

CHAPTER 1

An Introduction to Research and Ethical Practice

In the late 1800s, the prevailing myth held that men were more intelligent than women. Mary Calkins, a psychologist, conducted experiments at Wellesley College in 1887 that demonstrated that women are just as intelligent as men.

—Furumoto, 1980

Compelling pedagogical interests require that each program prepare graduates to navigate cultural and individual differences in research and practice, including those that may produce value conflicts or other tensions arising from the intersection of different areas of diversity.

—American Psychological Association
Commission on Accreditation, 2016, p. 8

What clinical experiences have enhanced completers's understanding of diversity and equity issues and their readiness to use that understanding in teaching situations? What applications of technology have prepared completers for their responsibilities on the job?

—Council for the Accreditation
of Educator Preparation, 2018, p. 37

How can school counselors help students in low income schools get good grades?

—Williams, Steen, Albert, Dely, Jacobs,
Nagel, and Irick, 2018, p. 156

The ways of Indigenous research are as old as the hills and the valleys, the mountains and the seas, and the desert and the lakes that Indigenous people bind themselves to as their places of belonging. It is not that Indigenous peoples are anti-research . . . the "bad name" that research has within Indigenous communities is not about the notion of research itself; rather it is about how that research has been practiced, by whom, and for what purpose that has created ill-feeling.

—Cram, Chilisa, and Mertens, 2013, p. 11

WHY BOTHER?

Life is complex; the world is not perfect. Many different kinds of people live on this planet, and educators and psychologists do not know the best ways to educate or counsel many people who have a history of poor achievement in school and who suffer a poor quality of life in terms of illiteracy, physical and mental illness, low pay, poor working conditions, high rates of unemployment, and other social and psychological disadvantages. The brief descriptions presented at the beginning of this chapter illustrate the importance of attending to all learners and clients with respect to cultural responsiveness and the complexity of educational and psychological challenges that confront researchers in our society. They highlight the importance that accreditation organizations place on developing research skills that equip educators and psychologists to address these challenges. They also give us pause to think about the role that research can play in providing insights into how research can contribute to changing the life experiences of those who suffer discrimination and oppression.

This is not meant to imply that research in and of itself can solve all the world's problems, nor is it meant to suggest that all research must be oriented toward social action. There are methods for designing research that make it more likely to be useful to educators, psychologists, counselors, administrators, policymakers, parents, and students. Such applied social research is the focus of this text. There are also research studies (termed *basic research*) that do not attempt to have immediate application in a social setting. Basic research is not the focus of this text despite its potential for contribution to social transformation.

WHAT IS RESEARCH?

Research is one of many different ways of knowing or understanding. It is different from other ways of knowing, such as insight, divine inspiration, and acceptance of authoritative dictates, in that it is a process of *systematic inquiry* that is designed to collect, analyze, interpret, and use *data*. Research is conducted for a variety of reasons, including to understand, describe, predict, or control an educational or psychological phenomenon or to empower individuals in such contexts.

The exact nature of the definition of research is influenced by the researcher's theoretical framework and by the importance that the researcher places on distinguishing research from other activities or different types of research from each other. For example, many students go to the Internet or the library and look up facts from a variety of sources and say that they are doing a research paper. Some journalists follow a similar search strategy and often include interviews with people close to the action that is the focus of a news report. The focus of this text is NOT on that type of "research." Rather, this text focuses on empirical research that is characterized as building on existing knowledge about a phenomenon. This base of knowledge (whether derived from scholarly literature or community interaction) is used to develop a research focus and questions and/or hypotheses as well as systematic collection of data from selected participants. The data are analyzed, interpreted, and reported. Such empirical research is found in scholarly journals, although this is not the only source where empirical research can be found.

EXTENDING YOUR THINKING

Definition of Research

One definition of research is provided in this text. Think about your own understanding of what it means to do research. Explore other definitions of research in other texts or through the Internet. Modify the definition provided or create a new definition that reflects your understanding of the meaning of the term *research*.

Two parallel genres of inquiry in the educational and psychological communities have grown side by side: research and program evaluation. At times, these two genres intersect; at other times, they follow very separate trajectories. The relationship between research and evaluation is not simplistic. Much of evaluation can look remarkably like research and vice versa. Both make use of systematic inquiry methods to collect, analyze, interpret, and use data to understand, describe, predict, control, or empower. Evaluation is more typically associated with the need for information for decision-making in a specific setting, and research is more typically associated with generating new knowledge that can be transferred to other settings. In practice, a large area of overlap exists between evaluation and research. Hence, what students learn in their study of research has application in their understanding of evaluation as well. The contextual factors and approaches unique to evaluation are described in the next chapter so that readers who are interested in evaluation can use the methodological guidance in subsequent chapters to plan an evaluation study.

RESEARCH TERMINOLOGY

Like most disciplines, researchers have their own jargon that has meanings different from everyday uses of the same terms. If you have studied research before, you might be familiar with these terms. However, it is almost impossible to talk about research without having at

BOX 1.1 Research Terminology: Definitions and Examples

1. *Quantitative/qualitative/mixed methods*: The description of these methods is the heart of this entire text. In quite simplistic terms, quantitative researchers collect numerical data; qualitative researchers collect words, pictures, and artifacts. Mixed methods researchers collect both types of data.
2. *Subject or participant or stakeholder*: The individual you are studying is the *subject* or *participant*; this is the person from whom you collect data. The term *subject* was used more frequently in the past and can still be seen in some journals. More recently, the term *participant* is used in recognition of the active role that human beings play in the research process as contributing participants. Hence, this is the term that is generally used in this text. Often, the

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participant in educational and psychological research is a student, client, teacher, administrator, or psychologist, but it could also be an animal or a textbook. For example, in Christodoulou et al.'s (2017) study of the effects of a summer reading program, the participants were 47 students, aged 6 through 9, who had been diagnosed with a learning disability. NOTE: *Stakeholder* is a term that is sometimes used (more frequently in program evaluation) to indicate members of the community who have a "stake in the outcomes of the research." Stakeholder is usually more inclusive than the terms subject or participant because it can include those from whom data are collected as well as administrators, staff, and others in the community who will be affected by the results of the inquiry.

3. *Independent variable and predictor variable*: The independent and predictor variables are the variables on which the groups in your research study differ, either because you have exposed them to different treatments (independent variable) or because of some inherent characteristics of the groups (predictor variable). When the researcher deliberately manipulates a treatment (e.g., introduces literacy training for one group but not the other), the treatment is called the *independent variable*. Common independent variables in education and psychology include variations in methods of teaching or therapy. Christodoulou et al. (2017) had an independent variable that was the Seeing Stars reading program. If the researcher is interested in the effect of differences of an inherent characteristic, the variable is more frequently called a *predictor variable*. For example, in studies of gender differences, gender is the predictor variable.
4. *Dependent variable and criterion variable*: The dependent or criterion variable is the variable that the researcher is interested in measuring to determine how it is different for groups with different experiences (dependent) or characteristics (criterion). The *dependent variable* gets its name because it depends on what the researcher does with the independent variable. The researcher manipulates an independent variable (treatment) and exposes groups to differing amounts or types of it and then measures a dependent variable to see if it is different for the different groups. For example, in the Christodoulou et al. (2017) study, one dependent variable was timed-reading ability as measured by the Test of Word Reading Efficiency-2. When working with a predictor variable (inherent characteristic or nonmanipulated variable), the measurement of "effect" is called a *criterion variable*. Common dependent or criterion variables in education and psychology include academic achievement, social skills, personality measures, and income after leaving school.
5. *Experimental and control groups*: In certain types of research, the researcher can divide the participants into two or more groups to test the effect of a specific treatment (independent variable). For example, a researcher might want to test the effect of providing social skills training to students with disabilities by comparing outcomes for students who receive such training with those who do not. The group that receives the training is called the *experimental group*. The comparison group that does not receive the training is called the *control group*. In some research studies, participants are randomly assigned to conditions—that is, they have an equal and independent chance of being assigned to either the experimental or the control group. Christodoulou and colleagues (2017) studied the effect of a summer reading program for students with a learning disability. Based on random assignment, the students who participated in the summer reading program were the experimental group; the students placed on a wait list were the control group. A researcher can also study the effect of a treatment without manipulating it or comparing groups who do and do not receive it. This is commonly done in qualitative and descriptive research studies in which researchers and evaluators theorize the conditions/interventions necessary for change to occur and then collect data to determine the extent to which that change did occur (Gates & Dyson, 2017).
6. *Population and sample*: The *population* is the group to whom you want to apply your results. The *sample* is the group that you have chosen from your population from which to collect data. For example, researchers might have access to 3,000 students. Rather than collect data from all 3,000 students, they might choose 300 students to include in their study (10% sample).
7. *Generalizability and transferability*: *Generalizability* refers to the researcher's ability to generalize the results from the sample to the population from which it was drawn. The ability to generalize results depends on how representative

the sample is of the population. The degree of generalizability can be discussed in statistical terms, depending on the type of sampling strategy that the researcher uses. For example, the researchers who select the 300 students might want to generalize their results to the 3,000 students in the population. In qualitative research, the researcher emphasizes the total context in which the research takes place to enable readers to make judgments as to the *transferability* of the study's results to their own situations.

8. *Statistically significant*: Statistical significance is important in studies in which comparisons between groups or estimations of sizes of relationships between variables are made. If groups are compared on a dependent variable (e.g., social adjustment or literacy skills), a test of statistical significance can be used to determine if the observed difference between the groups is too large to occur plausibly as a result of chance alone. On the basis of the laws of probability, a difference that is too large to attribute to chance is called *statistically significant*. Researchers in education and psychology will sometimes say that their results are statistically significant at the 0.05 or 0.01 level. These levels refer to the researchers' confidence that similar results would probably be obtained if the study were repeated using other samples drawn from the same population.
9. *Extraneous/lurking variables [also known as moderating or intervening variables]*: Researchers are typically very interested in the effect of their independent (or predictor) variables on the dependent (or criterion) variables. But social phenomena are complex and are influenced by many variables other than those of central interest to the researchers. These other variables that can influence the effect of the independent or predictor variables are called *extraneous variables*. For example, a researcher might be very interested in testing the effectiveness of a new therapeutic or teaching approach. However, the participants might have varying degrees of enthusiasm for the different treatments. The counselors or teachers might be strongly wedded to the traditional approach, or they might be intrigued by the new ideas represented in your experimental treatment. Thus, it may be the extraneous variable of their enthusiasm that determines which approach produces the more desirable outcome rather than the approach itself. Other common extraneous variables can be associated with culture, gender, disability, ability, and ethnicity differences between groups.
10. *Community-based participatory research*: Community-based participatory research typically means that the research involves community members and researchers in a partnership in which they serve as members of a research team, contributing to the design and management of the research. The goal is to work toward community change through cycles of action and reflection (Mullett, 2015). There are different labels that are used to describe this approach to research, including participatory action research, cooperative or collaborative research, or simply action research.

least a rudimentary understanding of these terms. Therefore, if you are new to the researcher's world, you should stop and review the terms and definitions presented in Box 1.1. Make sure you mark this box in your textbook so you can refer to these definitions because these terms appear often in the following chapters.

EXTENDING YOUR THINKING

Research Terminology

For each concept listed in Box 1.1, provide a definition in your own words and an example from a research study.

APPROACH TAKEN IN THIS BOOK

The main focus of this text is to examine, from a variety of philosophical and theoretical perspectives, the process of systematic inquiry that constitutes research and evaluation in education and psychology. The typical process for planning and conducting a research or evaluation study is displayed in Box 1.2. This process is rarely as linear as this figure suggests; it can be very iterative in nature. Although these steps are used to organize the information in this text, in actual practice, the researcher may take one step forward, three steps back, and then jump to Step 4, only to find it necessary to revisit Step 2.

In fact, the nonlinearity of planning and conducting research suggests that readers may choose to use this book in a nonlinear fashion. The first three chapters do provide an overview of the nature of research and evaluation and how to begin identifying a research topic. It would seem prudent, therefore, to begin with those chapters (although readers may choose to skip the chapter on evaluation if that is not included in their course syllabus). If readers have a goal of designing a research proposal, they might start in the appendix to read about how to develop a research proposal and use that as a guide to deciding how to navigate through the rest of the text.

After that, readers might choose to read any of the subsequent chapters on specific research approaches (e.g., experimental design) and then complete their understanding of the process for that approach by reading the last three chapters on sampling, data collection and analysis, and reporting. Readers could then return to earlier chapters to learn about other approaches to research and build on what they learned in the first go-round with the text. Alternatively, readers who have a strong feeling that a specific research strategy is of interest to them could start with the chapter on that approach (e.g., survey research) and then jump to the last three chapters of the book.

