions, quantitative *or* qualitative approaches alone would not provide a satisfactory answer. The array of possible mixed methods research questions will be explored further in Chapter 5.

Mixed methods research offers new insights that go beyond separate quantitative and qualitative results. By intentionally combining (or integrating) the approaches, researchers gain new knowledge that is more than the sum of the two parts. As Fetters and Freshwater (2015) suggested, mixed methods research provides the research equivalent of the equation $1 + 1 = 3$, where the two types of methods produce three unique types of results and conclusions (quantitative, qualitative, and integrated). Approaches for achieving integration and drawing inferences will be introduced in Chapters 3–4 and discussed further in Chapters 7–8.

Mixed methods research often provides a bridge across the adversarial divide between quantitative and qualitative researchers. We advocate that researchers and scholars should consider themselves as social, behavioral, and human sciences researchers first and recognize that divisions between quantitative and qualitative research serve only to narrow the approaches used within fields and the opportunities for collaboration.

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 with qualitative research. It also encourages researchers to think about paradigms that encompass all quantitative and qualitative research, such as pragmatism or critical realism. These paradigm stances will be discussed further in Chapter 2.

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, by combining inductive and deductive logic through abductive thinking (Morgan, 2007), and by employing skills in observing people as well as by recording behavior. It is natural, then, for individuals to employ mixed methods research as a useful mode for understanding the world and research problems.

Mixed methods research enables scholars to produce research-informed products and promote change as part of the research process. For example, if researchers start by collecting and analyzing qualitative data, they can use the qualitative findings to inform the development of a quantitative instrument or intervention. If researchers start by collecting and analyzing quantitative data, they can use quantitative results to inform the development of a qualitative protocol or sampling plan. Further, because mixed methods research involves different kinds of data and results, it can provide information that different audiences may find compelling, which may open multiple possibilities for disseminating the research results and contribute to action plans that engage multiple types of community members.

Mixed methods research also helps researchers develop broader skill sets. Students using mixed methods emerge from their program with some expertise in multiple forms of research methods—quantitative methods, qualitative methods, and mixed methods. In short, they have enhanced the breadth of their toolkit of skills to address research questions, to become productive members of mixed methods teams, and to be able to teach using multiple methods.

What Are the Challenges in Using Mixed Methods?

The advantages of mixed methods research can make it an appealing choice for both beginning and experienced researchers. However, researchers should also consider the challenges associated with this approach when deciding whether to use a mixed methods approach or an exclusively quantitative or qualitative approach. Using a mixed methods approach requires researchers to have certain skills, time, and resources for extensive data collection and analysis and to be able to educate others who may be less familiar with the basic ideas of mixed methods research.

The Challenge of Researcher 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 the data collection and data analysis procedures of both quantitative and qualitative research. This point was emphasized in our definition of mixed methods. Researchers also need to be aware of general ethical considerations involved with conducting research with human participants.

In terms of quantitative research skills, mixed methods researchers should be familiar with common methods of collecting quantitative data, such as using measurement instruments and administering closed-ended attitudinal scales. Researchers need an understanding of how to identify and specify variables, 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, bias, 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 (or central concept) they are exploring in their study; to pose exploratory, meaning-oriented research questions; and to value participants as the chief sources of information. Researchers should be familiar with common methods of collecting qualitative data, such as semi-structured or unstructured interviews using open-ended questions and qualitative observations. Researchers need basic skills in analyzing qualitative text data, including coding text, developing themes, interrelating themes, forming descriptions, and creating a compelling storyline. Researchers should be acquainted with a qualitative data analysis software package. Finally, it is important that researchers understand essential issues of quality in qualitative research, including credibility, trustworthiness, and common validation strategies. We will review key aspects of high-quality qualitative research in later chapters.

Finally, those undertaking a mixed methods approach to research should have a solid grounding in mixed methods research, including knowledge of procedures for integrating or combining quantitative and qualitative data and results (to be discussed in detail in Chapters 7 and 8). This requires researchers to read available literature about mixed methods and note

the best procedures and the latest techniques for conducting a good inquiry. Mixed methods researchers benefit from obtaining formal training, such as that offered in university courses in mixed methods research and through intensive workshops sponsored by conferences and institutions around the world. It is also helpful to work with scholars who have experience and expertise with mixed methods research. This may include apprenticing with someone familiar with mixed methods or working with experts who can provide an understanding of the skills involved in conducting this form of research. For example, individuals with mixed methods expertise may be included as members of a dissertation committee or an advisory board for a grant.

The Challenge 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 available time constraints and resources. Mixed methods research involves collecting more types of data and analyzing more types of information than either quantitative or qualitative research alone. Thus, time and resources are important issues to consider early in the planning stage. Researchers might ask themselves the following questions:

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

Mixed methods researchers need to consider the time required to gain approval for the study, to obtain access to participants, and to complete the data collection, analysis, and integration of quantitative and qualitative data. Researchers should keep in mind that the planning for quantitative instruments and statistical analyses often require more time than creating qualitative protocols and analysis plans. In contrast, the implementation of qualitative data collection and analysis often requires more time than the collection and analysis of quantitative data. Researchers need to recognize that the integration of the different types of data and results also takes time to complete. 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 multiple-phase design. Furthermore, researchers need to think about the expenses that will be part of the study. These expenses may include, for example, printing costs for quantitative instruments, incentives for individuals to participate in one or both parts of the study, recording and transcription costs for qualitative interviews, and the cost of quantitative and qualitative data analysis software programs.

Researchers need to carefully consider how they can manage the demands associated with mixed methods designs. For students who choose to complete a mixed methods thesis or dissertation, this means carefully planning the scope of the study to keep it manageable.

Researchers who are working on large projects should consider working in teams to manage the demands, and team research has increasingly become more popular as part of interdisciplinary investigations (O’Cathain et al., 2008a). A team has the advantage of bringing together individuals with diverse methodological and content expertise and dividing tasks according to the quantitative, qualitative, and/or integration skills of individuals. Working with a team can be a challenge, however, because team dynamics may need to be navigated (Curry et al., 2012). It can increase the costs associated with the research and requires the researcher to locate individuals with the necessary skills.

Leadership on mixed methods teams is also important. Team leaders need to create and maintain successful collaboration among team members and spend time coordinating the project. Important considerations for team leaders include reconciling methodological differences among team members; ensuring appropriate team membership representing quantitative, qualitative, and mixed methods orientations; having team members who value mixed methods; and facilitating team agreement on the criteria for successful outcomes.

The Challenge of Educating Others About the Value of Mixed Methods

Mixed methods research may be seen as a new methodology by some scholars. These individuals may not know what it is or how it is conducted. Other scholars may feel that they have always been doing mixed methods research. These other scholars may have collected both quantitative and qualitative data but not systematically combined or integrated the two databases, as is discussed in this book. Some individuals may hold misconceptions about mixed methods research—for example, they may collect only qualitative data and then analyze it quantitatively, such as in content analysis (Krippendorff, 2004), and believe this constitutes mixed methods research. These individuals need an introduction to how mixed methods can be defined by a set of core characteristics.

Some scholars may use both methods but not apply many of the advances in mixed methods that we will discuss, such as the use of mixed methods research questions, the diagramming of study designs, the identification of the validity issues that often arise in different designs, the use of joint displays to represent integration, the drawing of meta-inferences, and so forth. A simple analogy can help clarify their understanding. Consider the field of quantitative research. Many researchers have been conducting simple correlations and regressions, but the field has advanced to sophisticated levels where researchers now are using structural equation modeling and hierarchical linear modeling. Although researchers may have been using the basic ideas of correlations, the field has advanced to new techniques and procedures so that the regression analysis of today looks different than the simple correlations of yesterday. A similar analogy could be made between the observations and interviews used by anthropologists in the early 20th century and the more sophisticated techniques used by grounded theorists and ethnographers today. Interviews and observations are still used, but the methodologies have advanced into more sophisticated and elaborate approaches.

Individuals such as advisors, reviewers, and other researchers hold many different understandings and misunderstandings about mixed methods. This current situation means that scholars may need to develop others' "mixed methods literacy" (Thomeer et al., 2024). Therefore, an important consideration is how to educate individuals about what constitutes mixed methods research. A good way to help others learn is by locating exemplary mixed methods studies reported in the literature and sharing these reports with others. To ensure better quality, we recommend, at least at the start, selecting these studies from prestigious journals with national and international reputations. But how does a researcher find these mixed methods studies?

Mixed methods studies can be easy to find in many fields, but in others, they can be difficult to locate in the literature because not all researchers use the term *mixed methods* in their titles or in the discussion of their methods. Based on our extensive work with the literature, we have developed a short list of strategies that we use to search for mixed methods studies within electronic databases and journal archives. These strategies include the following:

- First, use the search term "*mixed method**" where * is a wildcard that will allow hits for mixed method, mixed methods, and mixed methodology. Do not use more specific terms such as "mixed methods research" or "mixed methods approach" because they miss many uses of mixed methods.
- Second, include combinations of terms such as (*quantitative AND qualitative*) or (*survey AND interview*) to find studies that used two methods but were not identified as mixed methods research.
- Third, try alternative terms used in some fields, such as "*mixed research*" or "*mixed studies*" to see if they add useful results.
- Fourth, consider adding a specific mixed methods term, such as a design name, "*integration*," or "*joint display*," to locate examples that apply specific mixed methods procedures or advances.

