CHAPTER THREE

The Use of Theory

One component of reviewing the literature is to determine what theories might be used to explore the questions in a scholarly study. In *quantitative research*, researchers often test theories as an explanation for answers to their questions. In a quantitative dissertation, an entire section of a research proposal might be devoted to presenting the theory for the study. In *qualitative research*, the use of theory is much more varied. The inquirer may generate a theory as the final outcome of a study and place it at the end of a project, such as in grounded theory. In other qualitative studies, it comes at the beginning and provides a lens that shapes what is looked at and the questions asked, such as in ethnographies or in transformative research. In mixed methods research, researchers may both test theories and generate them. Moreover, mixed methods research may contain a theoretical framework within which both quantitative and qualitative data are collected. These frameworks can be drawn from feminist, racial, class, or other perspectives and they flow through different parts of a mixed methods study.

Theories can be used in quantitative, qualitative, and mixed methods studies. I begin this chapter by focusing on theory use in a quantitative study. I review a definition of a theory, the use of variables in a quantitative study, the placement of theory, and the alternative forms it might assume in a written plan. Procedures in identifying a theory are next presented, followed by a script of a theoretical perspective section of a quantitative research proposal. Then the discussion moves to the use of theory in a qualitative study. Qualitative inquirers use different terms for theories, such as *patterns, theoretical lens*, or *naturalistic generalizations*, to describe the broader explanations used or developed in their studies. Examples in this chapter illustrate the alternatives available to qualitative researchers. Finally, the chapter turns to the use of theories in mixed methods research and the use of social science and transformative theories in such research.

QUANTITATIVE THEORY USE

Variables in Quantitative Research

Before discussing quantitative theories, it is important to understand variables and the types that are used in forming theories. A **variable** refers to a characteristic or attribute of an individual or an organization that can be measured or observed and that varies among the people or organization being studied. This variance means that scores in a given situation fall into at least two mutually exclusive categories (Thompson, 2006). Psychologists prefer to use the term *construct* (rather than *variable*), which carries the connotation more of an abstract idea than a specifically defined term. However, social scientists typically use the term *variable*, and it will be employed in this discussion. Variables often measured in studies include gender; age; socioeconomic status (SES); and attitudes or behaviors such as racism, social control, political power, or leadership. Several texts provide detailed discussions about the types of variables one can use and their scales of measurement (e.g., Isaac & Michael, 1981; Keppel, 1991; Kerlinger, 1979; Thompson, 2006; Thorndike, 1997). Variables are distinguished by two characteristics: (a) *temporal order* and (b) their measurement (or observation).

Temporal order means that one variable precedes another in time. Because of this time ordering, it is said that one variable affects or causes another variable; though a more accurate statement would be that one variable *probably* causes another. When dealing with studies in the natural setting and with humans, researchers cannot absolutely prove cause and effect (Rosenthal & Rosnow, 1991), and social scientists now say that there is "probable causation." Temporal order means that quantitative researchers think about variables in an order from "left to right" (Punch, 2005) and order the variables in purpose statements, research questions, and visual models into left-to-right, cause-and-effect type presentations. Thus, see the following:

• *Independent variables* are those that (probably) cause, influence, or affect outcomes. They are also called *treatment, manipulated, antecedent*, or *predictor* variables.

• *Dependent variables* are those that depend on the independent variables; they are the outcomes or results of the influence of the independent variables. Other names for dependent variables are *criterion, outcome, effect*, and *response* variables.

• *Intervening* or *mediating variables* stand between the independent and dependent variables, and they mediate the effects of the independent variable on the dependent variable. For example, if students do well on a research methods test (dependent variable), results may be due to (a) their study preparation (independent variable) and/or (b) their organization of study ideas into a framework (intervening variable) that influenced their performance on the test. The mediating variable, the organization of study, stands between the independent and dependent variables in the probable causal link.

• *Moderating variables* are independent variables that affect the direction and/or the strength of the relationship between independent and dependent variables (Thompson, 2006). These moderating variables are new variables constructed by a researcher by taking one variable and multiplying it by another to determine the joint impact of both on the dependent variable (e.g., age X attitudes toward quality of life impacting self-esteem). These variables are typically found in experiments.

• Two other types of variables are *control variables* and *confounding variables.* Control variables play an active role in quantitative studies. These are a special type of independent variable that researchers measure because they potentially influence the dependent variable. Researchers use statistical procedures (e.g., analysis of covariance [ANCOVA]) to control for these variables. They may be demographic or personal variables (e.g., age or gender) that need to be "controlled" so that the true influence of the independent variable on the dependent can be determined. Another type of variable, a *confounding (or spurious) variable*, is not actually measured or observed in a study. It exists, but its influence cannot be directly detected. Researchers comment on the influence of confounding variables after the study has been completed, because these variables may have operated to explain the relationship between the independent variable and dependent variable, but they were not or could not be easily assessed (e.g., a confounding variable such as discriminatory attitudes).

In a quantitative research study, variables are related to answer a research question (e.g., "How does self-esteem influence the formation of friendships among adolescents?") or to make predictions about what the researcher expects the results to show. These predictions are called *hypotheses* (e.g., "Individual positive self-esteem expands the number of friends of adolescents.")

Definition of a Theory in Quantitative Research

With this background on variables, we can proceed to the use of quantitative theories. In quantitative research, some historical precedent exists for viewing a theory as a scientific prediction or explanation for what the researcher expects to find (see Thomas, 1997, for different ways of conceptualizing theories and how they might constrain thought). For example, Kerlinger's (1979) definition of a theory seems still valid today. He said that a theory is "a set of interrelated constructs (variables), definitions, and propositions that presents a systematic view of phenomena by specifying relations among variables, with the purpose of explaining natural phenomena" (p. 64).

In this definition, a **theory in quantitative research** is an interrelated set of constructs (or variables) formed into propositions, or hypotheses, that specify the relationship among variables (typically in terms of magnitude or direction). A theory might appear in a research study as an argument, a discussion, a figure, or a rationale, and it helps to explain (or predict) phenomena that occur in the world. Labovitz and Hagedorn (1971) added to this definition the idea of a *theoretical rationale*, which they defined as "specifying how and why the variables and relational statements are interrelated" (p. 17). Why would an independent variable, X, influence or affect a dependent variable, Y? The theory would provide the explanation for this expectation or prediction. A discussion about this theory would appear in a section of a proposal on the literature review or in a separate section called the *theory base*, the theoretical rationale, or the *theoretical perspective.* I prefer the term *theoretical perspective* because it has been popularly used as a required section for proposals for research when one submits an application to present a paper at the American Educational Research Association conference.