Some research methods textbooks address quantitative research methods (research that measures variables in a quantifiable way) *or* qualitative research methods (research that captures holistic pictures using words). (These definitions are overly simplistic; they are expanded

BOX 1.2

Steps in the Research/Evaluation Process

- Step 1: Identify your own worldview and situate your work as research or evaluation (Chapters 1 and 2)
- Step 2: Establish the focus of the research (Chapters 1–3)
- Step 3: Literature review; research questions (Chapter 3)
- Step 4: Identify design—quantitative, qualitative, or mixed (Chapters 4–10)
- Step 5: Identify and select sources of data (sampling) (Chapter 11)
- Step 6: Identify and select data collection methods and instruments (Chapter 12)
- Step 7: Data analysis, reporting, and utilization (Chapter 13)
- Step 8: Identify future directions (Chapter 13)

in later chapters.) An increasing number of books and journals have begun to focus on mixed methods research. In this book, I make the assumption that readers need to understand both quantitative and qualitative approaches to research before they move to mixed methods. Several of the sample studies used throughout the text use mixed methods and there is a separate chapter focused specifically on this approach.

This text sets the research methods within four major paradigms (ways of viewing the world), along with their respective philosophical assumptions. Two of these paradigms—postpositivist and constructivist—are commonly included in research methods texts. The transformative paradigm is frequently recognized in research methods texts (e.g., Creswell, 2009; Greene, 2007; Mertens, 2009). The pragmatic paradigm has emerged as one of the underlying philosophical frameworks for some advocates of mixed methods research (Morgan, 2007; Teddlie & Tashakkori, 2009). These four paradigms are explained in the next section on the history of research.

Why get tangled up in philosophy, theories, and politics? Why not just explain the methods? *Because doing so is very important.* It is true that there are a variety of viewpoints about the importance of linking methodological choices to philosophical paradigms, and leaders in the field do not agree about the need to acknowledge an underlying paradigm, nor do they agree on the role that such paradigms serve in the research process. The contrasting viewpoints with regard to the place of paradigms in the research design community range from Michael Patton's (2008) position that they are unnecessary and possibly handicapping to Thomas Schwandt's (2000) position that they are inescapable. See their comments below:

My practical (and controversial) view is that one can learn to be a good interviewer or observer, and learn to make sense of the resulting data, without first engaging in deep epistemological reflection and philosophical study. Such reflection and study can be so inclined, but it is not a prerequisite for fieldwork. Indeed, it can be a hindrance. (Patton, 2008, p. 72)

The practice of social inquiry cannot be adequately defined as an atheoretical making that requires only methodological prowess. . . . As one engages in the "practical" activities of generating and interpreting data to answer questions about the meaning of what others are doing and saying and then transforming that understanding into public knowledge, one inevitably takes up "theoretical" concerns about what constitutes knowledge and how it is to be justified, about the nature and aim of social theorizing, and so forth. In sum, acting and thinking, practice and theory, are linked in a continuous process of critical reflection and transformation. (Schwandt, 2000, pp. 190–191)

Ladson-Billings (Ladson-Billings & Donnor, 2005) takes an even stronger stance than Schwandt in asserting that the choice of a paradigm (and its associated epistemology or systems of knowing) represents a choice between hegemony and liberation. She recommends that the academy go beyond transformation to reconstruction, meaning that teaching, service, research, and scholarship would be equally valued and used in the service of furthering intellectual enrichment, social justice, social betterment, and equity.

In the spirit of full disclosure of values held by researchers, it is my position as author of this text that a researcher's philosophical orientation has implications for every decision made in the research process, including the choice of method. I agree with Shadish (1998) when he argued that many of our fundamental differences in research and evaluation are not really about which method is best; rather, they are "about what assumptions we make when we construct knowledge, about the nature of many fundamental concepts that we use in our work like causation, generalization, and truth" (p. 3). It is true that many researchers proceed without an understanding of their paradigm or its associated philosophical assumptions. However, working without an awareness of our underlying philosophical assumptions does not mean that we do not have such assumptions, only that we are conducting research that rests on unexamined and unrecognized assumptions. Therefore, to plan and conduct your own research, read and critique the research of others, and join in the philosophical, theoretical, and methodological debates in the research community, you need to understand the prevailing paradigms, with their underlying philosophical assumptions.

MAJOR PARADIGMS IN RESEARCH: A BRIEF HISTORY OF RESEARCH

A *paradigm* is a way of looking at the world. It is composed of certain philosophical assumptions that guide and direct thinking and action. Trying to categorize all educational and psychological research into a few paradigms is a complex and, perhaps, impossible task. Table 1.1 displays four of the major paradigms, along with a list of the variety of terms used to describe each. I provide you with the alternative labels listed in Table 1.1 because you will find different labels used in different texts. For example, some authors use the label qualitative rather than constructivist for that paradigm; however, qualitative is a type of methodology, not a paradigm.

The four paradigms that appear in this book are based on an adaptation and extension of paradigms discussed by Lather (1992) and Guba and Lincoln (as depicted in their writings that span from 1994 to 2005). I adopted their use of the postpositivist and constructivist for the first two paradigms. In contrast to Guba and Lincoln's (2005) choice of "critical theory et al." to label a third paradigm, I chose to label this transformative. Theories provide frameworks for thinking about the interrelationships of constructs and are more limited in scope than paradigms; hence, critical theory is one theory that is appropriately included under the umbrella of the transformative paradigm. In the first edition of this text, I labeled the third column "emancipatory" because Lather labeled her third paradigm as emancipatory. However, I changed it in the second edition of this book (Mertens, 2005) to transformative to emphasize that the agency for change rests in the persons in the community working side by side with the researcher toward the goal of social transformation. Lather placed poststructuralism and postmodernism in yet a fifth paradigm, which she labeled *deconstructivist*. (See Box 1.3 for a brief explanation of postmodernism, poststructuralism, and deconstructivism.) Neither Lather nor Lincoln and Guba included the pragmatic paradigm. I include the pragmatic paradigm because some scholars in the field of mixed methods research use it as a philosophical

basis for their work (Creswell, 2009; Morgan, 2007; Tashakkori & Teddlie, 2003). Guba and Lincoln (2005) suggest another paradigm called participatory, but to me this is a methodology that can be applied in various paradigms depending on the beliefs that guide the researcher; hence, I do not include it in the taxonomy of major paradigms.

Table 1.1 Labels Commonly Associated With Different Paradigms

Postpositivism	Constructivist	Transformative	Pragmatic
Experimental	Naturalistic	Critical theory	Mixed methods
Quasi-experimental	Phenomenological	Neo-Marxist	Mixed models
Correlational	Hermeneutic	Feminist theories	Participatory
Causal comparative	Symbolic interaction	Critical race theory	
Quantitative	Ethnographic	Freirean	
Randomized control trials	Qualitative	Participatory	
	Participatory action research	Emancipatory	
		Postcolonial/Indigenous	
		Queer theory	
		Disability theories	
		Action research	
		Indigenous	
		Human rights/equity focused	

SOURCE: Adapted from Lather (1992) and Guba and Lincoln (1989, 2005).

BOX 1.3 Postmodernism, Poststructuralism, and Deconstructivism

There is good news and bad news about postmodernism, poststructuralism, and deconstructivism, and both the good and bad news emanate from the basic tenet of these philosophical orientations, movements, or paradigms—that is, that definitive definitions of social phenomena are not possible, and by extension, definitive definitions of these three concepts are also not possible; otherwise the definer would violate the basic tenet. That being said, many authors who write about these topics begin with an explanation that their definitions of these terms are only one of many possible definitions, but it is necessary to use some words to explain what they mean, so the authors provide what they think is a useful definition. For example, Clegg and Slife (2009) write,

From the postmodern viewpoint, any definition of anything, including the definition of postmodernism itself, is a value judgment, with ethical and even political implications. Another problem in defining postmodernism is that postmodernists (whoever these undefined entities are) resist the closed “totalizing” conceptions of things. They view such conceptions as inappropriate reductions of the real—stereotypes of the rich experience of whatever is being conceived or defined. (p. 23)

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Crotty's (1998) explanation echoes this discomfort in defining postmodernism:

Postmodernism refuses all semblance of the totalizing and essentialist orientations of modernist systems of thought. Where modernism purports to base itself on generalized, indubitable truths about the way things really are, postmodernism abandons the entire epistemological basis for any such claim to truth. Instead of espousing clarity, certitude, wholeness, and continuity, postmodernism commits itself to ambiguity, relativity, fragmentation, particularity, and discontinuity. (p. 185)

Hassan provides the following explanation of the ontological and epistemological implications of these terms:

Deconstruction, decentering, disappearance, dissemination, demystification, discontinuity. . . . Such terms express an ontological rejection of the traditional full subject. . . . They express, too, an epistemological obsession with fragments or fractures, and a corresponding ideological commitment to minorities in politics, sex and language. (Hassan, cited in Wolin, 1992, p. 206, as cited in Crotty, 1998, p. 192)

Scholars have ongoing debates about the relationship between postmodernism and poststructuralism; Crotty (1998) resolves this dilemma by saying that each informs the other. Poststructuralism is commensurate with postmodernism in the sense that its adherents reject the possibility of definitive truth. Foucault (1980), as a poststructuralist, extends this idea to focus on the role of language and power in creating realities rather than thinking of reality as something that is there to be discovered. Derrida (1981) pushes the poststructuralist position to the point of deconstructing text, or, in other words, the reader has a responsibility to engage in a critical reading of text as an intervention, wrestling with multiple layers of meaning. This process makes visible previously silenced voices and the concomitant influences of dominant power structures as an act of resistance by the reader.

Despite the difficulties in pinning down definitions of postmodernism, poststructuralism, and deconstructivism, scholars from these orientations contribute to the debates of rigor in research in a number of ways. Readers who wish to pursue a deeper understanding of this philosophical orientation are invited to read the historical and contemporary references cited in this box.

Guba and Lincoln (2005) identify four basic belief systems characterized by the following questions that help define a paradigm:

1. The axiological question asks, "What is the nature of values and ethics?"
2. The ontological question asks, "What is the nature of reality?"
3. The epistemological question asks, "What is the nature of knowledge and the relationship between the knower and the would-be known?"
4. The methodological question asks, "What is the nature of systematic inquiry? How can the knower go about obtaining the desired knowledge and understandings?"

Four of the major paradigms in the research community are described in the next section. The lines between them are not altogether clear in practice. However, to guide their thinking and practice, researchers should be able to identify the worldview that most closely approximates their own. Answers to the paradigm-defining questions are summarized for each paradigm in Table 1.2.

POSTPOSITIVISM

The dominant paradigms that guided early educational and psychological research were *positivism* and its successor *postpositivism*. Positivism is based on the rationalistic, empiricist philosophy that originated with Aristotle, Francis Bacon, John Locke, Auguste Comte, and Immanuel Kant. The underlying assumptions of positivism include the belief that the social world can be studied in the same way as the natural world, that there is a method for studying the social world that is value-free, and that explanations of a causal nature can be

Table 1.2 Basic Beliefs Associated With the Major Paradigms

Basic Beliefs	Postpositivism	Constructivism	Transformative	Pragmatic ^a
Axiology (nature of ethical behavior)	Respect privacy; informed consent; minimize harm (beneficence); justice/equal opportunity	Balanced representation of views; raise participants' awareness; community rapport	Respect for cultural norms; beneficence is defined in terms of the promotion of human rights and increase in social justice; reciprocity	Gain knowledge in pursuit of desired ends as influenced by the researcher's values and politics
Ontology (nature of reality)	One reality; knowable within a specified level of probability	Multiple, socially constructed realities	Rejects cultural relativism; recognizes that various versions of reality are based on social positioning; conscious recognition of consequences of privileging versions of reality	Asserts that there is a single reality and that all individuals have their own unique interpretation of reality
Epistemology (nature of knowledge; relation between knower and would-be known)	Objectivity is important; the researcher manipulates and observes in a dispassionate, objective manner	Interactive link between researcher and participants; values are made explicit; create findings	Interactive link between researcher and participants; knowledge is socially and historically situated; need to address issues of power and trust	Relationships in research are determined by what the researcher deems as appropriate to that particular study
Methodology (approach to systematic inquiry)	Quantitative (primarily); interventionist; decontextualized; mixes methods with quantitative approaches dominant	Qualitative (primarily); hermeneutical; dialectical; contextual factors are described; mixes methods with qualitative approaches dominant	Qualitative (dialogic), but quantitative and mixed methods can be used; contextual and historical factors are described, especially as they relate to oppression	Match methods to specific questions and purposes of research; mixed methods typically used

SOURCE: Adapted from Guba and Lincoln (1994, 2005) and Morgan (2007).

a. It should be noted that Patton (2002) also uses pragmatism as the underlying paradigm for his methodological writings in qualitative research.

provided. Positivists held that the use of the scientific method allowed experimentation and measurement of what could be observed, with the goal of discovering general laws to describe constant relationships between variables. Positivists made claims that “scientific knowledge is utterly objective and that only scientific knowledge is valid, certain and accurate” (Crotty, 1998, p. 29). While the focus on empirical, objective data has some appeal, it falls short when applied to human behavior.

