THEORY BUILDING IN APPLIED DISCIPLINES
Dedicated to our Spouses

Barbara L. Swanson
“You and me babe!”

Danielle Michael
“Whatcha doin’ later?”
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PREFACE

*Theory Building in Applied Disciplines* has no rival book. It is intended to fill a void. This book concisely presents a one-of-a-kind, five-phase theory-building process that is understandable to a wide audience. Let’s clarify two key terms:

- A *theory* describes a specific realm of knowledge and explains how it works.
- *Applied disciplines* are realms of study and practice that are fully understood through their use in the functioning world. Management, organization development, public administration, marketing, highway engineering, leadership, and nursing are just a few of the many applied disciplines.

Applied disciplines address the grist of life—impacting us all on a daily basis. Most applied disciplines are stuck because they

- have not integrated scholarly descriptions and confirmation in practice,
- overinterpret partial theories that lack wholeness,
- celebrate rock star practitioners who are hollow role models, and
- tolerate opinion over inquiry.

Applied disciplines must meet the standards of both scholarship and practice. Applied disciplines are simply not advancing and maturing at a reasonable and acceptable rate given the lack of complete and sound theory. Simultaneously, the presence of bad theories actually destroys good practices (Ghosal, 2005). Progress is much too slow.

The purpose of this book is to present a complete and detailed method for building sound theory in applied disciplines. Unfortunately, most theory-building methods are incomplete, inappropriate, or overwhelming:

**Incomplete:** Many authors discuss theory as only a hypothesis or something limited to conceptualizing. The full process of theory building and the development phases beyond theory conceptualization are simply ignored.

**Inappropriate:** Many authors present theory limited by an “ideology” framework such as quantitative, qualitative, or feminist perspectives. The nature
of applied disciplines almost always precludes ideology biases. Yet, many individuals wanting to create rival theories choose a limited ideological approach to secure predetermined outcomes. The result is that they miss the opportunity to create sound theory.

**Overwhelming:** Many authors present exhaustive, tedious methods for developing theory within a specific discipline. These works almost always have scholars talking to a very limited group of other scholars within their discipline with little, if any, generalizability to other disciplines or practice.

This book—*Theory Building in Applied Disciplines*—is none of the above. Simply stated, there is no rival book. This book directly addresses what theory is, explores its full dimensions, and discusses examples. It presents a theory-building toolbox as a part of each chapter. The primary audiences for this book are scholars and practitioners in applied disciplines wanting to advance the theory of their field, graduate students enrolled in research and theory courses in applied disciplines, and those wanting a practical theory-building reference book.

We believe that theory building in applied disciplines is critically important because (1) so many people and organizations are affected, positively or negatively, and (2) you, the reader, can contribute to theory-building efforts in an applied realm of importance to you.
ACKNOWLEDGMENTS

We are very grateful to the University of Minnesota and Colorado State University for their support of our scholarly work over the years, to Dr. Susan A. Lynham for her Chapter 3 contribution, to Berrett-Koehler Publishers for supporting the publication of this book, and for the substantive guidance provided by Steve Piersanti, president of Berrett-Koehler.

We welcome your comments and contributions for future editions of this book.

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Note: See textbookresources.com for support materials for Theory Building in Applied Disciplines.
PART ONE

Foundations of Theory Building

1 To Hell with Gravity
2 Foundations and Definitions of Theory Building
3 General Method of Theory Building in Applied Disciplines

MOST APPLIED DISCIPLINES are stuck because they have not connected sound theory and practice. They need to be advanced. Keep the following points in mind when thinking about theory in applied disciplines:

• Theory building defines a specific realm of knowledge and explains how it works.
• Applied disciplines are realms of study and practice that are fully understood through their use in the functioning world—such as management, organization development, public administration, marketing, highway engineering, leadership, and nursing.

Practitioners typically throw anything and everything at practical problems, while scholars often slice problems into such small segments that practical understanding is severely limited. Another almost fruitless approach is to try to emulate successful practitioners (e.g., Steve Jobs and Jack Welch) in hopes of replicating their performance. These tactics do not yield useful outcomes, and applied disciplines do not grow or advance as a result.

Comprehensive and rigorous theory building demands that problems and realms of practice are examined from a comprehensive perspective. In other words, applied disciplines severely falter when either concepts or practice dominates. A framework is needed to bring balance to theory and practice in applied disciplines. The General Method of Theory Building in Applied Disciplines can integrate theory and practice when working in complex situations. Theory building can start with new ideas (on the theory side) or in practice (on the applied side). The unique contribution of the General Method of Theory Building in Applied Disciplines is precisely the ability to accommodate a variety of starting points for theory development work. Embracing and integrating the dynamic interplay between developing ideas and using them is the key to growing and advancing applied disciplines.
Part One of this book lays out the need for theory building, as well as definitions and the background required to engage in theory-building content. The three chapters to Part One provide a working knowledge of theory building in applied disciplines.

Chapter 1, “To Hell with Gravity,” sets the stage for theory building. We describe the current state of theory building and make the case for developing better theorizing tools. The need for theory building is established, noting that we can do it better than the current efforts.

Chapter 2, “Foundations and Definitions of Theory Building,” summarizes the major points in theory-building content, including definitions, philosophical orientations, research paradigms, types of theories, and other content necessary as background material. This chapter establishes key ideas that are elaborated upon throughout the book.

Chapter 3, “General Method of Theory Building in Applied Disciplines” (contributed by Susan A. Lynham), presents a framework that is the basis for laying out the details of theory building. This chapter highlights the five major phases of theory building: Conceptualize, Operationalize, Confirm, Apply, and Refine.

The three chapters of Part One work together to provide the rationale, need, and concepts for engaging in the important work of theory building. A common language is developed for those interested in taking on theory-building projects as well as the five-phase framework for organizing the remaining chapters.
To Hell with Gravity

A BUMPER STICKER reads, “To Hell with Gravity.” While this message provokes a broad smile for a moment, it also quickly surfaces all the fears surrounding the anti-intellectuals and anti-science folks in our society. Hoards of individuals who are anti-theory, anti-science, and anti-intellectual are very comfortable with their rickety armchair theories and ideologies.

Searching for truth and sound theory is no easy task. Anti-intellectual positions that start with the answer—versus the question—avoid all that messy reading, thinking, and testing stuff. Blurtling out uninformed opinions is easy—and almost always wrong. It is quite ironic that today we have more good information available to us than in any point in history and at the same time more misinformation. Outliers in the theory world were once less visible.

The Internet allows outliers a larger venue. It seems that if a piece of misinformation gets “tweeted” enough, it soon is perceived as fact by many people—a phenomenon particularly evident in recent political campaigns in the United States. The lament is that the real loser from cynical manipulations of fact and fantasy is truth (Kruse, 2012; Thomas, 1997).

The challenge put forth in this book is that theories in applied disciplines are extremely important and need to be advanced. Remember: When thinking about theory in applied disciplines, keep these definitions in mind:

• A theory describes a specific realm of knowledge and explains how it works.

• Applied disciplines are realms of study and practice that are fully understood through their use in the functioning world. Management, organization development, public administration, marketing, highway engineering, leadership, and nursing are just a few of the many applied disciplines.

Sound theory within applied disciplines has great utility. A rich understanding of a specific realm is implied. Because applied discipline theories require theories in use, their utility makes all the difference. It is easy to see that such realms as nursing, public administration, management, physical therapy, highway engineering, organizational communication, and school psychology are applied disciplines having both a body of knowledge and an application setting.
APPLIED DISCIPLINES ARE STUCK

While applied disciplines address the grist of life, dominate the number of academic majors in universities, and impact us all on a daily basis, most applied disciplines are stuck in terms of their theoretical foundation. This is because they

- have not integrated scholarly descriptions and confirmation in practice,
- overinterpret partial theories,
- celebrate rock star practitioners who are hollow role models, and
- tolerate opinion over inquiry.

Most attempts at theory building have fallen short. Existing work on theories in applied disciplines generally address only parts of what is required for complete theory building. The resulting explanations end up being incomplete, noncomprehensive, and unfulfilling to those trying to solve problems. Indeed, the status of theory-building methods in applied disciplines hinders growth and development due to their methodological incompleteness.
The impact of theories-in-use dominates our lives day in and day out. The problem is that practices can just as easily be rooted in inadequate and often destructive logic, instead of confirmed effective alternatives. Theory in the hard sciences can be characterized as “bench-top” theory. If it works in the laboratory or on paper—and the empirical test results support a theoretical explanation—the odds of wide acceptance and adoption are very high.

The messy world of applied disciplines—the varied application settings, cultures, resources pool, and individuals—is much more challenging than bench-top laboratories that can be controlled. Even so, some “pure” disciplines like philosophy and mathematics take the plunge into application. University degree programs that expand from philosophy to applied philosophy, or from mathematics to applied mathematics, bring on the challenges facing other applied disciplines. Their questions and explanations get rooted in and modified by the real world. They cannot be solved on “bench-tops.”
THEORY BUILDING TO THE RESCUE

What a contrast we have between stereotypical practitioners and scholars. When facing important professional problems, practitioners regularly respond by force-fitting the latest gimmick, or by throwing everything and anything at the problem. In contrast, scholars regularly slice problems into small segments to study and explain them, without directly addressing the practical problem itself. Both approaches miss the target of sound theory and practice.

FIGURE 1.1 General Method of Theory Building In Applied Disciplines

Source: Adapted from Lynham (2002).

The General Method of Theory Building in Applied Disciplines presented in this book and portrayed in Figure 1.1 advances both theory and practice. This method for developing sound theory in applied disciplines is meant to fill voids. When it is followed, both scholars and practitioners have input into this successful approach. Fusing information from both perspectives can yield a complete and accurate understanding of the realm being investigated. This is accomplished by completing all five of the nonlinear phases: Conceptualize, Operationalize, Confirm, Apply, and Refine.

Applied disciplines must meet the standards of both scholarship and practice. This book describes a complete, detailed method for developing sound theory in applied disciplines. In contrast, most theory development methods are
incomplete, inappropriate, or totally overwhelming.

**Incomplete.** Theory is often considered as only a hypothesis or is limited to conceptualization. The full process of theory development and phases beyond theory conceptualization are simply ignored, for numerous reasons: (1) the practical rush to find answers, (2) the desire to gain recognition and possible wealth, and (3) a lack of knowledge about theory standards and methodology. The first and last are understandable. The premature and unworthy desire to gain recognition and wealth is despicable and all too present.

**Inappropriate.** Many authors present theory limited by an “ideology” framework such as empirical, critical science, or feminist perspectives. The nature of applied disciplines almost always precludes ideology biases. Yet, many individuals wanting to create rival theories choose a limited ideological approach to secure predetermined outcomes and thus miss the opportunity to create sound theory. Holding back on ideological biases is difficult. It is not always necessary as long as the theory builder acknowledges the bias and makes an adequate case for it.

**Overwhelming.** Several authors present exhaustive and tedious methodologies for developing theory within a specific discipline. These works are almost always intended for a very limited group of scholars within a specific discipline with little, if any, generalizability to other disciplines or practice.

We have some excellent examples of detailed theory-building methodology. Two such examples include Bernard Cohen’s *Developing Sociological Knowledge: Theory and Method* (1989) and Robert Dubin’s *Theory Building: A Practical Guide to the Construction and Testing of Theoretical Models* (1978). As good as they are, these books are both overwhelming to the neophyte and difficult for the expert. Our attempt in this book has been to displace these criticisms.

**CHALLENGES FACING THE THEORY-BUILDING PROCESS**

Clearly, the demands of practice can be a threat to sound theory. The motto of “ready, fire, aim” captures the pressure to respond to the immediacy of life situations. Real-world demands to respond quickly can provoke new answers to problems and at times demand whole new strategies (Torraco, 2004). New strategies that do not work in practice can be rejected. New strategies that do work in practice can ultimately be rejected, explained, adopted, or improved at a later time.
Theory building almost always extends over a period of time. It can start from practice or from scholarship. Most would agree that rigorous theory building in any realm is hard work. The crush of ongoing practice in applied disciplines adds to the difficulty. The immediate demand to respond to problems raises the hopes of seemingly attractive and often atheoretical options. In addition, the changing conditions of practice are unsettling to ongoing theory-building commitments.

The work of theory building in applied disciplines is very important because of the positive impact that sound theory can make on people and systems. Sound theory has the potential to dislodge false theories that can actually harm people and systems. False theories abound within society and organizations and can easily persist when they are not challenged. Unfortunately, impatient executives, politicians, news reporters, publishers, and businesses are regular purveyors of false theories in applied disciplines.

**First Things First**

Getting things out of order and jumping to conclusions with inadequate knowledge, expertise, analysis, and synthesis have always been a part of our human existence. Furthermore, advanced communication technology makes it possible to spread false information and theories much faster and to more people than at any other time in history. In addition, slick communication tools can be used in sharing this information, for high-quality presentation of false information. A warning for all of us is to “Never express yourself more clearly than you are able to think” (Merchey, 2004, p. 63).

At the beginning of the reengineering movement in the 1990s, reengineering developers Hammer and Champy (1993) presented themselves as confident management consultants who were backed by the *Harvard Business Review*, Harvard Business Press, and *Wall Street Journal*. Reengineering, based on simple systems theory, gave the promise of large economic gains and proved to be disastrous for the majority of businesses adopting the reengineering methodology. Hammer and Champy totally ignored the fact that business organizations are human-made systems and the psychological theory required to help understand them. Their mantra of “carry the wounded” (those who helped with the reengineering effort) and “leave the dead behind” (those who rebuffed the change and who were to be fired) was a cruel reminder of their flawed theory. Reengineering projects caused confusion, delays, resentment, and screw-ups that led to crises. Jobs were eliminated without much subtlety or consideration. (As an aside, a critique of Hammer and Champy’s *Reengineering*
the Corporation was sent to the Wall Street Journal following their early laudatory support of reengineering. The critique noted reengineering’s simplistic and inadequate theoretical basis and predicted failure. It was never published.)

Only after years of personal lucrative consulting and client organization failures did Hammer and Champy come to realize the inadequacies of their failed theory in practice. In a retrospective, Kleiner (2000) reports that a series of studies in the early 1990s established that 70 percent or more of reengineering initiatives had actually made things worse. Years later, Hammer himself admitted errors in an interview in the Wall Street Journal, and Champy apologized in an article in Across the Board. Sadly, there was no need to wait for the reengineering bloodletting to figure out this theoretical and practical deficiency.

Beyond the sorrowful presence of atheoretical actions in the realm of practice, it is important to acknowledge that bad theories are known to destroy good practices (Ghosal, 2005, p. 75).

**Taking a Closer Look**

Rummler and Brache, well-educated and experienced consultant-practitioners, continued to refine their organization performance improvement thinking and methodology over several decades. Their classic books, Improving Performance: How to Manage the White Space in Organizations (Rummler & Brache, 1995, 2012) and How Organizations Work: Taking a Holistic Approach to Enterprise Health (Brache, 2002), reflect their best thinking. Even so, neither Rummler nor Brache explicitly explained the theoretical foundation of their work. Theory scholars, impressed with their methodology and successful application in practice, spent time unearthing and reporting on the underlying theory of their performance improvement methodology (Torraco, 1999; Wimbiscus, 1995).

What impressed scholars most was the completeness of the Rummler and Brache view of the organization and its elements, the explicit connections of the parts based on their experience, and the case study examples they reported that describe the paths they took in their improvement efforts. No shortcuts and no inflammatory promises. When advocates promise quick solutions and amazing results, it is best to take a closer look.
CONCLUSION

The challenge for gaining high integrity and effectiveness in applied disciplines is to discover what works and how it works. As part of this challenge, it is also critical to purposefully reject the charlatans that feed off problems and issues facing practitioners of applied disciplines. Building sound theory in applied disciplines is important.

This book directly addresses the problems of the lack of clarity as to what theory is and its full dimensions. The following chapters describe the General Method of Theory Building in Applied Disciplines, detailing its five component phases. Throughout the book, we have included specific useful advice and examples that illustrate solutions to these real problems. We declared earlier that *Theory Building in Applied Disciplines* has no rival theory development methods book. We hope you both agree and have the personal motivation to continue learning about theory building as an important strategy for advancing your applied discipline.
Foundations and Definitions of Theory Building

THE PURPOSE OF THIS CHAPTER is to establish the foundations and definitions of theory building in applied disciplines. Specifically, this chapter will

• present definitions of theory,
• describe the differences between theories and models,
• summarize philosophical orientations in theory building,
• discuss research paradigm approaches to theory building
• distinguish between types of theories,
• identify existing foundation work on theory building,
• discuss theory frameworks, and
• present general criteria for judging the quality of theories.

The information in this chapter is necessary and relevant for theory development research. While each of the chapter’s major sections could comprise a book, our goal is to abbreviate. Rather than engaging in lengthy debates on each of these topics, we attempt to clarify perspectives as they relate to the theory-building method presented in this book.
DEFINITIONS OF THEORY

Any attempt at describing how theories are developed requires clarity about exactly what constitutes a theory. It is easy to see that the term *theory* is not universally interpreted. For example, we often hear that everybody has a “theory,” which really means nothing more than an armchair opinion. This kind of theory can simply be taken to mean an idea or hypothesis—perhaps based on some personal experience. Ideas or hypotheses that have not been evaluated with rigor, that do not have evidence to support them, or that lack verification from any alternative source do not qualify as theory in the learned world. Theory in a more serious sense is built of ideas that have been translated into measurement criteria, examined in detail, and tested by using an established, rigorous method.

Clearly, there are many definitions of theory. We refer to the following definitions in discussing theory building in applied disciplines:

- A *theory* describes a specific realm of knowledge and explains how it works.
- *Applied disciplines* are realms of study and practice that are fully understood through their use in the functioning world.

