

CHAPTER 1

BASIC FEATURES OF MIXED METHODS RESEARCH

TOPICS IN THE CHAPTER ❖

- Mixed methods as a methodology and a method about 25 years old
- A definition of mixed methods research
- What is not mixed methods research
- Four key characteristics of a mixed methods study

UNDERSTANDING MIXED ❖ METHODS RESEARCH

The best way to begin, I believe, is to reach an understanding of the basic characteristics of mixed methods research. As a field of **methodology** about 25 years old, this approach has common elements that can easily be identified. That is not to say that there is no disagreement about the core meaning of this approach. It can be viewed from a philosophical stance, in which epistemology and other philosophical assumptions take center stage. It can also be presented as a methodology, that is, as a research process originating from a broad philosophy and extending to interpretation and dissemination. Or it can be positioned within a transformative perspective,

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such as feminism or disability theory. Since these are all possibilities, it is crucial to recognize that several definitions exist depending on the perspective of the author.

My stance is to look at mixed methods as a **method**. This means that I will give it a distinct methods orientation, one in which data collection, analysis, and interpretation hold center stage. This is not to minimize the importance of philosophy or of methodology or of the research questions. It is simply to place emphasis on the methods, because they provide a specific, concrete way to enter the field of mixed methods.

❖ WHAT MIXED METHODS IS

Given this perspective, I see **mixed methods research** as:

An approach to research in the social, behavioral, and health sciences in which the investigator gathers both quantitative (closed-ended) and qualitative (open-ended) data, integrates the two, and then draws interpretations based on the combined strengths of both sets of data to understand research problems.

A core assumption of this approach is that when an investigator combines statistical trends (**quantitative data**) with stories and personal experiences (**qualitative data**), this collective strength provides a better understanding of the research problem than either form of data alone.

❖ WHAT MIXED METHODS IS NOT

Given this definition, we can extrapolate several things that mixed methods is not:

1. Mixed methods is not simply the gathering of both quantitative and qualitative data. Although this form of research is helpful, it does not speak to the integration of the two data sources and play upon the strength that this combination brings to a study.
2. Mixed methods research is not simply a matter of using that label in your study. There are specific scientific techniques associated with this methodology, and reviewers familiar with mixed methods will be looking for them.

3. Mixed methods should not be confused with a mixed model approach to quantitative research, in which investigators conduct statistical analysis of fixed and random effects in a database.
4. Mixed methods is not simply an evaluation technique, such as formative plus summative evaluation, even though a researcher could collect and integrate both quantitative and qualitative data in performing such evaluation.
5. Mixed methods is not simply the addition of qualitative data to a quantitative design. Mixed methods can be employed in this way, but we can also add quantitative data to qualitative, and we need a rationale for doing it either way.
6. Mixed methods further is not simply the collection of multiple forms of qualitative data (e.g., interviews and observations), nor the collection of multiple types of quantitative data (e.g., survey data, experimental data). It involves the collection, analysis, and integration of *both* quantitative and qualitative data. In this way, the value of the different approaches to research (e.g., the trends as well as the stories and personal experiences) can contribute more to understanding a research problem than one form of data collection (quantitative or qualitative) could on its own. When multiple forms of qualitative data (or multiple forms of quantitative data) are collected, the term is *multimethod* research, not mixed methods research.

CORE CHARACTERISTICS ❖ OF MIXED METHODS

- Collection and analysis of quantitative and qualitative data in response to research questions
- Use of rigorous qualitative and quantitative methods
- Combination or integration of quantitative and qualitative data using a specific type of mixed methods design, and interpretation of this integration
- Sometimes, framing of the design within a philosophy or theory

In the remainder of this chapter, I will address each key feature in greater detail.