Because there is much about the human experience that is not observable but is still important (e.g., feeling, thinking), postpositivist psychologists came to reject the positivists’ narrow view that what could be studied was limited to what could be observed as well as to question the ability of researchers to establish generalizable laws as they applied to human behavior. Postpositivists still hold beliefs about the importance of objectivity and generalizability, but they suggest that researchers modify their claims to understandings of truth based on probability rather than certainty. Research methodologists such as D. T. Campbell and Stanley (1966) and Shadish, Cook, and Campbell (2002) embraced postpositivism’s assumptions.

An example of research conducted within the postpositivist paradigm is summarized in Sample Study 1.1. The study is summarized according to the main categories typically included in a report of research situated in this paradigm—that is, research problem, question, methods/design, participants, instruments and procedures, results/discussion, and conclusions. The researchers in the sample study, conducted by McCarthy, Young, Benas, and Gallop (2017), explicitly chose to operate within the postpositivist paradigm, which led them to use an experimental design in order to measure the effectiveness of a program to reduce adolescent depression (Interpersonal Psychotherapy-Adolescent Skills Training (IPT-AST)) because they wanted to limit the effects of extraneous variables, such as differences between schools that the adolescents attended.

The answers to the paradigm-defining questions for postpositivism are as follows.

SAMPLE Study 1.1 Summary of a Postpositivist Research Study



SOURCE: © Dawn Urian, 2018.

Research Problem: Rates of depression increase in adolescents, and high levels of depression are linked to consequences such as poor academic performance and dropping out of school. Therefore, research on prevention of depression in this population is needed.

Research Questions: What are the effects of IPT-AST as compared to group counseling (GC) on school-related effects? How would the effects be different for students based on their initial grades or rates of tardies, absences, or disciplinary incidents? What is the relationship between lowered rates of depression and school-related outcomes, regardless of intervention condition?

Method/Design: A randomized control trial was used to compare students who used the IPT-AST program over a 6-month period with control students who did not receive the experimental treatment but received group counseling instead. The design is called a randomized control trial because individual students were randomly assigned to treatment and control groups.

Participants: Participants were enrolled in seventh to tenth grade in middle and high schools in New Jersey. They were selected through a two-stage screening process that consisted of completing a self-report measure (Center for Epidemiologic Studies Depression Scale); those with elevated depression symptoms completed structured diagnostic interviews to confirm the presence of their symptoms. There were 95 students in the experimental group and 91 in the control group.

Instruments and Procedures: The dependent variables included grades, attendance, and disciplinary records. The data were obtained at the end of each academic year from the school records; they were organized by preintervention and postintervention. They continued to collect this data for four additional academic quarters after the intervention was complete.

Results/Discussion: Statistical analyses allowed researchers to test student-level effects. The results indicated that there was no difference between the treatment and control groups on grades, attendance, or disciplinary incidences. When the analysis was broken down by family income, the results indicated that students from the highest poverty families benefited the most from the IPT-AST as compared to the control group.

Conclusions: The authors concluded that the lack of significant differences between experimental and control groups might be explained by several factors. First, the control group received group counseling that was modified to be as intensive as the treatment in the IPT-AST group. This form of group counseling is not typically provided in middle and high schools. Second, the intervention was limited to six months; other interventions that have been shown to be effective were more long term and involved students' parents and teachers, which IPT-AST does not. The positive effect for students from lower income families is one indicator that this might be an approach that is more effective for this group. More research is needed to determine effective approaches for treating depression in adolescents.

SOURCE: McCarthy et al. [2017].

Axiology

No matter what paradigm a researcher uses, ethics in research should be an integral part of the research planning and implementation process, not viewed as an afterthought or a burden. Increased consciousness of the need for strict ethical guidelines for researchers occurs each time another atrocity is discovered under the guise of research. The Nazis' medical experiments, the CIA's experimentation with LSD, the Tuskegee experiments on Black men with syphilis, and the U.S. government's administration of radioactive substances to uninformed pregnant women stand as examples of the worst that humans can do to each other. Ethical guidelines in research are needed to guard against such obvious atrocities as these; however, they are also needed to guard against less obvious yet still harmful effects of research. All researchers in the United States who work at universities or obtain funding through government agencies are required to get approval through an institutional review board (IRB). Similar ethics review boards exist in other organizations, communities, and countries as well. **The process of going through the IRB or other ethics review boards is discussed in Chapter 11 "Sampling" because the purpose of these reviews is to protect the people who participate in the research.** It is important for researchers to keep in mind the ethical implications of their work throughout the entire process of planning, implementing, and using the results of their research.

Postpositivists are guided by the work of the National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research (1978), which identified three ethical principles and six norms that should guide scientific research in the landmark report, *The Belmont Report*. The three ethical principles are as follows:

1. *Beneficence*: Maximizing good outcomes for science, humanity, and the individual research participants and minimizing or avoiding unnecessary risk, harm, or wrong
2. *Respect*: Treating people with respect and courtesy, including those who are not autonomous (e.g., small children, people who have mental retardation or senility)
3. *Justice*: Ensuring that those who bear the risk in the research are the ones who benefit from it; ensuring that the procedures are reasonable, nonexploitative, carefully considered, and fairly administered

The six norms of scientific research are as follows:

1. The researcher must use a *valid research design*: Faulty research is not useful to anyone and is not only a waste of time and money but also cannot be conceived of as being ethical in that it does not contribute to the well-being of the participants.
2. The *researcher must be competent* to conduct the research.
3. *Consequences of the research must be identified*: Procedures must respect privacy, ensure confidentiality, maximize benefits, and minimize risks.
4. *The sample selection must be appropriate* for the purposes of the study, representative of the population to benefit from the study, and sufficient in number.
5. The participants must agree to participate in the study through *voluntary informed consent*—that is, without threat or undue inducement (voluntary), knowing what a reasonable person in the same situation would want to know before giving consent (informed), and explicitly agreeing to participate (consent).
6. The researcher must inform the participants *whether harm will be compensated*.

These principles and norms form the basis for the work of the ethical review boards (e.g. IRB). Strategies for how researchers can adhere to these principles and norms as well as the topic of informed consent are discussed further in Chapter 11, “Sampling.” Additional information is provided there, including website URLs that relate to professional associations’ codes of ethics and the U.S. federal government’s requirements for protection of human subjects in research.

With specific reference to axiological beliefs that guide researchers in the postpositivist paradigm, Mark and Gamble (2009) explain the claims that underlie the choice of randomized experiments as ethical methods. The first claim relates to a condition in which it is important to establish cause and effect and that there is uncertainty as to the effects of a particular treatment. The second claim is that randomized experiments provide greater value in terms of demonstrating the efficacy of a treatment than is possible by other methods. Mark and Gamble conclude, “A case can be made that good ethics justifies the use of research methods that will give the best answer about program effectiveness, as this may increase the likelihood of good outcomes especially for those initially disadvantaged” (p. 205).

Ontology

The positivists hold that one reality exists and that it is the researcher's job to discover that reality (naive realism; Guba & Lincoln, 1994). The postpositivists concur that a reality does exist but argue that it can be known only imperfectly because of the researcher's human limitations. Therefore, researchers can discover "reality" within a certain realm of probability. They cannot "prove" a theory, but they can make a stronger case by eliminating alternative explanations.

The ontological assumption in the McCarthy et al. (2017) research study exemplifies the postpositivist paradigm in that the researchers chose grades, attendance, and disciplinary incidents as their variables of interest and used quantitative measures of those variables to determine the effectiveness of their intervention. They were aware of the need to eliminate alternative explanations—which they controlled by their design of the study, but this takes us into the realm of methodology, discussed later in this chapter. They were also able to apply statistics to their data to support their findings that there was no difference between the experimental and control groups, within a certain level of probability.

Epistemology

In early positivist thinking, the researcher and the participants in the study were assumed to be independent; that is, they did not influence each other (Guba & Lincoln, 2005). Postpositivists modified this belief by recognizing that the theories, hypotheses, and background knowledge held by the investigator can strongly influence what is observed. This paradigm holds that objectivity in the sense that researchers do not allow their personal biases to influence the outcomes is the standard to strive for in research; thus, the researcher should remain neutral to prevent values or biases from influencing the work by following prescribed procedures rigorously.

The epistemological assumption of the postpositivist paradigm is exemplified in the McCarthy et al. (2017) study in that the researchers did not interact with the students in the collection of data. All data came from school records. The experimental treatment was administered by research personnel who were observed by an experienced IPT-AST to ensure that they faithfully implemented the program. The control treatment was administered by school counselors who completed a therapy procedures checklist to document how they implemented the group counseling.

Methodology

As mentioned previously, positivists borrowed their experimental methods from the natural sciences. Postpositivists recognized that many of the assumptions required for rigorous application of the scientific method were difficult, if not impossible, to achieve in many educational and psychological research studies with people; therefore, quasi-experimental methods (methods that are sort of experimental, but not exactly) were developed (D. T. Campbell & Stanley, 1966; Shadish et al., 2002). In other words, many times it is not possible to randomly assign people to conditions (as one can with plots of land for a study of fertilizers, for example); therefore, researchers devised modifications to the experimental methods of the natural sciences in order to apply them to people. Although qualitative methods can be used within this paradigm, quantitative methods tend to be predominant in postpositivist research.

EXTENDING YOUR THINKING

The Postpositivist Paradigm

Identify a research study that exemplifies the postpositivist paradigm. Explain why this study represents this paradigm. What are the distinguishing characteristics that lead you to conclude that this study belongs to this paradigm (e.g., what are the underlying characteristics that define a research study in this paradigm)?

A postpositivist approach to methodology is evident in the McCarthy et al. (2017) study in that the researchers used a randomized control experimental design that is associated with this paradigm. The researchers randomly assigned students to conditions. The researchers summarized complex variables such as economic status (parental income) into numeric scales. The researchers did not include qualitative, contextual information, such as teachers' and students' experiences with the program. They described the differential effects between the groups based on family income, age, sex, and ethnicity.

CONSTRUCTIVIST PARADIGM

Despite the recognition by postpositivists that facts are theory laden, other researchers questioned the underlying assumptions and methodology of that paradigm. Many different labels have been used for the constructivist paradigm, which can be seen from the sample list in Table 1.1. The constructivist label was chosen for this paradigm because it reflects one of the basic tenets of this theoretical paradigm—that is, that reality is socially constructed.

The constructivist paradigm grew out of the philosophy of Edmund Husserl's phenomenology and Wilhelm Dilthey's and other German philosophers' study of interpretive understanding called *hermeneutics* (Clegg & Slife, 2009). Hermeneutics is the study of interpretive understanding or meaning. Historians use the concept of hermeneutics in their discussion of interpreting historical documents to try to understand what the author was attempting to communicate within the time period and culture in which the documents were written. Constructivist researchers use the term more generally, seeing hermeneutics as a way to interpret the meaning of something from a certain standpoint or situation.¹ Clegg and Slife further explain the concept of hermeneutics by citing the work of “Martin Heidegger (1927/1962) [who] argued that all meaning, including the meanings of research findings, is fundamentally interpretive. All knowledge, in this sense, is developed within a preexisting social milieu, ever interpreting and reinterpreting itself. This perspective is usually called hermeneutics” (p. 26). An example of a constructivist research study is presented in Sample Study 1.2 that used a narrative approach to explore the experiences of general classroom teachers in implementing Universal Design for Learning (Lowrey, Hollingshead, Howery, & Bishop, 2017).

The basic assumptions guiding the constructivist paradigm are that knowledge is socially constructed by people active in the research process and that researchers should attempt to understand the complex world of lived experience from the point of view of those who live it

(Schwandt, 2000). The constructivist paradigm emphasizes that research is a product of the values of researchers and cannot be independent of them. The answers to the paradigm-defining questions for the constructivist approach are as follows.