These strategies can be productively combined with terms related to the topic area of interest using logic operators AND and OR. The use of AND requires that both terms appear in the document to satisfy the search criteria, whereas OR requires that either term appears. Here are examples of four different search strings that may be useful for locating published mixed methods study reports:

- A basic search: "*mixed method**" AND *topic1*
- A more expansive search: [*mixed method**" OR (*quantitative AND qualitative*)] AND (*topic1 OR topic2*)
- A search for a specific mixed methods design: "*mixed method**" AND ("*explanatory sequential*" OR "*sequential explanatory*") AND (*topic1 OR topic2*)

- A search for a specific mixed methods procedure: *“mixed method*” AND “joint display” AND (topic1 OR topic2)*

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 advisors, committee members, and team members (and citing them as examples when writing) can be helpful for educating them about the utility and feasibility of a mixed methods approach.

Summary

Before deciding on a mixed methods approach, the researcher needs to consider several preliminary considerations. First, the researcher needs some understanding as to what constitutes a mixed methods study. We have provided a definition of mixed methods that includes collecting and analyzing both qualitative and quantitative data, integrating the two forms of data and their results, drawing meta-inferences from the integrated results, using specific mixed methods designs, and framing the study within theory and philosophy. Most important in this list is the utilization of two sets of data, one quantitative and one qualitative, and the integration of these data.

The researcher also needs to determine if the research problem can best be addressed using mixed methods. The use of mixed methods research is not dependent on a specific issue or topic of study, and it can be used to examine a vast array of problems when one type of data is insufficient. Some research problems are best studied by using two data sources to provide a complete understanding. One study may need a second database to help explain quantitative results, and yet another may require the researcher first explore a topic qualitatively before turning to quantitative methods. Mixed methods offers many applications, such as enhancing an experiment, comparing different cases, supporting community members' participatory involvement, or evaluating the success of a program.

These situations illustrate the value of using multiple data sources to understand research problems. Another advantage is that the strengths of different methods may offset the weaknesses of each other. Using multiple sources of data provides more evidence for studying a problem than a single method. Oftentimes research questions are posed that require both an exploration and an explanation that draw from different data sources, and new insights may be gained because of the combination. Mixed methods also is well suited for interdisciplinary research that brings scholars together from different fields of study in teams, 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 addressing problems—something found in everyday living.

This does not mean that using mixed methods is easy. It requires that researchers have skills in several areas: quantitative research, qualitative research, and mixed methods research. It takes time to gather, analyze, and integrate the extensive data from both quantitative and

qualitative sources, and it takes resources to fund these data collection and analysis efforts. Further, individuals planning a mixed methods study may need to educate others about mixed methods and the value of 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 different individuals and audiences to help educate them about such studies.

Activities

1. Using the suggested search strategies in this chapter, locate a journal article reporting mixed methods research in your field or discipline. Engage in these steps:
 - a. Suspend your interest in the content of the article, and focus instead on the research methods used.
 - b. Review the core characteristics of mixed methods research in our definition and identify how the reported study addresses each of the core characteristics.
2. Consider the advantages of mixed methods research and how it might be valued by different audiences, such as policymakers, graduate advisors, individuals in the workplace, and graduate students. Discuss the value for each audience relevant to your topic of interest.
3. Consider a mixed methods project that you would like to undertake. List the skills, resources, and time that you currently have available. What additional skills, resources, or time (if any) do you think you would need for a mixed methods approach to be feasible?
4. Consider a mixed methods project that you might like to design. State in your own words how you will define mixed methods research, mention why mixed methods is needed to address the research problem, and describe both the advantages and challenges of using mixed methods as an approach to research for this project.

Additional Resources to Examine

For definitions of mixed methods, consult the following resources:

- Creswell, J. W. (2022). *A concise introduction to mixed methods research* (2nd ed.). Sage.
- Greene, J. C. (2007). *Mixed methods in social inquiry*. Jossey-Bass.
- Johnson, R. B., Onwuegbuzie, A. J., & Turner, L. A. (2007). Toward a definition of mixed methods research. *Journal of Mixed Methods Research*, 1(2), 112–133.
<https://doi.org/10.1177/1558689806298224>

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

- Bryman, A. (2006). Integrating quantitative and qualitative research: How is it done? *Qualitative Research*, 6(1), 97–113. <https://doi.org/10.1177/1468794106058877>
- Greene, J. C., Caracelli, V. J., & Graham, W. F. (1989). Toward a conceptual framework for mixed-method evaluation designs. *Educational Evaluation and Policy Analysis*, 11(3), 255–274. <https://doi.org/10.3102/01623737011003255>

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

- Ivankova, N. V., Anderson, J. L., Herbey, I. I., Roussel, L. A., & Kim, D. (2023). Realizing methodological potentials and advantages of mixed methods research design for knowledge translation. In C. N. Poth (Ed.), *The Sage handbook of mixed methods research design* (pp. 496–511). Sage.
- Molina-Azorín, J. F. (2011). The use and added value of mixed methods in management research. *Journal of Mixed Methods Research*, 5(1), 7–24. <https://doi.org/10.1177/1558689810384490>
- Molina-Azorin, J. F., & Fetters, M. D. (2019). Building a better world through mixed methods research. *Journal of Mixed Methods Research*, 13(3), 275–281. <https://doi.org/10.1177/1558689819855864>

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

- Curry, L. A., O’Cathain, A., Plano Clark, V. L., Aroni, R., Fetters, M., & Berg, D. (2012). The role of group dynamics in mixed methods health sciences research teams. *Journal of Mixed Methods Research*, 6(1), 5–20. <https://doi.org/10.1177/1558689811416941>
- Guetterman, T. C., Creswell, J. W., Wittink, M., Barg, F. K., Castro, F. G., Dahlberg, B., Watkins, D. C., Deutsch, C., & Gallo, J. J. (2017). Development of a self-rated mixed methods skills assessment: The National Institutes of Health Mixed Methods Research Training Program for the Health Sciences. *Journal of Continuing Education in the Health Professions*, 37(2), 76–82. <https://doi.org/10.1097/CEH.0000000000000152>

Chapter 2

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The Foundations of Mixed Methods Research

Prior to designing a mixed methods study, researchers need to consider more than whether their research problems and research questions are best suited for mixed methods. They also should develop a deep understanding of mixed methods, so they can not only define and justify mixed methods and recognize its core characteristics, but they can also reference important works that have established this approach. This means understanding some of the history of mixed methods and being familiar with key writings that have informed its development. Another step prior to designing a study is to reflect on the different beliefs about knowledge and the acquisition of knowledge that a researcher might assume when selecting mixed methods. This reflection requires knowledge about philosophical assumptions. Finally, mixed methods researchers need to identify assumptions about their content topic and often select a theory from the literature to use as a lens that shapes the entire study. Thus, an initial step in planning a mixed methods study is to give some consideration to whether a formal theory will be used and, if so, how the theory will be incorporated into the project.

This chapter reviews historical, philosophical, and theoretical foundations for planning and conducting a mixed methods study. By the end of this chapter, you will be able to:

- Describe the historical foundations of mixed methods research.
- Discuss philosophical assumptions that can inform the choice to use mixed methods in a study.
- Identify theoretical lenses that may be used in mixed methods research.

Historical Foundations

In planning a mixed methods project, researchers need to know something about the history of mixed methods, how it has evolved, and the current interest in it. In addition to a definition for mixed methods, a mixed methods plan or study should include references to the literature, a justification for its use, documentation about its acceptance in a particular field of study, and awareness of current debates. 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 developments and controversies.

When Mixed Methods Began

We often date the beginnings of mixed methods research back to the late 1980s. At that time, several publications focused on describing and defining what is now known as mixed methods research. Several writers working in different disciplines and countries came to the same idea at roughly the same time. In the late 1980s and the early 1990s, writers from sociology in the United States (Brewer & Hunter, 1989) and in the United Kingdom (Fielding & Fielding, 1986); from evaluation in the United States (Greene et al., 1989); from management in the United Kingdom (Bryman, 1988); from nursing in Canada (Morse, 1991); from medicine in the United States (Crabtree & Miller, 1992); and from education in the United States (Creswell, 1994) began discussing the concept of mixed methods. These individuals authored books, book chapters, and articles on an approach to research that moved beyond 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. They began a discussion about how to integrate, or mix, the data and their reasons for it; Bryman (2006) 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 different classifications of types of design. A shorthand notation system was developed to convey these designs; Morse (1991) gave specific attention to the notation (e.g., QUAL + QUAN). Debates emerged about the philosophy behind this form of inquiry; Reichardt and Rallis (1994) would make explicit the debate forming in the United States. Collectively the early writings in the late 1980s and early 1990s identified key mixed methods issues still important today and initiated a community of scholars who began engaging with these issues.

Why Mixed Methods Emerged

A number of factors contributed to the emergence of mixed methods research in the late 1980s and early 1990s and its continued evolution to how we know it today. Quantitative research and subsequently qualitative research had evolved to a point where writers considered them each to be a legitimate form of inquiry in the social and human sciences (Denzin & Lincoln, 2005, 2011; Morgan, 2007). The complexity of research problems called for answers beyond simple numbers in a quantitative sense or words in a qualitative sense. A combination of both forms of data provided a more complete analysis of complex problems. Researchers situated numbers in the contexts and words of participants, and they framed the words of participants with numbers, trends, and statistical results. In addition, quantitative researchers, we believe, recognized that qualitative data can play an important role in illustrating, explaining, and informing quantitative research. Qualitative researchers, in turn, realized that quantitative data can play an important role in describing, comparing, and testing qualitative research. Audiences such as policymakers, practitioners, and others in applied areas needed multiple forms of evidence to document and inform research problems.

Today, quantitative and qualitative data are both necessary in response to calls for increased sophistication of evidence. Also, mixed methods research is intuitive for many because it mirrors the types of evidence that individuals gather to make sense of the world. One can look to news broadcasts, for example, to see multiple data sources being used, such as interviews and charts and graphs to depict current events. Finally, Kelle (2015) has noted the mutual alienation between qualitative and quantitative research that has existed since the 1920s and has attributed the rise of the mixed methods movement to strategies to overcome “the speechlessness between both traditions” (p. 603).