The metaphor of a rainbow can help to visualize how a theory operates. Assume that the rainbow *bridges* the independent and dependent variables (or constructs) in a study. This rainbow ties together the variables and provides an overarching explanation for *how* and *why* one would expect the independent variable to explain or predict the dependent variable. Theories develop when researchers test a prediction over and over. For example, here is how the process of developing a theory works. Investigators combine independent, mediating, and dependent variables into questions based

on different forms of measures. These questions provide information about the type of relationship (positive, negative, or unknown) and its magnitude (e.g., high or low). Forming this information into a predictive statement (hypothesis), a researcher might write, "The greater the centralization of power in leaders, the greater the disenfranchisement of the followers." When researchers test hypotheses such as this over and over in different settings and with different populations (e.g., the Boy Scouts, a Presbyterian church, the Rotary Club, and a group of high school students), a theory emerges, and someone gives it a name (e.g., a theory of attribution). Thus, theory develops as an explanation to advance knowledge in particular fields (Thomas, 1997).

Another aspect of theories is that they vary in their breadth of coverage. Neuman (2009) reviewed theories at three levels: (a) micro-level, (b) meso-level, and (c) macro-level. Micro-level theories provide explanations limited to small slices of time, space, or numbers of people, such as Goffman's theory of face work, which explains how people engage in rituals during face-to-face interactions. Meso-level theories link the micro and macro levels. These are theories of organizations, social movement, or communities, such as Collins's theory of control in organizations. Macro-level theories explain larger aggregates, such as social institutions, cultural systems, and whole societies. Lenski's macro-level theory of social stratification, for example, explains how the amount of surplus a society produces increases with the development of the society.

Theories are found in the social science disciplines of psychology, sociology, anthropology, education, and economics, as well as within many sub-fields. To locate and read about these theories requires searching literature databases (e.g., *Psychological Abstracts, Sociological Abstracts*) or reviewing guides to the literature about theories (e.g., see Webb, Beals, & White, 1986).

Forms of Theories in Quantitative Research

Researchers state their theories in research proposals in several ways, such as a series of hypotheses, if-then logic statements, or visual models. First, some researchers state theories in the form of interconnected hypotheses. For example, Hopkins (1964) conveyed his theory of influence processes as a series of 15 hypotheses. Some of the hypotheses are as follows (these have been slightly altered to remove the gender-specific pronouns):

1. The higher one's rank, the greater one's centrality.
2. The greater one's centrality, the greater one's observability.
3. The higher one's rank, the greater one's observability.
4. The greater one's centrality, the greater one's conformity.
5. The higher one's rank, the greater one's conformity.
6. The greater one's observability, the greater one's conformity.
7. The greater one's conformity, the greater one's observability. (p. 51)

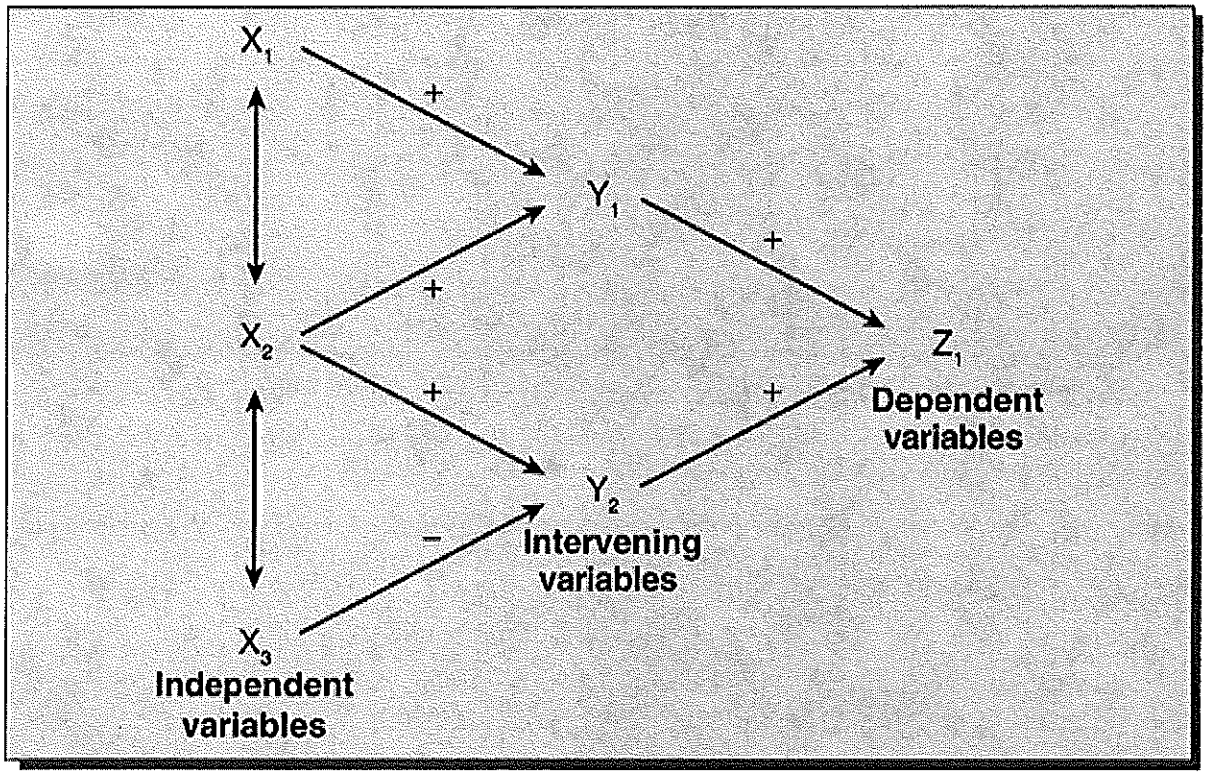
A second way is to state a theory as a series of if-then statements that explain why one would expect the independent variables to influence or cause the dependent variables. For example, Homans (1950) explained a theory of interaction:

> If the frequency of interaction between two or more persons increases, the degree of their liking for one another will increase, and vice versa. ... Persons who feel sentiments of liking for one another will express those sentiments in activities over and above the activities of the external system, and these activities may further strengthen the sentiments of liking. The more frequently persons interact with one another, the more alike in some respects both their activities and their sentiments tend to become. (pp. 112, 118, 120)

Third, an author may present a theory as a visual model. It is useful to translate variables into a visual picture. Blalock (1969, 1985, 1991) advocated causal modeling and recasted verbal theories into causal models so that a reader could visualize the interconnections of variables. Two simplified examples are presented here. As shown in Figure 3.1, three independent variables influence a single dependent variable, mediated by the influence of two intervening variables. A diagram such as this one shows the possible causal sequence among variables leading to modeling through path analysis and more advanced analyses using multiple measures of variables as found in structural equation modeling (see Kline, 1998). At an introductory level, Duncan (1985) provided useful suggestions about the notation for constructing these visual causal diagrams:

- Position the dependent variables on the right in the diagram and the independent variables on the left.
- Use one-way arrows leading from each determining variable to each variable dependent on it.
- Indicate the strength of the relationship among variables by inserting valence signs on the paths. Use positive or negative valences that postulate or infer relationships.
- Use two-headed arrows connected to show unanalyzed relationships between variables not dependent upon other relationships in the model.