SAMPLE Study 1.2 Summary of a Constructivist Research Study



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UDL” (p. 230). The teachers talked about deliberately planning for how they would include every student in their lessons. They noted the importance of having professional support and a network of other teachers and educators to help them. Their stories also revealed that the teachers had variable descriptions of what it means to implement UDL.

Discussion: The variability in the teachers’ understanding of UDL indicates a need for continuing professional development in this area. Additional research is needed to identify effective instructional strategies that align with the UDL framework.

SOURCE: Lowrey et al. (2017).

Research Problem: Universal Design for Learning (UDL) is a framework that educators can use to remove barriers for students with disabilities. The experience of teachers who implement UDL is often missing from the research literature. This study was conducted in order to gather the voices of teachers who implemented UDL in their classrooms.

Research Questions: How do general education teachers experience the implementation of UDL in their classrooms, including with students with moderate and severe intellectual disabilities?

Method/Design: The researchers used a narrative inquiry approach in this study in order to obtain the teachers’ stories about their experiences in their own words.

Participants: Seven general education teachers participated in the study. They worked in districts in the United States and Canada that had implemented UDL for at least a year.

Instruments and Procedures: Data were collected by semi-structured interviews conducted by all of the researchers. The researchers developed an interview protocol designed to elicit stories about UDL; the researchers all practiced with the interview protocol before conducting the actual interviews. All the interviews were conducted via telephone and lasted between 30 and 60 minutes. The phone conversations were recorded and transcribed.

Results: “Four themes emerged across all participants’ stories: (a) designing for learner variability, (b), talking about inclusion, (c) teaming fosters success, and (d) differing descriptions of

Axiology

Constructivist researchers (indeed almost all U.S.-based researchers as well as most researchers located throughout the world) are expected to adhere to the basic principles of ethics found in *The Belmont Report* and in their professional associations' codes of ethics. However, constructivists provide a different slant on the meaning of ethics compared to the postpositivists' noncontextual, nonsituational model that assumes that "a morally neutral, objective observer will get the facts right" (Christians, 2005, p. 148).

Lincoln (2009) developed a framework for ethical practice of qualitative research based on a revised understanding of the researcher-researched relationship. She identified the criteria for rigor as trustworthiness and authenticity, including balance or fairness (inclusive representation of stakeholders in the process of the research), ontological authenticity (make respondents aware of their constructions of reality), educative authenticity (educate others about the realities experienced by all stakeholder groups), catalytic authenticity (enable stakeholders to take action on their own behalf), and tactical authenticity (training participants how to act on their own behalf). Lincoln also included reflexivity, rapport, and reciprocity as additional criteria that have emerged and noted that along with their emergence have come additional ethical tensions. How can a researcher from a group imbued with unearned privileges by virtue of social class, language, race/ethnicity, gender, or other attributes establish rapport in an ethical manner with people who do not share such privileges? Constructivists also borrow notions of ethics from feminists in the form of combining theories of caring and justice as holding potential to address issues of social justice in ways that are both respectful of the human relations between researchers and participants and that enhance the furtherance of social justice from the research (Christians, 2005; Lincoln, 2009). Hence, constructivists' writings on ethical principles are moving closer to alignment with those of transformative researchers.

Ontology

Reality is socially constructed. Therefore, multiple mental constructions can be apprehended, some of which may be in conflict with each other, and perceptions of reality may change throughout the process of the study. For example, the concepts of disability, feminism, and minority are socially constructed phenomena that mean different things to different people.

Schwandt (2000) describes what he calls "everyday" constructivist thinking in this way:

In a fairly unremarkable sense, we are all constructivists if we believe that the mind is active in the construction of knowledge. Most of us would agree that knowing is not passive—a simple imprinting of sense data on the mind—but active; mind does something with those impressions, at the very least forms abstractions or concepts. In this sense, constructivism means that human beings do not find or discover knowledge so much as construct or make it. (p. 197)

But constructivist researchers go one step further by rejecting the notion that there is an objective reality that can be known and taking the stance that the researcher's goal is to understand the multiple social constructions of meaning and knowledge.

In terms of ontology, the Lowrey et al. (2017) study (Sample Study 1.2) exemplifies the constructivist paradigm in a number of ways. First, the researcher allowed the concepts of importance in the study to emerge as they had been constructed by the participants. Rather than studying the implementation of a defined curriculum or pedagogical approach, they used open-ended questions to elicit the teachers' stories about their experiences. They did not assume that they knew how UDL was implemented in each school; rather, they asked the teachers to describe their understanding of UDL and how they implemented it.

The authors' ontological assumptions are also evidenced in their discussion of their decision to use the constructivist approach. "In this narrative inquiry project, we sought to gather stories from practitioners and hear the firsthand account of those who experience UDL framework implementation with students with moderate and severe ID in their everyday practice. Our assumption was the authenticity of teachers' voices would add to the currently scarce body of UDL-focused research and provide a springboard to further applied research in this area" (Lowrey et al., p. 236).

Epistemology

The inquirer and the inquired-into are interlocked in an interactive process; each influences the other. The constructivist therefore opts for a more personal, interactive mode of data collection. The concept of objectivity that is prominent in the postpositivist paradigm is replaced by confirmability in the constructivist paradigm (Lincoln, Lynham, & Guba, 2011). The assumption is made that data, interpretations, and outcomes are rooted in contexts and persons apart from the researchers and are not figments of their imagination. Data can be tracked to their sources, and the logic used to assemble interpretations can be made explicit in the narrative. The Lowrey et al. (2017) study was limited in this sense in that all the data were collected via telephone interviews. In many constructivist research studies, the researchers strive to build relationships with their participants. They build the reader's confidence in their results by interacting with participants in multiple ways over extended periods of time.

Methodology

Qualitative methods such as interviews, observations, and document reviews are predominant in this paradigm. These are applied in correspondence with the assumption about the social construction of reality in that research can be conducted only through interaction between and among investigator and respondents (Lincoln, Lynham, & Guba, 2011). This interactive approach is sometimes described as hermeneutical and dialectical in that efforts are made to obtain multiple perspectives that yield better interpretations of meanings (hermeneutics) that are compared and contrasted through a

dialectical interchange involving the juxtaposition of conflicting ideas, forcing reconsideration of previous positions.

The methodological implication of having multiple realities is that the research questions cannot be definitively established before the study begins; rather, they will evolve and change as the study progresses. In addition, the perceptions of a variety of types of persons must be sought. For example, in special education research, the meaning of total inclusion needs to be explored as it has been constructed by regular and special education administrators and teachers, parents who have children with and without disabilities, and students with differing types and severity of disabilities (Mertens & McLaughlin, 2004). Finally, the constructivist researcher must provide information about the backgrounds of the participants and the contexts in which they are being studied.

As noted previously, the data collection in the Lowrey et al (2017) study was limited to review of literature about UDL and telephone interviews with the teachers. This limited methodology contrasts sharply with the in-depth, longitudinal methodology used by Stich and Cipollone (2017) in their study of urban reform in Buffalo, New York. Some of the methodological strategies that exemplify the constructivist paradigm are found in this description of their methods:

A total of 54 focal students are included in this sample, along with parents (27), teachers (2-3 per school), school counselors (1-3 per school), and administrators (1 per school). Each focal student was interviewed twice per year over 3 years. Parents were interviewed twice. In addition, researchers interviewed at least one science teacher and one math teacher at each school (once per year), and at least one school counselor at each school (once each year). Administrators were interviewed once. In addition to interview data, researchers spent more than 300 hours in each school engaged in participant and nonparticipant observations. Researchers would visit classrooms, observe counselor meetings, attend parent events, and a range of other extracurricular activities. Researchers also visited students' homes. Finally, official school documents (e.g., official student transcripts that provided data on actual courses taken, grades, and standardized test scores) and other materials (e.g., classroom handouts, letters home, lists of course offerings, website materials) were also collected and analyzed. (p.111)

EXTENDING YOUR THINKING

The Constructivist Paradigm

Identify a research study that exemplifies the constructivist paradigm. Explain why this study represents this paradigm. What are the distinguishing characteristics that lead you to conclude that this study belongs to this paradigm (e.g., what are the underlying characteristics that define a research study in this paradigm)?

TRANSFORMATIVE PARADIGM

The constructivist paradigm has been criticized not only by positivists and postpositivists but also by another group of researchers who represent a third paradigm of research: the transformative paradigm. This group includes critical theorists, participatory action researchers, Marxists, feminists, racial and ethnic minorities, persons with disabilities, and members of Indigenous communities, among others. Transformative researchers acknowledge that the constructivist paradigm makes different claims with regard to reality, epistemology and methodology, and theories of causality than do postpositivists. As we saw in the description of the axiological assumptions of the constructivist paradigm, leaders in the field of qualitative methods are more and more citing the need to situate their work in social justice. This shift in the constructivist scholarship is an indicator of the permeability of the paradigmatic boundaries. However, the transformative paradigm directly addresses the politics in research by confronting social oppression at whatever levels it occurs (Mertens, 2009). Thus, transformative researchers consciously and explicitly position themselves side by side with the less powerful in a joint effort to bring about social transformation.

Although no unified body of literature is representative of the transformative paradigm, four characteristics are common to the diverse perspectives represented within it and serve to distinguish it from the postpositivist and constructivist paradigms (Mertens, 2009):

1. It places central importance on the lives and experiences of the diverse groups that, traditionally, have been marginalized (i.e., women, minorities, and persons with disabilities). Researchers should not limit study to the lives and experiences of only marginalized groups; they should also study the way oppression is structured and reproduced. Researchers must focus on how members of oppressed groups' lives are constrained by the actions of oppressors, individually and collectively, and on the strategies that oppressed groups use to resist, challenge, and subvert. Therefore, studying oppressed people's lives also includes study of the oppressors' means of dominance.
2. It analyzes how and why inequities based on gender, race or ethnicity, disability, sexual orientation, and socioeconomic classes are reflected in asymmetric power relationships.
3. It examines how results of social inquiry on inequities are linked to political and social action.
4. It uses a transformative theory to develop the program theory and the research approach. A program theory is a set of beliefs about the way a program works or why a problem occurs. Different types of program theories and their influence on the research process are explored in later chapters.

Researchers who were concerned about a number of different issues and events contributed to the development of the transformative paradigm. Some of these stimulating concerns and issues are discussed next.

Why Did the Transformative Paradigm Emerge?

The transformative paradigm arose partially because of dissatisfaction with the dominant research paradigms and practices and because of limitations in the research associated with these paradigms that were articulated by feminists; people of color; Indigenous and postcolonial peoples; people with disabilities; members of the lesbian, gay, bisexual, transgender, and queer communities; and others who have experienced discrimination and oppression, as well as other advocates for social justice. The need to reexamine our beliefs as researchers is exemplified in the following quotation from an Indigenous African researcher:

The postcolonial condition remains pertinent and evident in educational research, where the application of mainstream research epistemologies, and their assumed universal validity, in assembling, analyzing, interpreting and producing knowledge today remains a highly foreign and a colonizing instrument that continues to define those from former colonies, and all the departments of their lives, as “the other.” (Chilisa, 2005, p. 662)

As these voices became more visible in the research community, professional organizations in education and psychology revised their standards of ethics and developed research agendas to be more responsive to transformative issues. These changes are also evidenced in the

BOX 1.4

Basic Principles Underlying Feminist Research and Evaluation

1. The central focus is on gender inequities that lead to social injustice. Every study should be conducted with an eye toward making recommendations to reverse gender inequities.
2. Research and evaluation methods are social constructs and may reflect a dominant patriarchal ideology.
3. Discrimination or inequality based on gender is systemic and structural. Inequity based on gender is embedded in the major institutions and other shapers of societal norms such as schools, religion, media, pop culture, government, and corporations. This affects who has power and access.
4. Research and evaluation are political activities; the contexts in which the inquirer operates are politicized; and the personal experiences, perspectives, and characteristics researchers and evaluators bring to their work (and with which we interact) lead to a particular political stance. Acknowledging the political nature of such inquiry raises questions concerning the definition of objectivity within the traditional norms of science.
5. Knowledge is a powerful resource that serves an explicit or implicit purpose. Feminists hold that knowledge should be a resource of and for the people who create, hold, and share it. Consequently, the evaluation or research process can lead to significant negative or positive effects on the people involved in the evaluation/research.
6. There are multiple ways of knowing; some ways are privileged over others. Transformative knowledge is sought that emanates from an experiential base.
7. Knowledge and values are culturally, socially, and temporally contingent. Knowledge is also filtered through the knower. The researcher/evaluator must recognize and explore multiple ways of knowing. The characteristics of the knower will influence the creation of knowledge; critical self-reflection is necessary.