Collecting Quantitative and Qualitative Data

I start with the assumption that the two types of data differ and that they take different but equally important roles. A researcher using quantitative methods decides what to study, poses specific questions or hypotheses, measures variables to facilitate the finding of answers, uses statistical analysis to obtain information in order to answer the questions/hypotheses, and makes an interpretation of the results. This form of research is quite different from qualitative research, in which the investigator poses general questions and collects data in the form of text, audio recordings, or video recordings. A hallmark of qualitative research is that the researcher collects data by observing participants or directly asking them open-ended questions using tools such as interviews, focus group protocols, or questionnaires. After collecting qualitative data, the researcher conducts a thematic analysis and presents the findings in literary form, such as a story or narrative. Thus, both approaches follow the general process of research: Identify a problem, determine research questions, collect data, analyze data, and interpret results. However, the means of carrying out each of these stages differs considerably between the two methods.

Elements of both quantitative and qualitative research are included in a mixed methods study. It becomes important, then, to realize that a mixed methods researcher needs to be skilled in both quantitative and qualitative approaches. Furthermore, to make the most of a mixed methods design, investigators need to understand the advantages and the disadvantages that accrue from both quantitative and qualitative research. See Table 1.1 for a brief comparison of quantitative and qualitative research.

Using Rigorous Methods

Although both quantitative and qualitative research flow into a mixed methods study, this does not mean that the scope of each approach will be reduced. Over the years, several authors have advanced criteria for what constitutes rigorous research from either a quantitative or qualitative perspective. We need to pay attention to those guidelines, whether they are the CONSORT guidelines in the medical field or informal guidelines for qualitative research advanced in research design books such as *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches* (Creswell, 2014). Key elements of rigor for both quantitative and qualitative methods are:

- Type of design (e.g., experiment, ethnography)
- Permissions for gaining access to the site

Table 1.1 Advantages and Limitations of Qualitative and Quantitative Research

Qualitative Research	
Advantages	Disadvantages
Provides detailed perspectives of a few people Captures the voices of participants Allows participants' experiences to be understood in context Is based on the views of participants, not of the researcher Appeals to people's enjoyment of stories	Has limited generalizability Provides only soft data (not hard data, such as numbers) Studies few people Is highly subjective Minimizes use of researcher's expertise due to reliance on participants
Quantitative Research	
Advantages	Disadvantages
Draws conclusions for large numbers of people Analyzes data efficiently Investigates relationships within data Examines probable causes and effects Controls bias Appeals to people's preference for numbers	Is impersonal, dry Does not record the words of participants Provides limited understanding of the context of participants Is largely researcher driven

- Sampling approach (systematic vs. purposeful)
- Number of participants
- Types of data to be collected (e.g., text, audio and video recordings, test score questionnaire responses)
- Instruments used to collect the data (e.g., surveys, observational checklists, open-ended interviews, focus group protocols)
- Organization and cleaning of the database as the first step in data analysis
- Later data analysis procedures, ranging from basic to more sophisticated approaches (e.g., descriptive to inferential, coding to theme development)
- Approaches to establish the validity and reliability of the data (e.g., internal validity vs. validation strategies)

Integrating Data

No topic in the field of mixed methods research is so confusing as the question of how to integrate the datasets. How do you reconcile words or text data with numbers or numeric data? Researchers are often simply not familiar with these procedures because they typically deal with only one type of data (i.e., quantitative or qualitative).

To understand where and how to integrate the databases requires first knowing something about the types of **mixed methods designs** (these designs will be briefly introduced here and developed in more depth in Chapter 4). There are three basic designs at the center of all mixed methods projects, as well as three advanced designs that constitute add-ons to the basic designs.

The three basic mixed methods designs are:

- A *convergent design*, in which the intent of the research is to collect both quantitative and qualitative data, analyze both datasets, and then *merge* the results of the two sets of data analyses with the purpose of comparing the results (some say validating one set of results with the other).
- An *explanatory sequential design*, in which the intent is to first use quantitative methods and then use qualitative methods to help *explain* the quantitative results in more depth. This is an easy, straightforward design.
- An *exploratory sequential design*, in which the intent is first to explore a problem with qualitative methods because the questions may not be known, the population may be understudied or little understood, or the site may be difficult to access. After this initial exploration, the researcher uses the qualitative findings to *build* a second quantitative phase of the project. This phase may involve designing an instrument to measure variables in the study, developing activities for an experimental intervention, or designing a typology that is then measured using existing instruments. In the third phase, the quantitative instrument, intervention, or variables are used in a quantitative data collection and analysis procedure.