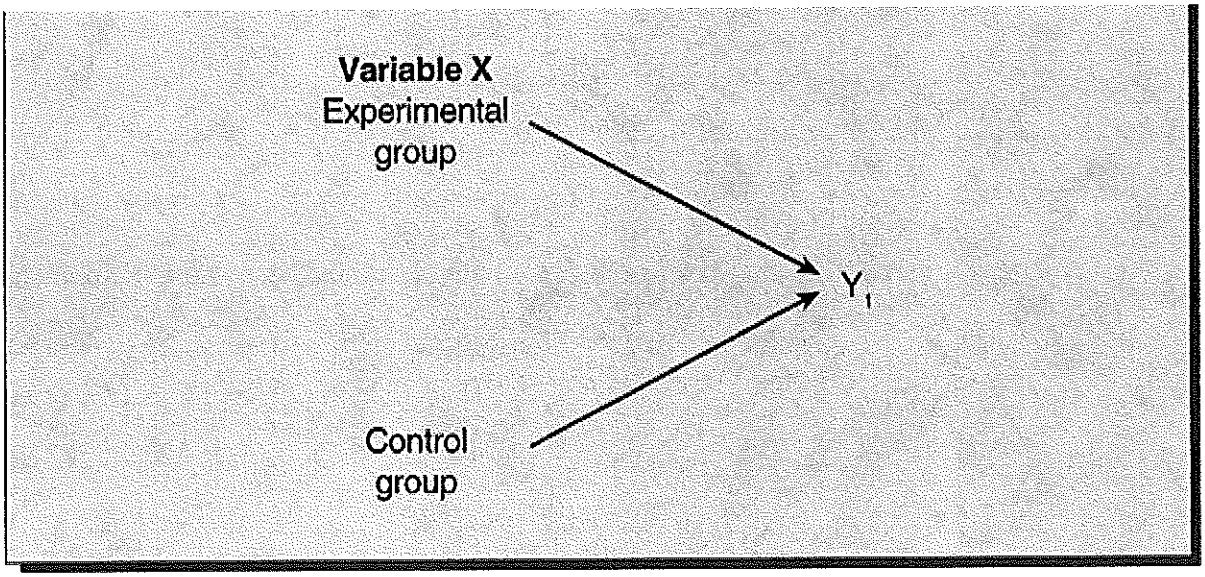
Figure 3.1 Three Independent Variables Influence a Single Dependent Variable Mediated by Two Intervening Variables



More complicated causal diagrams can be constructed with additional notation. This one portrays a basic model of limited variables, such as typically found in a survey research study.

A variation on this theme is to have independent variables in which control and experimental groups are compared on one independent variable in terms of an outcome (dependent variable). As shown in Figure 3.2, two groups on variable X are compared in terms of their influence on Y, the dependent variable. This design is a between-groups experimental design (see Chapter 8). The same rules of notation previously discussed apply.

Figure 3.2 Two Groups With Different Treatments on X Are Compared in Terms of Y



These two models are meant only to introduce possibilities for connecting independent and dependent variables tc build theories. More complicated designs employ multiple independent and dependent variables in elaborate models of causation (Blalock, 1969, 1985). For example, Jungnickel (1990), in a doctoral dissertation proposal about research productivity among faculty in pharmacy schools, presented a complex visual model, as shown in Figure 3.3. Jungnickel asked what factors influence a faculty member's scholarly research performance. After identifying these factors in the literature, he adapted a theoretical framework found in nursing research (Megel, Langston, & Creswell, 1987) and developed a visual model portraying the relationship among these factors, following the rules for constructing a model introduced earlier. He listed the independent variables on the far left, the intervening variables in the middle, and the dependent variables on the right. The direction of influence flowed from the left to the right, and he used plus and minus signs to indicate the hypothesized direction.

Figure 3.3 A Visual Model of a Theory of Faculty Scholarly Performance

Exogenous
Demographic Variables
Institutional Tenure Standards
Tenure-Track Appointment
College in Health Sciences Center
Self Perception as Researcher
Prior Research Training
Type of Appointment (Chair vs. Faculty)
Independent
Endogenous
Workload (non-research)
Pressure to Conduct Research
Collaboration
Resources
Support From Colleagues
Support From Dept. Chair
Dependent
Scholarly Performance
*Presentations (non-research)
*Presentations (research)
*Journal Articles (non-refereed)
*Refereed Articles (research)
*Refereed Articles (non-research)
*Book Chapters
*Books
*Federal Grants (approved)
*Federal Grants (funded)
*Non-Federal Grants
*Contracts
(+/–)
(–)
(+)
(+)
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(+)
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(–)
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(+/–)

In quantitative studies, one uses theory deductively and places it toward the beginning of the proposed study. With the objective of testing or verifying a theory rather than developing it, the researcher advances a theory, collects data to test it, and reflects on its confirmation or disconfirmation by the results. The theory becomes a framework for the entire study, an organizing model for the research questions or hypotheses and for the data collection procedure. The deductive model of thinking used in a quantitative study is shown in Figure 3.4. The researcher tests or verifies a theory by examining hypotheses or questions derived from it. These hypotheses or questions contain variables (or constructs) that the researcher needs to define. Alternatively, an acceptable definition might be found in the literature. From here, the investigator locates an instrument to use in measuring or observing attitudes or behaviors of participants in a study. Then the investigator collects scores on these instruments to confirm or disconfirm the theory.

This deductive approach to research in the quantitative approach has implications for the *placement of a theory* in a quantitative research study (see Table 3.1).

A general guide is to introduce the theory early in a plan or study: in the introduction, in the literature review section, immediately after hypotheses or research questions (as a rationale for the connections among the variables), or in a separate section of the study. Each placement has its advantages and disadvantages.