SOURCE: Brisolara (2014).

standards for accreditation that are cited at the beginning of this chapter that require inclusion of diversity issues for psychologists and teachers.

Feminist Perspectives. My first exposure to feminist psychology came from Gilligan's (1982) criticism of sociological and psychological theory because it was conducted from a male perspective using only male students as subjects. Theories formerly thought to be sexually neutral in their scientific objectivity have been found to reflect a consistent observational and evaluative bias. Gilligan cited many examples of dominant theories in psychology that were developed using the male as the norm, including Freud's theory of personality, McClelland's theory of motivation, and Kohlberg's theory of moral development. As these theories were reexamined from the feminist perspective, I developed a new level of awareness about the importance of giving credence to women's life experiences. Principles of feminist inquiry that are displayed in Box 1.4 illustrate the contribution of feminist scholars in terms of explicating the meaning of working from a feminist perspective. As will be discussed in later chapters, feminist theories are not univocal. There are many varieties of feminist theories, and they differ by regions of the world.

Cultural Competency. Many professional organizations have been active in clarifying the meaning and importance of cultural competence and its implications for researchers. For example, the American Evaluation Association (AEA) approved a Statement on Cultural Competence in Evaluation (2011) that includes this definition:

Cultural competence is not a state at which one arrives; rather, it is a process of learning, unlearning, and relearning. It is a sensibility cultivated throughout a lifetime. Cultural competence requires awareness of self, reflection on one's own cultural position, awareness of others' positions, and the ability to interact genuinely and respectfully with others. Culturally competent evaluators refrain from assuming they fully understand the perspectives of stakeholders whose backgrounds differ from their own.

AEA's statement includes these concepts: acknowledge the complexity of cultural identity, recognize the dynamics of power, recognize and eliminate bias in language, and employ culturally appropriate methods.

Discussions at an American Psychological Association (APA) meeting in 1983 about cross-cultural counseling revealed that some ethnic minority psychologists believed that White researchers who study their communities do so without understanding or caring for the people who live there (Mio & Iwamasa, 1993). The APA Joint Task Force of Division 17 and 45 published *Guidelines on Multicultural Education, Training, Research, Practice, and Organizational Change for Psychologists*; these were updated in 2017. The underlying principles and the guideline most directly relevant for cultural competency in research are displayed in Box 1.5. The 2017 version expands the concept of diversity beyond race to recognize the "intersectionality among and between reference groups identities, including culture, language, gender, race, ethnicity, ability status, sexual orientation, age, gender identity, socioeconomic status, religion, spirituality, immigration status, education, and employment, among other variables" (p. 8).

BOX 1.5

APA Guidelines on Multicultural Education, Training, Research, Practice, and Organizational Change for Psychologists: Principles and Research Guidelines (2017)

Guideline 5. Psychologists aspire to recognize and understand historical and contemporary experiences with power, privilege, and oppression. As such, they seek to address institutional barriers and related inequities, disproportionalities, and disparities of law enforcement, administration of criminal justice, educational, mental health, and other systems as they seek to promote justice, human rights, and access to quality and equitable mental and behavioral health services. (p. 11)

Guideline 6. Psychologists seek to promote culturally adaptive interventions and advocacy within and across systems, including prevention, early intervention, and recovery. (p. 11)

Guideline 9. Psychologists strive to conduct culturally appropriate and informed research, teaching, supervision, consultation, assessment, interpretation, diagnosis, dissemination, and evaluation of efficacy as they address the first four levels of the *Layered Ecological Model of the Multicultural Guidelines*. (p. 12)

APA provides guidance to psychologists as practitioners and researchers on issues of discrimination on the basis of gender (APA, 2007), immigrant populations (2013), LGBT communities (2016b), and people with disabilities (2012).

Implications for Method: Researchers are asked to recognize the way that the larger societal context impacts on individuals and to understand the implications for respect for human rights in these contexts. Applying these guidelines to researchers and evaluators suggests that we must be wary of the deficit models that place the blame for social problems in the individual or culture rather than in the societal response to the individual or cultural group.

Differential Achievement Patterns. Differences in school achievement by gender, race, class, and disability have been documented in educational research studies over many decades. In 1989, P. B. Campbell discounted the view that poor academic achievement is the result of genetic or biological factors. She suggested that the differences could be accounted for by the choice of test and test items, parental and teacher expectations, differential course taking, differential treatment in the same classes, and different experiences outside school.

The American Educational Research Association's Commission on Research in Black Education developed a Transformative Research and Action Agenda to address the issue of differential achievement on the basis of race, especially focused on African Americans and people of African descent globally (J. E. King, 2005). King asks this question: "How can research become one of the forms of struggle for Black education?" (p. 6). Her answer to this question reinforces the need for a transformative paradigm of research:

The ultimate object of a transformative research and action agenda is the universal problem of human freedom. That is, a goal of transformative education and research practice in Black education is the production of knowledge and understanding [that] people need to rehumanize the world by dismantling hegemonic structures that impede such knowledge. (p. 5)

Anyon (2005) suggests that educational research will have an impact on equity in educational achievement only if it is set in the larger context of the community and social forces. For example, researchers need to examine oppressive policies and practices that result in continued lack of access to resources in poor communities. The power structures and dynamics need to be studied to understand how the people in power make decisions. She contends that real change comes through organized social issue campaigns. Hence, important research questions center on examining the psychological process necessary to promote involvement in such campaigns. Effective interventions may need to go beyond curriculum and pedagogical practices to equitable access to resources, job creation, public transportation improvements, and affordable housing.

Philosophical and Theoretical Basis

The philosophical basis of the transformative paradigm is quite diverse, reflecting the multiple positions represented in that paradigm. The transformative paradigm provides a philosophical framework that explicitly addresses issues of power and justice and builds on a rich base of scholarly literature from mixed methods research (Tashakkori & Teddlie, 2010), qualitative research (Denzin & Lincoln, 2018b), participatory action research (Reason & Bradbury, 2006), feminist researchers (Hesse-Biber, 2014b), critical ethnography (Madison, 2012), culturally responsive research and evaluation (Hood, Hopson, & Frierson, 2015), Indigenous researchers (Battiste, 2000; Chilisa, 2012; Cram et al., 2013; L. T. Smith, 2012), disability researchers (Mertens & McLaughlin, 2004; M. Sullivan, 2009), and researchers in the international development community (Segone, 2012). Framed from a historical perspective, the transformative paradigm is commensurate with the teachings of educator Paulo Freire and his “dialogical conscientization” model in Brazil (1970); Habermas’s communicative action theory; and Foucault, Lyotard, and Todorov on the academic rhetoric supportive of institutional forms of domination and control (Christians, 2005).

Feminist Theory. Feminist theory, not a unified body of work, informs the transformative paradigm in its many versions. Hesse-Biber (2014b) describes the commonality of concern for feminist theories as exploring issues of power in women’s lives with the goal of improving the lives and relations between women and men, economically, socially, culturally, and personally. Feminists generally agree that, historically, women have not enjoyed the same power and privileges as men, either in the public or private sphere. Women live their lives in an oppressive society; this concept of oppression links the voices of those who work in the transformative paradigm.

Critical Race Theory. Similar themes emerge from the writings of African American scholars. Gordon (1995) writes,

The Black challenge to Western ideological hegemony is older than both critical and feminist discourse and was born of the need for intellectual, ideological, and spiritual liberation of people who lived under both the racist domination and sexist patriarchal subordination to which both the critical and feminist discourse react and refer. (p. 190)

She criticizes the critical and feminist scholars as follows:

The blind side of critical and feminist discourses is their inability, unwillingness, or complete lack of awareness of the need to focus on the conceptual systems that construct, legitimize, and normalize the issues of race and racism. This is demonstrated through the flagrant invisibility in their works of the critical and cultural model generated by the subjugated oppressed group from its own experiences within a dominant and hostile society. (pp. 189–190)

She does not see sufficient attention being given to the African American critical and liberatory pedagogy in most feminist discourse. A number of ethnic minorities have written that mainstream feminists are not representative of their views (e.g., P. H. Collins, 2000; Ladson-Billings & Donnor, 2005), thus adding to the complexity of identifying the philosophical base of the transformative paradigm. Critical race theory can be used as a framework for researchers to uncover the racism that continues to oppress people of color as well as to provide guidance for racial social justice.

Queer/LGBTQ Theory. Researchers who work in the lesbian, gay, bisexual, transgender, and queer (LGBTQ) communities express concern about the lack of critical reflection on how meaning making about gender and sexual identity is not only about the context but also about the socially constructed identity of the individual in the setting. Queer theory (sometimes labeled LGBTQ theory) has emerged as a way to challenge the hegemony inherent in the two-dimensional separation of male or female as a way of measuring gender and sexual identity. For the LGBTQ community, persistent internalized homophobia can conceal discrimination to the degree that persistent subtle degrading manipulation is not even acknowledged or those demeaned feel powerless to challenge the question (Dodd, 2009; Mertens, Foster, & Heimlich, 2008). By establishing a transformative approach and reaching out to concealed communities, researchers have the opportunity to engage voices that have been traditionally unrecognized or excluded.

Disability Theory. More complexity is added by those who have written of a new paradigm for the disability community (Mertens & McLaughlin, 2004; M. Sullivan, 2009). Persons with disabilities discuss a shift from a medical/deficit model to a social-cultural model as a framework for understanding this community's experiences. The social-cultural model of disability challenges the medical perspective by allowing people with disabilities to take control over their own lives by shifting the focus onto the social rather than the biological factors in understanding disability. Accompanying this shift in self-perceptions is a shift in research perspectives put forth by members of the disability community. Emancipatory research came from the disability community from the "nothing about us without us" political activism that was based on moving the control of research into the hands of persons with disabilities. However, M. Sullivan (2009) notes that maybe it is time for the disability community to walk side by side with nondisabled researchers using the transformative paradigm in the search for social justice.

EXTENDING YOUR THINKING

Oppression

Is it appropriate to use the “umbrella” term *oppression* to include the experiences of women, racial/ethnic minorities, immigrants, Indigenous peoples, lesbian/gay/bisexual/transgender/queer individuals, the elderly, members of minority religious groups, persons with disabilities or persons who are Deaf? Why or why not?

Are there fundamental differences between/among groups, or are these differences exaggerated? For example, between males and females? Persons of different ethnicities? Persons with disabilities and those without? How do you reconcile the idea of intersectionality with the various bases used for discrimination in society? What does this mean for your research?

Indigenous Theory. There is no single Indigenous theory; there is no universal agreement that Indigenous understandings of research should be characterized as a theory, an approach, or a paradigm (Cram et al., 2013). Chilisa (2012) writes about the Indigenous paradigm and explicates the philosophical assumptions associated with that paradigm. Not all Indigenous scholars would agree that Indigenous theory belongs under the transformative paradigm, rather, they would argue that it should be considered as a separate paradigm with its own set of philosophical assumptions. Mertens and Cram (2015) acknowledge the tension in trying to put Indigenous research into a Western-developed structure, but they put forth the argument that the Indigenous voice can be brought into the transformative paradigm as a way of stretching and enriching understandings of the meaning of conducting research for the purpose of social transformation. This is possible because the transformative paradigm has space within it for many worlds and tolerance of the complexity of subjectivities and identities of inhabitants. For Indigenous peoples, the transformative goal is to have their rights and sovereignty recognized, to challenge colonization, and where applicable, to restore their lands.

As the APA statement on multicultural psychology makes clear, individuals are not defined by one characteristic, such as gender or race. As researchers, we need to consider the intersectionality of characteristics that are used as a basis of discrimination in society as well. These theoretical perspectives are discussed in great depth later in this text.

An example of a transformative mixed methods research study is illustrated in Sample Study 1.3. With that lengthy introduction to the transformative paradigm and in full recognition of its diverse and emerging character, the answers to the four defining questions follow.

Axiology

The transformative paradigm places priority on the axiological assumption as a guiding force for conceptualizing subsequent beliefs and research decisions. The starting point for transformative researchers is the territory that encompasses human rights and social justice. The transformative paradigm emerged because of dissatisfaction with research conducted within

SAMPLE Study 1.3 Summary of a Transformative Mixed Methods Research Study



SOURCE: © iStockphoto/yngsa.

Research Problem: Schmalenbach was invited by an NGO (nongovernmental organization) to work with them in a school in El Salvador located in a high poverty, high risk community. They asked her to work with them, the principal, and the teachers to identify and implement teaching methods that were appropriate for their context.