Some additional theory definitions that have appeared in the literature are as follows:

- “A system of assumptions, principles, and rules of procedure devised to analyze, predict, or otherwise explain the nature or behavior.”
- “A theory tries to make sense out of the observable world by ordering the relationships among elements that constitute the theorist’s focus of attention in the real world.”
  —Dubin (1978, p. 26)
- “Theory is a coherent description, explanation, and representation of observed or experienced phenomena.”
  —Gioia and Pitre (1990, p. 585)
- “Theory building is the process or recurring cycle by which coherent descriptions, explanations, and representations of observed or experienced phenomena are generated, verified, and refined.”
  —Lynham (2000a, p. 8)
Theories Versus Models

With advancements in multivariate testing, scholars increasingly examine a variety of independent variables and their effects on a wide range of outcomes (Thompson, 2004). Complex mathematical analysis tools (e.g., structural equation modeling, path analysis, hierarchical linear modeling) make it easy to test several ideas without the difficult logical framework development required for true theory building (Dubin, 1978; Thompson, 2000). Research studies using mathematical analysis tools can make important contributions to theory development, but the tools themselves do not create theories. Scholars advancing a specific method rarely go beyond modeling sets of variables so that advanced statistical techniques can be applied. In other words, research driven by techniques, rather than questions, seems to be a disappointing trend in the social sciences that results in models, not theories. These practices demonstrate the need for a distinction between models and theories.

Theories and models are two different things. Theories almost always incorporate models, but models do not necessarily require theories or a theoretical foundation. The majority of scholars position models as a smaller component of theories (Carnap, 1938, 1971; Coombs, Dawes, & Tversky, 1970; Kaplan, 1964). Throughout this book, the terms theory and model are not used interchangeably. Applied theories are taken as larger, complete representations of system activities. Models are therefore smaller optional subsets of theories.
PHILOSOPHICAL ORIENTATIONS FOR THEORY BUILDING

A theory builder’s philosophical orientation is not the defining feature of theory development (Swanson, 1988, 2000). Some politicized scholars choose to dwell on engaging in philosophical debates versus describing the actual building of theory. While philosophical orientations certainly influence theory-building efforts, the purpose of this book is to detail a five-phase General Method of Theory Building for Applied Disciplines. However, varying philosophical orientations may be particularly useful for specific phases of theory building and specific realms being theorized. Consistent with our purpose of abbreviation, a summary of philosophical orientations is useful. Common philosophical orientations in theory building are positivism, interpretivism, and critical science (summarized in Figure 2.1).

**Positivism**

The positivist philosophical orientation to theory building is based on the scientific method and traditional hypothesis testing. Reality is objective, and the theorist’s task is to establish laws that can predict outcomes in an area of human/human systems activity. Typically, positivist work in applied disciplines has wide application areas and attempts to mirror the goal of the natural sciences— to establish universal laws. The positivist orientation includes hypothesis testing, of course, but it can also include case studies, grounded theory (Glaser, 1992; Glaser & Strauss, 1967), and other methods depending on the purpose of the theorizing, the defined boundary of the resulting theory, and data-gathering and analysis techniques. Examples of positivism feature attempts to model the social sciences on the physical sciences and establish laws similar to those in the physical sciences. Human capital theory is an example of positivist theory development in the sense that it generally establishes a “law” that as education levels increase, so does productivity (Becker, 1993).

**Interpretivism**

Critics of quantitative work suggest that human/human system behavior is far too complex for universal laws. Proponents of an interpretive orientation argue that attempts to mimic the natural sciences result in a loss of meaning. The loss of meaning prevents interpretation, which is a rich data source that aids in a deep
understanding and description of why some human activity may occur (Van Manen, 1990).

**FIGURE 2.1 Alternative Paradigms for Research in Organizations**

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<th>Positivism</th>
<th>Interpretivism</th>
<th>Critical Science</th>
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<tr>
<td><strong>Assumptions</strong></td>
<td>Objective world that science can “mirror” with privileged knowledge</td>
<td>Intersubjective world that science can represent with concepts of actors; social construction of reality</td>
<td>Material world of structured contradictions and/or exploitation that can be objectively known only by removing tacit ideological biases</td>
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<tr>
<td><strong>Key Focus or Ideas</strong></td>
<td>Search for contextual and organizational variables that cause organizational actions</td>
<td>Search for patterns of meaning</td>
<td>Search for disguised contradictions hidden by ideology; open spaces for previously silenced voices</td>
</tr>
<tr>
<td><strong>Goal of Paradigm</strong></td>
<td>Uncover truth and facts as quantitatively specified relations among variables</td>
<td>Describe meanings, understand members’ definitions of the situation, examine how objective realities are produced</td>
<td>Uncover hidden interests; expose contradictions; enable more informed consciousness; displace ideology with scientific insights; change</td>
</tr>
<tr>
<td><strong>Nature of Knowledge or Form of Theory</strong></td>
<td>Verified hypotheses involving valid, reliable, and precisely measured variables</td>
<td>Abstract descriptions of meanings and members—definitions of situations produced in natural contexts</td>
<td>Structural or historical insights revealing contradictions</td>
</tr>
<tr>
<td><strong>Criteria for Assessing Research</strong></td>
<td>Prediction-explanation; Rigor; internal and external validity, reliability</td>
<td>Trustworthiness; Authenticity</td>
<td>Theoretical consistency; Historical insights; Transcendent interpretations; Basis for action; change potential and mobilization</td>
</tr>
<tr>
<td><strong>Unit of Analysis</strong></td>
<td>The variable</td>
<td>Meaning; symbolic act</td>
<td>Contradictions; incidents of exploitation</td>
</tr>
<tr>
<td><strong>Research Methods and Type(s) of Analysis</strong></td>
<td>Experiments; questionnaires; secondary data analysis; quantitatively coded documents</td>
<td>Ethnography; participant observation; interviews; conversational analysis; grounded theory development</td>
<td>Field research; historical analysis; dialectical analysis; deconstruction; textual analysis</td>
</tr>
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The interpretive orientation includes some specific techniques such as phenomenology, but it can also include case studies and grounded theory efforts.
—again, depending on the purpose of the theorizing, the defined boundary of the resulting theory, and data-gathering and analysis techniques. An example of an interpretive study would be anomalies in medical research. When a patient does not respond to a specific treatment in the same manner that the majority of other patients do, researchers might ask why and learn that there are contextual differences (perhaps environment) that negate the effects of treatments that benefited other patients.

**Critical Science**

Critical science seeks to “surface unacknowledged forms of exploitation and domination” (Swanson & Holton, 2005, p. 21). Critical scientists study oppressive conditions, usually related to social structures. They often view their purpose as one of social change by exposing policies and processes that keep hierarchies in place and prevent the ability of each human being to realize his or her full potential.

The classic example of research framed from a critical science perspective is the work of Paulo Freire. His efforts in Brazil working with a largely illiterate population provided a perspective to consider the politics of education. He eventually came to the opinion that nothing is free of political agendas and that freeing marginalized groups was an important cause. More modern examples of research drawing on a critical perspective might examine women leaders in corporations or the experiences of African American managers.
RESEARCH PARADIGMS IN THEORY BUILDING

In addition to philosophical orientations, theorists must deal with research paradigms, which typically connect to methods. The common paradigms in applied disciplines are quantitative, qualitative, and mixed methods. Research paradigms are important because their use allows some degree of flexibility in an overall research agenda. Most theory-building efforts involve multiple research studies, and theorists can alter the paradigm for individual studies.

It is easy to see how paradigms can be applied independently or in combination. For example, a multiple-regression study of the factors that influence employee motivation would be using a quantitative paradigm. A set of semistructured interview questions with employees asking about their motivation would be using a qualitative paradigm. And both studies could be conducted from a positivist philosophical orientation. On the other hand, a pure phenomenological study could be conducted that would certainly stem from an interpretive orientation and be classified as a qualitative paradigm.

Research paradigms are the framework used in each of the theory-building phase chapters of this book (Chapters 4–8) because they are apolitical and function at the methods level. Featuring the methods level is critical in meeting a core goal of this book: to provide some guidance for how to engage in theory building. From a foundational point of view, it is useful to provide general descriptions of these research paradigms before digging in deeper.

Quantitative. A quantitative paradigm uses data in quantitative form to answer research questions. Often this approach entails testing and measurement, surveys and number-crunching software programs to analyze data, along with statistics to describe the results.

Qualitative. A qualitative paradigm refers to the use of descriptions. As its name implies, the focus of inquiry is on the qualities related to some domain of human/human systems and strategies for describing those qualities are used.

Mixed Methods. A mixed methods paradigm in theory building uses multiple strategies for collecting and analyzing data that involve both quantitative and qualitative paradigms. This approach allows a great deal of freedom.
**Research Paradigms**

There is no process that will allow the theorist access to clear answers and direction for reconciling conflicting assumptions and ideas. Instead of requiring complete resolution to philosophical issues, theorists would do well to recognize the inherently messy nature of theory building and avoid paralysis by moving on. The research paradigms we have described are examined in more detail in subsequent chapters where the goal is to demonstrate the differences in paradigms as used in theory building in applied disciplines.

We recommend three key criteria for moving past lengthy philosophical debates that don’t advance applied theory building: (1) emphasizing the purpose of the theory-building effort, (2) paying close attention to the intended boundary of the theory, and (3) promoting cohesion among the choices throughout the theory-building effort. Boundaries are discussed at length in Chapter 4, but for now it will suffice to say that boundaries establish the context and location for the expected operation of the theory. The purpose and the boundary will enable the theorist to move forward. The concept of cohesion refers to all of the elements wrapped up in the theory and applies to the purpose, content, measurement strategies, assessment strategies, and use of the theory. Alignment among these aspects of theory building is what we refer to as cohesion, and we revisit the concept throughout the remaining chapters.
TYPES OF THEORIES

Grand, midrange, and local theories are three different types of theories. Because theory builders in applied disciplines deal with a variety of different contexts, the specificity of their theories must vary as well. Think of a camera lens and the zoom function. The wide-angle view gives the most comprehensive picture, but the details are fuzzy. Extreme close-ups can also be taken, but the “scene” is blurred or missing. Then, there is everything in between. Let’s examine these three types of theories more closely.

**Grand Theories**

Grand theories usually have the widest boundaries in applied disciplines and can be likened to the wide-angle camera lens. They are usually aligned with the quantitative philosophical orientation and aim to establish generalizability of the findings.

Grand theories in applied disciplines most closely emulate theories in the natural sciences because they are attempts at establishing laws, or general principles that apply universally (or as close as possible) to human activities. The theory of human capital—and the premise that over our history, education is associated with increased income and a better quality of life—is an example of a grand theory (Becker, 1993). While this is perhaps not true in every single instance of education, data show the trend over time. Theories of human behavior like stimulus-response and McGregor’s X-Y theory (1960) are additional examples of grand theories because they attempt to explain general human/human systems behavior regardless of location, class, education, or other variables.

**Midrange Theories**

Midrange theories are more specific than grand theories, and they tend to be categorical, explaining relationships that exist and predicting outcomes within a bounded domain. Midrange theories apply to situations that do not attempt to establish universal laws but go beyond describing single instances of human activity. In other words, there is some degree of generalizability or transferability of what is learned from the theory building. For example, research on the financial performance of Fortune 500 companies, research on training and development in the automotive industry, and research on the experiences of women in leadership positions might contribute to midrange theories. Theories
commonly used in nursing also exemplify midrange theories because they are expected to explain and predict outcomes generally, but within the context of patient care or other nursing-related situations. Documented studies of innovation and knowledge management at Xerox (Earl, 2001; Nonaka & Takeuchi, 1995) are also good examples of potential midrange theories because they illustrate how studies of innovation and knowledge management were conducted in one corporation and then distilled into practices that other corporations might consider adopting.

**Local Theories**

Local theories are very specific and so tightly coupled to a context that the context itself becomes part of the theory. They are theories that are intended to apply in a small number of instances, sometimes only a single instance of human/human systems activity. Local theories are often based in the social construction philosophical orientation, and they are not required to be generalizable to any other instance. To use a term from the quantitative philosophical orientation, local theories are often outlier instances of human activity. For example, when outcomes deviate from grand or midrange theories (the outliers), local theories often result from attempts to understand the unexpected results. An example of a local theory would be an in-depth study of innovation practices at Apple, Inc., since other companies cannot really compete. The idea that frames local theorizing is that something unique is going on that is difficult or impossible to replicate. Research efforts attempt to describe the uniqueness in ways that generate insight, but they are not intended to be used in alternative situations or contexts.

**Theory Type Connections**

The importance of the connection between theory types and the theory boundaries cannot be overstated. Grand theories have wide boundaries and are expected to be generalizable. Local theories are by definition much smaller, apply in selected or specific areas of human activity, and may be minimally transferrable. In between these two are midrange theories, which have the greatest degree of flexibility. With that flexibility comes the responsibility for clarifying decisions in the theory-building process and providing a logical connection among a theory’s varying elements (which are covered throughout the rest of this book).
EXISTING WORK ON THEORY BUILDING

A 1989 issue of the *Academy of Management Review* was dedicated to theory building. Several seminal articles were included that framed the foundation of theory building to date (Bacharach, 1989; Eisenhardt, 1989; Osigweh, 1989; Poole & Van de Ven, 1989; Van de Ven, 1989; Weick, 1989; Whetten, 1989). Later contributions also supported a joint effort at understanding theory building more deeply (Ghosal, 2005; Gioia & Pitre, 1990; Hambrick, 2007). Most of these contributions either frame theory building from a specific methodological perspective or lack the practical, applied direction to make them useful to a novice theory builder trying to create theory.

Similarly, a collection of articles on theory building was published as an issue of *Advances in Developing Human Resources* (Swanson & Lynham, 2002). Authors again took a methodological approach to describing theory building in the following categories: quantitative (Lynham, 2002b), social constructive (Turnbull, 2002), grounded theory (Egan, 2002), case study (Dooley, 2002), and meta-analysis (Yang, 2002). Certainly, insights were uncovered, but again the novice theory builder was left with little guidance for actually performing theory building. Torraco (2002) summarized the collection of articles in an attempt to sort out where each approach had highest utility.

The concepts put forward in these collections of works on theory building are important contributions, and they are covered in detail at the appropriate points as this book unfolds. These works are by no means exhaustive of theory-building content, but should be considered required reading.
Swanson (2007) established a theory framework that labeled six specific components of theories for framing the boundaries and defining applied disciplines—not just useful subtheories within an applied discipline. The six components are (1) theory boundaries, (2) contributing theory, (3) core theory, (4) useful theory, (5) novel theory, and (6) irrelevant theory (see Figure 2.2):

- **Boundary**: The boundary of the theory of an applied discipline is established by specifying its name, definition, and purpose along with assumptions or beliefs that conceptually frame the theory and practice of that discipline.

- **Contributing theories**: selected theories that fundamentally address the definition, purpose, and assumptions undergirding an applied discipline

- **Core theory**: the intersection and integration of the contributing theories that operationalize the definition, purpose, and assumptions of an applied discipline

- **Useful theory**: a theory outside the core theory of an applied discipline and within the intersection of two contributing theories that has utility in explaining an important realm of practice within the discipline

- **Novel theory**: the theory of a narrow phenomenon that is related to an aspect of the applied discipline under consideration that could logically provide an unusual explanation of how the phenomenon works.

- **Irrelevant theory**: any theory that falls outside the theory boundary, contributing theories, core theory, and useful theory of the applied discipline under consideration with no compelling evidence of its usefulness or logic supporting its potential for a novel contribution

**Figure 2.2** Theory Framework for Applied Disciplines: Boundaries, Contributing, Core, Useful, Novel, and Irrelevant Components
The context of these theory components is relevant to applied disciplines. This means that a theory contribution in an applied discipline could be judged as a core theory, a contributing theory, or other. This book is less concerned with classifying the utility of theories and instead is focused on building theories. However, it is still useful to think about the potential role of a theory in an applied discipline before taking on the theory-building effort. For example, a theory of scenario planning might be considered a contributing theory in the applied discipline of strategic management. Alternatively, a theory of motivation might be considered a core theory in the discipline of organizational behavior.

Honing the six theory-framework components is an iterative process. Developing and testing a single component in context of the others will advance a theory as it continues to evolve. Iterations of component refinement should have an eye toward understanding and harmonizing all six components.
Boundary and Irrelevant Components

Two critical components of the Theory Framework for Applied Disciplines include the boundary of the theory component and the irrelevant theory component. These components are particularly important when judging existing theories and their roles in applied disciplines. As applied disciplines grow and change over time, they continue to be messy and diverse. The ability to classify theories can be very useful in the struggles to debate and define core purposes and theories for an applied discipline.

When building theories, however, these components are even more important. Most scholars are drawn toward building novel theories to distinguish their ideas as unique or different. Often the drive for uniqueness results in irrelevant theories. By definition, irrelevant theories make no useful contribution to the applied discipline. Few disciplines and scholars are savvy enough to make judgments about such fringe theories, and it is usually left to debates and time to sort out.
GENERAL CRITERIA FOR ASSESSING THEORIES

Criteria for assessing theories are important because they provide a means by which to judge the utility or even potential utility of a theory. Some authors have tackled the important work of creating a general set of criteria, but there is no agreement, and different authors focus on different parts of the theory-building process with their criteria. Some authors have even proposed a specific set of criteria based on philosophical orientation.

It is important to establish a general set of criteria that can be applied to any theory regardless of philosophical orientation. Theories still must be able to do what they are defined to do, and a set of criteria is intended to give researchers a means by which to judge utility. The following criteria for assessing theory can be used as the basis for assessing theories in applied disciplines (Patterson, 1983, pp. xx–xxi):

**Importance.** A theory should not be limited to a few situations; rather, it should have relevance to real-world situations. Importance may be difficult to evaluate, as acceptance by professionals or recognition and persistence in the literature may be the only real indication of importance. Also, if a theory meets the other following criteria, then it is probably important as well.

**Preciseness and Clarity.** A theory should be understandable, internally consistent, and free of ambiguities. Clarity may be tested by the ease of relating the theory to data or to practice, or the ease of developing hypotheses or making predictions from it and specifying methods of testing them.

**Parsimony and Simplicity.** Parsimony has long been considered an important criterion for theory. This means that the theory has a minimum of complexity and few assumptions. Parsimony carried to an extreme, however, may lead to oversimplification of the theory. Parsimony is important only after the criteria of comprehensiveness and verifiability have been determined.