Figure 3.4 The Deductive Approach Typically Used in Quantitative Research

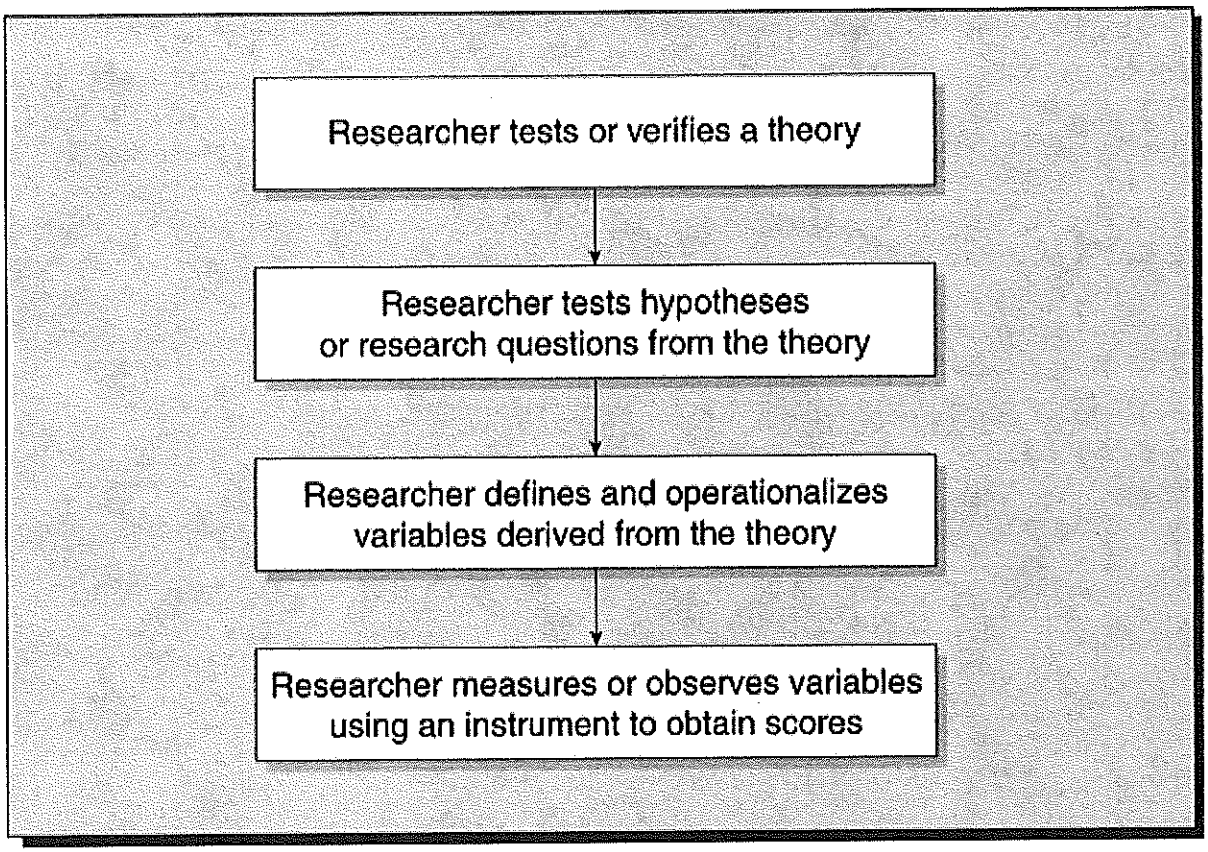


Table 3.1 Options for Placing Theory in a Quantitative Study

Placement	Advantages	Disadvantages
In the introduction	As an approach often found in journal articles, it will be familiar to readers. It conveys a deductive approach.	It is difficult for a reader to isolate and separate theory base from other components of the research process (e.g., with the methods).
In the literature review	Theories are found in the literature, and their inclusion in a literature review is a logical extension or part of the literature.	It is difficult for a reader to see the theory in isolation from topics being reviewed in the literature.
After hypotheses or research	The theory discussion is a logical extension of hypotheses or research questions because it explains how and why variables are related.	A writer may include a theoretical rationale after hypotheses and questions and leave out an extended discussion about the origin and rationale for the use of the theory.

questions as a rationale		
In a separate section	This approach clearly separates the theory from other components of the research process, and it enables a reader to better identify and to understand the theory base for the study.	The theory discussion stands in isolation from other components of the research process (e.g., the questions or the methods) and, as such, a reader may not easily connect it with other components of the research process.

Here is a research tip: I write the theory into a separate section in a research proposal so that readers can clearly identify the theory from other components. Such a separate passage provides a complete explication of the theory section, its use, and how it relates to the study.

Writing a Quantitative Theoretical Perspective

Using these ideas, the following presents a model for writing a quantitative theoretical perspective section into a research plan. Assume that the task is to identify a theory that explains the relationship between independent and dependent variables.

1. Look in the discipline-based literature for a theory. If the unit of analysis for variables is an individual, look in the psychology literature; to study groups or organizations, look in the sociological literature. If the project examines individuals and groups, consider the social psychology literature. Of course, theories from other disciplines may be useful, too (e.g., to study an economic issue, the theory may be found in economics).
2. Examine also prior studies that address the topic or a closely related topic. What theories did the authors use? Limit the number of theories and try to identify *one overarching theory* that explains the central hypothesis or major research question.
3. As mentioned earlier, ask the rainbow question that bridges the independent and dependent variables: Why would the independent variable(s) influence the dependent variables?
4. Script out the theory section. Follow these lead sentences: "The theory that I will use is___(name the theory). It was developed by___ (identify the origin, source, or developer of the theory), and it was used to study_____(identify the topics where one finds the theory being applied). This theory indicates that___ (identify the propositions or hypotheses in the theory). As applied to my study, this theory holds that I would expect my independent variable(s) ___ (state independent variables) to influence or explain the dependent variable(s) ___ (state dependent variables) because___ (provide a rationale based on the logic of the theory)."

Thus, the topics to include in a quantitative theory discussion are the theory to be used, its central hypotheses or propositions, information about past use of the theory and its application, and statements that reflect how it relates to a proposed study. The following passage by Crutchfield (1986) in her dissertation illustrates the use of this model.

Example 3.1 *A Quantitative Theory Section*

Crutchfield (1986) wrote a doctoral dissertation titled *Locus of Control, Interpersonal Trust, and Scholarly Productivity.* Surveying nursing educators, her intent was to determine if locus of control and interpersonal trust affected the levels of publications of the faculty. Her dissertation included a separate section in the introductory chapter titled "Theoretical Perspective," which follows. It includes these points:

- The theory she planned to use
- The central hypotheses of the theory
- Information about who has used the theory and its applicability
- An adaptation of the theory to variables in her study using if-then logic

I have added annotations in italics to mark key passages.