Research Questions: “To what extent is cooperation or mutual support observable in this context? What experiences with cooperation and mutual support do children and adults have outside of school?” (Schmalenbach, 2018, p. 317, italics in original). “How can teachers be supported to transform more of their high motivation for small group learning into well-informed practice?” (Schmalenbach, 2018, p. 148).

Method: A transformative mixed methods design was used for this study. The researcher conducted a careful, historical, contextual analysis of El Salvador and the school district in which she would collect her data. She established relationships with the principal and the teachers and began a year-long ethnographic study that included participant observation, interviews, and document reviews. The students completed diaries about their cooperative activities every few days and participated in focus groups. She met with parents individually and in cooperative group training sessions. She taught classes using cooperative learning techniques with two of the teachers. Midway through the year, she conducted a survey with teachers in a randomly selected group of schools to determine the attitudes of teachers toward the use of cooperative learning and their practices of that strategy for teaching. She returned to El Salvador for one month nine months after leaving the field and conducted additional data collection through group interviews. A couple of years later, she returned again to conduct teacher training to share what she had learned through her research.

Participants: The ethnographic part of the study occurred in one school that has about 120 students and seven regular teachers, one teacher for additional instruction, and one special needs teacher. She focused her attention on students in Grades 2 through 5. A total of 287 teachers from the 24 different schools participated in the survey. It was not possible to determine the exact number of teachers in 8 of the schools. However, for the other 18 schools, a 79% return rate was achieved.

Instruments and Procedures: The researcher took observational notes while sitting in the back of the classroom, focusing on interactions of students with each other; the participation part of the observational process became more important as she began teaching classes. She had a semi-structured interview guide to use with the teachers that focused on their teaching experiences, cooperation, and use of group work. Interviews with students focused on their preferences for individual or group work and their reasons for their preferences. The cooperation diary had simple questions such as “Who did I help today?” and “Who helped me?” Training sessions with parents focused on how the parents could support their children’s learning. The focus groups with children focused on strategies for addressing conflicts that had arisen in group work situations.

Results: The community in which the research was conducted is an informal settlement that arose after an earthquake forced many people to seek a new place to live. Many of the youth have affiliated themselves with one of the most powerful gangs in El Salvador. Even if they are not gang members, they are stigmatized because they come from this community. Teachers expressed frustration at trying to make a difference when they see a pattern of aggressive behaviors that are reinforced in the community. She also reported many stories of resilience in the face of challenges. Instances of helping each other and cooperation were also visible in data from observations and interviews. The survey results showed that teachers saw potential in using cooperative learning strategies, but they were not widely used because of a lack of training and materials. The results of the survey contributed to a shift in the focus of the ethnographic part of the study to look at

the supports that teachers needed in order to use cooperative learning. The teachers saw group work as one way to teach values of solidarity and cooperation, but they were skeptical of its power because of the limited amount of time they have with students.

Discussion: The research was conducted with a conscious attempt to engage the participants in transformative experiences. Through active involvement of persons in the community throughout the research process, individuals found a safe place to share their experiences and learn from each other. Participants described an increase in their belief that they could make a difference in children's lives. However, sustainability of the changes is in question because of the lack of resources and support and because of the wider cultural context with its economic challenges.

SOURCE: Based on Schmalenbach (2018).

other paradigms that was perceived to be irrelevant to or a misrepresentation of the lives of people who experience oppression. Members of marginalized communities expanded the meaning of the ethical principles introduced under the postpositivist paradigm and have encouraged the use of community-based ethics review boards (Key, 2017). Greater concern about the rights and welfare of research participants generally leads to greater involvement of the participants themselves in the research process—one of the basic tenets of the transformative paradigm. Hence, the transformative axiological assumption is examined from a number of different perspectives:

- How transformative researchers critique and extend the principles of respect, beneficence, and justice on several fronts. Respect is critically examined in terms of the cultural norms of interaction in diverse communities and across cultural groups. This includes respect for dignity and worth of the community members and the right to know and understand transparently (Key, 2017). Beneficence is defined in terms of the promotion of human rights and an increase in social justice. The research should maximize the benefit for the group and the individual in the present day as well as in the future (sustainability). An explicit connection is made between the process and outcomes of research and evaluation studies and furtherance of a social justice agenda. There should be a fair distribution of costs and benefits across the community.
- Human rights initiatives through the United Nations reinforce the need to be aware of those whose rights are not respected worldwide.
- The codes of ethics from relevant professional associations and organizations provide guidance for researchers and evaluators as to what constitutes ethical practice. As mentioned previously, those codes of ethics have been critically reviewed and revised to reflect a greater concern for principles that are reflective of the axiological assumptions of the transformative paradigm. The AEA modified its guiding principles to include an explicit principle related to the role of cultural competency in ethical evaluation practice. The APA's 2002 ethics code was amended in 2016; it takes a strong stance about protection of people in research that involves deception. Ethics in psychology has been extended by Brabeck and Brabeck's (2009) application of feminist principles in psychology.

- There are other ethical guidelines associated with various professional associations, government agencies, and donor agencies.
- Researcher guidelines are also available from Indigenous communities that provide insights into ethical grounding of research and evaluation from that perspective. For example, Cram (2009) provided guidelines for researchers from the Maori people, such as show respect for people by meeting them face to face, take time to build relationships, and take responsibility for giving back to the community. Other Indigenous groups have developed ethical principles that require that the researcher communicate the intended research agenda, design, activity, and reports with members of the host community (Angal, Petersen, Tobacco, Elliott, & PASS Network, 2016; LaFrance & Crazy Bull, 2009). The research should be designed in such a way as to bring benefit to the host community and to foster the skills and self-sufficiency of host community scientists.

Transparency and reciprocity are important values that are included in the transformative axiological position. An explicit connection is made between the process and outcomes of research and furtherance of a social justice agenda. In the past, researchers provided incentives, such as money or materials (e.g., office supplies or gift certificates for a book store, educational toys, or a fast-food restaurant) to the participants in their studies. The transformative researcher emphasizes the importance of giving back to the community that provides the data in the form of less tangible rewards and might offer additional training for community members and provision of access to the results so they can be used to improve practice, obtain additional funds, or influence policy.

Ethical principles developed for cross-cultural settings can provide insights in how to conduct research that involves participants and researchers from different countries (Matsumoto & Jones, 2009). Researchers can adapt ethical guidelines that were based on developments for cross-cultural research when working with people from minority communities in the United States. Although the cross-cultural ethical standards were developed to guide researchers in other countries, they have applicability for research with Native Americans, Native Alaskans, Hispanics, African Americans, and other minority populations such as the Deaf community. Cross-cultural ethical principles require collaboration between the researcher and the host community. In the American Deaf community, representatives of the host community could be identified through various national organizations, such as the National Association of the Deaf or Self-Help for Hard of Hearing People. Collaboration should not be limited to conversations with leaders, although building relationships with these initial contacts can be a way of learning how to appropriately access other members of the Deaf community.

Visiting researchers should strive to conduct the research on an equal-status basis with the host community members. Errante (2001) provides good insights into the struggles faced by a researcher when the participants in the study question the benefit of their participation (see Box 1.6).

BOX 1.6 Benefits of Participating in Research

Errante (2001) conducted an oral history of educational experiences in Mozambique. She found that some of the Mozambicans were cynical about the conduct of focus groups and interviews by internationals. They wanted to know why a rich foreigner could make her living by constantly asking them questions, yet nothing ever changed for them anyway. She commented,

This lesson in humility reminded me once again of the importance of establishing mutual respect and trust with narrators. I now take more time just engaging in conversation. I explain what oral history work means to me more fully, and the value of the narrators' life experiences for the national patrimony. I ask narrators, particularly older ones, to think about what they would like their grandchildren to know about their life and their educational experiences. I ask them if they would like to know something about my life before we start. And I listen first and foremost to the story narrators want to tell me. All of this helps to construct an interpersonal bridge; it gives the narrator and me a chance to get to like each other. (p. 21)

Ontology

Truths are not relative. What are relative are opinions about truth.

—Nicolás Gómez Dávila, 2001

Like the constructivist paradigm, multiple versions of what is perceived to be real are recognized in the transformative paradigm. However, the transformative paradigm stresses that acceptance of such differences of perceptions as equally legitimate ignores the damage done by ignoring the factors that give privilege to one version of reality over another, such as the influence of social, political, cultural, economic, ethnic, gender, and disability lenses in the construction of reality. In addition, the transformative ontological belief emphasizes that that which seems “real” may instead be reified structures that are taken to be real because of historical situations. Thus, what is taken to be real needs to be critically examined via a critique of its role in perpetuating oppressive social structures and policies.

Schmalenbach (2018) recognized that multiple perceptions of the nature of the problem and solutions for teaching effectively in a context fraught with violence exist. Some of the ways of perceiving the nature of the problem are harmful, such as assuming that the students cannot be taught to cooperate because their culture teaches them to be aggressive and competitive. The researchers deliberately set out to understand the perceived reality of the nature of the problem and potential solutions by building relationships with students, parents, and teachers.

Epistemology

The transformative paradigm's epistemological assumption centers on the meaning of knowledge as it is defined from a prism of cultural lenses and the power issues involved in the determination of what is considered legitimate knowledge. This means that not only is the relationship between the knower and the would-be known (i.e., the researcher and

participants) interactive, it also involves a consciousness of cultural complexities in that relationship. In order to address issues of power in understanding what is valued as knowledge, S. Harding (1993) recommends that the researcher use a methodology that involves “starting off thought’ from the lives of marginalized people” (p. 56). This would reveal more of the unexamined assumptions influencing science and generate more critical questions. The relationship should be empowering to those without power and examine ways the research both benefits and does not benefit participants.

Haraway (1988) describes feminist objectivity as “situated knowledge”—that is, recognizing the social and historical influences on that which we say we know. S. Harding (1993) argues that politically guided research projects have produced fewer partial and distorted results (as in sexist or racist) than those supposedly guided by the goal of value neutrality. Objectivity in the transformative paradigm is achieved by reflectively examining the influence of the values and social position of the researcher on the problems identified as appropriate for research, hypotheses formulated, and key concepts defined.

For example, the epistemological assumptions of the transformative paradigm are evident in the Schmalenbach (2018) study, not only in the participatory approach to constructing the research focus but also in the collaboration that functioned throughout the entire 12-month research period. She knew that entry into the neighborhood would not have been safe for a nonresident, so she gained entry through a partnership with an NGO that was well established there. She spent a great deal of time getting to know the NGO staff, the school principal, teachers, students, and their parents. One of the most striking changes came about because she nurtured relationships with the children who initially were suspicious and not forthcoming about their experiences. However, she informed them that they were “experts” in their experience with cooperative learning and could advise her and the teachers about that. The students gradually opened up with her and her final description of their interactions reveals the quality of their relationships:

The children from the *comunidad* will always hold a special place in my heart. Their courage, excitement and perseverance in trying out and reflecting on unknown teaching methods were inspiring. They took their roles as experts on their own learning process seriously and gave me feedback on what they did or did not find helpful. At the same time, they were very patient teachers when it came to local slang and customs. (p. viii)

Methodology

Scholars writing from the perspectives of feminists, racial/ethnic minorities, poor people, Indigenous communities, and people with disabilities have commonly expressed dissatisfaction with both the postpositivist and constructivist paradigms of inquiry (Chilisa, 2012; Cram, 2009; Mertens, 2009). Mertens (2009) identified three characteristics of the transformative paradigm with ethical implications for methodological choices:

1. Traditionally silenced voices must be included to ensure that groups marginalized in society are equally heard during the research process and the formation of the findings and recommendations.

2. An analysis of power inequities in terms of the social relationships involved in the planning, implementation, and reporting of the research is needed to ensure an equitable distribution of resources (conceptual and material).
3. A mechanism should be identified to enable the research results to be linked to social action; those who are most oppressed and least powerful should be at the center of the plans for action in order to empower them to change their own lives.

Transformative researchers are pluralistic and evolving in their methodologies; many use mixed methods, combining quantitative and qualitative methods. The empiricists who work within the transformative tradition tend to use quantitative methods; however, they emphasize a need for more care and rigor in following existing methods commonly associated with the postpositivist paradigm to avoid sexist, racist, or otherwise biased results (Hesse-Biber, 2014b). Other transformative researchers use a wide diversity of methods; many make use of qualitative methods, such as interviews, observations, and document review, within a transformative framework. In transformative research that comes from the participatory action research tradition, it is viewed as essential to involve the people who are the research participants in the planning, conduct, analysis, interpretation, and use of the research. A common theme in the methodology is inclusion of diverse voices from the margin.