**Comprehensiveness.** A theory should be complete, covering the area of interest and including all known data in the field. The area of interest, however, can be restricted to one general area.
**Operationality.** A theory should be capable of being reduced to procedures for testing its propositions or predictions. Its concepts must be precise enough to be measurable. Theoretical concepts should first be identified and defined and then a method of measurement chosen or developed. Not all the concepts in a theory must be operational. Some concepts may be used to indicate relationships and organization among other concepts.

**Empirical Validity or Verifiability.** The preceding criteria are rational in nature and do not directly relate to the correctness or validity of a theory. Eventually, however, a theory must be supported by experience or experiments that confirm it. That is, in addition to its consistency with or ability to account for what is already known, a theory must generate new knowledge. However, a theory that is disconfirmed by experiment may lead indirectly to new knowledge by stimulating the development of a better theory.

**Fruitfulness.** The capacity of a theory to lead to predictions that can be tested, leading to the development of new knowledge, has often been referred to as its fruitfulness. A theory can be fruitful even if it is not capable of leading to specific predictions. It may provoke thinking and the development of new ideas or theories, sometimes because it leads to disbelief or resistance.

**Practicality.** The final criterion for a good theory, which is seldom mentioned, is whether the theory is useful to practitioners in organizing their thinking and practice by providing an organizing framework for practice. A theory allows the practitioner to move beyond the empirical level of trial-and-error application of techniques to the rational application of principles. Practitioners too often think of theory as something that is irrelevant to what they do, unrelated to practice or real life.
CONCLUSION

This chapter set out to define the term *theory*, present the differences between models and theories, and describe a variety of types of theories. In addition, we summarized some major philosophical orientations toward theory building and described a set of general criteria for assessing theories. This chapter, along with this book, is meant to be accessible and useful as background information for theory building in applied disciplines. The task has been to present relevant information and avoid esoteric discussions. The next chapter will review the General Method of Theory Building in Applied Disciplines, followed by chapters that give detailed guidance on each of its phases.
ONE OF THE CHALLENGES of theory building in applied disciplines is making the process both explicit and accessible. Although different methods of theory building advocate different theory-building research processes, there is an inherently generic nature to theory building in applied disciplines. This chapter highlights strategies used in theory building in applied disciplines and overviews the general, five-phase theory-building method mentioned earlier (Figure 3.1). This chapter specifically

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FIGURE 3.1 General Method of Theory Building In Applied Disciplines

- addresses considerations of theory building,
discusses the establishment of a general theory-building method,
describes the limitations of the general method, and
examines the importance and challenges of theory building.

Believing in the need for and utility of good theory, we find the following all
too familiar statement dumbfounding: “Well, that’s all very well in theory, but it
doesn’t work like that in practice or in the real world.” Statements like this are
rooted in a number of deeply held assumptions about the nature and utility of
theory that are generally erroneous:

that theory is disconnected and removed from practice,
that the process of theory building happens in isolation of the real world,
that those who engage in theory building are not the same as those who
engage in practice or operate in the real world, and
that usefulness and application is an optional outcome of theory.

What is the purpose of good theory other than to describe and explain how
things actually work, and in so doing to help us improve our actions in this
world? Some will contend that theory is largely idealistic (Kaplan, 1964).
However, it can just as easily be argued that good theory in applied disciplines is
about as realistic as it comes (Dubin, 1978; Kaplan, 1964; Van de Ven, 1989).
Think about it: How many theories do you hold about the world around you and
how that world works? How do these theories inform you of what works, and
does not work, in day-to-day actions? Every time we encounter a new realm, we
first experience it, and then we try to observe and understand how that realm
presents itself and works. Next we begin to develop a system of ideas, rooted in
our experience and knowledge of the world, about how to address the new
realm. Then we put those ideas to the test by applying them. If these ideas work,
then the issue gets satisfactorily addressed. If not, we go back to our own
internal drawing boards and begin the process of problem-solution formulation
and application all over again.

In effect, what we are continuously doing is developing informed knowledge
frameworks about how to act on things in our world, thereby formulating ways
in which to understand and address issues and problems in the world around us
(Alvesson & Deetz, 2000). These knowledge and experience frameworks that we
apply to our world are simply personal theories-in-use (Argyris & Schon, 1996).
Think about them as theories-in-practice. Our individual lives are guided by
many theories-in-practice. We put them into practice precisely because they help
us to understand, explain, anticipate, know, and act in the world in better ways—to be more informed for the purpose of achieving better outcomes. Theories therefore have a very practical role in our everyday lives.

We can hold and develop grandiose theories of how the world might be and how it could work. Argyris and Schon (1996) call these idealistic, speculative conceptions of espoused theories. However, espoused and unconfirmed theories of the world and phenomena within the world have limited utility. In an applied discipline like management, theory is required to be of practical value (Kaplan, 1964; Mohrman & Lawler, 2011; Mott, 1996; Van de Ven, 1990). By virtue of its application nature, good theory is of value precisely because it fulfills one primary purpose. That purpose is to explain the meaning, nature, and functioning of a phenomenon, often experienced, but up to that point not fully understood (Campbell, 1990; Van de Ven, 1989, 2007a; Whetten, 1989).

Theory is defined as a proven explanation of a realm and how it works. It is “a coherent description, explanation and representation of observed or experienced phenomena” (Gioia & Pitre, 1990, p. 587). Theory building is the ongoing process of producing, confirming, applying, adapting, and refining theory (Lynham, 2000b). In a way, to live life successfully, we are all obliged to engage in theory building—that is, in processes by which we continuously observe, experience, think about, and understand and act in our worlds. However, these theories-in-practice are not always explicit and often occur in the form of implicit, unconscious knowledge on the part of the theorist. As such, these theories that we put into use in our daily lives are personal theories-in-practice and are seldom made explicit by the holder and user of those theories. For example, how many times has a parent or trusted friend given you advice about what works and doesn’t, about what you should or shouldn’t do about something? Yet, when questioned about what they actually know and how it all works, you get the response “I just know; trust me, I have had lots of experience with this.”

As the recipients of such personal theories-in-practice, we are faced with two choices. The first is one of a leap of faith—to apply the advice and hope that it will have the same results for you as it did for the advisor. The second is the choice of inquiry and discovery—to develop our own explanation for the issue at hand and how to deal with it. If both are pursued on only a personal front, then it is unlikely that the wisdom of either will be transmitted to anyone else. And next time we are asked the same question by someone facing a similar issue, our response is likely to mimic that of our original advisor: “I just know—trust me.” The point here is that an important function and characteristic of theory building
is to make these explanations and understandings of how the world works explicit and, by so doing, to make transferable, informed knowledge for improved understanding and action in the world tacit rather than implicit.

Theory building can be further described as a “purposeful process or recurring cycle by which coherent descriptions, explanations, and representations of observed or experienced phenomena are generated, verified, and refined” (Lynham, 2000b, p. 161). Good theory building should result in two kinds of knowledge: outcome knowledge, usually in the form of explanatory and predictive knowledge; and process knowledge, for example, in the form of increased understanding of how something works and what it means (Dubin, 1976). Good theory and theory building should also reflect two important qualities: rigor and relevance (Marsick, 1990a), or what have also been termed validity and utility (Van de Ven, 1989). Theory building achieves these two desired knowledge outputs and empirical qualities by use of “logic-in-use” and the “reconstructed logic” (Kaplan, 1964, p. 8). By following a logical cognitive style in the development and application of the theory, and by explicitly reconstructing, or making explicit, logic-in-use evolves.

This book presents a method—or logic-in-use—for building theory in applied disciplines. This chapter first presents basic considerations common to applied theory-building inquiry. Second, it describes applied theory building as a five-phase, general, and iterative process. Third, it briefly highlights why theory-building research is important to the applied disciplines, together with some of the challenges associated with building applied theory.
GENERAL CONSIDERATIONS OF THEORY BUILDING

Before reviewing the generic methodological components of theory building, let’s examine, first, two commonly used strategies in theory building and, second, the requirement of knowledge of and experience with the specific realm that is the focus of the theory-building endeavor.

Two Common Strategies

Within applied disciplines, theory-building methods must be capable of dealing with issues of application (Campbell, 1990; Lynham, 2000b; Lynham, Provo, & Ruona, 1998; Swanson, 1997, 2007; Swanson et al., 2000; Torraco, 1994, 1997, 2000). In this pursuit, it is worth considering two strategies common to theory building (Reynolds, 1971): research-to-theory and theory-to-research.

Research-to-Theory. The research-to-theory strategy, also termed the “research-then-theory strategy,” is related to “deriving the laws of nature from a careful examination of all the available data” (Reynolds, 1971, p. 140). Francis Bacon referred to the outcome of this strategy as interpretations of nature (Reynolds, 1971). As described by Reynolds, the essences of this research-to-theory strategy are as follows:

1. Select a phenomenon and list all the characteristics of the phenomenon.
2. Measure all the characteristics of the phenomenon in a variety of situations (as many as possible).
3. Analyze the resulting data carefully and determine if there are any systematic patterns among the data “worthy” of further attention.
4. Once significant patterns have been found in the data, formalization of these patterns as theoretical statements constitutes the laws of nature (axioms, in Bacon’s terminology). (p. 140)

This strategy requires two important conditions—namely, “a relatively small number of variables to measure during data collection” and “a few significant patterns to be found in the data” (Reynolds, 1971, p. 140). The dominant perspective of this theory-building strategy is a quantitative one. As a result, the corresponding assumptions about knowledge that underlie and govern the
research-to-theory strategy are also of a quantitative nature. For example, the real world is objective and external to the researcher; the truth is out there to be discovered through careful, methodical, and comprehensive inquiry by the researcher; and the purpose of research is to discover universal, causal laws to enable causal explanation. Of a predominantly deductive nature, this research-to-theory strategy is thought to be well suited to the pure sciences, where the purpose of theory building is to develop large, generalizable laws of nature that explain how phenomena in the natural, objective world can be expected to work and potentially be predicted and controlled.

**Theory-to-Research.** The second strategy for building theory is that of theory-to-research or the “theory-then-research strategy” (Reynolds, 1971, p. 144). In this approach, theory building is made explicit through the continuous, repetitive interaction between theory construction and empirical inquiry (Kaplan, 1964; Reynolds, 1971). The essence of this theory-building strategy is as follows:

1. Develop an explicit theory in either axiomatic or process description form.
2. Select a statement generated by the theory for comparison with the results of empirical research.
3. Design a research project to ‘test’ the chosen statement’s correspondence with empirical research.
4. If the statement derived from the theory does not correspond with the research results, make appropriate changes in the theory or the research design and continue with the research.
5. If the statement from the theory corresponds with the results of the research, select further statements for testing or attempt to determine the limitations of the theory. (Reynolds, 1971, p. 144)

This theory-to-research strategy was made popular by Karl Popper, in which “he suggests that scientific knowledge would advance most rapidly through the development of new ideas [conjectures] and attempts to falsify them with empirical research [refutations]” (Reynolds, 1971, p. 144). Being of a more qualitative nature, this strategy is rooted in corresponding assumptions about the nature of scientific knowledge—for example, that there is no “real world” or “one truth” but rather that knowledge about human behavior is created in the minds of individuals; “that science is a process of inventing descriptions of
phenomena” (Reynolds, 1971, p. 145); that there are multiple and divergent realities and therefore “truths”; and that the purpose of science is one of interpretive discovery and explanation of the nature and meaning of phenomena in the world (Hultgren & Coomer, 1989). Of an interactive inductive-deductive nature, this theory-to-research strategy is well suited to the applied nature of the behavioral and human sciences.

**Theory-Research-Practice Cycle.** The significance of these two theory-building strategies is not the need to choose one above the other. Rather, their value to the theorist is in the insight that they provide regarding the systemic nature of the interaction among three elements critical to applied theory building: (1) the development and accumulation of a system of coherent, disciplined, and rigorous knowledge and explanation (theory); (2) the conduct of focused and disciplined scholarly inquiry and discovery (research); and (3) the resulting defined and improved action that ensues from applying the outcomes of the first two elements in practice.

Rooted in systems theory, the concept of a *virtuous cycle* refers to a positive, reinforcing relationship of interdependence among the components of a system (Kauffman, 1980; Senge, 1990; von Bertalanffy, 1968). This growth cycle of theory-research-practice (see [Figure 3.2](#)) is fundamental to building rigorous and relevant applied theory (Dubin, 1978).

**TOWARD A GENERAL THEORY-BUILDING RESEARCH METHOD**

The theory-to-research theory-building strategy demands that the theorist or theory development team have expertise in both the realm central to the theory as well as in the theory-building method itself (Campbell, 1990; Cohen, 1991; Dubin, 1981; Hearn, 1958; Patterson, 1986; Swanson, 2007b). Applied theory building therefore requires the theorist to interact with and be influenced by both the phenomenon in practice and acquired knowledge within that realm. In this way, both understandings of the realm central to the theory are brought together and are ordered according to the theorist’s internal logic, or logic-in-use, and informed imagination (Cohen, 1991; Weick, 1995). This continuous interaction in applied theory building—between knowledge and experience within the realm that is the focus of the theory—facilitates the accumulation of relevant, rigorous theoretical knowledge of the phenomenon in the experienced world (see [Figure 3.3](#)).

**FIGURE 3.2** Growth Cycle of Theory Building in Applied Disciplines
Figures 3.2 and 3.3 are useful in understanding the method for building theory in applied disciplines as an iterative system of five distinct phases, as we saw in Figure 3.1:

- Conceptualize,
- Operationalize,
- Apply,
- Confirm, and
- Refine.

**FIGURE 3.3 Recursive Nature of Practical and Theoretical Expertise Inherent in Applied Discipline Theory Building**

From an overall perspective, theory building in applied disciplines consists of two broad components: theorizing to practice and practice to theorizing. Each of
these components produces distinct in-process outputs that guide applied theory-
building research and ultimately result in a trustworthy, rigorous, and relevant
type for improved action (Lincoln & Denzin, 2001; Marsick, 1990a, 1990b;
Van de Ven, 1989). An essential output from the theorizing component of theory
building is a coherent and logical theoretical framework, which encapsulates the
explanation of the realm, phenomenon, issue, or problem that is the focus of the
theory. Key outputs from the practice components of theory building are
carefully obtained data/findings and experiential knowledge that are used to
confirm, or disconfirm, and further refine and develop the existing theory and to
enhance the utility of the theory in practice. The five phases of the applied
theory-building research method take place within this larger two-component
frame indicated in Figure 3.1.

It is important to note again that these five phases do not necessarily need to
be pursued in the order in which they appear in Figure 3.1. However, the sum of
the Conceptualize, Operationalize, Apply, Confirm, and Refine phases complete
the theory-building effort. Furthermore, an applied theory is never considered
complete, but rather “true until shown otherwise” (Kaplan, 1964; Root, 1993).
As such, the theory is always “in progress,” and further research related to the
theory is used to refine and increase confidence, or not, in the existing theory—
hence the cyclical nature of applied theory building and continuous refinement.
Which phase is actually carried out first depends on the theory-building strategy
being used.

The following sections briefly describe each of the five phases of the General
Method of Theory Building in Applied Disciplines. The book presents the
phases from the perspective of a theory-to-practice strategy of applied theory
building. Using a practice-to-theory strategy does not change the occurrence of
these five phases, but rather what makes for the appropriate sequencing of each
phase in the theory-building process.

**Conceptualize**

The Conceptualize phase requires that the theorist formulate initial ideas in a
way that depicts current, best, most informed understanding and explanation of
the phenomenon, issue, or problem in the relevant world context (Dubin, 1978;
Lynham, 2000b; Van de Van & Johnson, 2007). The purpose of this phase is to
develop a sound conceptual framework that provides an initial understanding
and explanation of the nature and dynamics of the realm, problem, or
phenomenon that is the focus of the theory.

The process of conceptualization varies according to the theory-building
strategy employed by the theorist. However, at a minimum this process will include the development of the key elements of the theory, an initial explanation of their interdependence, and the general limitations and conditions under which the theoretical framework can be expected to operate. The output of this phase is an explicit, conceptual framework that often takes the form of a model and/or metaphor that is developed from the theorist’s knowledge of and experience with the phenomenon, issue, or problem concerned (Dubin, 1978; Kaplan, 1964).

The Conceptualize phase is one of two phases that dominate the deductive hypothesizing and theorizing component of theory building in applied disciplines. Here the theorist conducts scholarly inquiry into the realm, phenomenon, or problem that is core to the theory. Starting the process at this point is often more typical of quantitative (or experimental) type theory-building research methods—for example, the hypothetico-deductive method and meta-analysis (Hearn, 1958; Kaplan, 1964; Patterson, 1986). More qualitatively oriented theory-building strategies, like case study, grounded theory, and social constructivist approaches, typically begin with inquiry in the Apply phase and then use the results of such inquiry to guide the development of the theory’s conceptual framework (Eisenhardt, 1995; Stake, 1994; Strauss & Corbin, 1998). Regardless of the sequencing of the Conceptualize phase of theory building, the development of a logical and sound conceptual framework is fundamental to all theory building. This theoretical framework is essentially the core explanatory capacity of any theory.

**Operationalize**

The purpose of the Operationalize phase of theory building is essentially an explicit connection between the Conceptualize phase and practice. The operationalization of a theory needs to be confirmed or tested in its real-world context. In order for the theoretical framework to evoke trust and confidence, the initial explanation of the realm, phenomenon, problem, or issue embedded in the framework must be applied to and empirically confirmed in the world in which it occurs. To achieve this necessary confirmation, the theoretical framework must be translated, or converted, into observable, confirmable components/elements. These components/elements can be in the form of confirmable propositions, hypotheses, empirical indicators, or knowledge claims (Cohen, 1989). They are addressed through appropriate inquiry methods determined by the strategy being employed by the theorist.