One of these basic designs is typically found in every mixed methods study, either explicitly or implicitly. In some studies, additional features are added to the basic design. I call the resulting design an *advanced design*. Here are examples of advanced designs popular in the mixed methods literature today:

- *Intervention designs* are those in which the researchers employ a convergent design, an explanatory design, or an exploratory design within a larger experimental framework. Simply put, the investigator gathers qualitative data at some phase during the experiment, such as before the trial, during the trial, or after the trial. Integration in this case consists of *embedding* the qualitative data within an experimental trial.
- *Social justice* or *transformative designs* are those in which the researcher includes a social justice framework that surrounds the convergent, explanatory, or exploratory design. This framework flows into the mixed methods study at different points, but it becomes a constant focus of the study aimed at improving the lives of individuals in our society today (e.g., a feminist social justice design). Integration in this type of design involves *threading* the social justice concept throughout the study.
- *Multistage evaluation designs* are longitudinal studies consisting of many stages conducted over time with the central objective of a sustained line of inquiry. Within this objective would be the use of multiple mixed methods studies (as well as separate quantitative and qualitative studies) using convergent, explanatory, or exploratory designs. A prime example of this design would be the evaluation over time of the design, piloting, and implementation of a program in a community. Many stages of research would be involved in this program evaluation study: a needs assessment, a conceptual framework, the testing of the program, and a follow-up to the program. In this case, integration consists of *expanding* one stage into other stages over time.

Integration can then take several forms: merging, explaining, building, and embedding, depending on the type of design. It is common for the designs to emerge in a project rather than being preplanned. In addition, variations on these basic and advanced designs are allowed and often used. Still, it is important for learners of mixed methods research to understand the six designs (three basic and three advanced), because these designs will be the popular types found in the literature.

Using a Framework

The advanced designs suggest the importance of various conceptual and theoretical frameworks that are often used in mixed methods research. We

see in many mixed methods studies the use of a social or behavioral science framework that surrounds the mixed methods study. For example, a researcher may use a leadership theory to advance an explanatory sequential design and to present both the quantitative and qualitative results. Alternatively, a behavioral change model may surround a mixed methods study in the health sciences. As suggested by the social justice design, the framework may be a transformative or advocacy framework that surrounds the project in order to advance the needs of a marginalized group (e.g., a mixed methods study of racial profiling). These theoretical frameworks fall under either *social or behavioral theoretical models* or *transformative theoretical models*.

Another framework that may be used in a mixed methods study is a philosophical perspective. Philosophical frameworks are general beliefs and assumptions about research, such as how researchers discover knowledge. We all bring our understanding of the nature of the world and our assumptions about what information needs to be collected (e.g., subjective knowledge versus objective knowledge) to our study of a research problem. Research fields differ in terms of the importance of making these philosophical assumptions explicit or implicit in a study. Regardless of your field, it is important to acknowledge that our values and beliefs shape our orientation to research, how we gather data, the biases we bring to research, and whether we see our investigations as more emerging or fixed.

❖ RECOMMENDATIONS FROM THIS CHAPTER

I would recommend that researchers planning or conducting a mixed methods study be able to:

- define mixed methods research;
- recognize whether their proposed study meets this definition; and
- evaluate their idea for a mixed methods project by asking themselves the following questions to determine whether it contains the four key characteristics of a mixed method study:
 - Am I collecting and analyzing quantitative and qualitative data in response to research questions?
 - Am I using rigorous qualitative and quantitative methods?

- Am I combining or integrating the quantitative and qualitative data, interpreting this integration, and using a mixed methods design?
- Am I framing the study within a philosophy and/or a theory?

ADDITIONAL READINGS ❖

Creswell, J. W., & Plano Clark, V. L. (2011). *Designing and conducting mixed methods research* (2nd ed.). Thousand Oaks, CA: SAGE.

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.