Schmalenbach (2018) exemplified the transformative methodology by focusing on methods that would allow opportunities for personal and systemic transformation as well as by using a cyclical model for the research process. Her primary research approach was ethnographic, focusing on culture and context through collection of data by document review, observation, and interviews (both individual and group). She conducted a quantitative survey during the course of the research to gain a broader perspective about the issues she was studying. She allowed each stage of data collection to inform the next stage. The interview questions evolved over time and were adjusted based on feedback from the teachers and the coworkers at the NGO. The development and implementation of the intervention was done in a conscientiously participatory manner with the teachers and their students.

Validity From a Transformative Perspective: A Methodological Issue

Validity is often thought of as related to the validity of a data collection instrument (see Chapter 12 on data collection), but validity has broader meanings. Kirkhart (2005) and Lincoln (2009) have been at the forefront of the discussion of the integral connection between the quality of the human relations in a research setting and the validity of the information that is assembled. Kirkhart (2005) proposes specific consideration of what she terms “multicultural validity,”² which she describes as referring to the “correctness or authenticity of understandings across multiple, intersecting cultural contexts” (p. 22). I argue that multicultural validity is a good candidate for considering transformative validity. She outlines five justifications for multicultural validity:

1. *Theoretical*: The cultural congruence of theoretical perspectives underlying the program, the evaluation, and assumptions about validity
2. *Experiential*: Congruence with the lived experience of participants in the program and in the evaluation process
3. *Consequential*: The social consequences of understandings and judgments and the actions taken based upon them
4. *Interpersonal*: The quality of the interactions between and among participants in the evaluation process
5. *Methodological*: The cultural appropriateness of measurement tools and cultural congruence of design configurations (p. 23)

EXTENDING YOUR THINKING

The Transformative Paradigm

- Identify a research study that exemplifies the transformative paradigm. Explain why this study represents this paradigm. What are the distinguishing characteristics that lead you to conclude that this study belongs to this paradigm (e.g., what are the underlying characteristics that define a research study in this paradigm)?
- How can the research community address the issues of oppression and group differences in access to power without engendering greater divisiveness?
- Who should and can do transformative research? S. Harding (1993) writes the following in answer to this question:

But the subject of every other liberatory movement must also learn how gender, race, class, and sexuality are used to construct each other in order to accomplish their goals. . . . It cannot be that women are the unique generators of feminist knowledge. Women cannot claim this ability to be uniquely theirs, and men must not be permitted to claim that because they are not women, they are not obligated to produce fully feminist analyses. Men, too, must contribute distinctive forms of specifically feminist knowledge from their particular social situation. (p. 67)

Do you agree or disagree with Harding? State your reasons.

- How can a researcher from a dominant group (i.e., one with power) conduct meaningful research about those of differing race, class, gender, and disability? How can researchers conduct an inquiry on the same cultural group that they are a member of? How can those with less power “study up” the members of groups with more power?
- It is not clear whether the transformative paradigm is to replace existing paradigms or to be an alternative paradigm in conducting research. Do you see it as an alternative or preferred paradigm in conducting evaluations or research concerning marginalized groups? Or is it a paradigm to be integrated into the existing research methodologies, regardless of the research focus? Some researchers will argue that this paradigm is incompatible with scientific research methods. What is your response to this argument?

PRAGMATIC PARADIGM

Tashakkori and Teddlie (2010) identify pragmatism as one of the paradigms that provides an underlying philosophical framework for mixed methods research.³ It should be noted that mixed methods research can be used within any of the paradigmatic frameworks; however, the choice of methods will be informed by the assumptions held by each researcher. The text here will focus on the pragmatic paradigm as described by Tashakkori and Teddlie (2010), Maxcy (2003), and Morgan (2007).

Historically, pragmatism can be divided into an early period from 1860 to 1930 and a neopragmatic period from 1960 to the current time (Maxcy, 2003). Early pragmatists included Charles Sanders Peirce (circa 1877), William James, John Dewey, George Herbert Mead, and Arthur F. Bentley. These philosophers rejected the scientific notion that social science inquiry was able to access the “truth” about the real world solely by virtue of a single scientific method. Thus, their belief systems were closely aligned in this sense to constructionists. The neopragmatists, including Abraham Kaplan, Richard Rorty, and Cornel West, built on the work of the early pragmatists. However, they moved even further from the metaphysical and emphasized the importance of common sense and practical thinking.

Understandings of pragmatism as a philosophical school have no doubt shifted throughout the centuries; the way this philosophy is interpreted in the current mixed methods research community has strayed somewhat from the earlier pragmatist philosophers. The current focus is related to earlier pragmatists in several ways: The focus is on “lines of action” (from William James and George Herbert Mead) and “warranted assertions” (from John Dewey), along with a general emphasis on “workability” (from James and Dewey; Morgan, 2007, p. 66). Dewey would call inquiries what we do when we undertake to determine the workability of any potential line of action, and the inquiry results would provide warrant for the assertions that we make about that line of action. In pragmatists’ eyes, the lines of action are methods of research that are seen to be most appropriate for studying the phenomenon at hand. “The essential emphasis is on actual behavior (‘lines of action’), the beliefs that stand behind those behaviors (‘warranted assertions’), and the consequences that are likely to follow from different behaviors (‘workability’)” (Morgan, 2007, p. 67). The pragmatists’ goal is to search for useful points of connection.

A pragmatic mixed methods study is illustrated as Sample Study 1.4. This is a study of student dropout and reenrollment in high school (Berliner, Barrat, Fong, & Shirk, 2008).

SAMPLE Study 1.4 Summary of a Pragmatic Mixed Methods Study

Research Problem: The United States has a very high dropout rate for high school students. Some of the students drop out and never come back; some reenroll and graduate. Students who do not graduate from high school have more challenges in terms of literacy necessary to succeed in the contemporary labor market.

Research Questions: How many students drop out of high school in this district? How many students who dropped out reenroll in high school? What are the reasons students drop out and reenroll?

Method: A pragmatic, sequential mixed methods design was used that included sequential collection of both quantitative and qualitative data to provide answers to the research questions. Researchers started with quantitative analysis of dropout and reenrollment data, followed by semistructured interviews with staff and students.

(Continued)

(Continued)

Participants: The study took place in one school district in California because it had a linked, longitudinal student-level data set that tracked dropouts and reenrollments in the district. This was a convenience sample of a large, urban, and racially diverse school district with a total of 3,856 students who were first-time ninth graders in 2000/2001. Seven district administrators, seven principals, and six students were interviewed in 2007.

Instruments and Procedures: The quantitative portion of the study involved a statistical analysis of a longitudinal data set from 2000/2001 to 2006/2007. In addition, researchers had access to course information that the students took and demographic data about the students. The qualitative portion included interviews with 20 people from the school district, which lasted between 30 and 45 minutes each. The semistructured interviews were conducted by the researchers during a weeklong, in-person visit to the school district.

Results: About 45% of the students graduated in the allotted 4 years of high school with regular high school diplomas. About 35% had dropped out at least once during that time; 20% transferred to other schools and their whereabouts and status are unknown. Of the 35% who dropped out, 31% reenrolled at a school in that district, and 18% of these graduated by 2005/2006. The qualitative data from the reenrolled students revealed that they struggled academically, were bored, failed courses, or had other life circumstances like family crises, pregnancy, or gang pressure that led them to drop out and challenged their ability to complete their high school degrees.

Discussion: Dropping out is not a fixed outcome; students do reenroll and drop out and reenroll. Students returned to school for a variety of reasons—some because they could not get a job without a high school diploma, others because of urging from a significant person such as a counselor or coach. The administrators indicated that they needed additional resources to reach out to youth and to support them when they did reenroll for counseling and academic support.

SOURCE: Based on Berliner et al. (2008).

Axiology

Questions of ethics were very important to early pragmatists such as James, Dewey, and Mead. Dewey (and James) emphasized an ethics of care, particularly for the youngest members of society (Hall, 2013). Dewey incorporated strong ethical principles into pragmatism in the form of the need to engage with multiple constituencies to gain understandings from different points of view. He also supported a democratic model of research. For contemporary researchers working within the pragmatic paradigm, the ethical goal of research is to gain knowledge in the pursuit of desired ends (Morgan, 2007). This is somewhat akin to what Christians (2005) describes as the utilitarian theory of ethics in that “all that is worth valuing is a function of its consequences” (p. 144).

Ontology

Pragmatists have for the most part avoided the use of metaphysical concepts such as truth and reality that have caused (in their eyes) much endless and often useless discussion and debate (Teddlie & Tashakkori, 2010). In a pragmatic approach, there is no problem with asserting both that there is a single “real world” and that all individuals have their own unique interpretations of that world. Rather than treating incommensurability as an all-or-nothing barrier to mutual understanding, pragmatists treat issues of intersubjectivity as a key element of social life. In particular, the pragmatist emphasis on creating knowledge through lines of action points to the kinds of “joint actions” or “projects” that different people or groups can accomplish together (Morgan, 2007, p. 72).

Effectiveness is to be used as the criterion for judging value of research rather than correspondence of findings to some “true” condition in the real world (Maxcy, 2003). Effectiveness is viewed as establishing that the results “work” with respect to the specific problem that the researcher seeks resolution of:

What is healthy about a pragmatic social science of mixed and multiple methods is . . . it allows a number of projects to be undertaken without the need to identify invariant prior knowledge, laws, or rules governing what is recognized as “true” or “valid.” Only results count! (p. 85)

This contrasts sharply with the other paradigms’ emphasis on the nature of reality and possibility of objective truth. Instead, one of the defining features of pragmatism is an emphasis on “what difference it makes” to believe one thing versus another or to act one way rather than another (Morgan, 2007, p. 68).

In the Berliner et al. (2008) study, the researchers start by analyzing numbers of students who drop out and reenroll based on the assumption that it will be useful to know how many students drop out and reenroll and eventually graduate (or not) as it is ascertained from the longitudinal data kept by the school district. They want to add to their ability to interpret the numbers, so they also schedule interviews to get data that reflect administrators’, principals’, and students’ perceptions of reasons for dropping out and reenrolling.

Epistemology

Dewey’s version of epistemology reflects the concept that research takes place in communities and thus the researcher needs to interact with the diverse members of communities to both understand a problem and address the problem (Hall, 2013; Morgan, 2007). Intelligent action becomes possible because researchers interact with the communities and learn about the way each person understands the phenomenon and possible consequences of different courses of action. The values that are supported by communities should include freedom, equality, and justice; Dewey viewed these values as those that characterize a democracy. Thus, researchers work with communities to determine the intelligent course of action and to determine the appropriateness of those actions once they have been implemented.

In the mixed methods literature about the pragmatic paradigm and epistemology, researchers do not position themselves as distanced observers. Rather, the pragmatist is free to “study what interests you and is of value to you, study it in the different ways that you deem appropriate, and utilize the results in ways that can bring about positive consequences within your value system” (Tashakkori & Teddlie, 1998, p. 30). The criterion for judging the appropriateness of a method, with its implied relationship between the researcher and the researched, is if it achieves its purpose (Maxcy, 2003).

The longitudinal data sets were available to the researchers without traveling to the district. Hence, this portion of the research was completed before the researchers visited the site. The researchers then made a weeklong site visit to the district, during which they interviewed district administrators, principals, and students. The researchers do not report the nature of the relationships they had with the individuals they interviewed.

Methodology

Qualitative and/or quantitative methods are compatible with the pragmatic paradigm. Method should be decided by the purpose of the research (Tashakkori & Teddlie, 2010). Neopragmatists wrote extensively of the importance of using mixed methods and avoiding being constrained by a single, monolithic method, as they perceived the “scientific method” to be according to the postpositivist thinkers (Maxcy, 2003). Rather, they see mixed methods as offering a practical solution to the tensions created in the research community concerning the use of quantitative or qualitative methods. Put simply, pragmatism allows the researchers to choose the methods (or combination of methods) that work best for answering their research questions. Morgan (2007) asserts that research questions in and of themselves are not inherently important and methods are not automatically appropriate. Rather, the researcher makes a choice about what is important and what is appropriate, based on a general consensus in the community that serves as the researcher’s reference group. He does encourage researchers to be reflexive about what they choose to study and how they choose to do so.

As mentioned under the epistemological assumption for this paradigm, Berliner et al. (2008) used a sequential mixed methods design, meaning that first they analyzed quantitative data from the district’s longitudinal data set. They analyzed the data in terms of overall dropouts and reenrollments over a 5-year period as well as by subgroups by gender and race/ethnicity. They then scheduled a site visit to the district for 1 week to interview district administrators, principals, and students. Their results are contained in a report submitted to the U.S. Department of Education, which gave them the money to do the study.