The Operationalize phase reaches toward an overlap between the theory and practice components of the theory-building process. A primary output of the
theorizing component of applied theory building is an operationalized theoretical framework—that is, a logical and sound theoretical framework that has been converted into components or elements that can be further investigated and confirmed through rigorous research and relevant application.

**Confirm**

The Confirm phase falls within the practice component of applied theory building in applied disciplines. This phase involves the planning, design, implementation, and evaluation of an appropriate research agenda and studies to purposefully confirm or disconfirm the theoretical framework central to the theory. When adequately addressed, this third phase results in a confirmed and trustworthy theory that can then be used with some confidence to guide better action and practice. The theory is disconfirmed when it falls short.

**Apply**

A theory that has been confirmed in the contextual world to which it applies (i.e., operationalized) and has, at least to some extent, gone through inquiry in the practical world is not enough. A theory must also be threaded through the Apply phase. The application of the theory to its selected realm, problem, or phenomenon falls in the practice component of the theory-building method. Application of the theory enables further study, inquiry, and understanding of the theory-in-action.

An important outcome of this Apply phase is to enable the theorist to use the experience and learning from the real-world application of the theory to further develop and refine the theory. It is in the application of a theory that practice gets to judge and inform the theory’s usefulness and relevance for improved action and problem solving (Lynham, 2000b; Van de Ven & Johnson, 2007). And, it is through this application that the practical world becomes an essential source of knowledge and experience for ongoing development of applied theory (Ruona & Lynham, 1999; Swanson, 1997).

**Refine**

Because a theory is never “complete,” the theory must be continually refined and developed (Cohen, 1989; Root, 1993). This recursive aspect of theory building in applied disciplines requires the ongoing study, adaptation, development, and improvement of the theory-in-action. The Refine phase ensures that the relevance and rigor of the theory is continuously attended to and improved on by theorists through further inquiry and application in the real
world. This continuing phase marks a further overlap between the practice and theory components of the theory-building process in applied disciplines. It addresses the theorist’s responsibility of continuous attention to the theory’s trustworthiness and substantive quality (Dubin, 1978; Van de Ven, 1989). The intentional outcome of this phase is thus to ensure that the theory is kept current and relevant, and that it continues to work and have utility in the practical world. It also ensures that when the theory is no longer useful or is found to be “false,” it is shown to be as such and adapted or discarded accordingly.
LIMITATIONS OF THE GENERAL METHOD

Like all multidimensional models presented in a two-dimensional media, the five-phase method of theory building is much less programmatic than Figure 3.1 might suggest. These phases of theory building are not so much linear as they are necessary. The process of theory building can begin with any one of these phases and progress in a much less orderly way than the graphic model might suggest. Where one begins and ends with applied theory building is less relevant than the acknowledgment that all of the five phases presented in the method are necessary to generate a relevant, useful, and trustworthy theory.

Those involved in applied theory building can use this five-phase method as a generic yet informative organizer and guide. They can also use it as a means to compare and contrast supporting strategies and tools as to their contributions to the general method.

THE IMPORTANCE AND CHALLENGES OF THEORY BUILDING

Over the last decade, scholars have increasingly recognized the importance of theory building to the professions (Chalofsky, 1996, 1998; Gradous, 1989; Hansen, 1998; Hatcher, 1999; Lynham, 2000a, 2000b; Marsick, 1990a, 1990b; Mott, 1996, 1998; Passmore, 1990; Shindell, 1999; Swanson, 1997, 1999, 2001, 2007a, 2007b; Swanson et al., 2000; Swanson & Holton, 2001; Torraco, 1997, 1999). These scholars and others suggest that theory building can (1) play an important role in advancing professionalism and maturity in the field, (2) help to dissolve the tension between research and practice, and (3) enable the development of tools for advancing theory and practice.

Theory—and, by association, theory building—acts to improve and protect research and practice in applied disciplines. It does this by providing a means of rigor and relevance for reducing both atheoretical practice (Swanson, 1997) and nonscientific inquiry (Lynham, 2000b). Having recognized the importance of theory building to applied disciplines, it is necessary also to recognize that theory building comes with certain challenges (Hansen, 1998; Klein, Tosi, & Cannella, 1999; Kuhn, 1970). The first of these challenges is handling the pressure that theory building puts on the relationship between the researcher and the practitioner. The second is the need to recognize that the outcomes of theory building in applied disciplines are enriched by building theory from multiple investigative perspectives and tools.
CONCLUSION

This chapter presented an overview of the General Method of Theory Building in Applied Disciplines. Specifically, it presented a framework of five core phases of the applied theory-building process: Conceptualize, Operationalize, Apply, Confirm, and Refine. The following chapters explore the five phases in detail and provide case examples.

A common myth associated with theory is that theory is all good and well, but it seldom can be expected to work in the real world. In an applied discipline, however, theory is good precisely because of its utility in practice. No one underscores the utility of good theory more than Lewin (1945, 1951), who long since coined the notion that there is nothing quite as practical as good theory. This utility-relevance requirement of theory in an applied discipline has been increasingly echoed by scholars of theory building.

Although relevance-utility is seen as a necessary condition of theory in applied disciplines, it is also agreed that good, applied theory must be extended to include the conditions of scholarly rigor and trustworthiness. It is this dual condition of what Marsick (1990) refers to as rigor-relevance that makes theory building useful in reducing the occurrence of atheoretical practice (Swanson, 1997, 2007) and related nonscientific inquiry (Lynham, 2000b).

Another misconception commonly associated with theory building is not only that the task of this scholarly endeavor is primarily the responsibility of the academic researcher, but that the origins of theory come essentially from research. Allaying this concern, Swanson (1997) provides us with clear logic and evidence of the multiple practice/development/research origins of theory and the corresponding researcher-practitioner nature of theory builders.

What does appear to be common to theory building in applied disciplines, regardless of the origins and interest of the theory builders, is the virtuous, systemic nature of the relationship among disciplinary theory, inquiry, and practice. This systemic nature of applied discipline theory building is fundamental to understanding and being able to participate in the process. The method is framed by the five interdependent and interacting phases of theory building: Conceptualize, Operationalize, Confirm, Apply, and Refine. This method is further useful in that it makes explicit the logic-in-use embedded in the methods of theory building. It also helps to address one of the current difficulties of applied discipline theory building: the generally perceived inaccessibility and often academically viewed nature of theory-building methods.
---a common deterrent to the aspiring practitioner-theorist.

Applied discipline theory-building methods are of a dual deductive-inductive nature. Although some methods may begin with deduction, at some point they become informed by induction. With other theory-building methods, the relationship between deduction and induction may be the other way around. Whether starting with theory and then moving to research and/or application, or vice versa, the choice of specific theory-building strategies and tools should be based on the nature of the realm, phenomenon or problem that is the focus of the theory-building endeavor, and not by the theorist’s preferred specific methodology. Multiple methods of theory building can and should be used to develop theory in applied disciplines. Just as each specific method of applied theory building is a way of developing insight, understanding, and possible explanation of the phenomenon, issue, or problem, so it is a way of not doing so (Passmore, 1997).

With integrated, inclusive, and multiple methods perspectives and approaches to building theory in applied disciplines, there is a better chance that the resulting theories will reflect the rigor-relevance characteristic of good, applied theory. In turn, these theories are likely to result in better outcomes and understanding for improved research, practice, and education.
PART TWO

Phases of Theory Building

4 Conceptualize Phase
5 Operationalize Phase
6 Confirm Phase
7 Apply Phase
8 Refine Phase

IF YOU EXAMINE the existing approaches to theory building, you will easily conclude that they are incomplete, inappropriate, or overwhelming. This is because they are based on methodological biases, are couched within specific applied disciplines, or present a level of detail that can only be described as tedious—thus making their utility difficult. All of these conditions add to missing the mark for developing sound theory in applied disciplines.

The foundations of theory building and the method for theory building in applied disciplines have been described in the preceding three chapters of Part One. Now Part Two dives deep into each of the theory-building phases: Conceptualize, Operationalize, Confirm, Apply, and Refine.

A key goal for this book is to present a theory-building method that is complete and that works—including phases, steps, tools, and techniques. The activities, outputs, and quality indicators for each phase are described. Each of the five phases serves as a chapter organizer.

Chapter 4, the “Conceptualize Phase,” covers the material related to new ideas, concepts, and sets of ideas that may become theories. Four documented approaches are summarized as well as a variety of tools the theorist might use. The Conceptualize phase for building theory in applied disciplines is presented as an integrative framework for working through the conceptual demands of theory building. Any theorist, novice or expert, can grab this chapter and use its ideas to initiate a theory-building effort.

Chapter 5, the “Operationalize Phase,” focuses on how sets of concepts get translated to assessment criteria. In other words, this phase demands that the theorist identify measurement criteria for a possible theory and describe how the accuracy and adequacy of the theory will be judged. We discuss the Operationalize phase with the intention of demystifying how operationalization
works. We also clarify how research paradigms other than the scientific method can fulfill the operationalize concept.

Chapter 6, the “Confirm Phase,” deals with investigating theories through research. We use the term inquiry studies to denote that instances of research usually accumulate in the context of theory building, and their collective statements are assembled through judgment. While there are many sources for the conduct of research, several put research in the larger context of theory building. Tips and requirements are structured in this phase of building theory in applied disciplines.

Chapter 7, the “Apply Phase,” ensures the connection of theory to practice. Theories must lead to changes and developments in practice so that it is more effective or efficient. Conversely, practices must lead to changes and developments in theory so that it is more effective or efficient. Few theorists go so far as to describe practical procedures based on their theoretical work. This critical activity in the Apply phase is a key point for advancing applied disciplines.

Chapter 8, the “Refine Phase,” discusses the complex and ongoing nature of theory building. Applied discipline theories are never really totally complete. They must constantly be assessed amid the changing environment of practice. In addition, developments may require the theorist to consider new concepts, alternative ways of operationalizing a theory, other research paradigms, and novel practice. At its essence, the Refine phase may mandate revisiting one or all of the phases of theory building.

Taken as a whole, the five phases of Theory Building in Applied Disciplines ensures that theories come from a comprehensive perspective with a required connection to practice. The method is not based in a particular discipline or research paradigm, and we have worked hard to make the techniques, tools, and frameworks accessible. They should be used. Part Two provides the knowledge you need to start your theory-building work.
CONCEPTUAL DEVELOPMENT is a common starting point for theory building in applied disciplines. Thus, much more has been written about this phase compared to the others. The purpose of this chapter is to describe specific approaches to the Conceptualize phase of theory building in applied disciplines (Figure 4.1). Specifically, this chapter will

- define and describe the Conceptualize phase,
- describe the general inputs to the this phase,
- summarize the pros and cons of four approaches to the Conceptualize phase,
- describe the outputs of the Conceptualize phase, and
- propose a set of quality indicators for Conceptualize phase outcomes.

WHAT IS CONCEPTUAL DEVELOPMENT?

Conceptual development is the specification of the key elements of the theory, an initial explanation of their interdependence, and the general limitations and conditions under which the theoretical framework can be expected to operate. “The output of this phase is an explicit and thought-out conceptual framework that often includes a model or metaphor developed from the theorist’s knowledge of and experience with the realm, issue, or problem” (Lynham, 2002, pp. 231–232).

FIGURE 4.1 Conceptualize Phase of Theory Building in Applied Disciplines
Conceptual development in applied disciplines constitutes the major idea that can become a theory, but it is not by itself a theory. Much of the existing theory-building discussion and literature remains in this realm only. In fact, few scholars move their theoretical ideas into the other essential phases of theory building (Halbesleben, Wheeler, & Buckley, 2004). Furthermore, much of what constitutes popular management, business, and other applied discipline books almost always remain in this state—they do not make measureable, useful, or applicable theory contributions. They get stalled as untested hypotheses. This is why so many people disparagingly say, “That’s just a theory.” In a context like this, scholars are actually proposing untested hypotheses.
CHEESY THEORY

Change in our lives is almost a universal. Surprisingly, Who Moved My Cheese? by Spencer Johnson and Ken Blanchard (1998) is the top-selling business book of all time. This elementary fable lets readers know that the idea and reality of change is upon us, and the bottom line is for individuals to suck it up, go for it, and that they may like it. The problem is that the book in no way is grounded in sound change theory, nor does it advance the theory of change. Added to this insult was the avalanche of corporate leaders requiring underlings to read the 96-page fable with the implicit message that these employees who had been working in bad systems were the ones to absorb the change. Nowhere in the scenario was there mention of leadership responsibility for irrational change that inflicted employee layoffs, questionable restructuring, frenetic mergers, and general chaos. Where’s the cheese?
INPUTS TO CONCEPTUAL DEVELOPMENT

Initiation of conceptual development in applied disciplines comes from (1) practical problems, (2) incomplete existing theories, or (3) new areas of human activity. Any of these three situations signal a need for conceptual development work. For example, nurse practitioners may experience problems in their work that push them to understand and explain what is happening. Or a manager might be confronted with deviations that do not fit existing explanations or theories. New activities that have not been explained can also create a need for conceptual development, such as virtual team behavior. All of these situations require gaining a new understanding.

The careful observer can see that inputs to conceptual development can come from research, theory, and practice. In other words, any of the other phases presented in the General Method of Theory Building in Applied Disciplines can involve situations that push the theorist into the conceptual development phase. Emphasizing, again the integrative and cyclical nature of theory building, we remind you that the theorist can begin anywhere in the model. There are no defined starting and ending points, which increases the complexity and ongoing nature of theory building.
MOTORCYCLE LESSONS

Matthew Crawford, philosopher and motorcycle mechanic, wrote a bestselling book on the inquiry into the value of work called *Shop Class as Soulcraft* (2009). It is a fun starting point to think about theory building in applied disciplines. Crawford has a PhD in philosophy and uses the verbal tools of philosophy to argue that he has had “a greater sense of agency and competence . . . doing manual work, compared to other jobs that were officially recognized as ‘knowledge work.’ Perhaps most surprisingly, I often find manual work more engaging intellectually” (p. 5).

Crawford relies on his work as a motorcycle mechanic to thread the reader through his view of the world. As it stands, it can be classified as an engaging contribution for a philosophical theory of work—not a contribution to an applied discipline of work theory.

Crawford’s book is rich with intellectual argumentation and application examples. While this is a philosophical exposé, the book has great potential to raise important applied questions about work theory. His purpose was not to build an applied theory of work. Yet, a careful reader could go through the pages and extract information to *conceptualize* and *operationalize* an applied theory of work based on the book.
The primary purpose of this chapter is to provide tools for scholars to engage in conceptual development. Four conceptual development methods are presented that align with four different philosophical orientations. They include the quantitative approach in Dubin’s (1978) theory-building process (steps 1–4), the grounded theory approach in Whetten’s (2002) modeling as a theorizing process, the social construction approach in Weick’s (1989) theory building as disciplined imagination, and a case-study approach in Storberg-Walker’s five components (Storberg-Walker & Chermack, 2007). These methods provide complementary ways of completing the conceptual development phase. Some reflect very clear philosophical alignment, while others do not. They can be integrated or used simultaneously by the theorist. The conceptual development phase is less constrictive than some other phases in terms of philosophical orientation. Theorists are free to use a variety of approaches and tools. Use what works and what is helpful in generating a set of linked concepts that describe and explain some domain of human activity.

Quantitative Approach: Dubin’s Theory-Building Method (Steps 1–4)

Dubin’s (1978) methodology involves eight steps, with the first four steps focused on conceptualization. The full eight steps include (1) developing the units of the theory, (2) specifying the laws of interaction describing the relationships among the units, (3) determining the boundaries within which the theory is expected to function, (4) identifying the system states in which the theory is expected to function, (5) specifying the propositions, or truth statements, about how the theory is expected to operate, (6) identifying the empirical indicators used to make the propositions testable, (7) constructing hypotheses used to predict values and relationships among the units, and (8) conducting research to test the predicted values and relationships. The first four conceptual development steps are described as follows:

Step 1—The Units of a Theory. For Dubin, the units of the theory are the building blocks of a theory. Units are the basic concepts that must come together to form a theory. In Dubin’s approach, effort is spent defining units that work together in the functioning theory, and his subprocesses for defining and combining units are also very detailed.
Step 2—Laws of Interaction. Laws of interaction describe the relationships among the different units. Relatedness does not imply causality. For example, when riding in an airplane, you might experience turbulence. Often immediately before the plane shakes, the “fasten safety belt” sign comes on. These two events can be described as related, but the “fasten safety belt” sign turning on does not cause turbulence. At this stage, relationships are the focus; and if causality is suspected, it should be made clear here but tested later.

Step 3—The Boundaries of a Theory. Boundaries describe the limits of the theory and set the context in which the theory is meant to operate. Boundaries are important so as not to overinterpret the intentions and reality of the theory under development.

Step 4—System States. System states describe distinct characteristics of the theory while it is in operation. In other words, system states are descriptions of separate discreet phases or transitions the theory must evolve through in order to operate. For example, human beings have two discreet system states, awake and asleep (Dubin, 1978).

This approach is a very detailed and process-driven approach to conceptual development. Dubin (1978) called the results of conceptual development a “theoretical model.”

Quantitative Approach: Whetten’s Modeling as Theorizing

Whetten (2002) presents a clear method for conceptual development. Steps include (1) identify constructs answer the question—“What?”; (2) understand the relationship(s) between the constructs answer the question—“How?;” (3) identify the assumptions undergirding the relationships answer the question—“Why?” (4) identify the context(s) of the theory answer the questions—“When? Where? Who?.” Each step is described briefly here:

Step 1—“What” as a Construct. Whetten recommended using sticky notes to represent the major pieces of the theory. “The sticky notes can then be rearranged as the introduction of new constructs or as the logic of the theorist evolves.” (Storberg-Walker & Chermack, 2007, p. 510).

Step 2—“How” as a Relationship. Whetten (2002) emphasized the relationships between the constructs being key to moving from ideas to theory. ‘First, be aware that there is no consensus regarding the language of how’ (p. 55). Theories should use a variety of techniques to describe relationships.
‘Second, keep in mind that many of the more detailed and technical discussions of relationship types or forms have a strong methodological orientation’ (p. 55); and third, ‘All organizational scholars need to come to terms with the nettlesome issue of causality in social science research’ (p. 56). Just where does the theorist intend for causality to enter the new conception of the content area, if at all?

