

in tables, charts, and other displays of data, and how to use concept maps, graphic organizers, and images to unpack complex ideas and procedures.

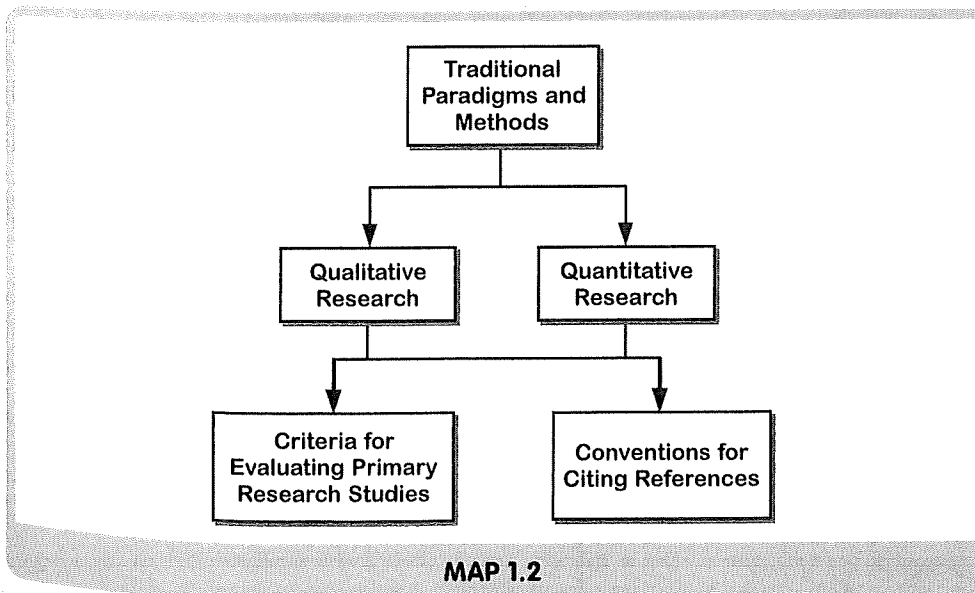
## TRADITIONAL PARADIGMS AND METHODS: QUALITATIVE AND QUANTITATIVE RESEARCH

MAP 1.2

Researchers use methodological approaches that represent particular ways of thinking. At the root of each approach are philosophical assumptions about what is knowable and how it can be known. Thomas Kuhn (1962) coined the term *paradigm* to describe “an integrated cluster of substantive concepts, variables and problems attached with corresponding methodological approaches and tools” (p. 32). In social science research, there traditionally have been two competing paradigms: *qualitative* and *quantitative*. At the root of the differences between the two paradigms are philosophical assumptions about what is knowable, who creates knowledge, and for whom the knowledge is intended and used.

The two traditions privilege *empirical* and *primary* research. This means that the authors of the study are the people who actually conduct the research, collect observable information (*data*), and analyze results. “Think pieces” (reflective and theoretical essays) and secondhand, filtered accounts of what “research says” are not included in primary, empirical research.

Qualitative and quantitative researchers publish their studies in peer-reviewed journals that are directed to an audience of fellow researchers and other interested parties who read those journals. *Peer-reviewed research journals* publish studies that have been vetted by other researchers, who assess the studies’ quality and make



MAP 1.2

recommendations for or against publication or offer suggestions for revision. Primary, empirical, peer-reviewed articles include the following key elements:

- *A review of relevant and recent research.* This review may frame a topic or methodology, or it may illuminate findings. Its location varies in accordance with conventions of the research method.
- *A statement of the research purpose and the design.* The purpose may be presented as a statement, a research question, or a hypothesis that makes a prediction of outcomes. The particular design within each tradition will be clearly identified.
- *A description of sampling.* The sample is described in terms of the number of participants, the way they were selected, the role(s) they played in the study, and their characteristics.
- *A description of data collection methods.* The methods for collecting empirical evidence is explained in terms of what evidence was collected, how it was collected, and under what conditions.
- *Data analysis/results.* The approaches, tools, and procedures that were applied to make sense of the data and communicate findings are described in detail. This description may include charts, tables, and diagrams.
- *Conclusion and discussion.* Here the researchers discuss the results and their implications for further research and practice, and may also include an acknowledgment of any limitations of the study.

### **Qualitative Methods**

The qualitative paradigm is rooted in the philosophy of *naturalism*, which assumes that people are best studied in their natural settings, and rejects the idea that individuals and human societies can be understood as a single, objective reality. Rather, it is based on the assumption that reality is best understood by uncovering how people make meaning of their particular situations. The qualitative paradigm of social research is the paradigm of *antipositivism* or *postpositivism*. It seeks to uncover subjective realities holistically. It emphasizes researcher engagement; it describes phenomena from the point of view of those who live and experience them; and it depends on interpretive processes for analysis.

Because qualitative researchers want to know how a particular group of people makes sense of phenomena or events within a particular context, they engage with the actors and make themselves visible and known to them in both data collection and analysis.

Qualitative researchers use conventions, approaches, tools, and procedures that are unique to the method.

The research review serves to enhance or elaborate findings and makes comparisons to prior studies; it is embedded in sections of the article or appears at or near the end of the study.