Issues Related to the Pragmatic Paradigm

Several scholars have taken supporters of the pragmatic paradigm to task because there is a difference between pragmatism as a philosophy and a “what-works” form of everyday pragmatic behavior (Denzin, 2012; Hall, 2013; Greene, 2007). Researchers who describe themselves as pragmatists put aside issues of ontology and epistemology to secure funding for their research interests and to publish their findings. In the case of these researchers, the what-works approach focuses on doing what was efficient to advance their research agendas. Such findings suggest the current usage of the term *pragmatism* has been trivialized in the field of mixed methods and that an a-paradigmatic (Greene, 2007) approach to mixed methods approaches has emerged.

EXTENDING YOUR THINKING

The Pragmatic Paradigm

Identify a research study that exemplifies the pragmatic paradigm. Explain why this study represents this paradigm. What are the distinguishing characteristics that lead you to conclude that this study belongs to this paradigm (e.g., what are the underlying characteristics that define a research study in this paradigm)?

EXTENDING YOUR THINKING

The Four Paradigms

Four paradigms that are currently guiding research in education and psychology are presented in this chapter. Write a short paper that reflects your own ideas regarding where you stand in terms of the options for paradigms of research. Do you find yourself intrigued by or more comfortable with one than another? Do you find yourself somewhat in the middle? Are you withholding judgment until you know more? What else do you want to know? Discuss your position in terms of the axiological, ontological, epistemological, and methodological assumptions of each paradigm.

POLITICS, LEGISLATION, AND THE PARADIGMS

Why Is the Methodology of Research a Political Issue?

As stated in the history of research section of this chapter, the oldest paradigm for educational and psychological research is the postpositivist paradigm. The second paradigm to enter this research world was the constructivist paradigm, which was followed by the transformative paradigm. The pragmatic paradigm is the most recent addition as a philosophical base for some mixed methods research (although it should be noted that pragmatism as a philosophical school harkens back to the days of John Dewey, William James, and George Herbert Mead). In years past, the professional literature contained many attacks by postpositivists on constructivists (and vice versa). In fact, the debates between postpositivists and constructivists were at one time called the paradigm wars. As qualitative researchers became more accepted in the methodology community, less vitriolic rhetoric was seen in the literature. Examples of transformative research became more frequent in mainstream journals as more persons who had been pushed to the margins were bringing their voices into the research community.

It seemed perhaps then an uneasy peace had sprung up among researchers, until the No Child Left Behind Act (NCLB) of 2002, the reauthorized Elementary and Secondary Education Act, was passed by the U.S. Congress with the goal of supporting educational practice based on scientific evidence. The definition of scientifically based research (SBR) in the legislation was closely aligned with approaches to research that are at home in the post-positivist paradigm. The intent of giving priority to this approach to research is the belief that reliable evidence of effectiveness is dependent on the use of “rigorous methodological designs and techniques, including control groups and random assignment” (No Child Left Behind Act, 2001). Very real consequences are attached to the use of this approach in terms of who will get grant funds from the federal government to study effectiveness of educational interventions.

Professional Organizations' Response to NCLB

The prioritizing of experimental designs in research caused quite a stir in the wider research community. Many professional associations developed critiques based on the narrow definition of research that was found in the legislation. For example, the AEA takes the position that there is not one right way to evaluate the effectiveness of a program. In response to the U.S. Department of Education's requirement of the scientific method, the AEA (2003) stated, "While we agree with the intent of ensuring that federally sponsored programs be 'evaluated using scientifically based research . . . to determine the effectiveness of a project intervention,' we do not agree that 'evaluation methods using an experimental design are best for determining project effectiveness.'"

The American Educational Research Association (2003) also expressed a similar sentiment. It did commend the U.S. Department of Education for its focus on improving the quality of research in education; however, it was concerned about the narrowness of the methods suggested for achieving that goal. Its resolution for essential elements for scientifically based research contained the ideas that randomized control trials might be appropriate for some contexts, but they were concerned that this singular focus would jeopardize "a broader range of problems best addressed through other scientific methods" (p. 2). The APA took a different approach in its reaction to the NCLB. It did not criticize the narrowness of the research approach; rather, it emphasized the contribution that psychologists could make in the conduct of such research (Gaiber-Matlin & Haskell-Hoehl, 2007). It also made note of areas that are problematic in the legislation that should be addressed in reauthorization, such as violence in the schools, students with disabilities, and English Language Learners.

Legislation can be amended; in the United States, it is expected that laws will be amended each time they are reauthorized. The NCLB legislation was replaced in 2015 with the Every Student Succeeds Act; it is less restrictive in the research methods that are viewed as acceptable for federal funding. Hence, the discussion of politics and research does not simply rest on a specific piece of legislation at a specific point in time. Rather, the debate that ensued from the requirements of NCLB with regard to research resulted in deeper discussions about the meaning of quality in research, with specific reference to the concept of objectivity.

CONTESTED TERRITORY: QUALITY, CAUSALITY, AND OBJECTIVITY

The National Research Council (NRC, 2002) issued a report that contained a broad definition of scientific research in education that includes both quantitative and qualitative methods. Despite this indication of a willingness to consider a variety of methods, the NRC's report contains the claim that experimental methods are the preferred strategy, the gold standard for causal investigations. The NRC model of causality rests on the premise that we cannot observe causality; we can observe regularities in the relationships between events that can be ascertained by randomized experiments, and it dismisses qualitative approaches as a means to understanding causality.

The fundamental principle underlying the prioritizing of experimental research as outlined by the NRC is that greater quality is needed in educational (and psychological) research and that the randomized experiment is the pathway to achieve that quality based on the belief that this approach allows a researcher to determine causality by observing regularities between events in an objective manner. However, Bloch (2004) suggests that what constitutes quality in research, establishing causality, and acting in an objective way is not as simple as choosing an experimental design. She sees the determination of quality in research as contested territory and that acceptance of such a narrow way of reasoning excludes other possibilities that are important in educational and psychological research. She writes,

These exclusions would include the social, cultural, economic, and historical contexts in which the researched and the researchers are participating in research, the ways in which significant questions are defined and by whom, and the ways in which rigor and generalizability are established and by whom. (p. 101)

Maxwell (2012) further argues that qualitative approaches are necessary if researchers are to make valid and useful claims about causality in educational and psychological research because they can reveal the actual processes that resulted in a specific outcome in a specific context. Qualitative research takes into account both the specifics of the context in terms of interventions and the broader social and cultural contexts that influence the effects of an intervention. It allows researchers to recognize the complexities and the multiple understandings of a phenomenon. He states,

Educational research, and social research generally, requires such qualitative approaches if it is to credibly identify the actual causes that influence a particular outcome, let alone make claims about the broader efficacy of any intervention. . . . The idea that randomized experiments or structural equation models can provide valid general conclusions about the effect of an intervention, in the absence of any understanding of the actual causal processes that were operating, the specific contexts in which these processes were situated, or the meaning that the intervention and contexts had for participants, is an illusion. We need qualitative methods and approaches in order to understand “what works” and why. (p. 659)

EXTENDING YOUR THINKING

Objectivity and Relativism

One unresolved issue in the paradigm discussion relates to the tension between objectivity and relativism. Postpositivist scholars teach the student to value objectivity and the discovery of objective truth. But in the constructivist paradigm, multiple viewpoints are sought. The ontological assumption is not that there is one reality waiting to be discovered but that there are multiple realities, depending on whose viewpoint you are soliciting. This ontological assumption has been labeled *radical relativism* by some who feel that constructivist research results only in “opinions” that cannot be substantiated. How do you respond to this dilemma for yourself?

What is your thinking about strategies for claiming a causal relationship as made by positivist through randomized controlled trials (RCTs) or Maxwell’s argument about qualitative research being essential for causal claims?

MERGING PARADIGMS—ACROSS DIFFERENCES

Throughout the chapters of this text, the strengths and challenges associated with various definitions of quality in research are examined. Educational and psychological phenomena are discussed from a variety of perspectives through the different lenses offered by the four major paradigms. What role do different paradigms play in research practice? Because many researchers combine the use of quantitative and qualitative methods, on the surface at least, it appears that a merger of paradigms is possible. Do depictions of paradigms, such as those in Table 1.2, emphasize differences more than similarities? In Kuhn's (1962/1996) early work on paradigms and scientific revolutions, he claimed that paradigms serve a purpose of providing a framework for discussion by researchers and that it is through that process that paradigms are changed, replaced, or modified. He did not hold the seeming incommensurability (i.e., paradigmatic belief systems do not share values or standards, hence communication across paradigms is difficult if not impossible) that is sometimes used to depict paradigmatic positions.

The permeability of paradigmatic positions is illustrated by Denzin and Lincoln's (2018) recognition that many scholars who use qualitative methods are becoming more cognizant of the perspectives of the gendered, historically situated, interacting individual. They described an ever-present but shifting center in the discourses of qualitative research that was previously situated primarily in the constructivist paradigm. The center shifts as new, previously oppressed, or silenced voices enter the discourse. Thus, for example, feminists and critical race researchers have articulated their own relationship to the postpositivist, poststructuralist, and critical perspectives. These new articulations then refocus and redefine previous ontologies, epistemologies, and methodologies (Denzin & Lincoln, 2018). Denzin and Lincoln's (2005) writings connecting qualitative inquiry to social justice and progressive political action further muddy the lines between paradigms.

Postmodernism, poststructuralism, and deconstructivism add to the discussion of the permeability of the lines around the major paradigms (see Table 1.2). While these philosophical orientations emerged as a reaction against the postpositivists' belief in a certain reality, they do share much in common with constructivists (recognizing multiple realities), transformative researchers (addressing issues of power), and pragmatists (noting that decisions about methods and findings are context dependent). In many ways, these positions give credence to the possibility for researchers' abilities to talk across paradigms. Some researchers make the claim that there is an incommensurability between paradigms—that is, if you hold the assumptions of one paradigm, you cannot hold the assumptions of another paradigm because they are not compatible with each other. For example, how can you be a neutral third-party researcher and one that is closely involved in the community at the same time? R. B. Johnson and Stefurak (2013) propose that research studies can be conducted using different paradigms at the same time; they call this stance “dialectical pluralism.” Most typically, this would

EXTENDING YOUR THINKING

Merging Paradigms

What is your opinion concerning merging of paradigms? What do you envision as being required for a merger to occur (if you think it is possible)?

take the form of a research team composed of people who situate themselves in different paradigms. The results of the different worldviews would yield different understandings, which could then be put into conversation (dialogical) with each other.

The field of research has not yet reached the point of full integration of paradigms. Therefore, this text presents the existing paradigms and their assumptions as starting points for thought with the hope that the framework will help clarify thinking and that the tensions will result in improved approaches to research and evaluation. Researchers should be aware of their basic beliefs, their view of the world (i.e., their functional paradigm), and the way these influence their approach to research. In this book, quantitative, qualitative, and mixed methods are explained, and the viewpoints of the various research paradigms are incorporated into the descriptions of methods. The intent is to provide as full a picture as possible of what is considered to be “good” research methodology from a variety of perspectives. This text cannot provide an in-depth discussion of the philosophical underpinnings of each perspective, each approach to research, data analysis, or construction of measurement instruments. References are provided in appropriate chapters for more in-depth information on these topics.

Summary of Chapter 1: An Introduction to Research

At this point, you should understand the importance of the philosophy of science for the conduct of research. You should be able to describe four major paradigms that influence researchers and evaluators by providing them with a philosophical framework to underlie their research decisions and actions. An inadequate but essentialist description of the four paradigms is as follows: Postpositivism emphasizes objectivity, experimentation, and generalizability. Constructivism emphasizes constructed realities, interaction with participants, and rich description. Transformative researchers focus on issues of social justice, human rights, and cultural complexity. Pragmatic researchers match the research questions with the choice of research methods, as indicated by each specific study's demands. Each of these paradigms has implications for methodological decisions that are explored in later chapters. Researchers operate in the real world, and therefore they are enmeshed in the politics of the real world that are visible in government policies and professional association standards. The field of research is an active, dynamic discipline that can be seen in the discussion of the permeability and possible merger of paradigms.

Notes

1. Schwandt (2000) provides detailed background on the philosophical basis of the interpretive, hermeneutic, and constructivist paradigms.
2. Kirkhart first introduced the term *multicultural validity* in 1995; she has expanded the concept considerably in her 2005 chapter.
3. Morgan (2007) provides an excellent discussion of the basic beliefs of mixed methods researchers who work from a pragmatic philosophical base. He prefers not to use the term *paradigm*, choosing instead to describe the relevant belief systems as characterizing a pragmatic approach.

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