The Development of the Name

There has been much discussion about the name for this form of inquiry. Since the 1980s, writers have used different labels to identify 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 (Steckler et al., 1992). It has been called “quantitative and qualitative methods” (Fielding & Fielding, 1986), which acknowledges the approach of combining different methods. It has been called “hybrid” research (Ragin et al., 2004); “combined research” (Creswell, 1994); or “methodological triangulation” (Morse, 1991), which all recognize the convergence of quantitative and qualitative data. It has also been called “mixed methodology” (Tashakkori & Teddlie, 1998), which acknowledges it encompasses the research process stretching from philosophy to interpretation. Along the same line, this approach has more recently been called “mixed research” to reinforce the idea that it is more than simply methods and ties into other facets of research, such as philosophical assumptions (Onwuegbuzie, 2012; Onwuegbuzie & Leech, 2009). Since the early 2000s, the most frequently used name is “mixed methods research.” This name became formalized with the *SAGE Handbook of Mixed Methods in Social & Behavioral Research* (Tashakkori & Teddlie, 2003a, 2010b), the *SAGE Journal of Mixed Methods Research* (JMMR), and *The Oxford Handbook of Multimethod and Mixed Methods Research Inquiry* (Hesse-Biber & Johnson, 2015). Today, the term *mixed methods research* continues to be used by a large number of social, behavioral, and human science scholars to identify and signal 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 justify their use of this approach, cite leading proponents of it in their discussions about methods, and understand critiques about it. It also brings awareness of how this approach continues to evolve and change with time.

There have been several stages and key developments in the history of mixed methods (e.g., Tashakkori & Teddlie, 1998). Here we review this history and organize it into six stages with overlapping time periods of development, as shown in Table 2.1.

Table 2.1 ■ Major Contributions to the Development of Mixed Methods Research

Stage of Development	Major Contributions and Milestones
Formative period (before 1980s)	• Early applications discussed using multiple methods • Arguments advanced for using multiple quantitative methods • Arguments suggested for combining both quantitative and qualitative methods
Paradigm debate period (1970s to mid-1990s)	• Different stances identified within the debate (purists, situationalists, and pragmatists) • Calls emerged to move past the paradigm debate by embracing pragmatism or a dialectical position
Early procedural development period (late 1980s through 1990s)	• Reasons and procedures identified for combining quantitative and qualitative research • Typologies advanced for types of mixed methods designs • First books described the contour and issues involved in mixed methods research procedures
Expanded procedural development period (2003 through 2010s)	• Comprehensive handbooks established the field • Funding agencies supported and advocated for mixed methods • Journal publications reported and advocated for mixed methods studies in increasing numbers • Books published guides for applying mixed methods research generally, within specific disciplinary contexts, and in intersections with other research approaches • International conferences and professional groups focused on mixed methods research
Reflection and refinement period (ongoing since 2003)	• Critiques emerged about the marginalized position of qualitative research within mixed methods • Critiques focused on the discourse and standardization of mixed methods • Important issues and controversies identified in mixed methods • Mixed methods literature mapped into overarching frameworks • Additional and refined paradigms suggested for mixed methods

Stage of Development	Major Contributions and Milestones
Institutionalization and specialization period (ongoing since mid-2010s)	• New individuals stepped forward into leadership roles for the field through organizations and authorship • Standards established for reporting and assessing mixed methods studies • New developments focused on the procedures for achieving integration and metainferences within mixed methods • Increased specialization in topics considered within the field of mixed methods

Source: Adapted from Creswell and Plano Clark (2011, 2018).

Formative Period

The **formative period** in the history of mixed methods spans back to more than 100 years ago and continued up until the 1980s. This period saw the initial application of using more than one method in a study. For example, sociologists such as W. E. B. Du Bois (United States), Max Weber (Germany), and Paul Lazarsfeld (Austria) used a variety of methods in their studies in the late 1890s and early 1900s (see Gobo et al., 2022; Maxwell, 2016). From these separate applications, interest in using multiple methods found momentum across multiple fields starting in the late 1950s. Campbell and Fiske (1959) discussed the inclusion of multiple sources of quantitative information in the validation of psychological traits. Others advocated the use of multiple data sources—both quantitative and qualitative—to conduct scholarly studies (Cook & Reichardt, 1979; Denzin, 1978), and several well-known figures in quantitative research, such as Campbell (1974) and Cronbach (1975), advocated for the inclusion of qualitative data in quantitative experimental studies. The combination and interplay of survey research and fieldwork provided a central feature in the writings of Sieber in 1973. Jick (1979) illustrated a process for triangulating both quantitative and qualitative approaches in organizational studies. 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 beginnings to what would later be more systematic attempts to forge mixed methods into a distinct approach to research (Creswell, 2011b).

Paradigm Debate Period

The **paradigm debate period** in the history of mixed methods occurred during the 1970s and 1980s, when qualitative researchers were adamant about different assumptions for quantitative and qualitative research (see Bryman, 1988; Guba & Lincoln, 1988; Smith, 1983). The paradigm debate involved scholars arguing whether qualitative and quantitative data could be combined because qualitative data were linked with certain philosophical assumptions and quantitative data were connected to other philosophical assumptions. If this was true, then, as some commented, mixed methods research was untenable (or incommensurable) because it asked for paradigms to be combined (Smith, 1983). Rossman and Wilson (1985) called individuals who argued

that paradigms could not mix “purists.” The discussion came to a head by 1994 with vocal advocates on both sides arguing their points at the American Evaluation Association meeting (Reichardt & Rallis, 1994). Today, however, the links between the methods of data collection and the larger philosophical assumptions are not as tightly drawn as was envisioned in the 1990s. Crotty (1998), Denzin and Lincoln (2005), and Mertens and Tarsilla (2015), for example, have advanced the idea that different types of methods (and mixed methods) can be associated with different worldviews or philosophical assumptions. Other perspectives also developed during this period, such as the situationalists, who choose their methods to fit the situation, and pragmatists, who believed that multiple methods can be combined to address research problems (Rossman & Wilson, 1985). Although the issue of reconciling paradigms remains current (see the writings of Giddings, 2006; Holmes, 2006; and Mertens & Tarsilla, 2015), the paradigm debate period began to subside as calls were made to embrace pragmatism as a philosophical foundation for mixed methods research (see Tashakkori & Teddlie, 1998) or to take a dialectical position to use different paradigms but to honor each and be explicit about when each is used in mixed methods research (Greene & Caracelli, 1997).

Early Procedural Development Period

Although the debate about which paradigms provide a foundation for mixed methods research has not disappeared, attention during the 1980s began to shift toward the **early 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 1989, Greene et al. authored a classic article in the field of evaluation that laid the groundwork for mixed methods research design. In the article they developed a classification system of five types, discussed the design decisions that go into each of the types, and analyzed 57 evaluation studies. Following this article, many authors have identified types of mixed methods designs with distinct names and procedures. 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 notation system to convey how the quantitative and qualitative components of a study were implemented. Building on these classifications and notations, 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.

Expanded Procedural Development Period

For the first two decades of the 2000s, the field moved into an **expanded procedural development period** in the history of mixed methods. In this stage the field of mixed

methods became formalized through major publications, expanded into systematic methods for conducting research, saw increased funding initiatives, increased empirical journal publications, and expanded into diverse disciplines and countries around the world.

The field of mixed methods research became formalized through several comprehensive handbooks that provided overviews of the state of the field. This era was initiated in 2003 with the publication of the *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. In the second edition of the handbook (Tashakkori & Teddlie, 2010b), the range of topics expanded to 31 chapters organized by conceptual issues, methodological issues, and contemporary applications. Subsequently, *The Oxford Handbook of Multimethod and Mixed Methods Research Inquiry* (Hesse-Biber & Johnson, 2015) included 40 chapters by a diverse set of international authors that examine the state of mixed methods research in terms of the links between theory and method, approaches for conducting mixed methods research, different disciplinary and applied settings, the use of new technologies, and commentaries and critiques of the field.

Along with establishing a field of mixed methods research, many efforts occurred during this time period that helped position and advocate for this approach to research. With regard to funding initiatives, the U.S. National Institutes of Health (NIH) took the lead by suggesting guidelines for combined quantitative and qualitative research in 1999. These guidelines were revised in 2011 by a working group that developed *Best Practices for Mixed Methods Research in the Health Sciences* (Creswell et al., 2011). 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 (Ragin et al., 2004). Private U.S. foundations, such as the Robert Wood Johnson Foundation and the W. T. Grant Foundation, held workshops on mixed methods research. In the United Kingdom, the Economic and Social Research Council (ESRC) funded inquiries into the use of mixed methods research through its Research Methods Programme (Bryman, 2007). In the United States, Plano Clark (2010) examined the mixed methods projects funded by NIH between 1997 to 2008. Her review showed a steady increase in the number of funded mixed methods projects and widespread support for this approach across different NIH agencies. The analysis was extended for the years 2008–2014, and the researchers found that the funding trends had continued to increase (Coyle et al., 2018).