Theoretical Perspective

In formulation of a theoretical perspective for studying the scholarly productivity of faculty, social learning theory provides a useful prototype. This conception of behavior attempts to achieve a balanced synthesis of cognitive psychology with the principles of behavior modification (Bower & Hilgard, 1981). Basically, this unified theoretical framework "approaches the explanation of human behavior in terms of a continuous (reciprocal) interaction between cognitive, behavioral, and environmental determinants" (Bandura, 1977, p. vii). *[Author identifies the theory for the study.]*

While social learning theory accepts the application of reinforcements such as shaping principles, it tends to see the role of rewards as both conveying information about the optimal response and providing incentive motivation for a given act because of the anticipated reward. In addition, the learning principles of this theory place special emphasis on the important roles played by vicarious, symbolic, and self-regulating processes (Bandura, 1971).

Social learning theory not only deals with learning, but also seeks to describe how a group of social and personal competencies (so called personality) could evolve out of social conditions within which the learning occurs. It also addresses techniques of personality assessment (Mischel, 1968), and behavior modification in clinical and educational settings (Bandura, 1977; Bower & Hilgard, 1981; Rotter, 1954). *[Author describes social learning theory.]*

Further, the principles of social learning theory have been applied to a wide range of social behavior such as competitiveness, aggressiveness, sex roles, deviance, and pathological behavior (Bandura & Walters, 1963; Bandura, 1977; Mischel, 1968; Miller & Dollard, 1941; Rotter, 1954; Staats, 1975). *[Author describes the use of the theory.]*

Explaining social learning theory, Rotter (1954) indicated that four classes of variables must be considered: behavior, expectancies, reinforcement, and psychological situations. A general formula for behavior was proposed which states: "the potential for a behavior to occur in any specific psychological situation is the function of the expectancy that the behavior will lead to a particular reinforcement in that situation and the value of that reinforcement" (Rotter, 1975, p. 57).

Expectancy within the formula refers to the perceived degree of certainty (or probability) that a causal relationship generally exists between behavior and rewards. This construct of generalized expectancy has been defined as internal locus of control when an individual believes that reinforcements are a function of specific behavior, or as external locus of control when the effects are attributed to luck, fate, or powerful others. The perceptions of causal relationships need not be absolute positions, but rather tend to vary in degree along a continuum depending upon previous experiences and situational complexities (Rotter, 1966). *[Author explains variables in the theory.]*

In the application of social learning theory to this study of scholarly productivity, the four classes of variables identified by Rotter (1954) will be defined in the following manner.

1. Scholarly productivity is the desired behavior or activity.
2. Locus of control is the generalized expectancy that rewards are or are not dependent upon specific behaviors.
3. Reinforcements are the rewards from scholarly work and the value attached to these rewards.
4. The educational institution is the psychological situation which furnishes many of the rewards for scholarly productivity.

With these specific variables, the formula for behavior which was developed by Rotter (1975) would be adapted to read: The potential for scholarly behavior to occur within an educational institution is a function of the expectancy that this activity will lead to specific rewards and of the value that the faculty member places on these rewards. In addition, the interaction of interpersonal trust with locus of control must be considered in relation to the expectancy of attaining rewards through behaviors (Rotter, 1967). Finally, certain characteristics, such as educational preparation, chronological age, post-doctoral fellowships, tenure, or full-time versus part-

time employment may be associated with the scholarly productivity of nurse faculty in a manner similar to that seen within other disciplines. *[Author applied the concepts to her study.]*

The following statement represents the underlying logic for designing and conducting this study. If faculty believe that: (a) their efforts and actions in producing scholarly works will lead to rewards (locus of control), (b) others can be relied upon to follow through on their promises (interpersonal trust), (c) the rewards for scholarly activity are worthwhile (reward values), and (d) the rewards are available within their discipline or institution (institutional setting), then they will attain high levels of scholarly productivity (pp. 12–16). *[Author concluded with the if-then logic to relate the independent variables to the dependent variables.]*

QUALITATIVE THEORY USE

Variation in Theory Use in Qualitative Research

Qualitative inquirers use theory in their studies in several ways. First, much like in quantitative research, it is used as a broad explanation for behavior and attitudes, and it may be complete with variables, constructs, and hypotheses. For example, ethnographers employ cultural themes or aspects of culture to study in their qualitative projects, such as social control, language, stability and change, or social organization, such as kinship or families (see Wolcott's 2008 discussion about texts that address cultural topics in anthropology). Themes in this context provide a ready-made series of hypotheses to be tested from the literature. Although researchers might not refer to them as theories, they provide broad explanations that anthropologists use to study the culture-sharing behavior and attitudes of people. This approach is popular in qualitative health science research in which investigators begin with a theoretical model, such as the adoption of health practices or a quality of life theoretical orientation.

Second, researchers increasingly use a **theoretical lens or perspective in qualitative research**, which provides an overall orienting lens for the study of questions of gender, class, and race (or other issues of marginalized groups). This lens becomes a transformative perspective that shapes the types of questions asked, informs how data are collected and analyzed, and provides a call for action or change. Qualitative research of the 1980s underwent a transformation to broaden its scope of inquiry to include these theoretical lenses. They guide the researchers as to what issues are important to examine (e.g., marginalization, empowerment, oppression, power) and the people who need to be studied (e.g., women, low economic social status, ethnic and racial groups, sexual orientation, disability). They also indicate how the researcher positions himself or herself in the qualitative study (e.g., up front or biased from personal, cultural, and historical contexts) and how the final written accounts need to be written (e.g., without further marginalizing individuals, by collaborating with participants), and recommendations for changes to improve lives and society. In critical ethnography studies, for example, researchers begin with a theory that informs their studies. This causal theory might be one of emancipation or repression (Thomas, 1993).

Some of these qualitative theoretical perspectives available to the researcher are as follows:

- *Feminist perspectives* view as problematic women's diverse situations and the institutions that frame those situations. Research topics may include policy issues related to realizing social justice for women in specific contexts or knowledge about oppressive situations for women (Olesen, 2000).
- *Racialized discourses* raise important questions about the control and production of knowledge, particularly about people and communities of color (Ladson-Billings, 2000).
- *Critical theory* perspectives are concerned with empowering human beings to transcend the constraints placed on them by race, class, and gender (Fay, 1987).
- *Queer theory*—a term used in this literature—focuses on individuals calling themselves lesbians, gays, bisexuals, or transgendered people. The research using this approach does not objectify individuals, is concerned with cultural and political means, and conveys the voices and experiences of individuals who have been suppressed (Gamson, 2000).
- *Disability inquiry* addresses understanding this population's sociocultural perspectives allowing them to take control over their lives rather than a biological understanding of disability (Mertens, 2009).