**Step 3—“Why” as Conceptual Assumptions.** Conceptual assumptions are the fundamental organizing principles that support the theory (Whetten, 2002). These assumptions frame the logical reasoning behind the choice of constructs and definition of their relationships. For example, Becker’s human capital theory involves the concepts of education and income, among others. According to Whetten, the conceptual assumptions would be required to provide a logical reasoning for including these concepts and to define how they are related to each other.

**Step 4—“When/Where/Who” as Contextual Assumptions.** Contextual assumptions identify the boundaries of the theory (Storberg-Walker & Chermack, 2007, p. 511). Boundaries simply locate the theory in the larger domain by defining the specific area of human system activity (Baron & Kenny, 1986; Hackman & Oldham, 1980). Contextual assumptions can include categories based on industry, culture, and other factors that establish the limits of the theory.

**Qualitative Approach: Weick’s Theorizing as Disciplined Imagination**

“Weick (1989) outlined an approach he believed to be more supportive of theorizing as a process involving imagination, representation, and choice” (Storberg-Walker & Chermack, 2007, p. 506). The concern is “with how to get the theory-building effort started” (Storberg-Walker & Chermack, 2007, p. 506) and allowing theorists room to let the imagination influence the theory-building process. As a result, his approach is not linear. Instead, he provided three tools for the theorist to work with in crafting theories: (1) problem statements, (2) thought trials, and (3) selection criteria.

**Problem Statements.** There is a fundamental difficulty in formulating problem statements for theory development research because “by their very nature the problems imposed on organizational theorists involve so many assumptions and such a mixture of accuracy and inaccuracy that virtually all conjectures and all selection criteria remain plausible and nothing gets rejected.
or highlighted” (Weick, 1989, p. 521).

To solve this problem, working on midrange theories, or theories that are “solutions to problems that contain a limited number of assumptions and considerable accuracy and detail in the problem specification” (Weick, 1989, p. 521), is favored. In other words, grand theories are overly complex in their possible assumptions and selection criteria. Midrange theories require clearer problem statements because they have closer boundaries. “These solutions are less generalizable because they define a more precise domain of action in the world.” (Storberg-Walker & Chermack, 2007, p. 507).

“Without clear and precise problem statements, attempts at theory building are misguided and vague. Two key conclusions can be distilled for theory builders using Weick’s approach: (1) problem statements must be detailed, clear, and precise; and (2) the nature of the problem can be highly practical or theoretical—both are valuable, though the climate of applied disciplines favors application and utility (Swanson, 2007b; Van de Ven, 2002)” (Storberg-Walker & Chermack, 2007, p. 507).

**Thought Trials.** Thought trials are different ways to address problem statements. “For Weick, the key to good theory building is to help the theorist generate diverse sets of possible solutions.” (Storberg-Walker & Chermack, 2007, p. 517). A lack of diverse thinking is thought to be directly related to the strong influence of preference and experience. To produce a better theory, the use of classification systems is recommended. “In organizational literature, these classification systems might include thought trials from varying philosophical perspectives (does a thought trial look different to a positivist or a social constructionist?), varying demographic perspectives (does a thought trial look different to the first-year employee of the organization or someone preparing to retire?), and so forth” (Storberg-Walker & Chermack, 2007, p. 344). The key point for theory builders following Weick’s approach is to stretch their thinking as widely as possible and entertain a diverse set of assumptions and possible solutions.

**Selection Criteria.** Theorists generally evaluate their thinking by posing questions to themselves (Storberg-Walker & Chermack, 2007). “The criterion that lies behind these questions incorporates considerable past experience with related problems. . . . The conjecture is being tested against the theorist’s prior experiences that has been edited down into assumptions” (Weick, 1989, pp. 524–525).

Biases and assumptions are clear issues in selection criteria, and they can
create a bridge from the theorist to a more useful theory if they are carefully and explicitly examined. “Self-conscious manipulation of the selection process is the hallmark of theory construction. . . . The greater the number of diverse criteria applied to a conjecture, the higher the probability that those conjectures which are selected will result in good theory. If criteria are altered each time a conjecture is tested, few conjectures will be rejected and little understanding will cumulate” (Weick, 1989, p. 523). This amounts to making the problem fit the solution.

Highlighting the problem of theorist bias based on past experience is a worthy caution. Theorists should reflect on their ideas as they evolve. Specific solutions will vary in their appeal to a variety of theorists. Therefore, it is useful to be as forthcoming about biases as possible. Conceptualization work is part art, and theorists will do well to document their thinking and development processes as carefully as possible.

**Qualitative Approach—Storberg-Walker’s Five-Component Approach**

Storberg-Walker (2007) articulates an approach to conceptual development that consists of five components. The five components form more of a process for preparing to develop theory than for specifically generating the foundational theory concepts. The five components are (1) examine alternative perspectives and processes, (2) resolve paradigmatic issues, (3) resolve foundational theory issues, (4) resolve preliminary research design issues, and (5) identify and select the appropriate modeling process.

**Examine Alternative Perspectives and Processes.** This component is aimed at clarifying a variety of possible choices on precisely how to approach a theory development effort. Should I follow Dubin or Whetten? Make it up as I go? How could case study and grounded theory approaches be useful? What do I know about the domain of human activity, and what does that suggest? A theorist should examine a variety of approaches to the topic of interest and make a series of choices depending on such factors as purpose, experience, methodological exposure, and access.

**Resolve Paradigm Issues.** It is important to acknowledge the differences in assumptions that underlie varying approaches to theory development.

“Many theory scholars encourage multiparadigm theory-building research and/or multiple thought trials from different perspectives (Bourgeois, 1979; Gioia & Pitre, 1990; Jick, 1979; Pentland, 1999; Poole & Van de Ven, 1989;
Weick, 1989, 1995).” (Storberg-Walker & Chermack, 2007, p. 517). However, experts in theory building do not often provide “explicit details about the cognitive decision-making processes of theory building, or the influences of assumptions and prior experience on those decisions” (Storberg-Walker & Chermack, 2007, p. 517).

Theory builders are advised to reflect on how different paradigms will impact the theory development and realize that choices here will have a strong influence on the output of the theory development effort as a whole.

**Resolve Foundational Theory Issues.** “Theorists are likely to have affinity to certain foundations over others; some theorists may view critical theory as a relevant foundation, while others may view human capital theory as more relevant” (Storberg-Walker & Chermack, 2007, p. 518). Strategies for working with alternative theories are recommended: (1) accept the paradox and use it constructively, (2) clarify misaligned propositions and define the connections among them, (3) require a time element, and (4) create an entirely new approach (Poole & Van de Ven, 1989, pp. 573–574).

**Resolve Preliminary Research Design Issues.** Theorists must think ahead to the eventual research design—even in the preliminary stages of identifying constructs. “In the long run, the best theory is only as good as its evidence” (Poole et al., 2000, p. 5). Theory builders should consider the best fits in terms of research design strategies that will eventually be required.

**Select the Appropriate Modeling Process.** The goal of conceptual development is to put forth a representation of the theory under construction. Whetten’s (2002) modeling-as-theorizing approach provides a clear process for achieving such a visual representation. “The graphical mapping process can be started at any time during the conceptual development phase . . . [and] does not have to come at the end of the process” (Storberg-Walker & Chermack, 2007, p. 518). Mind mapping, software-driven modeling, and other processes exist to help the theorist create a model, and each has advantages and disadvantages that are beyond our purposes here. The ultimate goal is to choose the modeling approach that is most beneficial to representing the proposed model.

The four conceptual development methods discussed have complementary elements and conflicting elements. Their pros and cons are summarized in Figure 4.2.
SPECIFIC THEORIZING TOOLS

Twenty-six tools for generating ideas and getting the theory-building effort started have been identified (Jaccard & Jacoby, 2009). Of course, most of these tools make an assumption that the theorist is starting from scratch. The twenty-six tools are listed in Figure 4.3 along with the purpose and utility of each. Most of the tools are self-explanatory, but for further detail, see Jaccard and Jacoby (2009).

### Figure 4.2 Four Processes for Conceptual Development

<table>
<thead>
<tr>
<th>Features</th>
<th>Dubin</th>
<th>Weick</th>
<th>Whetten</th>
<th>Storberg-Walker</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>When?</td>
<td>Resolve research design issues.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Where?</td>
<td>Identify appropriate modeling process.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Who?</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Pros</th>
<th>Detailed; clear; process-driven; step-by-step</th>
<th>Flexible; intuition-driven</th>
<th>Accessible; process-driven; simple</th>
<th>General, categorical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cons</td>
<td>Inflexible; extreme detail; complex</td>
<td>Vague; ill-defined</td>
<td>Lacks detail</td>
<td>Paradigm-based; vague; and difficult to apply</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Philosophical Orientation Tendency</strong></td>
<td>Quantitative</td>
<td>Social construction</td>
<td>Grounded theory</td>
<td>Case study/ multi-paradigm</td>
</tr>
</tbody>
</table>

These tools are obviously useful in provoking ideas and deciding on a starting direction for theorizing. Most theorists have something in mind, or use some of the tools without making it explicit.

**Summary of Existing Conceptual Development Methods**

This chapter thus far has briefly presented four conceptual development methods and twenty-six tools for starting the theory-building process. Little has been written about how to integrate various approaches to conceptual development work. A core purpose of this book is to bring disparate views and approaches together in building a general method for theory building in applied
disciplines. The next section describes a framework that integrates a variety of processes, tools, and approaches for working through the Conceptualize phase.

**FIGURE 4.3 Tools for Starting a Theory-Building Project**

<table>
<thead>
<tr>
<th>No.</th>
<th>Tool</th>
<th>Purpose and Utility</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Analyze your own experiences.</td>
<td>Examine anomalies or particularly interesting cases for theory opportunities.</td>
</tr>
<tr>
<td>2</td>
<td>Use case studies.</td>
<td>Examine cases for theory opportunities.</td>
</tr>
<tr>
<td>3</td>
<td>Collect practitioners' rules of thumb.</td>
<td>Practitioners often carry unarticulated theories in their heads. They can have extensive experience and knowledge of a topic but have not formally documented it—a good partnership opportunity.</td>
</tr>
<tr>
<td>4</td>
<td>Use role playing.</td>
<td>Attempt to change your perspective and assumptions about the problem.</td>
</tr>
<tr>
<td>5</td>
<td>Conduct a thought experiment.</td>
<td>Change the variables and consider an existing research study if done differently.</td>
</tr>
<tr>
<td>6</td>
<td>Engage in participant observation.</td>
<td>Attempt to see participant views and perceptions that may differ from your own.</td>
</tr>
<tr>
<td>7</td>
<td>Analyze paradoxical incidents.</td>
<td>Paradoxes almost always reconcile somewhere between extremes—consider the middle ground.</td>
</tr>
<tr>
<td>8</td>
<td>Engage in imaging.</td>
<td>Visually depicting a problem may raise new questions or opportunities for inquiry.</td>
</tr>
<tr>
<td>9</td>
<td>Use analogies and metaphors.</td>
<td>Similar to paradox and imaging, the goal is to see the problem differently than you currently do—change your assumptions and perceptions.</td>
</tr>
<tr>
<td>10</td>
<td>Reframe the problem</td>
<td>Similar to paradox and imaging, the goal is to see the problem</td>
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<td>---</td>
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</tr>
<tr>
<td>11</td>
<td>Apply deviant case analysis.</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Change the scale.</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Focus on process or focus on variables.</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Consider abstractions or specific instances.</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Make the opposite assumption.</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Apply the continual why and what.</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Consult your grandmother and prove her wrong.</td>
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<tbody>
<tr>
<td></td>
<td>Deviant case analysis simply explores the cases that do not fit expectations. There are often opportunities to extend and improve knowledge in unique cases.</td>
</tr>
<tr>
<td></td>
<td>Many social science constructs are measurable via different scales. Using alternative measures for the same construct can yield different results. Consider other measures.</td>
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<td></td>
<td>Processes describe how things work, while variables are the concepts or “things” involved. In an area heavy on process research, considering variables can be useful and vice versa.</td>
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<td></td>
<td>Do you want to study general relationships or specific ones? Different methods may be required.</td>
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<td></td>
<td>Similar to paradox and imaging, the goal is to see the problem differently than you currently do—change your assumptions and perceptions.</td>
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<td></td>
<td>Using systems analysis gets down to assumptions levels rather than simply working on observed events. Each yields a different kind of research project.</td>
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<tr>
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<td>Ask someone completely outside your discipline their thoughts on a problem or issue. Outside perspectives can drive new research directions.</td>
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THE CONCEPTUALIZE PHASE OF THEORY BUILDING

This section presents the Conceptualize phase of theory building in applied disciplines being advocated in this book. The approach is general enough to accommodate different philosophical orientations and include a variety of tools, and it is built on a process that makes it useful and applicable. The core steps in the Conceptualize phase are (1) identify the concepts, (2) organize the concepts, and (3) define the boundaries. Conceptual development is not necessarily a linear process, and theorists jump around among the steps. Theorists will almost always use a variety of the tools and approaches already described in this chapter. For example, a theorist might be confident in identifying the concepts in step 1, but when moving to organizing the concepts in step 2, she or he may realize that an important concept is missing—back to step 1. Rigorous and effective theory building requires multiple rounds of each step.

Step 1—Define the Concepts

The first step in the Conceptualize phase is to identify and define the concepts
involved in the theory-building effort. These are the smaller components that will make up the theory in some domain of human activity. Major concepts are generally identified through a combination of experience, written experiences of experts, research publications, and practical problems. A thorough knowledge of the current status is required to identify a comprehensive group of concepts. A theorist may bounce back and forth between reading the literature of what is known and building concepts multiple times before setting on a final group and moving forward.
CONCEPTUAL LIMITS

Imagine you want a new house. You see pictures and drawings of your dream house, you pay for that house and get ready to move in, and all you end up with are the pictures and the drawings! What an incredible shock. So it is with theory building: the conceptualization is just that—images, not yet the real thing. Unfortunately, the bulk of the “theory” in applied disciplines does not go beyond the attractive conceptualizations, and eager advocates quickly start selling it as complete. This in no way diminishes the importance of conceptualization; it is just that much more is needed in order to have a sound theory. For example, the bestselling book *In Search of Excellence* (Peters & Waterman, 1984) was based on looking closely at successful companies to determine what they were doing to be successful. This important input to conceptualization could have been the basis for building a sound theory of company excellence. Instead, the conceptualization—incomplete theory—was turned into a bestselling book, and the majority of companies that were deemed successful were shortly found to be unsuccessful. The only sure winners were Tom Peters and Bob Waterman, the book authors. The big losers were most likely the companies that tried the ideas in the book and ended up worse off than before they started.

Writing on problem statements as thought trials and selection criteria is useful in this step of theory building. Many of the twenty-six tools noted earlier, such as analyzing your own experiences and collecting practitioners’ rules of thumb, are good starting points. Gathering up the building blocks and the important ideas that are relevant to the theory is the first step in any theory-building effort.

**Step 2—Organize the Concepts**

Once the concepts have been identified, they must be organized. This means identifying and describing the *relationships* among the concepts. Here are some key questions to ask: Is there a time element involved? Does one concept occur before or after another? How do the concepts influence each other? Are the relationships known, predictable, and linear? Dubin wrote a very detailed and specific discussion of ways in which concepts can relate to each other that comprise a useful tool in this step—he called them “laws of interaction.”
Drawing from Whetten, using sticky notes to arrange concepts in a systems diagram is also a very helpful approach. Experiment with a variety of tools and use what works. When relationships among the concepts become clear, a model begins to emerge.

One of the delicate things about theory building is that as the theorist continues to learn and ideas evolve and change, so does conceptual development work. It is appropriate to revisit how the concepts are related again and again. Eventually, theorists will settle on understandings or models that feel “right” or at least “right enough to move forward” and let the subsequent steps and phases determine the accuracy of the theorizing.
HOW ORGANIZATIONS WORK

The Enterprise Model (Figure 4.4) was created to graphically portray how organizations work (Brache, 2002, p. 5).

This detailed graphic model provides a summary of the larger excellent description put forth by the author. The author’s logic and experience in presenting and explaining the enterprise model is mandatory and assists in moving the theory-building process ahead on this conceptualization. Obviously, you could create your own enterprise model without explaining its basis. And, you could begin “selling” your more shallow conceptualization, rather than continuing the theory-building effort on how organizations work.

FIGURE 4.4 The Enterprise Model

Source: Brache (2002); used with permission by Kepner-Tregoe.

Step 3—Define the Boundaries

The third step in the Conceptualize phase of theory building is to define the domain in which the proposed explanation is expected to apply. For example, approaches to team building in the United States may not be transferrable to Korea because of cultural differences. Planning practices in large corporations may be different from those in small companies. Boundaries locate the theory in the social world and require an understanding of factors that prevent or limit the
utility of the theory in other places. The term *boundaries* seems most useful here and mirrors Dubin’s work. Boundaries do just that—they bound the theory to a particular context. The boundaries can be far and wide, or close and confined. The theorist had great freedom in setting the boundaries of the theory.

There is also a clear link between boundaries and the types of theories presented in Chapter 2. For example, the wider the boundaries are set, the more the theory will approach a grand theory. Bring them in closer and you have a midrange or local theory. Again, like the zoom lens on a camera, boundaries are critical to fleshing out details in the final “scene” of the theory.
BOUNDARIES OF PERFORMANCE IMPROVEMENT

In the realm of talking about organizations, people, and productivity, there are quite varied views about the boundaries of performance improvement. One is the psychological/educational view that focuses on the individual performer. Another is the economic/business view hinged on the financials. Systems/engineering, in contrast, targets process efficiency. Each of these has its own boundaries. When all three are put together, the boundaries expand, casting a wider net and more closely approaching a grand theory of performance improvement.
OUTPUTS OF THE CONCEPTUALIZE PHASE

Most scholars agree that the output of the Conceptualize phase is a model or set of linked concepts that explains a domain human activity. The model is almost always a visual representation of the proposed explanation. This is why systems mapping is highly useful in conceptual development. More specifically, when the conceptual development phase is complete, the theorist should be confident that a comprehensive set of concepts have been identified, their relationships have been described and clarified, and the boundaries of the emerging model have been set. Its accuracy is yet to be examined and creates the need for the subsequent phases of theory building.
SUMMARY OF THE STEPS

The Conceptualize phase of theory building in applied disciplines is challenging intellectual work. Motivation for starting conceptual development activity can come from a variety of places, including personal experiences, talking with practitioners, and existing research. Once established, the Conceptualize phase requires identifying the concepts, organizing them, and specifying the boundaries of the emerging model or set of organized ideas (see Figure 4.5).