The expanded development of this approach was also supported by the increasing number of published mixed methods studies in journals across disciplines. Reviews of mixed methods study reports during this time period documented applications in many disciplines, such as marketing research (Harrison, 2010); family research (Plano Clark et al., 2008); multicultural counseling research (Plano Clark & Wang, 2010); business management (Molina-Azorín, 2011); applied linguistics (Jang et al., 2014); and across social science disciplines (Bryman, 2006; Ivankova & Kawamura, 2010). The use of mixed methods research was advocated in commentaries, such as in the *Educational Researcher* (Johnson & Onwuegbuzie, 2004) and *Circulation* (Curry et al., 2009), and with the publication of special issues focused on mixed methods, such as in the

Journal of Family Psychology (e.g., see Weisner & Fiese, 2011), *American Behavioral Scientist* (e.g., see Johnson, 2012), and *Contemporary Educational Psychology* (e.g., see McCrudden et al., 2019). Several journals became known for publishing both empirical mixed methods studies as well as methodological discussions at this time, such as the *JMMR*, *International Journal of Multiple Research Approaches*, *Quality and Quantity*, and *Field Methods*.

Books published provided comprehensive guides to the conduct of mixed methods research (e.g., Creswell, 2009b, 2014; Creswell & Plano Clark, 2007, 2011; Greene, 2007; Morgan, 2014a; Morse & Niehaus, 2009; Plano Clark & Creswell, 2008; Teddlie & Tashakkori, 2009). These books initially were general in scope, aimed broadly at the social and health sciences. Subsequently, disciplinary books about mixed methods research started to appear. Examples include books in the nursing and health sciences (Andrew & Halcomb, 2009); the broader health sciences (Curry & Nunez-Smith, 2015); policy research (Burch & Heinrich, 2016); and social work (Haight & Bidwell, 2015). Scholars also began to consider how mixed methods approaches can form intersections with other research approaches such as an action research framework (Ivankova, 2015), culturally specific program evaluation (Nastasi & Hitchcock, 2016); and systematic literature reviews (Heyvaert et al., 2017).

On the international scene, interest in mixed methods expanded across many countries around the world through the interactions of scholars. Notably, the Mixed Methods Conference debuted in 2005 in Cambridge, United Kingdom. It is now hosted by the Mixed Methods International Research Association (MMIRA), an interdisciplinary and international organization founded in 2013. As we write this text, MMIRA offers a global conference every other year and regional conferences during the off years. The global conference site rotates to different countries around the world. In 2025, the website for MMIRA (<https://mmira.wildapricot.org>) listed eight chapters and affiliates located in countries around the world. The international community around mixed methods also formed through disciplinary groups. For example, there is the Special Interest Group on Mixed Methods Research formed in the American Educational Research Association and the Topical Interest Group on Mixed Methods Research formed in the American Evaluation Association.

Reflection and Refinement Period

We feel that mixed methods research entered a new historical period in 2003. This **reflection and refinement period** is characterized by reflective controversies and issues of concern about mixed methods followed by refinements in methods and perspectives.

Questions and issues have been raised about the role of qualitative research within mixed methods by writers in several fields. In the field of education, Howe (2004) addressed whether mixed methods privileged postpositivist thinking and marginalized qualitative interpretative approaches. His concern was mainly directed toward the National Research Council (2002) 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—not only was qualitative research limited to an auxiliary role, but the way qualitative research was used minimized its interpretive role and the inclusion of participant

voices. Similarly, from the field of nursing, New Zealander Giddings (2006) challenged the use of mixed methods as a “cover” for the continuing hegemony of positivism, and Holmes (2006) of Australia voiced concerns about the marginalization of qualitative interpretive frameworks in mixed methods. Sociological researcher Hesse-Biber (2010) argued for “centering a qualitative approach” (p. 9) in mixed methods in contrast to the primacy often provided to quantitative research.

Another theme of reflection and critique emerged over the discourse of the field and apparent push toward standardized approaches. Coming from the field of nursing, Freshwater (2007) 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 uncritical acceptance of mixed methods as an emerging dominant discourse (“is nearing becoming a metanarrative,” Freshwater, 2007, p. 139) affects how it is located, positioned, presented, and perpetuated. Freshwater (2007) called on mixed methods writers to make explicit the internal power struggle between the mixed methods text as created by the researcher and the text as seen by the reader or audience. Mixed methods, she felt, was too “focused on fixing meaning” (p. 137).

Creswell (2011a) captured the breadth of critiques that have occurred in the field in a summary of controversies in mixed methods research. He discussed 11 controversies, examined multiple sides to the issues, and posed lingering questions. As shown in Table 2.2, these controversies related to definition, use of terms, philosophical issues, the discourse of mixed methods, the design possibilities, and the value of mixed methods research.

Table 2.2 ■ Eleven Key Controversies and Questions Raised in Mixed Methods Research

Controversies	Questions Being Raised
1. The changing and expanding definitions of mixed methods research	What is mixed methods research? How should it be defined? What shifts are being seen in its definition?
2. The questionable use of qualitative and quantitative descriptors	Are the terms <i>quantitative</i> and <i>qualitative</i> useful descriptors? What inferences are made when these terms are used? Is there a binary distinction being made that does not hold in practice?
3. Is mixed methods a “new” approach to research?	When did the conceptualization of mixed methods begin? Does mixed methods predate the period often associated with its beginning (1988–1989)? What initiatives began prior to 1988 and 1989?
4. What drives the interest in mixed methods?	How has mixed methods grown in interest? What is the role of funding agencies in its development?

(Continued)

Table 2.2 ■ Eleven Key Controversies and Questions Raised in Mixed Methods Research (*Continued*)

Controversies	Questions Being Raised
5. Is the paradigm debate still being discussed?	Can paradigms be mixed? What stances on paradigm use in mixed methods have developed? Should the paradigm for mixed methods be based on scholarly communities?
6. Does mixed methods privilege postpositivism?	In the privileging of postpositivism in mixed methods, does it marginalize qualitative interpretive approaches and relegate it to secondary status?
7. Is there a fixed discourse in mixed methods?	Who controls the discourse about mixed methods? Is mixed methods nearing a “metanarrative”?
8. Should mixed methods adopt a bilingual language for its terms?	What is the language of mixed methods research? Should the language be bilingual or new or reflect quantitative and qualitative terms?
9. Are there too many confusing design possibilities for mixed methods procedures?	What designs should mixed methods researchers use? Are the present designs complex enough to reflect practice? Should entirely new ways of thinking about designs be adopted?
10. Is mixed methods research misappropriating designs and procedures from other approaches to research?	Are the claims of mixed methods overstated (because of misappropriation of other approaches to research)? Can mixed methods be seen as an approach lodged within a larger framework (e.g., ethnography)?
11. What value is added by mixed methods beyond the value gained through quantitative or qualitative research?	Does mixed methods provide a better understanding of a research problem than either quantitative or qualitative research alone? How could the value of mixed methods research be substantiated through scholarly inquiry?

Source: Creswell (2011a), reprinted with permission of SAGE Publishing, Inc.

Several other scholars have voiced critiques of the field in the years since Creswell's (2011a) list. Flick (2017) critiqued the discourse of the field by referring to the repeated “mantras and myths” of mixed methods research, often accepted without critical examination. He noted that much attention is focused on specific technical features, which limits researchers' conceptualizations and use of methods and leads to thinking about the “right” methods. These concerns were echoed by Timans et al. (2019), who identified three problematic themes in the discourse of the field: a commitment toward standardization, the entanglement of epistemology and methods, and lack of clarity in understanding methods. Evaluator Jennifer Greene reflected on the state of the field in an interview and noted that there are many “technical uses of mixed methods” and encouraged the field to maintain a focus on the different ways of being and

knowing that can also be part of mixed methods (see Hall et al., 2023, for full interview). Maxwell (2025) compiled a key set of criticisms, which included the field of mixed methods being too siloed and not engaging with and learning from other fields and being too reliant on fixed frameworks that constrain the possibilities for mixing methods. He urged researchers and the field to move “outside the box” (p. ix) when engaging with mixed methods research.

During this reflection and refinement period, numerous reflective examinations of the mixed methods field arose from the ongoing critiques and controversies. The first discussion was presented by Tashakkori and Teddlie (2003b) in the ending chapter of their handbook (and updated in 2010a). In these chapters they detailed major unresolved issues and controversies regarding the use of mixed methods in social and behavioral research. Greene (2008) published an analysis of key domains in mixed methods. In setting forth her domains, Greene (2008) asked, “What important questions remain to be engaged?” and she raised questions about “priorities for a mixed methods research agenda” (p. 8). Creswell (2008, 2009a) mapped the topics found within Mixed Methods Conference presentations and *JMMR* submissions to describe the current terrain of interest in the field of mixed methods. In 2016 Plano Clark and Ivankova advanced a socio-ecological model for describing the field of mixed methods research and discussed the different perspectives and debates concerning the mixed methods research process, different methodological considerations, and multiple layers of contextual influences. As a final example, Fetters (2018) assembled a collection of six different equations that serve as metaphors for describing core concepts of concern for mixed methods research, such as considering it as a unique methodology ($1+1=1$), the central role of integration and new insight (later to be discussed as metainferences) for mixed methods ($1+1=3$), or the countless possible combinations of methods ($1+1=\infty$).

In addition, in response to critiques about the foundations for mixed methods research, additional philosophies beyond pragmatism have drawn attention as possible philosophical worldviews underpinning mixed methods research. For example, Mertens (2003, 2009) advanced a transformative-emancipatory perspective that gives primacy to the values of human rights as a foundation for mixed methods research. Maxwell and Mittapalli (2010) discussed how critical realism could provide a foundation for both quantitative and qualitative research and foster dialogue between the two approaches in mixed methods. Johnson and Stefurak (2013) introduced dialectical pluralism as a refined perspective for combining different worldviews within mixed methods research. Fetters and Molina-Azorin (2019) advocated for consideration of non-Western and indigenous philosophies within mixed methods research and highlighted the example of the yin-yang philosophy from Asia.