Rossman and Rallis (2012) captured the sense of theory as critical and postmodern perspectives in qualitative inquiry:

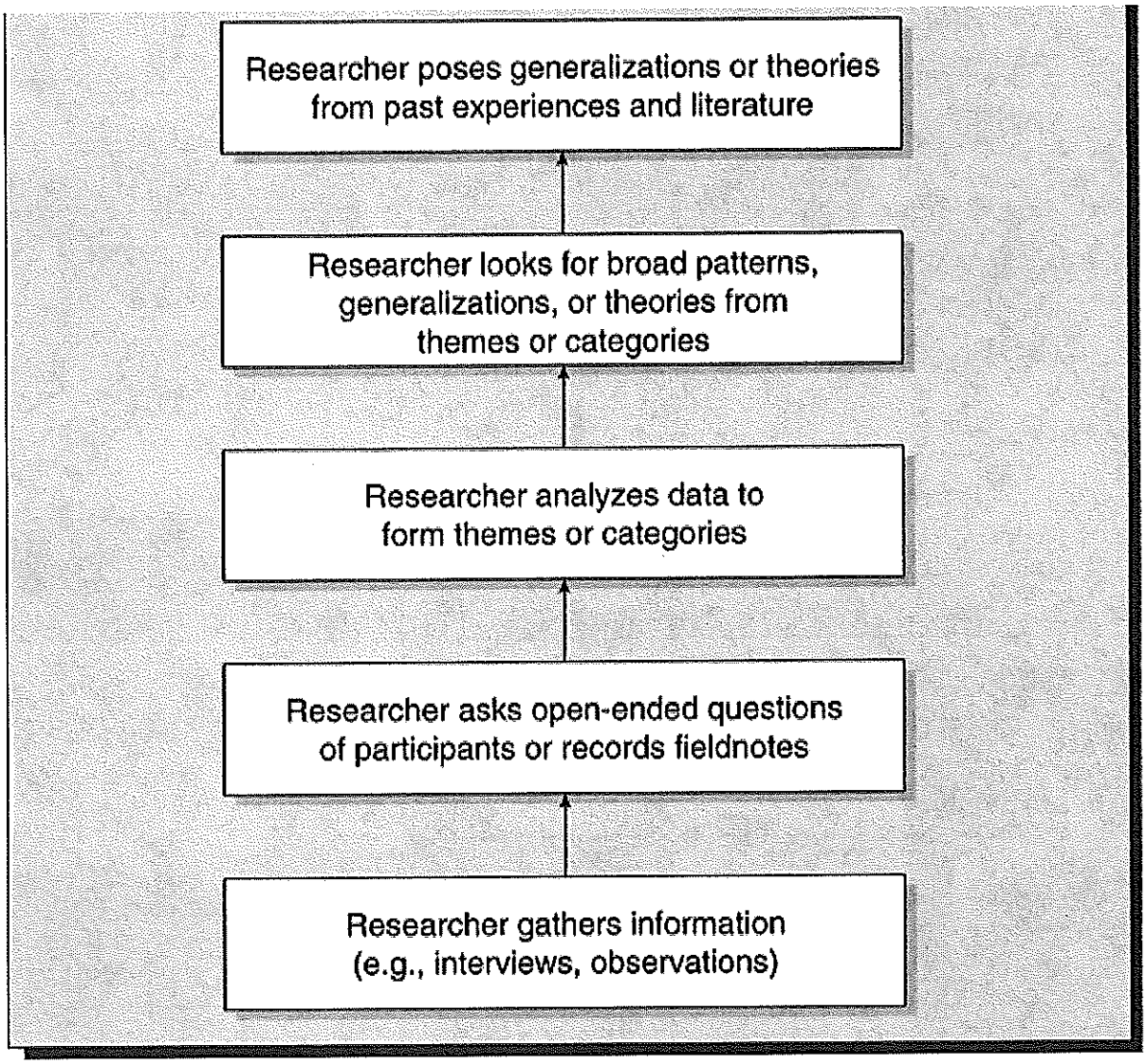
> As the 20th century draws to a close, traditional social science has come under increasing scrutiny and attack as those espousing critical and postmodern perspectives challenge objectivist assumptions and traditional norms for the conduct of research. The critical tradition is alive and well in the social sciences. Postmodernists reject the notion that knowledge is definite and univocal. Central to this attack are four interrelated assertions: (a) Research fundamentally involves issues of power; (b) the research report is not transparent but rather it is authored by a raced, gendered, classed, and politically oriented individual; (c) race, class, and gender (the canonical triumvirate to which we would add sexual orientation, able-bodied-ness, and first language, among others) are crucial for understanding experience; and (d) historically, traditional research has silenced members of oppressed and marginalized groups. (p. 91)

Third, distinct from this theoretical orientation are qualitative studies in which theory (or some other broad explanation) becomes the *end point.* It is an inductive process of building from the data to broad themes to a generalized model or theory (see Punch, 2005). The logic of this inductive approach is shown in Figure 3.5.

The researcher begins by gathering detailed information from participants and then forms this information into categories or themes. These themes are developed into broad patterns, theories, or generalizations that are then compared with personal experiences or with existing literature on the topic.

The development of themes and categories into patterns, theories, or generalizations suggests varied end points for qualitative studies. For example, in case study research, Stake (1995) referred to an assertion as a *propositional generalization*—the researcher's summary of interpretations and claims—to which is added the researcher's own personal experiences, called "naturalistic generalizations" (p. 86). As another example, grounded theory provides a different end point. Inquirers hope to discover a theory that is grounded in information from participants (Strauss & Corbin, 1998). Lincoln and Guba (1985) referred to "pattern theories" as explanations that develop during naturalistic or qualitative research. Rather than the deductive form found in quantitative studies, these pattern theories or generalizations represent interconnected thoughts or parts linked to a whole.

Figure 3.5 The Inductive Logic of Research in a Qualitative Study



Fourth and finally, some qualitative studies *do not employ any explicit theory.* However, the case can be made that no qualitative study begins from pure observation and that prior conceptual structure composed of theory and method provides the starting point for all observations (Schwandt, 1993). Still, one sees qualitative studies that contain no *explicit* theoretical orientation, such as in phenomenology, in which inquirers attempt to build the essence of experience from participants (e.g., see Riemen, 1986). In these studies, the inquirer constructs a rich, detailed description of a central phenomenon.

My research tips on theory use in a qualitative proposal are as follows:

- Decide if theory is to be used in the qualitative proposal.
- If it is used, then identify how the theory will be used in the study, such as an up-front explanation, as an end point, or as a transformative-advocacy lens.
- Locate the theory in the proposal early in the study or at the end.