FIGURE 4.5 Steps in the Conceptualize Phase of Theory Building in Applied Disciplines

QUALITY INDICATORS FOR THE CONCEPTUALIZE PHASE

Dubin (1978) provided a clear set of quality indicators, summarized here, for each substep of the Conceptualize phase. His criteria and indicators were precise and well described. No other authors have defined quality indicators for substeps within various approaches to theory development.

Criteria for Assessing the Defined Concepts

Dubin’s criteria for assessing the concepts selected for building a given theory are (1) rigor and exactness, (2) parsimony, and (3) logical consistency. Each of
these criteria is described in further detail.

**Rigor and Exactness.** The rigor and exactness of the concepts of a theory refer to the kinds of concepts selected. Concepts that have variance are judged to be more exact than concepts that are simply present or not present. For example, a theory involving happiness would potentially be highly exact, because the concept of happiness varies considerably—a person could be mildly happy, content, very happy, or laughing out loud.

**Parsimony.** Parsimony in theory building refers to the fact that a minimum number of units is used to build the theory. Parsimony can be assessed by looking at the concepts involved and considering their removal one by one. If removing a concept does not change the model, it can stay removed and parsimony is increased.

**Logical Consistency.** The choice of concepts has immediate implications for the eventual testing or confirmation of the theory. The choice of units must have some logical basis in other theories, research, literature, or practice.

**Criteria for Assessing the Organization of Concepts**

According to Dubin (1978), parsimony is the single criteria for assessing the relationships among the concepts. Parsimony is established by utilizing the minimum number of proposed relationships to connect all of the concepts in the theory. While there is no fast rule for determining the appropriate number of relationships for any given theory, the same approach as with concepts can be used. Removing proposed relationships one by one and thinking through the implications for the theory can indicate where unnecessary hypothesized relationships might be.

**Criteria for Assessing the Boundaries**

Generalization and empirical testing are the two core criteria for assessing the boundaries of a theory (Dubin, 1978).

**Generalization.** The extent to which the theory will be generalizable depends on the size of the domain in which the theory is expected to operate (Dubin, 1978). A theory is made more generalizable by removing one or more boundary-determining criteria and expanding the boundaries to a wider domain.

**Empirical Testing.** An empirical test of the boundaries of a theory can
produce three consequences: (1) the logically derived theoretical domain is confirmed as the empirical domain, (2) the empirical domain is greater than the logical theoretical domain, and (3) the theoretical domain is greater than the empirical domain (Dubin, 1978). In any case in which the two domains do not match, the boundary-determining criteria must be revisited and altered until a match is achieved.

**Summary of Quality Indicators for the Conceptualize Phase**

Dubin provided a very clear set of criteria for assessing progress in the early stages of theory building. His criteria are the only existing set of indicators specific to conceptual development work, and they are logical. Theorists can apply these criteria to conceptual development work on a new theory or on existing theories for improving them.
CONCLUSION

This chapter has examined the Conceptualize phase of the five-phase methodology for theory building in applied disciplines (see Figure 4.1). First, existing processes for conceptual development were presented in detail. These processes were compared with an eye toward practical tools for both theory-building novices and experts. A variety of other useful strategies for conceptual development were also introduced. The Conceptualize phase was defined with its three core steps: (1) define the concepts, (2) organize the concepts, and (3) define the boundaries that were advanced. These three steps can be used in revisiting existing theories or building theories from scratch. Finally, quality indicators for each of the three steps were described and clarified for practical use.
TO OPERATIONALIZE A THEORY, the theory must be expressed in terms of its functional use for the purpose of acceptance or rejection. The Operationalize phase becomes a logical bridge between the Conceptualize and Confirm phases, but it also interplays with the Apply and Refine phases (Figure 5.1). The purpose of this chapter is to describe specific approaches to operationalization that serve as an instructive guide. This chapter will

- define the Operationalize phase,
- describe the general inputs to this phase,
- provide a practical summary of Operationalize phase activity,
- describe the outputs of the Operationalize phase, and
- propose a set of quality indicators for Operationalize phase effort.

WHAT IS OPERATIONALIZATION?

An applied discipline theory needs to be confirmed or tested in its real-world context so as to establish its utility (Lynham, 2002a). The explanation that the new theorizing creates must be examined and assessed in the world in which it occurs. To confirm a theory, the ideas and relationships must be converted to observable and confirmable components or elements (Lynham, 2002a). Operationalizing theories commonly results in hypotheses, empirical indicators and other claims (Cohen, 1989), which are investigated in the confirm phase. Ultimately, operationalizing requires that the theorist develop strategies for judging the accuracy and fit of the new theory in the world in which it is expected to function.

FIGURE 5.1 Operationalize Phase of Theory Building in Applied Disciplines
The Operationalize phase requires connecting the theoretical framework and the world of practice. The ideas of being translated, or converted, to observable components/elements and to be confirmed in the world describe the core task of operationalization and its connection to later phases in theory building, especially the Confirm phase.

To operationalize, therefore, refers to how the concepts or units involved in a theory and the associated relationships are going to be confirmed or measured. The idea of operationalization developed from the work of Bridgman (1922, 1927) and Bentley (1954), who argued that concepts must be made measureable in order to make statements about their accuracy.

In the social sciences, the concept of operationalization usually becomes part of the assessment method and is clearly evident in psychometric evaluation. For example, investigators may wish to measure happiness. But a given participant’s degree of happiness is intangible and cannot be directly measured. So investigators might operationalize the concept to include tone of voice, facial expressions, gestures, and word choice, among other indicators. However, alternative philosophical orientations require tools other than the scientific method to establish how a proposed explanation will be confirmed empirically.

Scales, instruments, and inventories are forms of operationalization and are clearly identified in excellent research reports. Some strands of qualitative inquiry also make use of the operationalization concept by stating how research results can be assessed. This is why some qualitative approaches employ hypotheses. Other forms of qualitative inquiry, such as phenomenology,
generally do not make use of measurement and specifically avoid stating measurement criteria. However, some authors have attempted to use measurement principles even in phenomenological research, though these efforts are rare. For example, one study of hypnosis used a self-report instrument, the Phenomenology of Consciousness Inventory, to quantify the experience of hypnosis (Venkateash, Raju, Shivani, Tompkins, & Meti, 1997).
INPUTS TO THE OPERATIONALIZE PHASE

The outputs from the Conceptualize phase can be direct inputs to the Operationalize phase. That is, a carefully constructed model, system, or set of linked concepts is the basis for operationalization. Plain and simple, a theorist must have a working set of ideas that explain human and system behavior to engage in translating or converting them into confirmable measures. It is also reasonable for theory investigators to speculate about operationalization components as they get clarified through the various phases. This may sound a bit sloppy, but the human mind and the reality of implementation opportunities can have the theory-building phases functioning simultaneously or in various sequences. Keeping careful documentation is essential for responsible reporting.

Several of our theory-building projects have spread over many years. One of the efforts focused on performance improvement in business, industry, and organizational contexts. The core model for a theory of performance improvement included the requirement to call upon and fuse contributions from psychological, economic, and system theories into a holistic model and theory of performance for organizations and human-made systems. It is graphically portrayed as a three-legged stool. It was a deep discussion with a graduate student about unethical operational business dealings and his desire to add a fourth “ethics” leg to the conceptualization that led to a revision. Having grown up in a business family with impeccable honesty and ethics, we had built-in blinders about ethics at the conceptualization phase. The void of operational links related to ethics in the performance became a shock once it was revealed. The operational review resulted in the addition of an ethical “rug” for the conceptual performance stool to stand on (Figure 5.2). It is interesting to note that the subsequent massive ethical failures on the part of Wall Street could have been predicted, and in some cases squelched, if the revised performance theory had been applied.

FIGURE 5.2 Theoretical Foundations of Performance Improvement
Theoretical Foundations of Performance Improvement

There are distinct approaches to theory operationalization, and three core approaches are presented here to illustrate variation. Aligning with key research strategies that were first noted in Chapter 2, these approaches are (1) the quantitative approach, (2) the qualitative approach and, (3) the mixed methods approach.

An important point when it comes to operationalization is that the approaches are more discreet. It can be difficult to combine operationalization strategies into a mixed methods approach when considering their philosophical assumptions. The key is to fall back and continuously revisit the purpose and intended outcome of the theory-building effort. Is the theory intended to explain a phenomenon and how it works? Is the theory going after anomalies to already established theories, or is it an entirely new effort at describing novel phenomenon?

Another driver here is the type of theory. Grand theories by definition will have far and wide boundaries. Generalizability is desirable for these theories, and a quantitative approach may be best suited to the task. Local theories have a much smaller domain of application, and the purpose is not prediction or generalization. In such cases the theorist may only need to establish propositions. Midrange theories will be a philosophical no man’s land, in which the purpose of the theory-building effort is even more important. In midrange theory building, the theorist must clarify and describe how potentially competing assumptions were resolved. For example, case studies and grounded theory studies may work best when both quantitative and qualitative approaches are used. Remember, grounded theory uses data to generate propositions and does not actually require that they be formally tested. The General Method of Theory Building in Applied Disciplines being presented here does require formal confirmation. Again, decisions here must be connected to the initial purpose for building the theory and its intended use, with an ultimate goal of assessing its fit with the real world. In summary, we have found two critical drivers of theory-building processes: (1) the purpose of the theory building and (2) the boundary of the theory.
ARTIFICIAL FLOWERS

Suppose we were to operationalize the effects of sending flowers to recovering patients with a goal of increasing health. The core question is how we would measure the proposed increasing health of patients. This could be operationalized into a number of variables such as shorter hospital stays (as measured by number of days spent in the hospital), heart rates and blood pressure (as measured by beats per minute and diastolic and systolic pressures), and increased morale (as measured by a series of questions asking about attitude, outlook, and emotions). One of these is not like the others.

The measurement of morale has a different set of indicators from hospital stays, heart rates, and blood pressure. Time, quantity, and quality are three appropriate measures when thinking about operationalization. While quality measures such as reports of morale do not necessarily fit into quantifiable boxes, a theorist would still have expectations for what patients might report. Increases or improvements in attitudes, outlook, and emotion can be described. For operationalization, the challenge would be to describe what those increases or improvements might include and how we would know if expectations were not met—and would artificial flowers have the same effects?

(Example based on Weinir, 2011)

Quantitative Approach

The quantitative approach to operationalization will be familiar to many. Probably the most common approach to operationalizing theories involves the use of propositions, empirical indicators, and hypotheses. Because of its adherence to the traditional quantitative assumptions and strategies, Dubin’s (1978) steps 5, 6, and 7 are presented as a comprehensive example of the quantitative approach to operationalizing theories.

The outcomes of the Operationalize phase are “confirmable propositions, hypotheses, empirical indicators, and knowledge claims” (Lynham, 2002a, p. 232). The quantitative view of operationalizing theories specifically includes propositions, empirical indicators, and hypotheses as the remaining steps in Dubin’s theory-building process.

Propositions. Propositions introduce the idea of prediction into the theory
building equation. “A proposition may be defined as a truth statement about a [theory] when the [theory] is fully specified in its units, laws of interaction, boundary, and system states” (Dubin, 1978, p. 160). For our purposes, Dubin’s contribution can be summarized and adjusted slightly to say that a proposition is a truth statement about the theory when the concepts have been defined, organized, and bounded—essentially the natural consequence to what the conceptual development phase would produce.

The term **logical consequence** is a good substitute for the term **truth statement** (Dubin, 1978). The important point in specifying propositions is to continue the clear logical path set up by the theory builder from the start. Thus, the use of the term **logical consequence, truth statement, or proposition** is simply to establish the consistency of the theory builder’s logic.

“Quite simply, the use of the [theory] is to generate predictions or to make truth statements about the [theory] in operation” (Dubin, 1978, p. 163). As a result, propositions are prediction statements because they state what will be true having completed the work of the conceptual development phase.

**Empirical Indicators.** An empirical indicator is “an operation employed by a researcher to secure measurements of values on a unit” (Dubin, 1978, p. 182). Empirical indicators are measurements using some kind of instrument. Operationism, drawing on the work of Bridgman (1922, 1927) and Bentley (1954), highlights the focus on setting up empirical tests for the propositions. For Dubin, operationism referred specifically to the empirical testing of propositions.

Empirical indicators must produce reliable results or, more specifically, values that do not differ from observer to observer. The phrase “as measured by” (such as “the value of unit A as measured by . . .”) is commonly used to describe the empirical indicator used in subsequent research.

There are two types of empirical indicators, absolute and relative. Absolute indicators are “absolute in the sense that there can be no question as to what they measure” (Dubin, 1978, p. 193). Race and gender are examples of absolute indicators. Relative indicators are indicators that “may be employed as empirical indicators of several different theoretical concepts” (Dubin, 1978, p. 195). Relative indicators are often concepts that can be described in relative degrees, such as happiness, satisfaction, or level of difficulty.

**Hypotheses.** Hypotheses are “the predictions about values of units of a theory in which empirical indicators are employed for the named units in each proposition” (Dubin1978, p. 206). Hypotheses establish the link between the
empirical world and the theory that has been under construction. Researchers often state hypotheses without supplying the scientific path to that hypothesis, which sometimes gives the impression that hypotheses are constructed on an ad hoc basis. Ideally, hypotheses should not be ad hoc at all; rather, they are “predictions of the values on units that are derivable from a proposition about a theoretical model” (p. 206).

Each proposition has the possibility of being converted into many hypotheses. “The general rule is that a new hypothesis is established each time a different empirical indicator is employed” (Dubin, 1978, p. 209). As the number of propositions increases, so does the number of possible hypotheses. Ultimately, the question of number of hypotheses is a question of research preferences and energy posed to a discipline and its researchers.

**Qualitative Approach**

Qualitative approaches to operationalizing theories demand alternatives to hypothesis testing. Generalizability is not always the goal of theorizing. Many qualitative researchers substitute the term *transferability* for *generalizability*. While generalizability is a characteristic of the theory itself, transferability refers to the consumer’s ability to use and “transfer” portions of the theorizing to his or her context and situation. A broad approach to operationalizing theories is therefore useful in qualitative methods in theory building. Such methods can include grounded theory, social construction, phenomenology, and some case studies, among others. While we have simplified this discussion by categorizing all of these in the qualitative domain, it is important to note that each specific method may have distinct theoretical assumptions.
SHOW ME YOUR SYMPTOMS

The Theory of Symptom Management arranges the major concepts—person, symptom experience, symptom management strategies, and symptom status outcomes—in an interrelated, integrated system (Humphreys et al., 2008). The operationalized theory describes how the parts are related and suggests strategies for using the theory in nursing practice. From a theory phase attainment standpoint, the authors describe that the confirmation of the theory is still in process and that the symptom experience component is the most frequently studied part of the theory.

Recent studies have operationalized this component of the theory into “self-perceptions of causation of depression” (Heilemann, Coffey-Love, & Frutos, 2004, p. 25), battered women’s symptom experiences (Humphreys, 2003), and the impact of sleep on symptom experiences (Humphreys & Lee, 2005). In these cases, the key was to operationalize the theory into measurable outcomes. In the study on depression, the research was self-perceptions and the paradigm was qualitative. Thus, descriptions of patient experiences were examined for common themes. In the study of battered women, the instances of partner abuse were counted; and in the study on sleep, patients recorded the number of hours slept each night over a period of time. These examples show that a subcomponent of a theory can be operationalized and studied in different and complementary ways. All three of these studies showed evidence that confirms the symptom experience component of the Theory of Symptom Management.

Falsifiability is presented as the core alternative to traditional hypothesis testing and can suit qualitative approaches to theory building. Early criticisms of postpositivism resulted in the notion of falsifiability (Popper, 1972). Falsifiability refers to the possibility that a given hypothesis or theory could be shown as inaccurate. The classic example used to illustrate falsifiability is the statement that “all swans are white.” This statement is falsifiable because it is possible that a nonwhite swan could be found. The essence of falsifiability is to search for cases in which the theory does not operate as expected—the black swan. So falsifiability is unique because instead of looking for empirical evidence to confirm the adequacy of a theory, it looks to show its inadequacy. Statements must be falsifiable in order to be testable. Take, for example, the
statement “that flower is beautiful”—it is not a falsifiable statement because it is impossible to assess technically.

Popper (1933) explored two kinds of statements that are useful in considering knowledge with regard to falsifiability: observational and categorical. Observational statements simply report the existence of things (e.g., there is a black cat). Categorical statements aim to categorize all instances of a thing (e.g., all cats are black). Few observations are required in the case of cats to conclude that not all cats are black.

In complex organizations and human activity, observational research can be difficult to set up, control, analyze, and replicate. Team building is a good example. Tuckman (1965) theorized that all teams must form, storm, norm, and perform. The traditional approach would be to investigate these phases in numerous teams, collecting evidence that supports a hypothesis with a goal of showing that all teams transition through these phases. The falsifiability approach would seek cases of teams that do not show evidence of all four phases and investigate why. Any instance in which a team did not show evidence of all four phases would be enough to disprove Tuckman’s theorizing. Philosophers of science continue to debate how and under what circumstances it is appropriate to move from observational to categorical statements. Pragmatic logic, versus arcane philosophical angst, should rule the decisions.