Institutionalization and Specialization Period

As we write this fourth edition, we sense that a new period in the history of mixed methods has emerged in the last 5–10 years, which we tentatively refer to as the **institutionalization and specialization period**. This ongoing shift is characterized by mixed methods research becoming normalized within institutional structures and the development of more specialized examinations of specific aspects of this approach.

There are many ways that the field of mixed methods and the application of mixed methods in studies has become part of the institutional structures that provide context for research since about 2015. For example, new individuals with international representation are filling leadership roles within the field beyond the core group of scholars who were so instrumental in the earlier development. Examples abound including the editors of the *JMMR* and the presidents of the MMIRA professional organization. In 2024, these roles were filled by Loraine D. Cook (Jamaica), Sergi Fàbregues (Spain), Timothy C. Guetterman (United States), and Vanessa Sherman (South Africa). Numerous books about mixed methods research written by a variety of scholars, such as Creamer (2018) and Poth (2018) to name only two examples, are now available. In 2015 SAGE initiated a Mixed Methods Research Series as a venue for new authors to publish practical books providing how-to guidance for mixed methods research (<https://collegepublishing.sagepub.com/search?series=Mixed+Methods+Research+Series>). Journal options also expanded with the debut of the *Journal of Mixed Methods Studies (JOMES)* in 2020 as an open-access venue focused on publishing mixed methods. Mixed methods research has also been included as a major approach within existing conversations about research. For example, the fourth edition of the *International Encyclopedia of Education* (Tierney et al., 2023) included 40 chapters specific to mixed methods research.

Another way that mixed methods research has become broadly institutionalized is through organizations creating standards for reporting studies that used mixed methods and for assessing the quality of mixed methods studies. For example, the American Psychological Association (APA) developed Journal Article Reporting Standards (JARS) specific to mixed methods research (Levitt et al., 2018). The Patient-Centered Outcomes Research Institute (PCORI), a funding agency in the United States, also produced their own set of standards for reviewing the design and planned conduct of mixed methods studies as described in grant applications (Gaglio et al., 2020). Standards for Mixed Methods Reporting in Rehabilitation Health Sciences Research were developed and shared in the journal *Physical Therapy* (Tovin & Wormly, 2023).

Alongside the institutionalization of mixed methods, this time period has seen an expansion of methodological advances for mixed methods. These developments were included in new editions of books (e.g., Creswell & Plano Clark, 2018; Tashakkori et al., 2021) and discussed in editorials and articles. One area of attention in this period has been on the concept and procedures for achieving integration within mixed methods studies. Although integration has been an explicit part of the mixed methods conversation since the early writings in the 1980s, the focus initially had been on what it is and why it is challenging. This new period highlighted its importance and advanced many procedures for its application. One key writing was Feters and Freshwater's (2015) editorial encouraging all mixed methods researchers to take up the "integration challenge" in their studies. Developments have included the use of joint displays in the form of tables and figures to facilitate the process and communicate the product of meaningful integration (e.g., Bustamante, 2019; Creamer, 2025; Guetterman, Feters, & Creswell, 2015; Johnson et al., 2019). Books and manuscripts have highlighted analytic techniques for integrating different types of data during analysis (e.g., Bazeley, 2018; Hitchcock & Onwuegbuzie, 2020) as well as guidance for reviewers who encounter these specialized techniques (Onwuegbuzie & Johnson, 2021). As an extension of integration discussions,

literature additionally focuses on the metainferences, insight, or conclusions that researchers draw from their integration analyses and that go beyond the insights from the separate quantitative and qualitative results (Fetters, 2020; Venkatesh et al., 2013; Younas et al. 2023). These emerging discussions address the importance of metainferences, procedures for drawing them from integration displays, how they relate to the literature and theory, and approaches to assess the validity of the interpretations.

Alongside developments specific to integration and metainferences, the field has diversified into a plethora of specialized and at times sophisticated topics. We offer a few examples to give a sense of the kind of work currently happening. There are now edited handbooks available on specific aspects of mixed methods research, such as Hitchcock and Onwuegbuzie's (2022) *The Routledge Handbook for Advancing Integration in Mixed Methods Research*, Poth's (2023) *The SAGE Handbook of Mixed Methods Research Design*, and Shan's (2024) *Philosophical Foundations of Mixed Methods Research*. There are also more books written on specialized mixed methods topics, such as O'Cathain's (2018) guide for using mixed methods within the context of randomized controlled trials, Mertens's (2018) discussion of designing mixed methods evaluation projects, Watkins's (2023) guide for using secondary data within mixed methods studies, and Froehlich et al.'s (2020) examination of mixed methods social network analysis. With these few selected examples, we aim to highlight the kind of work occurring in the field at this time. The conversation has largely moved beyond questions of what mixed methods is and why it should be used to delve deeply into a diverse range of philosophical, methodological, and logistical aspects. These aspects involve the design, implementation, reporting, and reviewing of mixed methods research in this currently developing period of its history.

As this brief overview indicates, mixed methods research today is built on a rich history that has developed across disciplines and led to the creation of an international community. It is also experiencing a dynamic and ongoing process that will continue to bring new advances as well as raise new critiques and questions moving forward. Scholars planning to conduct mixed methods research can draw from this history and its writings to both defend the use of this approach and to anticipate potential controversies and needed developments that accompany the use of mixed methods research.

Philosophical Foundations

In addition to the historical foundations for mixed methods research, researchers must also consider the philosophical assumptions that provide a foundation for using mixed methods. All research has a philosophical foundation, and inquirers should be aware of assumptions they make about how they gain knowledge about the social world during their study. These assumptions come from researchers' personal experiences, cultural norms, and the literature, and they shape the processes of research and the conduct of inquiry. Awareness of these assumptions is especially important for graduate students because they are expected to be able to identify and articulate the assumptions they bring to research. Granted, philosophical assumptions often do not become explicit statements in published journal articles, but they provide a foundation

for conducting research, and they do frequently arise at conference presentations or in graduate student committee meetings. Generally, we suggest that mixed methods researchers not only be aware of their philosophical assumptions but also mention those assumptions as descriptions of their positionality (or personal stance) in their mixed methods projects.

What is involved in articulating philosophical assumptions in a mixed methods study? We recommend that researchers acknowledge the philosophy or worldview that is providing a foundation for the study, identify the elements of the worldview, relate them to their own thinking, and connect these elements to specific procedures in their mixed methods project.

Philosophical Assumptions 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 contended that there are four major elements in developing a proposal and designing a study. At the broadest level are the issues of philosophical assumptions, such as the epistemology behind the study or the assumptions regarding how researchers gain knowledge about the social world. These philosophical assumptions, in turn, inform the use of a theoretical stance 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 can be thought of as a method, but it is often thought of as a methodology for conducting research and 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). Because research aims to generate new knowledge about the social world, researchers bring assumptions about the nature of the social world and how knowledge about it can be generated in their studies. 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. We use the term *worldview* to reflect the researchers' stance about the world from their perspective (see Mogan, 2007). A term that is often used synonymously with worldview is *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 definitions 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

Figure 2.1 ■ Four Levels That Inform the Development of a Research Study**Philosophical worldview**

(Beliefs, e.g., epistemology, ontology)

**Theoretical lens**

(Stances, e.g., feminist, racial, social science theories)

**Methodological approach**

(Designs, e.g., ethnography, experiment, mixed methods)

**Methods of data collection and analysis**

(Techniques, e.g., interviews, checklists, instruments)

Source: Adapted from Crotty (1998).

the philosophy of education (for overviews of many different worldviews in research, see Guba & Lincoln, 2005; Mertens & Tarsilla, 2015; Paul, 2005; Slife & Williams, 1995; and Tashakkori et al., 2021).

What worldviews might inform the practices of mixed methods researchers? Writers have offered many worldview possibilities, but we have found that five worldviews are most useful for informing mixed methods research. As noted by Crotty (1998), who has held that these different stances are not “watertight compartments” (p. 9), these worldviews provide a general philosophical orientation to research and, as we see later, can be combined or used individually.

The five worldviews in Table 2.3 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 interrelate; (3) detailed observations and measures of variables; and (4) the testing of theories that are continually refined (Slife & Williams, 1995). **Constructivism**, typically associated with qualitative approaches, works from a different set of assumptions. 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 (Denzin, 2012).

Table 2.3 ■ Five Worldviews Found in Mixed Methods Research

Postpositivist Worldview	Constructivist Worldview	Pragmatist Worldview	Critical Realist Worldview	Transformative Worldview
Determinism	Understanding	Consequences of actions	Causal explanations	Political and activist
Reductionism	Multiple participant meanings	Problem centered	Mechanisms and contexts	Empowerment, human rights, social justice oriented
Empirical observation and objective measurement	Social and historical construction	Pluralistic	Construction from mental perspectives and empirical events	Collaborative
Theory verification	Theory generation	Real-world practice oriented	Theory refinement	Change, emancipatory oriented

Source: Adapted from Creswell (2013) and Plano Clark and Ivankova (2016).

The worldview **pragmatism** is commonly associated with mixed methods research as an overarching philosophy embraced by many mixed methods scholars (Tashakkori & Teddlie, 2003a). The focus is on the consequences of knowledge and actions in research, on the primary importance of the research 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 real-world practice and “what works” to gain insight into the problem. The fourth worldview we highlight is **critical realism**, which has received increasing attention as a foundation for mixed methods in recent years (Maxwell & Mittapalli, 2010; Mukumbang, 2023; Zachariadis et al., 2013). Like pragmatism, this worldview provides a middle ground between postpositivism and constructivism but with different assumptions. The focus is on causal explanations that account for the complexity of social reality by uncovering mechanisms and their contextual conditions, which are constructed in terms of multiple forms of evidence that include mental phenomenon (meanings) and empirical events. The multiple facets of the social world call for the use of multiple methods capturing different facets and serving to refine and reconceptualize theoretical explanations (Proudfoot, 2023). The final worldview in Table 2.3 is the transformative worldview. **Transformative worldviews** are focused on social justice values and the pursuit of human rights. They place central importance on specific communities at the margins of society, such as women, racial and ethnic groups, people with disabilities, and those economically disadvantaged (Mertens, 2009). For these communities, issues such as empowerment, marginalization, hegemony, and patriarchy, among others, need to be addressed, and researchers believe that they should respectfully collaborate and interact with community members to conduct research (Mertens & Tarsilla, 2015; Mertens & Wilson, 2013). In the end,

the transformative researcher works for the social world to be changed for the better so that individuals will be less marginalized.