Locating the Theory in Qualitative Research

How theory is used affects its placement in a qualitative study. In those studies with a cultural theme or a theoretical lens, the theory occurs in the opening passages of the study. Consistent with the emerging design of qualitative inquiry, the theory may appear at the beginning and be modified or adjusted based on participant views. Even in the most theory-oriented qualitative design, such as critical ethnography, Lather (1986) qualified the use of theory:

> Building empirically grounded theory requires a reciprocal relationship between data and theory. Data must be allowed to generate propositions in a dialectical manner that permits use of *a priori* theoretical frameworks, but which keeps a particular framework from becoming the container into which the data must be poured. (p. 267)

Example 3.2 *A Theory Early in a Qualitative Study*

Murguia, Padilla, and Pavel (1991) studied the integration of 24 Hispanic and Native American students into the social system of a college campus. They were curious about how ethnicity influenced social integration, and they began by relating the participants' experiences to a theoretical model, the Tinto model of social integration. They felt that the model had been "incompletely conceptualized and, as a consequence, only imprecisely understood and measured" (p. 433).

Thus, the model was not being tested, as one would find in a quantitative project, but modified. At the end of the study, the authors refined Tinto's model and advanced their modification that described how ethnicity functions. In contrast to this approach, in qualitative studies with an end point of a theory (e.g., a grounded theory), a pattern, or a generalization, the theory emerges at the end of the study. This theory might be presented as a logic diagram, a visual representation of relationships among concepts.

Example 3.3 *A Theory at the End of a Qualitative Study*

Using a national database of 33 interviews with academic department chairpersons, we (Creswell & Brown, 1992) developed a grounded theory interrelating variables (or categories) of chair influence on scholarly performance of faculty. The theory section came into the article as the last section, where we presented a visual model of the theory developed inductively from categories of information supplied by interviewees. In addition, we also advanced directional hypotheses that logically followed from the model. Moreover, in the section on the model and the hypotheses, we compared the results from participants with results from other studies and the theoretical speculations in the literature. For example, we stated the following:

> This proposition and its sub-propositions represent unusual, even contrary evidence, to our expectations. Contrary to proposition 2.1, we expected that the career stages would be similar not in type of issue but in the range of issues. Instead we found that the issues for post-tenure faculty covered almost all the possible problems on the list. Why were the tenured faculty's needs more extensive than non-tenured faculty? The research productivity literature suggests that one's research performance does not decline with the award of tenure (Holley 1977). Perhaps diffuse career goals of post-tenure faculty expand the possibilities for "types" of issues. In any case, this sub-proposition focuses attention on the understudied career group that Furniss (1981) reminds us of needs to be examined in more detail (p. 58).

As this example shows, we developed a visual model that interrelated variables, derived this model inductively from informant comments, and placed the model at the end of the study, where the central propositions in it could be contrasted with the existing theories and literature.

MIXED METHODS THEORY USE

Theory use in mixed methods studies may include using theory deductively, in quantitative theory testing and validity, or in using it inductively as in an emerging qualitative theory or pattern. In addition, there are several unique ways that theory is incorporated into a mixed methods study in which researchers collect, analyze, and integrate both quantitative and qualitative data using diverse mixed methods designs. This framework has taken two forms: (a) the use of a social science framework and (b) the use of a transformative framework. Both of these forms have emerged in the mixed methods literature over the past 5 to 10 years (see Creswell & Plano Clark, 2011).

Social Science Theory Use

A **social science theory** can become an overarching framework for mixed methods research. This social science theory may be drawn from diverse theories found in the social sciences, such as leadership, economics, political science, marketing, behavioral change, adoption or diffusion, or any number of social science theories. It may be presented as a literature review, as a conceptual model, or as a theory that helps to explain what the researcher seeks to find in a study.

The incorporation of a social science theory into mixed methods uses the procedures identified earlier in this chapter for inclusion of a quantitative theory-use in a study. The key points of this theory-use are as follows:

- Place the theory (model or conceptual framework) at the beginning of the article as an *a priori* framework to guide the questions/hypotheses in the study.
- Write about the theory by first advancing the name of the theory to be used followed by a description of how it informs the quantitative and qualitative components of a mixed methods study. It should at least explain the major relationship of variables in the study. Discuss the studies that have used the theory, especially studies that relate to the topic being examined in the present study.
- Include a diagram of the theory that indicates the direction of the probable causal links in the theory and the major concepts or variables in the theory.
- Have the theory provide a framework for both the quantitative and the qualitative data collection efforts in the study.
- Return to the theory at the end of the study to review how it informed the findings and the results and compared with the use of the theory in other studies.

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

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

Following this passage, they then advanced the model of learned resourcefulness that guided their study. They introduced the major components of Rosenbaum's model. This was then followed by the research literature on resourcefulness as an important predictor of adopting healthy behavior and a discussion of one of Rosenbaum's experiments relating resourcefulness to coping with pain. The authors then discussed the factors of the model leading to self-control, such as factors related to process-regulating cognitions (e.g., supporting family and friends), coping strategies (e.g., ability to cope with pain such as diverting attention and reinterpreting pain), and staying in (or dropping out of) programs. The authors at this point might have drawn a diagram of the theory to be explicit about factors that influenced self-control. They provided next, however, a series of questions drawn from Rosenbaum's model and the literature that guided their study examining the impact of a cognitive-behavioral chronic pain management program on self-management and how resourcefulness and a sense of self-directedness influence self-management skills for chronic pain. Toward the end of the article, they revisited the factors leading to self-management and proposed a diagram of the most salient factors.

Transformative Paradigm Theory Use

The use and acceptability of transformative theories in mixed methods research has been growing in the last decade. Undoubtedly, the impetus for this has been the work of Mertens (2003, 2009), who has not only conveyed the major purpose of this theory but also how it might be incorporated into the general research process and mixed methods. A number of empirical articles have appeared in the *Journal of Mixed Methods Research* advancing this theory-use in mixed methods, including a study of women's interest in science (Buck, Cook, Quigley, Eastwood, & Lucas, 2009) and a study of women's social capital (Hodgkin, 2008). A paper by Sweetman (2008) identified 34 mixed methods studies that utilized a transformative framework. Then in 2010, Sweetman, Badiee, and Creswell (2010) discussed transformative criteria—drawing on Mertens (2003, 2009)—that might be incorporated into mixed methods studies and surveyed 13 studies that included elements of the criteria.