The job of the theorist when using a falsifiability approach to operationalization is to describe how it will be clear that an instance of human activity does not meet its expected outcomes. An elegant summary of falsifiability is in a quote attributed to Einstein: “No amount of experimentation can ever prove me right and a single experiment can prove me wrong” (Calaprice, 2005). The utility of falsifiability is then in its opposite approach to using data for support of hypotheses. Falsifiability can, but is not required to, develop propositions and empirical indicators—stopping short of hypotheses, in some cases. Again, the natural outcomes and indicators of how it can be known that the theory fits or does not fit the events are sought.

Falsifiability emerged in part as a reaction to the scientific method and attempted to identify its limitations. The greatest utility of falsifiability as an approach to operationalization is in local theories that may not include hypotheses at all. For example, in the social construction orientation, theories are intended to describe, so hypotheses may or may not be used. In the case they are not, falsifiability gives the theorist a way to indicate how the adequacy of the description is to be judged. Using falsifiability as an operationalization strategy gives the theorist more freedom to describe criteria for assessing the theory’s
accuracy than the stepped approach described earlier. Falsifiability is more appropriate for local theories and cases in which the theorist does not seek to generalize findings to other domains. However, it is also vague—the details of “how” is missing, and theorists are free to develop falsifiability criteria as they wish. We have positioned falsifiability as a qualitative approach as the decision to reject a theory because it has been falsified requires a judgment based on values. The value-laden-ness of the judgment makes falsifiability a qualitative approach.

**Mixed Methods Approaches**

Most often, mixed methods include case study and grounded theory approaches to theory building. These approaches use a variety of methods to address the theory and research purposes defined from the start. Grounded theory and case study theory-building projects are almost always midrange theories. In other words, mixed methods approaches to theory building are often intended to produce theories that are generalizable to similar contexts and situations.

Some theorists have argued that mixed methods pose philosophical challenges—specifically, that it is difficult or impossible to hold opposing assumptions about the nature of reality at the same time (Swanson & Holton, 2005). While reconciling the complexities of mixed methods theory building is difficult, the results are often among the most useful in applied disciplines (Gioia & Pitre, 1990). Grounded and case study theory building have high utility in organizational research because they live in the domain of midrange theories. They are not intended to predict or produce universal laws. And they go beyond single instances of human activity. Brief descriptions of grounded and case study theory-building frameworks are presented as a basic structure for these kinds of projects.

**Grounded Theory.** The general steps of grounded theory building include (1) initiate research, (2) select data, (3) initiate data collection, (4) analyze data, and (5) conclude the research (Egan, 2002). On the surface, this process is quite linear. Yet, a core feature of grounded theory is that all things are integrated at all times in the search of patterns—always integrating and always in motion (Glaser, 1992). For sure, once a realm or domain is brought into focus, the act of operationalizing actually gets carried out by analyzing the data obtained from observation. The ongoing data collection observations are the basis for analysis and theory generation. It is when the saturation of data is such that the theorist
moves on to fully document the final theory, including operationalization and the other four phases of conceptualization, confirmation, application, and refinement.

**Case Studies.** The general elements of the case study approach to theory building are to (1) determine the research questions, (2) select the case(s) and data-gathering and analysis techniques, (3) prepare to collect data, (4) collect data, (5) analyze and evaluate the data, and (6) develop a report (Dooley, 2002). With these generic elements, it is easy to see that the case study approach can accommodate any or multiple specific techniques within its framework.

Case study approaches are wide ranging (Eisenhardt, 1989). The concepts of a case, case study, and case study research are different and often inappropriately used interchangeably (Herling, Weinberger, & Harris, 2000). One major role of cases is to describe the “how” questions. Case study research studies can certainly contribute to the Conceptualize phase of theory building (Eisenhardt, 1989).

Case studies, and the narrative around the cases, can also be very useful in the Operationalize phase. Operationalizing a theory framework by translating or converting it to observable, confirmable components/elements can be aided by *detailed* case study reports. This goes beyond the higher-level conceptualization. A narrow single-case exploration (not a case study or case study research) could be pursued to clarify propositions.

We work with individuals who are both experts and neophytes in specific realms. Several years ago, one true neophyte we worked with was interested in learning how to synthesize information on a single topic that was coming from various print sources.

Having previously interviewed a diverse group of experts as to their data collection and synthesis strategies, we created a methodology for doing this knowledge work. Groups of moderately experienced subjects followed the new methodology and found it helpful in improving their synthesis of complex information. The new methodology was then tried out by a pure neophyte who agreed to self-report on her effort—no matter how embarrassing. The earlier multiple-expert investigation resulted in recommended note taking for each document to use in wading through the synthesis task. In this single case, the neophyte collected her documents, took her notes, and found herself completely stalled when it came to
synthesis. The in-depth interview with the neophyte revealed that the print documents, all written by experts, contain varied technical terminology and jargon. While an expert in a field has a superordinate language to decode these documents, the neophyte had none. Thus, based on this single informative case, the methodology was altered. At the individual document analysis step, the synthesizer was to put their individual documents notes in their own words only—no quotes. With the notes for each document in the neophyte’s own language—a common language across all documents—she and other neophytes were able to intelligently synthesize the knowledge being reported in disparate documents.

THE OPERATIONALIZE PHASE OF THEORY BUILDING

This section presents the integrative Operationalize phase of theory building in applied disciplines. Again, the approach provides a framework within which to use a variety of other tools. The major steps of this phase are to (1) describe the propositions of the theory, (2) describe the results indicators of the theory, and (3) develop the research questions of the theory.

Step 1—Describe the Propositions

For any theory, propositions must be described. The purpose of propositions is simply to extend the theory into the real world by creating statements of its natural outcomes. The propositions identify the expected outcomes, given the construction of the set of concepts. Truth statements, logical consequences, and natural outcomes are all terms that imply the same idea at heart, which is to bring the theory into empirical reality. Propositions are completely appropriate for grounded, case, and social construction orientations toward theory building. Propositions commonly take the form of “if . . . then” statements to connect the set of linked concepts to an outcome. A variety of sample propositions follow:

• If gravity is truly a natural law, then every time an object is released from the air, it will move toward the ground.
• If we increase managers’ pay, then their productivity will increase.
• If employees receive increased structured learning opportunities, then their engagement in the organization will increase.

Propositions can follow the logic of the theorist from the conceptualize phase into the real world by describing the perception and behavior changes that would
be required to indicate the theory is working. A useful way to start describing propositions is to take each concept involved in the theory and describe how it changes if the theory logic is accurate. Propositions can also arise from the other phases, which, though connected, do not follow a linear path.

Step 2—Describe the Results Indicators

Results indicators extend propositions by adding the measurement piece. In other words, results indicators introduce the measurement instrument or confirmation criteria into the theory-building process. So the core work of describing results indicators is in becoming familiar with existing evidence or measures of the expected outcomes. In terms of efficiency, theorists should consider searching for, locating, reviewing, and comparing the existing ways of assessing concepts involved in the theory. Library searches and specific databases make this activity relatively efficient. It is completely appropriate for case, grounded, and social construction orientations to involve results indicators, simply describing the logical results if the theorizing is accurate—there is no prediction involved at this point.

The first part of describing results indicators is to become familiar with what measurement strategies already exist. For example, a specific database accessible through most university library systems is called the Mental Measurements Yearbook. The database includes a comprehensive listing of over 2,700 modern measurement scales, tests, and instruments. Many options for measuring concepts can be explored here. However, most of these instruments are intended for measurement based on the quantitative approach to theory building. Rare but increasing instances of using such measurement instruments in social construction and other orientations can be found.

In strictly qualitative approaches, theorists are often left to describe and design their own results indicators. Usually, these are in the form of structured interview questions that can be analyzed for pattern responses. The constant comparative method is a common and high-utility way of developing results indicators for social construction theory building.

Once a theorist is familiar with results indicator options, he or she can select appropriate measurement strategies and move forward with the theory-building project. The increasing power of, and access to tools like Google Scholar (http://scholar.google.com) make searching out results indicator options more efficient, though the task of selecting the appropriate instrument requires content expertise.
**SubStep 2—Develop instruments if appropriate instruments cannot be found.** There are cases where measures of important concepts might not exist. In these cases, theorists are required to take a detour and develop measures of the desired concepts in order to proceed. The entire discipline of psychometrics is devoted to the development of measurement instruments for research in applied disciplines. Instrument development can be a complex, yet highly rewarding, activity, though it will surely delay the theory-building effort for some time. Most approaches to instrument development involve the use of a subject matter expert panel, followed by a large sample data collection specifically for assessment of score validity and reliability properties. Statistical expertise is required to make instrument development rigorous and the resulting product useful in applied disciplines (see Swanson & Holton, 2007).

By either selecting an appropriate existing measure or developing a new one, the theorist must arrive at a way of measuring changes in the concepts on which the theory is based. Results indicators often use the phrase “as measured by” to include the specific measurement instrument in the statement of relationships. For example:

- Employee engagement will increase as a result of including them in large-scale change management meetings as measured by the Gallup Q12 engagement questions.
- Team effectiveness will increase as a result of team-building activities as measured by team consensus ratings.
- Patient well-being will increase as a result of sending them flowers in recovery as measured by descriptions of hopefulness, outlook, and attitude.

**Step 3—Develop Research Questions**

The development of research questions is the final step in connecting the theory to the empirical world. Research questions are a natural bridge into research design and the next phase of theory building—the Confirm phase. Furthermore, research questions specify the activity under inquiry and may reveal some of its underlying assumptions. They also often identify an expected relationship among two or more variables.

Research questions also add a high level of specificity to theory building. Theories are broader and more encompassing than models. Models themselves can be highly complex and involve numerous relationships. Developing research questions forces the theorist to parse out specific, manageable portions of the theory. In other words, research questions are not likely to cover a whole theory.
—they are like pieces in a puzzle. There are usually too many relationships in a theory for a single research study or set of research questions to address. This is why theory building usually results in a program of research that may span a long period of time.
OUTPUTS OF THE OPERATIONALIZE PHASE

Outputs from the Operationalize phase are “confirmable propositions, hypotheses, empirical indicators, and/or knowledge claims” (Lynham, 2002a, p. 232). These outputs are clearly evident in the approaches to operationalization reviewed here and in the Operationalize phase of theory building as we have defined it. A theory without these elements does not constitute a theory because there would be no way to judge its accuracy in describing or explaining some instance of human activity.
SUMMARY OF THE STEPS

The Operationalize phase involves three steps: (1) describing propositions, (2) describing empirical indicators, and (3) developing hypotheses (Figure 5.3). These three activities connect the theory to the empirical world by specifying how it will be judged. Operationalization is traditionally thought of as a purely quantitative approach to defining expected outcomes and research hypotheses. However, we have seen an increase in the use of operationalization concepts such as hypotheses in a variety of philosophical orientations, making the idea of confirmation criteria more widespread and flexible.

FIGURE 5.3 Steps in the Operationalize Phase of Theory Building in Applied Disciplines

QUALITY INDICATORS FOR THE OPERATIONALIZE PHASE

There have been no published criteria for assessing operationalization efforts, and scholars have not made clear what successful or well-done operationalization looks like. Based on our own experiences with theory building, we believe some indicators are logical and useful for judging progress in this phase. These are described here with specific application to operationalization work.

Criteria for Assessing the Propositions, Results Indicators, and Research
Questions

Three general criteria can be applied to the propositions, results indicators, and research questions generated in the Operationalize phase of theory building. They are parsimony, the quality and track record of measurement instruments, and the specificity of the research questions.

**Parsimony.** Parsimony is a useful criterion in all of the theory-building phases. It is specifically applied to each step of the Operationalize phase to make theory building manageable. Using parsimony to assess the Operationalize phase means that a minimum number of propositions, results indicators, and research questions result while still including all of the relationships specified in the Conceptualize phase. It is clear that as the number of propositions and empirical indicators increase, so do possible hypotheses (Dubin, 1978). Ultimately, the number of hypotheses depends on the energy of the researcher. For the sake of designing clear and concise research studies (in the next phase—confirmation/disconfirmation), hypotheses should be kept to a minimum.

Parsimony applies particularly when thinking about designing manageable research studies that are coherent and bounded. Of course, any theory of applied human activity is likely to be complex. These theories involve more hypotheses than a single research study can hold. Therefore, it is useful to consider a program of research that may take years to accomplish some level of overall verification.

**Quality and Track Record of Measurement Instruments.** Using measurement instruments in applied disciplines raises the issues of validity and reliability to the top of the list. Validity and reliability are extremely important because they provide a sense that the instrument scores are accurate and consistent. Though it is good practice to report validity and reliability of scores in research studies, a surprising number of researchers rely solely on previous reports of such information. Instruments with long histories of use and repeated demonstrations of valid and reliable scores in a variety of contexts inspire confidence and lend to the quality of operationalization. Newly developed instruments tend to raise a variety of questions as they simply do not have established track records. When choosing instruments to measure the expected characteristics, the history and background of the instrument is an important consideration.
CONCLUSION

This chapter has presented the Operationalize phase of the five-phase method for theory building in applied disciplines. Existing strategies for operationalizing theories were reviewed that illustrate the concept of operationalizing theories from a variety of perspectives. The general Operationalize phase was described, with its three major steps being (1) describe the propositions, (2) describe the results indicators, and (3) develop the research questions. Each of these steps was described with examples from a variety of theoretical perspectives, showing the utility of connecting to the ideas developed in the Conceptualize phase to assessment strategies in the real-world Confirm phase. The next chapter will describe the Confirm phase, which requires the theorist to gather evidence of a theory’s fit with the world in which it is expected to operate.
CONFIRMATION OR DISCONFIRMATION is seen as a respectable end point for theory building in applied disciplines. Yet, that is not always the case, and concluding with confirmation actually falls short. You can imagine a theorist’s creative and active mind crunching knowledge and experience into a new solution that the theorist immediately tests so as to check it out. The outcome could be very important information that feeds into a more formal and revised conceptualization and operationalization of the theory. Furthermore, to confirm a theory is not a one-time event, yet initial efforts give the theorist enough direction to continue working on a theory, or scrap it and start over. The Refine phase dictates additional confirmation efforts that are often started in the Confirm phase.

The purpose of this chapter is to describe specific approaches to the Confirm phase of theory building in applied disciplines (Figure 6.1). Specifically, this chapter will

- define the Confirm phase,
- describe the general inputs to this phase,
- summarize the pros and cons of confirmation approaches,
- describe the outputs of the Confirm phase, and
- describe quality indicators for the Confirm phase.

FIGURE 6.1 Confirm Phase of Theory Building in Applied Disciplines
WHAT IS CONFIRMATION?

The Confirm phase brings theorizing into the realm of research and disciplined inquiry, but requires its application to real situations. In this phase, theorists plan, design, implement, and evaluate a program of investigation to confirm or disconfirm whether the theory fits in the real world (Lynham, 2002a). The results of the confirm phase can establish a sense of confidence in the theory and steer the theorist into other phases for adjustments.

Virtually every inquiry study is a confirm/disconfirm activity. However, most authors of these studies are not clear about the role they play in assessing or contributing to a given theory. Because most theories involve numerous relationships, the Confirm phase almost always requires multiple instances of inquiry to make overall judgments about the theory.

The old Louis Jordan song “Is You Is or Is You Ain’t My Baby?” comes to mind as a fun way of thinking about confirming or disconfirming. Both the romantic and the theorist have doubts, hopes, and are craving to know the answer!
DOUBTS

Some of those lyrics of “Is You Is or Is You Ain’t My Baby?” include:

Is you is or is you ain’t my baby
Well, the way you’re acting lately, well, it makes me doubt
You were still my baby, baby
But it seems like my flame in your heart, well, it’s just gone out. (Holley & Jordan, 1944)

Holley & Jordan’s lyrics go on searching for confirmation about whether his baby is still his baby or whether she found somebody new. For sure, doubts provoke a desire for confirmation.

John Shanley, the author of Doubt—the popular book, play, movie, and opera—takes great pleasure in audiences exiting with doubts about both the legality and morality of his story of religion, suspicion, pedophilia, and compromise.

On a much simpler and less esoteric level, we have confirmed that flat roofs leak and can make decisions accordingly.
INPUTS TO CONFIRMING THEORIES

The Confirm phase is a focused investigation within the theory-building process that requires theory implementation in practice. Other activities within the process can call upon theory-in-action or theory-in-practice, but in the Confirm phase it is mandatory.

The confirm/disconfirm investigation has features similar to most inquiry strategies—planning, design, implementation, and evaluation. These are all required inputs. Hundreds, if not thousands, of research methodology books are aimed at research methodology appropriate for confirming/disconfirming. We recommend these three resources:


The detail of an investigation is influenced by the complexity of the theory realm under consideration, the amount of effort already expended, and the fact that this phase in some cases will be complex and in others it will be simple. There is not one answer. Thomas Edison, the productive and famous inventor, spent an enormous amount of time learning in increments from confirmation. One of his profound quotes is “I have not failed. I’ve just found ten thousand ways that won’t work.”

In contrast to Edison, most theory investigators do not own an “invention laboratory” and need to more strategically set up their investigations. Their efforts at planning, designing, implementing, and evaluating an appropriate investigation are driven by the dominant research question arising from the maturation of the theory under development.

Approaches to Confirming Theories

As noted earlier, the apolitical research paradigm of quantitative, qualitative, and mixed methods research has been adopted for this book. While ideological differences undergird many research paradigms, the intent here is to be aware of those differences and to be intellectually agile enough to move across paradigms
logically, not ideologically. Logically, then, the challenge is to call upon the most rational approach to confirming, given the theory under investigation.

For example, a researcher drawn toward qualitative research methods and, more specifically, phenomenology needs to logically reach back to the research problem decision and the tentative research question posed in the confirmation effort. While the problem area is of high interest to the investigator, if the present status of the theory is not logically brought forward, he or she may naively choose a favored methodology (e.g., phenomenology) when there is already a great deal known related to the theory research question by the way of self-report and storytelling data. Another extreme case example could be the availability of extensive quantitative research on the topic—enough to justify a meta-analysis.