A common way these worldviews are discussed in the literature is to array them (and compare them) in terms of specific philosophical dimensions. Thus, as shown in Table 2.4, worldviews differ in what is considered real in the social world (ontology), how we gain knowledge about the social world (epistemology), the role values play in research (axiology), the process of conducting research (methodology), and the language of research (rhetoric) (Creswell, 2013; Lincoln & Guba, 2000; Mertens & Tarsilla, 2015). Ontology refers to the nature of reality (and what is real) that researchers assume when they conduct their inquiries. The postpositivist researcher tends to view reality as singular and independent from the researcher. An example would be using a theory that hovers above the research study and helps 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. In contrast, the constructivist researcher views reality as multiple and constructed by individuals and thus actively looks for multiple perspectives from participants, such as perspectives developed through multiple interviews. The pragmatist researcher views reality as both singular (e.g., there may be a theory that operates to explain the phenomenon of study) and multiple (e.g., it is important to assess varied individual input into the nature of the phenomenon as well), whereas the critical realist assumes that a complex reality exists that is made up of multiple interacting systems about which knowledge can be constructed. The transformative researcher assumes multiple forms of reality shaped based on the social and cultural positions of individuals, such as in terms of gender, race, and poverty.

Table 2.4 ■ Elements of Worldviews and Implications for Research Practice

Philosophical Question	Postpositivism	Constructivism	Pragmatism	Critical Realism	Transformative
Ontology (What is the nature of social reality?)	Singular reality (e.g., researchers reject or fail to reject hypotheses)	Multiple realities (e.g., researchers provide quotes to illustrate different perspectives)	Singular and multiple realities (e.g., researchers test hypotheses and provide multiple perspectives)	Singular reality that is complex and multilayered (e.g., researchers describe multiple systems at work)	Multifaceted realities shaped by different social and cultural positions (e.g., researchers recognize different power positionalities in society)
Epistemology (What is the relationship between the researcher and that being researched?)	Distance and impartiality (e.g., researchers objectively collect data on instruments)	Closeness and subjectivity (e.g., researchers visit with participants at their sites to collect data)	Practicality (e.g., researchers collect data by “what works” to address research question)	Contextual (e.g., researchers gather multiple ways of viewing a phenomenon)	Collaboration (e.g., researchers actively involve participants as collaborators, build trust, and honor participant standpoints)

(Continued)

Table 2.4 ■ Elements of Worldviews and Implications for Research Practice
(Continued)

Philosophical Question	Postpositivism	Constructivism	Pragmatism	Critical Realism	Transformative
Axiology (What is the role of values?)	Unbiased (e.g., researchers use checks to eliminate bias)	Reflexive (e.g., researchers actively talk about and use their personal viewpoints and interpretations)	Multiple stances (e.g., researchers include both interpretive and unbiased perspectives)	Rationality (e.g., researchers describe the role of their beliefs and experiences in the judgments they make)	Based on human rights and social justice for all (e.g., researchers begin with and advocate for this premise)
Methodology (What is the process of research?)	Deductive (e.g., researchers test an a priori theory)	Inductive (e.g., researchers start with participants' views and build "up" to patterns, theories, and interpretations)	Combining and abductive (e.g., researchers collect both quantitative and qualitative data and mix them to suggest actions)	Pluralistic and retroductive (e.g., researchers use multiple forms of data to capture different facets and advance mechanisms within contexts)	Participatory (e.g., researchers involve participants in all stages of the research and engage in cyclical reviews of results)
Rhetoric (What is the language of research?)	Formal style (e.g., researchers use agreed-upon definitions of variables)	Informal style (e.g., researchers write in a literary, informal style)	Formal or informal (e.g., researchers employ styles of writing that communicate with intended audience)	Causal and systemic (e.g., researchers emphasize mechanisms and contexts that explain what happens within systems)	Advocacy, activist-oriented (e.g., researchers use language that will help bring about change and advocate for human rights and social justice)

Source: Adapted from Creswell (2013) and Plano Clark and Ivankova (2016).

As another example of differences among the worldviews shown in Table 2.4, 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—resulting in the support of or contradiction to 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 the themes. In pragmatism, the approach may combine deductive and inductive thinking because the researcher mixes both qualitative and quantitative data as the study proceeds. In critical realism, the researcher gathers multiple forms of data to capture evidence for refining causal explanations and understanding the contextual conditions in which they operate. In transformative research, the researcher collaborates with community members and builds trust with them.

Worldviews Applied to Mixed Methods

Up until this point, we have reviewed five different worldviews and discussed how they might differ in terms of broad philosophical elements of ontology, epistemology, axiology, methodology, and rhetoric. Which worldview(s) 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, 2010b), and their responses have varied. We especially recommend the article by Shannon-Baker (2016) on making paradigms meaningful in mixed methods research and the recent edited book on dialogues between researchers and philosophers about philosophical foundations of mixed methods research (Shan, 2024).

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 “researcher positionality statement,” or in the methods section of their study plan or report. They might first identify their philosophical position and assumptions, discuss the worldview that typifies their position (with citations to literature about that worldview), and then discuss how their philosophy informs the conduct of their research.

As we look across writings about mixed methods research, we see four broad stances being used within mixed methods studies that provide good options for researchers. These stances are (1) identify one best worldview for mixed methods, (2) take a dialectical stance that includes multiple worldviews, (3) identify the worldview based on the study context and mixed methods design, or (4) use a worldview shaped by one’s research community. We discuss each option to help readers consider the stance that most aligns with their perspectives.

Identify 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 what they believe is the worldview that best provides a foundation for mixed methods research. Tashakkori and Teddlie (2003a) suggested that at least 13 different authors embrace pragmatism as the optimal worldview or paradigm for mixed methods research, and we find that this position remains prevalent today. Although we have already introduced pragmatism, because of its importance, it merits further discussion.

Pragmatism is a set of ideas that have been articulated by many people throughout the years from historical figures such as John Dewey, William James, and Charles Sanders Peirce to contemporaries such as Cherryholmes (1992), Murphy (1990), and Morgan (2007). It draws on many ideas, including emphasizing the consequences of actions and 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 for mixed methods research is the critical realist perspective (Iosifides, 2017; Maxwell & Mittapalli, 2010; Zachariadis et al., 2013). It is a philosophical perspective that combines a realist ontology (there is a real social world that exists independently of individuals’ perceptions, theories, and constructions) with a constructivist epistemology (understanding of this social world is constructed from individuals’ perspectives, standpoints, and experiences). Brunson et al. (2023) identified several key assumptions of a critical realist perspective including these: reality is composed of complex systems that can be known through empirical and subjective evidence, causal processes can be understood in terms of their mechanisms and contextual conditions, and theorizing about causal processes are central to scientific explanation and practical action. They concluded that critical realism “provides a strong philosophical justification for mixed methods research . . . [by] orienting diverse methods around a common goal of explaining why and how things happen” (p. 14).

The transformative perspective of Mertens (2003, 2012) has also been discussed as a “best” paradigm for mixed methods research. Mertens (2003) provided and continued to elaborate (Mertens, 2009; Mertens & Tarsilla, 2015) an original, insightful contribution to the mixed methods literature by bridging the philosophy of inquiry (i.e., paradigms) with the practice of social justice research, primarily in the field of evaluation. 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 the field a framework with immediate applicability for assessing the inclusion of an emancipatory perspective in mixed methods studies. As already discussed, she called it the transformative framework and has held that it includes a person’s worldview and implicit value assumptions. These assumptions are that knowledge is not neutral and that it 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 role of values in research, including feminists, members of diverse ethnic and racial groups, and people with disabilities (Mertens, 2003, 2009).

Include Multiple Worldviews in a Dialectical Stance

In contrast to using one “best” worldview, another position states that multiple paradigms should be used in mixed methods research; researchers must simply be explicit and intentional in their use. This dialectical stance (Greene, 2007; Greene & Caracelli, 1997; Greene & Hall, 2010) 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, which can contribute to new and diverse insights. This stance emphasizes explicitly using two or

more worldviews (e.g., constructivism *and* postpositivism) in a dialogue during the study instead of using a single worldview, such as pragmatism.

An extension of the dialectical perspective of Greene has been formulated by Johnson (2012) as an encompassing worldview—or metaparadigm (Johnson, 2017; Johnson & Stefurak, 2013)—informing mixed methods: **dialectical pluralism**. Called a process philosophy by Johnson and Stefurak (2013), it has three major characteristics:

1. In conducting mixed methods, a need exists to listen carefully and thoughtfully to different paradigms or worldviews, disciplines, theories, communities, and citizens;
2. the researchers' and community members' values should guide the project; and
3. this collaboration should be conducted with fairness, justice, and equality. (p. 38)

This approach further builds into distinct strategies when conducting a mixed methods project. The project would proceed with a discussion of differences and equal power, trust, openness, honesty, constructive conflict, and role-taking, with the participants essentially working toward a win-win situation (Johnson, 2017; Johnson & Stefurak, 2013).