The literature is growing on the use of the transformative framework and mixed methods research. It seems especially applicable to the study of community health issues and the study of marginalized groups, wherever they might appear in the world. Two issues have dominated the discussion of using a transformative framework in mixed methods: (a) What is a transformative framework? (b) How would a mixed methods researcher incorporate it into a rigorous, sophisticated

mixed methods study? In Chapter 1, I discussed the transformative worldview as one of the four primary worldviews that would inform quantitative, qualitative, and mixed methods research. Indeed, one could question whether the transformative framework lies at a broad, philosophical worldview level or at a narrower, more theoretical level informing what one might learn and explain in a study. Here it will be discussed as a theoretical framework that can surround and inform a mixed methods project.

A transformative mixed methods framework (also called the transformative research paradigm, Mertens 2009) is a set of assumptions and procedures used in research. Common themes are as follows:

- Underlying assumptions that rely on ethical stances of inclusion and challenging oppressive social structures.
- An entry process into the community that is designed to build trust and make goals and strategies transparent.
- Dissemination of findings in ways that encourage use of the results to enhance social justice and human rights. (p. 5)

Further, the transformative approach applies to people who experience discrimination and oppression, including (but not limited to) race/ethnicity, disability, immigrant status, political conflicts, sexual orientation, poverty, gender, and age (Mertens, 2010).

How this framework is integrated into a mixed methods study is still evolving, but Mertens (2003) identified several elements of the framework as they relate to the steps in the process of research. These elements are mentioned in Box 3.1. Reading through these questions, one gains a sense of the importance of studying issues of discrimination and oppression and of recognizing diversity among study participants. These questions also address treating individuals respectfully through gathering and communicating data collection and through reporting results that lead to changes in social processes and relationships.

Box 3.1 *Transformative-Emancipatory Questions for Mixed Methods Researchers Throughout the Research Process*

Defining the Problem and Searching the Literature

- Did you deliberately search the literature for concerns of diverse groups and issues of discrimination and oppression?
- Did the problem definition arise from the community of concern?
- Did your mixed methods approach arise from spending quality time with these communities (i.e., building trust? using an appropriate theoretical framework other than a deficit model? developing balanced—positive and negative—questions? developing questions that lead to transformative answers, such as questions focused on authority and relations of power in institutions and communities?)?

Identifying the Research Design

- Does your research design deny treatment to any groups and respect ethical considerations of participants?

Identifying Data Sources and Selecting Participants

- Are the participants of groups associated with discrimination and oppression?
- Are the participants appropriately labeled?
- Is there recognition of diversity within the target population?
- What can be done to improve the inclusiveness of the sample to increase the probability that traditionally marginalized groups are adequately and accurately represented?

Identifying or Constructing Data Collection Instruments and Methods

- Will the data collection process and outcomes benefit the community being studied?
- Will the research findings be credible to that community?
- Will communication with that community be effective?
- Will the data collection open up avenues for participation in the social change process?

- Will the results raise new hypotheses?
- Will the research examine subgroups (i.e., multilevel analyses) to analyze the differential impact on diverse groups?
- Will the results help understand and elucidate power relationships?
- Will the results facilitate social change?

SOURCE: Adapted from Mertens (2003). Reprinted with permission.

These questions were further operationalized as a set of 10 criteria (and questions) that one might use to evaluate the inclusion of transformative theoretical thinking into a mixed methods study (Sweetman et al., 2010):

1. Did the authors openly reference a problem in a community of concern?
2. Did the authors openly declare a theoretical lens?
3. Were the research questions written with an advocacy lens?
4. Did the literature review include discussions of diversity and oppression?
5. Did authors discuss appropriate labeling of the participants?
6. Did the data collection and outcomes benefit the community?
7. Did the participants initiate the research, and/or were they actively engaged in the project?
8. Did the results elucidate power relationships?
9. Did the results facilitate social change?
10. Did the authors explicitly state use of a transformative framework?

These are high standards for any publication, and the review of 13 studies by Sweetman and colleagues (2010) showed an uneven inclusion of the 10 criteria in mixed methods studies. Only 2 of the 13 studies explicitly referred to their framework as "transformative." However, it should be helpful for mixed methods researchers to know how to best position their study within the transformative framework. It can be done by doing the following:

- Indicate in the opening passages of a study that a transformative framework is being used.
- Mention this framework early in a study—that it relates to a marginalized or underrepresented community and specific issues faced by that community (e.g., oppression, power).
- Lodge this framework within a theoretical body of literature, such as feminist literature or racial literature.
- Involve the community of interest in the process of research (e.g., in the data collection).
- Take a stand with the research question—be advocacy in its orientation (e.g., inequality does exist and the research will set out to substantiate it).
- Advance in the design the collection, analysis, and integration of both quantitative and qualitative methods within the transformative framework.
- Talk about your experiences as a researcher and how your experiences and background shapes your understanding of the participants and issues under study.
- End the study by advocating for change to help the population under study and the issue.

One of the best ways to learn how to incorporate a transformative framework into a mixed methods study is to examine published journal articles and study how it is being incorporated into the process of research. Here is one recent article that illustrates good use of the transformative framework.

Example 3.4 *Theory in a Transformative Mixed Methods Study*

An article published in the *Journal of Mixed Methods Research* by Hodgkin (2008) illustrates the use of a feminist emancipatory lens in a mixed methods study. Hodgkin examined if men and women have different social capital profiles and why women participated more in social and community activities than in civic activities in Australia. Her stated aim of the study was to "demonstrate the use of mixed methods in feminist research" (p. 296). Toward the beginning of her article, she discussed the feminist research component of her study, such as drawing attention to the lack of gender focus in studies of social capital, using qualitative and quantitative research to give voice to women's experiences, and locating her study within the transformative paradigm. Through her quantitative results, she found a difference in social capital for men and women, and then she explored in a second phase the viewpoints of women, noting women's involvement in informal social participation and community participation. Participation in civic levels of involvement were low, and themes resulting from women were related to wanting to be a "good mother," wanting to avoid social isolation, and wanting to be an active citizen.

SUMMARY

Theory has a place in quantitative, qualitative, and mixed methods research. Researchers use theory in a quantitative study to provide an explanation or prediction about the relationship among variables in the study. Thus, it is essential to have grounding in the nature and use of variables as they form research questions and hypotheses. A theory explains how and why the variables are related, acting as a bridge between or among the variables. Theory may be broad or narrow in scope, and researchers state their theories in several ways, such as a series of hypotheses, if-then logic statements, or visual models. Using theories deductively, investigators advance them at the beginning of the study in the literature review. They also include them with the hypotheses or research questions or place them in a separate section. A script can help design the theory section for a research proposal.

In qualitative research, inquirers employ theory as a broad explanation, much like in quantitative research, such as in ethnographies. It may also be a theoretical lens or perspective that raises questions related to gender, class, race, or some combination of these. Theory also appears as an end point of a