The most frequently occurring qualitative methods or designs in educational research include the following:

- *Ethnography* describes a culture or group and is the original qualitative design. Ethnographic case studies apply ethnographic methods of data collection and analysis to specific, bounded contexts, such as an event, program, or activity.
- *Phenomenological studies* (also known as *interview studies*) focus on individuals and how they understand and make sense of an experience or phenomenon.
- *Narratives* also focus on individuals and how they make meaning and bring order and coherence to their life stories.
- *Qualitative document analyses* describe and interpret existing written documents that are produced by actors without being solicited by researchers.
- *Critical discourse analyses* use critical theory to interpret texts and talk, with the goal of uncovering power relationships that reproduce those existing in society.

Sampling is *purposeful* and identifies participants, called *actors*, based on a researcher's subjective judgments about who can provide the richest information. Samples tend to be small in number. Because samples are purposeful, they are not meant to represent anyone beyond the boundaries of the study. The researcher does not generalize the findings to other samples or settings; rather, the researcher invites readers to decide whether the findings resonate with their own experience and contexts.

Data collection and analysis depend on the researcher as "the key instrument." This means that the researcher interacts personally with actors, conducts and records observations and interviews with them, and collects relevant documents. Data analysis is an inductive, iterative process in which the researcher develops and applies a coding strategy in order to organize data and develop themes and understandings, using words, metaphors, and images. Interpretation is an essential element in data analysis and involves the application of a particular interpretive lens that the researcher makes transparent to readers. Results are presented in an extended essay that includes detailed descriptions and verbatim accounts.

### **Quantitative Methods**

The Greek letter  $\Sigma$ , *sigma*, is the symbol for *sum of*. This signifies a reliance on quantifiable data—that is, the use of mathematical calculations to reach results. Research in the quantitative tradition is a well-planned itinerary that gets a researcher from point *A* to point *B* with no diversions along the way. The quantitative paradigm is rooted in the philosophical school known as *positivism*, which is based on the assumption that human beings and human societies are subject to laws that are similar to the laws of nature, and which accepts as knowledge only those ideas that are empirically verifiable and grounded in sensory experience. Positivism views reality as being objective and the duty of a scientist as uncovering reality through data and facts. The quantitative paradigm of social research is the paradigm of positivism. It seeks

to describe and explain objective reality bit by bit. It emphasizes the researcher's distance from subjects, quantifies and measures phenomena, and depends on statistical procedures for analysis.

Because quantitative researchers want to know how phenomena can be described or explained objectively, they maintain a distance from their subjects and seek to be invisible in data collection and analysis. Similar to qualitative researchers, they use conventions, approaches, tools, and procedures that are unique to the method.

The research review makes a case for doing the research. In general, the research review examines prior research in order to establish a theoretical foundation and to generate a hypothesis that the study will confirm or disconfirm.

The quantitative methods or designs that appear most frequently in educational research include the following:

- *Test and survey reports* summarize information about subjects.
- *Experiments* investigate cause and effect by introducing an intervention and analyzing outcomes that result from the intervention.
- *Nonexperimental group comparisons* investigate differences that exist between membership groups.
- *Correlations research* investigates the direction and strength of relationships and makes predictions about how one part of a relationship will influence outcomes on another.

Sampling may be *random* or *nonrandom*. Randomization is preferred since it makes it more likely that findings can be generalized to other subjects and settings.

Data collection and analysis depend on objective measurement and mathematical calculations. Unlike qualitative researchers, quantitative researchers keep a distance from the people they are studying in order to maintain objectivity. The results of data analysis are reported statistically; verbally in texts; and visually in tables, charts, graphs, and maps.

### **Criteria for Evaluating Studies**

Although qualitative and quantitative methods have different specific criteria for judging the quality of a study, the following general questions are useful in guiding an evaluation of either type.

- What is the purpose of the study? Is the purpose clearly stated? Is this a researchable topic? Are research questions or problems of practice posed? Are hypotheses stated? Are the purpose, method, and design aligned?
- Is there a research review? If yes: Does the author review relevant, prior research? If so, for what purpose? To what extent does the research review fulfill its purpose? Given the design, is the review appropriately placed? How does the author contextualize the study?

- Does the author provide sufficient information about how many participants are in the sample and how they were selected and a description of their relevant characteristics? Are the sample size and the sampling strategy appropriate to the purpose and design?
- Does the author provide a detailed description of how data were collected and under what conditions? Are the data collection tools and procedures appropriate for the purpose?
- Does the author clearly describe the approach to data analysis? To what extent are conclusions or interpretations justified by the purpose and the conduct of the research? Does the author avoid overconcluding?
- Are results and their value clearly communicated and in line with the purpose?

### Conventions for Citing References

#### MAP 1.3

Although professional researchers can choose from among several styles for citing and preparing full references of sources, most scholars in the social sciences and education use the format of the American Psychological Association (APA), and most university programs in education require it of students. Other formats, such as those of the Modern Language Association (MLA) and *The Chicago Manual of Style*, are more common in the humanities. Most empirical educational research uses APA style for both in-text citations and full references at the end of each article or chapter.

*In-text citations* occur within the body of an article or chapter and indicate the original source of an idea or a quote.

The *list of references* is located at the end of an article or chapter under a separate heading ("References").

Don't need to read