Identify a Worldview Based on the Study Context and the Mixed Methods Design

In this third stance, a stance we embrace, researchers have the flexibility to use the worldview that best fits the context of their study. Although some researchers may strongly align with one worldview and operate from those assumptions consistently, we find that many researchers hold different assumptions at different times and in different contexts. That is, a researcher may use more than one worldview in one mixed methods study (in contrast to only the “best” worldview) and then use one overarching worldview in another study (in contrast to the dialectical perspective). In this stance, the selection of worldviews informs—and possibly is informed by—the context and design of the mixed methods study. This is more in line with Maxwell's (2011) notion that paradigms can be productively thought of as tools creatively used to fit a certain research situation. We believe multiple paradigms can be used in mixed methods studies and that researchers should articulate the assumptions that best fit the context and their choice of the type of mixed methods design.

Although there is no fixed link between certain worldviews and procedures in research (Crotty, 1998), the guiding assumptions of worldviews often shape how mixed methods researchers construct their procedures. For example, quantitative 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 may be implicitly using a postpositivist worldview to inform the study, beginning with specific variables and objective measures framed within an a priori theory that is being tested in the survey project. Then, if the researcher moves to qualitative focus groups in the second phase to follow up on and explain the survey results, it is possible that the worldview shifts to more of

a constructivist perspective. In the focus group, the attempt is to elicit multiple meanings from the participants, to build a deeper understanding than the survey yields, and to possibly generate a theory or pattern of responses explaining the survey results. In effect, the researcher has shifted from a postpositivist worldview in the first phase of the research into a constructivist worldview in the second phase. The researcher may then bring in another perspective, such as a dialectical stance, when integrating and interpreting the two phases together.

If, instead of implementing the different approaches in phases, a mixed methods researcher collects both quantitative and qualitative data in the same phase of the project and merges the two databases, then an all-encompassing worldview might be operating and best for the study. We would look to pragmatism (or critical realism or a transformative perspective or dialectic pluralism approach) as that worldview because it enables researchers to adopt a pluralistic stance of gathering all types of data to best answer the research questions.

Thus, our view holds that worldviews can relate to types of designs, the worldview can change during a study, and the worldview may be tied to different phases in the project. Because of the many possible options, we recommend that researchers be aware of and write about their worldview(s) in use within their studies. We will further discuss this connection—between the worldview in use and the design in use—for each mixed methods design in Chapters 3 and 4.

Use a Worldview Based on One's Scholarly Community

Another approach to considering worldviews in mixed methods occurs when writers turn to Kuhn's (1970) idea of a community of research practice. Two key writings about this stance appeared in 2007 and 2008 in *JMMR* articles by American author David Morgan and British author Martin Denscombe. Morgan's (2007) article is a fascinating piece of scholarship that described paradigms as "shared belief systems that influence the kinds of knowledge researchers seek and how they interpret the evidence they collect" (p. 50). He elucidated four views of paradigms that differed in terms of generality: (1) a paradigm can be viewed as a worldview, an all-encompassing perspective on the world; (2) they can be seen as epistemologies that incorporate ideas from the philosophy of science, such as ontology, methodology, and epistemology; (3) they can be viewed as the "best" or "typical" solutions to problems; and (4) they may represent shared beliefs of a research field. It is this last perspective that Morgan strongly endorsed. Researchers, he said, share a consensus in specialty areas about what questions are most meaningful and which procedures are most appropriate for answering the questions. In short, many practicing researchers look to worldview perspectives from a "community of scholars" perspective (2007, p. 53). According to Morgan, this was the version of paradigms that Kuhn (1970) most favored when he talked about a community of practitioners.

Denscombe (2008) reinforced Morgan's position and added more details about the nature of a community of research practice. He outlined how communities work using ideas such as shared identity, common research problems, social networks, knowledge formation, and informal groupings. This stance suggests that different worldviews can develop within different subgroups. The mixed methods field is becoming fragmented by discipline orientation, and subject matter interest in different fields (e.g., psychology, social work, criminal justice, and nursing to name a

few) will ultimately shape the philosophical orientation of a discipline community. For example, when colleagues in the health sciences at the Veterans Administration Health Services Research Center in Ann Arbor, Michigan, refer to mixed methods from an evaluation perspective of “formative” and “summative” procedures, they are embracing mixed methods from a field orientation that makes sense within the health services research area (Forman & Damschroder, 2007).

Theoretical Foundations

Referring to Crotty’s (1998) model in Figure 2.1, we find theory operating at a narrower perspective than worldview. **Theory (or conceptual framework or theoretical rationale)** is a general explanation of what the researcher expects to find in a study. Theories can be narrow (e.g., personal motivation is expected to influence vocabulary learning) or broad (e.g., the environment is expected to involve multiple levels from family to society). In contrast to worldviews that come from the beliefs and values of the researcher (or possibly from participants or readers of a study), theory typically emanates from the literature by authors other than the researcher.

In quantitative research, theory is often used deductively to make and test predictions of the results. In qualitative research, it is often used inductively to provide an overall explanation of what will be or was found in the study. Thus, theory holds different meanings in quantitative and qualitative research. In quantitative research, the theory identifies key variables, is translated into hypotheses or questions, and is then tested with the data to determine if the theory is supported or refuted. This is often called a hypo-deductive approach (Kelle, 2015). In qualitative research, the theory is often generated during the research process and positioned at the end of the study (or threaded throughout the study) as a general model or explanation as to what was found. In some qualitative studies, the theory is advanced as a preliminary framework but then modified into a new or newly configured theory as the data are analyzed. We have called this use of theory in qualitative research the inductive interpretive approach (Creswell, 2015).

How do mixed methods researchers use theory in their studies? The best we can say is that it varies from study to study. Sometimes mixed methods researchers use theory deductively, as in the case of applying a social science theory to inform a study’s research questions and methods. At other times, researchers employ theory inductively as in the case of emancipatory studies, such as feminist or critical race studies, where new concepts and explanations emerge from the research. Then, at times, researchers may use theory both deductively and inductively and “thread” the theory throughout a mixed methods study.

A deductive use of theory in a mixed methods study would be the application of an explanatory framework from the social sciences that predicts and shapes the direction of a research study, as in a hypothetico-deductive use of theory. A **social science theory** is positioned deductively at the beginning of a mixed methods study and provides a framework, or explanation, that is used to guide the nature of the questions asked and answered in a study. The data collected in response to the theory 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 explain what the researcher expects to find in a study.

An example of using social science theory can be found in a mixed methods study about the role of social stressors on sleep outcomes for individuals with opioid use disorder by Nwanaji-Enwerem et al. (2024). In this study, the researchers gathered information about stigma, discrimination, and sleep through quantitative measures and qualitative interviews with individuals on medication for opioid use disorder (MOUD). In the introduction of the study, they advanced its purpose:

The purpose of this mixed-methods study was to gain a comprehensive understanding of the relationship between stigma and discrimination and insomnia among individuals on MOUD by integrating quantitative and qualitative data. . . . The conceptual underpinnings of this study were drawn from three overarching frameworks: an adapted version of the health stigma and discrimination framework (see Fig. 1),^{13,15} intersectionality,¹² and the allostatic model of discrimination, sleep, and cardiometabolic risk.¹⁶ Blending these frameworks incorporates the intersecting, and multi-factorial drivers and facilitators of stigma and discrimination and the processes by which experiences may manifest and lead to poor sleep quality. (p. 32)

The authors chose to combine three theories into a conceptual model to ensure that the study could account for the expected complexity of the phenomenon of interest. The authors first reviewed literature about each of the key constructs and then introduced their model to explain how they expected the constructs to relate to each other. As noted in this excerpt, they cited literature to support the theories and included a figure that depicted the key components of the model and how they are expected to relate to each other. Based on this model, the authors stated two aims, one to quantitatively test the association among the variables in the model and the other to qualitatively explore individuals' experiences with those same constructs. The authors gathered data using quantitative measures for the variables in the model and asking questions in the interviews about these same concepts. They analyzed the different data sources, and then toward the end of the article, they merged the different results together in a joint display table to develop a comprehensive understanding of the relationship among stigma, discrimination, and sleep for the study participants. In the discussion they considered how the results were in accordance and discordance with the expectations.

Stepping back from this discussion, we can see how a mixed methods researcher might incorporate a deductive social science theoretical lens into a mixed methods study plan or report (also see Creswell & Creswell, 2023; Evans et al., 2011). We recommend the following steps:

- Place the discussion of the theory (model or conceptual framework) toward the beginning as an *a priori* framework to guide the questions in the study.
- Write about the theory by first advancing the name of the theory to be used followed by a description of the major concepts of the theory.

- Include a diagram of the theory that indicates the major concepts, or variables, in the theory and the direction of the causal links in the theory.
- Discuss previous studies that have used the theory.
- End by specifically stating how the theory will inform the research questions and procedures of the current mixed methods study.
- Use the theory to provide a framework for the quantitative and the qualitative data collection and analysis, the integration, and the interpretation efforts in the study.

In contrast to a social science theory as a guiding explanation in a mixed methods study, an **emancipatory theory** (or critical social theory) in mixed methods involves forming a theoretical stance in support of underrepresented or marginalized groups—such as in a feminist theory, a racial or ethnic theory, a sexual orientation theory, or a disability theory (Mertens, 2009)—and calling for change. These emancipatory theories often operate inductively in a study and end by calling for change to improve the lives of the marginalized individuals. Mertens (2009) has made clear that emancipatory theories are distinct from a worldview. Her transformative worldview operates at the broad philosophical or paradigm level (see also Mertens & Tarsila, 2015), whereas theories are more specific. Examples of emancipatory theories commensurate with the transformative paradigm include feminist theories, critical race theory, critical disability theory, queer theory, and postcolonial and indigenous theories.

Although the use of a transformative worldview is typically accompanied by a specific emancipatory theory, it is important to note that emancipatory theories can be productively used with other worldviews in research with social justice goals (see Morgan's, 2014b, discussion of using pragmatism with social justice aims). Although the goal addressing issues of social justice and the human condition initially were associated with qualitative research (Denzin & Lincoln, 2005), this emphasis has come to be associated with some studies in mixed methods research. As we write this edition, mixed methods studies with an emancipatory theory have been frequently reported in the mixed methods literature. For example, mixed methods studies have applied critical disability theory to examine parasport events (Misener et al., 2016); critical race theory to examine science identity of African American college students (White et al., 2019); feminist theory in a study of women's mental health after intimate partner violence (Moulding et al., 2021); and queer theory when examining whether sexual and gender minority college students chose to report bias-motivated incidents to campus or legal authorities (Weise et al., 2023).

Numerous methodological writings linking emancipatory and critical theories to mixed methods are found in the mixed methods literature (e.g., Bagwell et al., 2022; DeCuir-Gunby & Walker-DeVose, 2022; Hesse-Biber & Leavy, 2006). Sweetman et al. (2010) analyzed 13 mixed methods studies that incorporated an emancipatory theoretical lens. Their review showed a wide variety of social science journals had published these studies (e.g., *Women and Health*, *Families in Society*, *Social Work Research*, and *Urban Studies*), and six different theoretical lenses were used by the authors. Feminism was the most common (six studies), with socioeconomic theories as the next most common (two studies), followed by disability, human ecology, and general gender

theories. 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 as a general model threaded throughout 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 both quantitative and qualitative data in a way that will not further marginalize the community.
- Position the researchers in the study.
- Suggest a plan of action or change based on the integrated results to end the study (inductive approach).

Whether a hypothetico-deductive approach or an inductive interpretative approach to theory is used in a mixed methods study, there is a need to further refine our understanding of the use and application of theory in mixed methods research. One approach is that we can conceptualize theory use as related to types of mixed methods designs (Kelle, 2015; Morse & Niehaus, 2009). Kelle (2015) introduced this idea in his chapter under the heading of “functions of theory in different mixed methods designs” (p. 600). It is in the discussion of specific types of designs that we can best see the application of theory in a mixed methods study. For example, a project that starts with a qualitative orientation can be used to inductively develop empirically grounded theoretical concepts and hypotheses, which are then followed by a deductive quantitative examination of the applicability of the concepts to other or similar domains. Alternatively, deductive quantitative research may help define problem areas and theory-based research questions that are further explored inductively during a follow-up qualitative part of the study (Kelle, 2015). Studies that gather and analyze both forms of data at the same time can use theory to plan, organize, and integrate the different sets of results. The different types of designs will occupy our attention in Chapters 3 and 4, and we will advance potential theory use for each type of design.

Summary

In planning a mixed methods study, researchers need to justify the use of mixed methods, cite references to the latest literature, 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 and early 1990s. Thus,

the development of the field of mixed methods emerged over 35 years ago, and it has evolved because of the legitimization of both quantitative and qualitative inquiry, the complexity of research problems, the need for more evidence in applied settings, and its intuitive appeal of merging stories and numbers.

The evolution of mixed methods has included several 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 inappropriately integrated different philosophical perspectives; (3) the early procedural phase in which writers pushed for increased understanding about conducting a mixed methods study; (4) the expanded procedural development phase in which writers began to suggest mixed methods research as a distinct methodology and its popularity spread to diverse disciplines and different countries around the world; (5) the reflective and refinement phase in which writers discussed the issues and controversies in mixed methods research and identified advances in the field; and (6) the institutionalization and specialization period involving new authors in writing, the development of standards, and the advancement of specialized procedures such as integration and metainferences.

Further, researchers bring to their mixed methods studies philosophical foundations that need to be made explicit and discussed. Researchers need to acknowledge the philosophical worldview they bring to a project, identify the assumptions of their worldview, and relate the assumptions to the specific elements of their mixed methods studies. Worldviews are beliefs and values about the social world and how knowledge can be generated that researchers bring to studies. Researchers may draw from one or more worldviews, such as postpositivism, constructivism, pragmatism, critical realism, or a transformative worldview. The elements for each worldview differ, and they are reflected in different philosophical assumptions in terms of ontology, epistemology, axiology, methodology, and rhetoric.

In response to these philosophical ideas, mixed methods researchers take different stances on the use of worldviews in their research. The source for a researcher's worldview may come from the stance taken from their training and belonging to a specific field of study (a community of research practice). It may also result from the environment or culture of the individual or reading the literature about worldviews employed in mixed methods research. Regardless of the source, some identify with a single worldview that informs mixed methods, such as pragmatism, critical realism, or a transformative perspective. Others hold that multiple worldviews can inform a mixed methods study, and they are drawn to the dialectical pluralism worldview. Still others choose from among these stances for their study, and the choice relates to the study context and mixed methods design being used. Regardless of worldview, the assumptions behind a mixed methods study need to be identified and stated in mixed methods projects to provide a basis for combining quantitative and qualitative approaches.

Mixed methods researchers may also use theory in their study and vary considerably in their use of theory in studies. They can reflect a hypothetico-deductive testing framework, an inductive-interpretative approach, or both. Theories may be generally grouped into social science or emancipatory theories. 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. Emancipatory 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 a call for action inductively advanced at the end of a study. A connection exists between theory use and type of mixed methods design, which provides a more nuanced understanding of the application of theory in a mixed methods project.

Activities

1. Consider the six time periods in the history of mixed methods summarized in Table 2.1. Explain which period of development best aligns with your own experiences with mixed methods research from your discipline. Give examples of any specific developments and/or controversies about mixed methods research that stand out to you.
2. Consider your assumptions about the social world and how mixed methods research can generate knowledge about it. First, describe your ideas about the nature of reality (e.g., single and/or multiple), how knowledge can best be generated (e.g., objectively, subjectively, and/or in collaboration), and the role of values in research (e.g., emphasis on unbiased, reflexive, human rights, and/or rationality). Identify the worldview(s) discussed in this chapter that fit with your perspectives.
3. Locate an example of a mixed methods study report published as a journal article. Examine this article to see whether and how the authors used theory in the mixed methods article. If theory is present, determine if it is a social science theory and/or an emancipatory theory, and identify whether the author uses it deductively, inductively, or with both approaches.
4. Identify a theory in the literature that is relevant for the topic of a mixed methods study that you might like to conduct. Identify whether it is a social science theory and/or an emancipatory theory. Briefly describe the theory, and then explain whether you would apply it in a more deductive or inductive way and why. Articulate an example of how the theory might be used in the mixed methods study (e.g., shape the research questions, inform the quantitative and/or qualitative data collection plans, or aid in interpretation).

Additional Resources to Examine

For a historical analysis of mixed methods research, consult the following resources:

- Maxwell, J. A. (2016). Expanding the history and range of mixed methods research. *Journal of Mixed Methods Research*, 10(1), 12–27.
<https://doi.org/10.1177/1558689815571132>
- Tashakkori, A., & Teddlie, C. (Eds.). (2010b). *SAGE handbook of mixed methods in social & behavioral research* (2nd ed.). Sage.

- Timans, R., Wouters, P., & Heilbron, J. (2019). Mixed methods research: What it is and what it could be. *Theory and Society*, 48(2), 193–216.
<http://www.jstor.org/stable/45200451>

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

- Shan, Y. (Ed.). (2024). *Philosophical foundations of mixed methods research: Dialogues between researchers and philosophers*. Routledge. <https://doi.org/10.4324/9781003273288>
- Shannon-Baker, P. (2016). Making paradigms meaningful in mixed methods research. *Journal of Mixed Methods Research*, 10(4), 319–334.
<https://doi.org/10.1177/1558689815575861>

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

- Denscombe, M. (2008). Communities of practice: A research paradigm for the mixed methods approach. *Journal of Mixed Methods Research*, 2(3), 270–283.
<https://doi.org/10.1177/1558689808316807>
- Morgan, D. L. (2014b). Pragmatism as a paradigm for social research. *Qualitative Inquiry*, 20(8), 1045–1053. <https://doi.org/10.1177/1077800413513733>
- Johnson, R. B., & Stefurak, T. (2013). Considering the evidence-and-credibility discussion in evaluation through the lens of dialectical pluralism. *New Directions for Evaluation*, 138, 37–48. <https://doi.org/10.1002/ev.20056>
- Mertens, D. M. (2012). Transformative mixed methods: Addressing inequities. *American Behavioral Scientist*, 56(6), 802–813. <https://doi.org/10.1177/0002764211433797>
- Zachariadis, M., Scott, S., & Barrett, M. (2013). Methodological implications of critical realism for mixed-methods research. *Management Information Systems*, 37(3), 855–879.
<https://doi.org/10.25300/MISQ/2013/37.3.09>

For discussions of the use of theory in mixed methods research, see the following resources:

- Creswell, J. W., & Creswell, J. D. (2023). *Research design: Qualitative, quantitative, and mixed methods approaches* (6th ed.). Sage.

- Evans, B. C., Coon, D. W., & Ume, E. (2011). Use of theoretical frameworks as a pragmatic guide for mixed methods studies: A methodological necessity? *Journal of Mixed Methods Research*, 5(4), 276–292. <https://doi.org/10.1177/1558689811412972>
- Sweetman, D., Badiee, M., & Creswell, J. W. (2010). Use of the transformative framework in mixed methods studies. *Qualitative Inquiry*, 16(6), 441–454. <https://doi.org/10.1177/1077800410364610>