**Quantitative Approach to the Confirm Phase.** The quantitative orientation to theory building is based on the scientific method and traditional hypothesis testing. Reality is viewed as objective. The theorist’s task is to establish laws that can predict behavior in an area of human activity. The quantitative research process can be viewed as a five-step process (Holton & Burnett, 2005):

1. Determining basic questions to be answered by the study
2. Determining participants/setting for the study (population and sample)
3. Selecting the methods needed to answer questions
   a. Variables
   b. Measures of variables
   c. Overall design
4. Selecting analysis tools
5. Understanding and interpreting the results

Most discussions about qualitative research present quasi-experimental and true experimental designs. [Figure 6.2](#) offers an overview of preexperimental designs, and [Figure 6.3](#) overviews true experimental designs. The key aspect to experimental designs involves the random assignment to a treatment or a control group, which helps to ensure that the two groups are equivalent in terms of history and other preexisting circumstances or conditions that may influence the results.

**Qualitative Approach to the Confirm Phase.** It is useful to understand different models of knowledge as contributing different snapshots of the same
realm. Quantitative research can yield broad trends and excellent demographic snapshots. It has limits in trying to understand “black box” processes (Guba & Lincoln, 1998; Lincoln & Guba, 1985, 2000), “lived experience” (Turner & Bruner, 1986), and how individuals and groups go about “sensemaking” in organizations (Weick, 1995).

**FIGURE 6.2** Types of Preexperimental Design Showing Typical Purpose, Common Analytical Techniques, and Potential Advantages and Challenges for Each Design

<table>
<thead>
<tr>
<th>Type of Design</th>
<th>Notation</th>
<th>Purpose</th>
<th>Data Analysis</th>
<th>Potential Advantages</th>
<th>Potential Challenges</th>
</tr>
</thead>
<tbody>
<tr>
<td>One-shot design and retrospective pretest</td>
<td>X —— O</td>
<td>To describe posttest behavior or measure</td>
<td>Observation of behavior or measure</td>
<td>Can be a simple and inexpensive way to attempt to explain a causal relationship between variables</td>
<td>Provides no control for internal validity</td>
</tr>
<tr>
<td>One-group pretest-posttest</td>
<td>O — X — O</td>
<td>To compare a pretest behavior or measure to a posttest behavior or measure</td>
<td>Matched pairs t-test of pre- and posttest measures</td>
<td>Similar to one-shot design; can be a simple and inexpensive way to attempt to explain a causal relationship between variables</td>
<td>Can provide a measure of observed change, but does not provide conclusive results</td>
</tr>
<tr>
<td>Static group comparison</td>
<td>X —— O</td>
<td>To attempt to evaluate the influence of a variable or treatment on a behavior or measure</td>
<td>Comparison of the behavior or measure between groups</td>
<td>Could be used to evaluate the influence of a treatment, but only if there is a determination of a pretest comparison between groups from a source external to the experiment</td>
<td>Provides no control for internal validity; if there is no assurance of pretreatment comparison of groups</td>
</tr>
</tbody>
</table>

Note: O = observation of dependent variable; X = treatment by independent variable.

**FIGURE 6.3** True Experimental Designs

<table>
<thead>
<tr>
<th>Type of Design</th>
<th>Notation</th>
<th>Purpose</th>
<th>Typical Data Analysis</th>
<th>Potential Advantages</th>
<th>Potential Challenges</th>
</tr>
</thead>
<tbody>
<tr>
<td>Posttest only control group</td>
<td>R — X — C</td>
<td>To examine the influence of a variable or treatment on a behavior or measure</td>
<td>Simple t-test for significance</td>
<td>Can be a simple and inexpensive way to attempt to explain a causal relationship between variables</td>
<td>Sensitivity to effects on the dependent variable is low, particularly with small sample size; randomization is critical</td>
</tr>
<tr>
<td>Pretest-posttest control group</td>
<td>R —- O — X — O</td>
<td>To determine the effects of a treatment by comparing a treatment group with a control group sample</td>
<td>Depending on the number of levels of the variable, paired comparison or analysis of covariance on posttest scores using the prettest as the covariate</td>
<td>Traditional design, widely used; if executed properly, can ensure a high level of control for internal validity</td>
<td>Sample size is related to effect size; if an effect size cannot be estimated from previous studies it might be difficult to determine without repeated measures</td>
</tr>
<tr>
<td>Solomon four-group</td>
<td>R — O — — — X — O</td>
<td>Elaboration of the pretest-posttest control group design that controls for pretreatment effects</td>
<td>Multiple analysis of variance on dependent variable combined with analysis of variance on posttest scores</td>
<td>The most powerful experimental approach; high level of internal validity and minimization of pretreatment effects</td>
<td>Requires large sample size, more time-consuming, and possibly more expensive than other pretest-posttest control designs</td>
</tr>
<tr>
<td>Factorial</td>
<td>R — A — B — C</td>
<td>To examine simultaneous effects of more than one independent variable</td>
<td>Multiple analysis of variance on dependent, moderator, or control variables, or multiple analysis of variance with repeated measures</td>
<td>Allows for comparison of independent effects of two or more variables along with interaction effects between main, moderating, and control variables</td>
<td>Requires large sample size</td>
</tr>
</tbody>
</table>

Note: R = random assignment to groups; O = observation of dependent variable; X = treatment by independent variable; A, B, A, B = notation for multiple independent, moderator, or control variables in a factorial design. True experiments are characterized by randomization, use of some kind of control, such as manipulation, and use of control groups.

Researchers pursuing qualitative studies look for instances of knowledge creation, new insight, and new understanding—both in their research participants and in themselves. Researchers are open to “invention and construction, activities that seemingly move away from objects and objectivity
to subjects and subjectivity” (Weick, 1995, p. 36).

Qualitative methods offer the best possibility for understanding how individuals both make sense of and perform in their social and organizational worlds. Formal tests and measurements do not easily allow us to ask how individuals and groups make sense of their worlds. By observing and communicating face-to-face, investigators can come to understand the meaning-making strategies individuals create and depend on—a pattern form of theory. In pattern models, “something is explained when it is so related to a set of other elements that together they constitute a unified system. We understand something by identifying it as a specific part in an organized whole” (Kaplan, 1964, p. 333).

The utility of pattern theories is their sensitivity to, and reflection of, human systems, including organizational forms. One benefit of pattern theories is that they prompt researchers to see realms under study as pieces of more unified, interconnected, and holistic systems. When the understanding sought is the description of elaborate human groupings, patterns prove more helpful than partial or segmented deductions. Pattern theories are based on richness and redundancy. They are best formed with qualitative data aimed at collecting and preserving richness and complexity.

**Mixed Methods Approach to the Confirm Phase.** Applied disciplines often require, or may be best understood through, the use of multiple philosophical orientations that call upon a mixed methods approach to confirmation. This is often referred to as multiparadigm theory building. The multiparadigm approach to theory building is not as well articulated. Competing philosophical orientations pose varying problems for theorists that are not easily solved or settled. Yet, it is just these variations that offer the possibility of confirming/disconfirming from a mixed methods approach.

For example, grounded theory is a philosophical orientation focused on using data to generate hypotheses. Grounded theorists begin by collecting data in an area of human systems activity. The data are used to build hypotheses that are “grounded in the phenomenon” (Charmaz, 2006, p. 24) rather than formulated by the theorist ahead of time. The constant interplay between gathering and analyzing data is the dominant feature of this orientation—both qualitative and quantitative.

One theory journey we went on lasted over a decade. It started out with a
corporate sponsor wanting to create a financial model for predicting financial return on their investments in formal employee training programs. The challenges took us in multiple directions, including financial accounting and analysis, systematic structured training, unstructured on-the-job training, individual performance, and organizational performance.

The starting point was to identify standard practices within these various realms and to operationalize them into a classic experimental study having treatment and control groups. The experimental study was successful, had face validity to the corporate sponsors, and provoked the further development of both a financial assessment theory and a performance improvement theory. Continued building of these two related theories were sometimes joined and sometimes separate. In both instances, quantitative and qualitative data were collected to answer relevant questions for the purpose of confirming/disconfirming the theories. These multiple efforts were mostly mixed methods case studies conducted within a single corporation. The goal was to confirm the theory-based tools through repeated application case studies in a wide variety of organizations.

The case study method is another strategy that is almost always a mixed methods approach. The case establishes clear boundaries for the theory-building effort and can purposefully accommodate a variety of data collection and analysis methods—quantitative and qualitative. Many argue for mixed methods case studies as being particularly useful in theory building (George & Bennett, 2005, p. 34).

Mixed methods designs can have qualitative and quantitative investigations carried out in sequence or simultaneously (Creswell, Plano Clark, Gutmann, & Hanson, 2003) (see Figure 6.4). For example, a sequential explanatory design involves a quantitative data collection phase followed by a phase of qualitative data collection. This design is used to follow up on quantitative results from experiments, surveys, or correlational studies by in-depth probing of the results through qualitative data from focus groups, individual interviews, or observations. A similar design is the sequential exploratory design, which features qualitative data collection that is followed up with a phase of quantitative data collection. This design is typically used to develop quantitative instruments when the variables are not known or to explore preliminary qualitative findings from a small group of people with a randomized sample from a larger population.
Collecting both quantitative and qualitative data simultaneously allows the investigator to converge the data to make comparisons between detailed contextualized qualitative data and the more normative quantitative data. Practical implementation decisions often dictate whether the data will be collected sequentially or at the same time in a mixed methods confirmation/disconfirmation study.

**THE CONFIRM PHASE OF THEORY BUILDING**

Any attempt at confirming theories entails three generic and critical steps: (1) design the appropriate inquiry studies, (2) collect and analyze data, and (3) connect the results to the theory (see Figure 6.5). These steps are general, and as we have mentioned, literally thousands of books and guides are dedicated to designing various kinds of inquiry studies.

**FIGURE 6.5** Steps in the Confirm Phase of Theory Building in Applied Disciplines
Step 1—Design the Appropriate Inquiry Studies

Designing inquiry studies requires familiarity with numerous parameters that come into play in disciplined inquiry. For example, sampling, identifying participants, gaining access to organizations, selecting an intervention, and refining interview questions are all part of research design. A particular phenomenon, an area of need, an organizational problem, variables, stories, and other factors come together based on the previous phases and give theorists material from which to design a research study. Because most theories go beyond a single research study, theorists usually have plenty of decisions to make, and numerous studies can be designed from a variety of perspectives and viewpoints. This set of completed studies has something to say about the theory and its fit with the real world.

Certainly research designs, philosophical orientations, and available resources will influence research design in the Confirm phase. Recalling clear research questions and drawing heavily from the Operationalize phase can help keep the theorist on track. Data collection strategies are important to plan out well ahead of time. Theorists must make decisions on the logistics of gaining access to research participants, purchasing access to databases, and other study elements. Survey data can be collected at site visits, online, or both. Interviews can be done face-to-face or on the phone, and at times a group interview strategy is useful. Inquiry often makes use of existing data, which usually requires some
permission to access. Choices also must be made about data analysis, whether the study is quantitative, qualitative, or mixed methods. In other words, debates exist within theory orientations as to the best tools for certain tasks. For example, qualitative researchers often debate the use of software to analyze interview data. As for additional resources, we again point to selected research methodology texts that deal with specific research design strategies from a variety of orientations, paradigms, and methods (Mohrman & Lawler, 2011; Swanson & Holton, 2005; Trochim & Donnelly, 2006).

**Step 2—Collect and Analyze Data**

After all of the planning that goes into designing inquiry studies in theory research, the theorist eventually must collect and analyze the data. In this step, the theorist is carrying out the inquiry activity. Depending on the design, data collection can be a one-shot data grab, multiple data points, interviews over the course of months or more, or combinations of all of these. A variety of data analysis methods are tailor made to fit specific research designs. For example, the constant comparative analysis method (Guba & Lincoln, 1998) is a highly rigorous approach to analyzing interview data. If the inquiry uses a pretest/posttest design, the \( t \)-test is an appropriate technique. Theorists become experts in their research paradigms, eventually mastering a variety of specific techniques over the course of continued theory building. In the data collection and analysis step, the theorist is building a set of data related to the research question and applying the appropriate analysis techniques.

**Step 3—Connect the Results to the Theory**

To have the greatest impact on theory building, inquiry results must be written up from a theory perspective. That is, the results say something useful about the larger theory, and the connection must be made. In explicit theory-building research, inquiries are often carried out with the intent of investigation of a portion of some theory. However, in many cases the connection is lost because there is no real awareness of an overarching theory, or researchers undertake the inquiry to advance a specific technique rather than to contribute knowledge. It can be argued that every inquiry study makes a contribution to some theory. Responsible theorists *and* researchers recognize this relationship and point out how what is learned from disciplined inquiry influences the status of theory.
OUTPUTS OF THE CONFIRM PHASE

Outputs of the Confirm phase always require judgment. How much evidence is required to say a theory is accurate? Because most theories involve numerous relationships that are best examined in many research studies, a theorist can spend a lot of time in the Confirm phase before reaching any unified conclusion about the theory. Plus, there are barriers. Replication studies are not often found in applied disciplines. It seems that many journals, too, are publishing unique and novel contributions rather than continued investigations of specific aspects of human systems to build evidence. This situation reflects a tendency to judge one study with positive results as “enough.”

Amid the challenging state of inquiry in applied disciplines, the ideal output of the Confirm phase is a collection of inquiry studies that examine all of the proposed relationships in the theory with at least two instances of evidence for each relationship. This would ensure that all aspects of the theory are tested, and there are multiple instances of evidence to support each aspect. In the end, each theorist will have to make a judgment as to how much evidence is required to claim a theory as accurate.

A more realistic description of the situation is that theories grow and evolve in piecemeal fashion. A theorist may examine some portions of the theory, find evidence, and then move on to other parts of the theory. This iterative process can take years. It is also important for the theorist to make connections to application, which is the next phase of theory building to be discussed. If a theory, or part of a theory, is shown to be accurate, it must mean something for practice. Since most theorizing attempts to improve conditions, it follows that an ultimate outcome of theory building might be a better way to do something. What is learned through rigorous examination of a theory should result in reflections on how practice might be done differently; and conversely, application of the theory can provide fodder for needed revisions and confirmation.

In summary, the general outputs of the Confirm phase of theory building are (1) evidence on which to judge the fit or accuracy of the theory, (2) a judgment of the fit or accuracy of the theory, and (3) interpretation of what the judgment means for application (Figure 6.5). These three outputs will vary in depth and form for each theory exercise, but they must be drawn together by the theorist in a way that instills confidence that the theory captures some aspect of human and systems interaction with a degree of accuracy.
QUALITY INDICATORS FOR THE CONFIRM PHASE

The key quality indicators for the Confirm phase are drawn directly from Patterson’s (1986) criteria: (1) comprehensiveness, (2) empirical validity or verifiability, and (3) practicality. These three criteria are particularly relevant to this phase of theory building because they describe the desired outputs.

Comprehensiveness

A theory should be complete, covering the area of interest and including all known data in the field. Comprehensiveness also refers to all the relationships being examined before a judgment is made. Uninvestigated parts of a theory could be critical to its operation, and if left unknown, optimal understanding has not been reached. The assessment of the theory and all of its relationships should be comprehensive in order to draw the most useful conclusions.

Empirical Validity or Verifiability

A theory must be supported by experiences or experiments that confirm it. That is, in addition to its consistency with or ability to account for what is already known, a theory must generate new knowledge. However, a theory that is disconfirmed by experiment may lead indirectly to new knowledge by stimulating the development of a better theory. In short, a theory must have evidence to support it, plain and simple.

Practicality

One of the most important criteria for theory in general, which is seldom mentioned, is whether the theory is useful to practitioners in organizing their thinking. This criterion is also perhaps the most important output of the Confirm phase. A good theory must get practitioners beyond trial-and-error use of techniques. Instead, the goal is the rational application of principles. Theories must be useful, and they must change the way things are done within the human system they are intended to improve. Practicality is also the bridge to the next phase of theory building—the Apply phase.
CONFIRMING CHANGE

There are numerous theories about how families, workplaces, communities, and nations change over time. Sociologist Robert Putnam discusses the challenges in measuring change as a part of confirming or rejecting theories. He and others lay out a similar argument, stating, “No single source of data is flawless, but the more numerous and diverse the sources, the less likely that they could all be influenced by the same flaw” (Putnam, 2000, p. 415). Looking at a single survey is not enough to confirm a theory. Survey data, along with institutional data and behaviors over time, provide the basis for change theory confirmation. Using multiple sources of data in conducting confirmational research is referred to as triangulation.
CONCLUSION

This chapter summarized the Confirm phase of theory building in applied disciplines. First, we reviewed general approaches and strategies for confirming or disconfirming theories; then we described the actual process. Given the vast amount of literature available concerning how to design inquiry studies, theorists should gather a variety of perspectives and detailed approaches in their paradigm area. Three general steps in the Confirm phase were discussed: (1) design the appropriate inquiry studies, (2) collect and analyze data, and (3) connect the results to the theory. We described these steps at a general level because their detailed execution depends entirely on choices made previously in the theory-building process.

We also looked at outputs and quality indicators for the Confirm phase. The core work of this phase is to assess the adequacy of the theory through rigorous inquiry studies. Ultimately, a slew of evidence for all of the relationships that wind up in the theory is required to support it and establish its fit with the real world. Finally, the theorist must make interpretations about what a confirmed theory means for working in human-made systems and how some aspect of it should be changed.
THE APPLY PHASE of theory building in applied disciplines seems straightforward on the surface—putting the theory in practice. If a theory-building effort has established evidence to accept a theory, the next logical phase would be to apply it. Of course, if the evidence supports a decision to reject a theory, there could be a problem with the original conceptualized idea or how it was operationalized. The theorist must choose to return to one of the previous phases based on what was learned. Ideally, the Apply phase assumes a successful theory-building effort that has been shown to fit within a realm of human/human systems activity.

Theories must involve practice and research. Theories must explain what something is and how it works (Torraco, 1997). We will add that theories must also tell you how to do something. Theories that do not include descriptions of how the theory works fall short.

Application can also be positioned as a starting point itself. For example, new problems arise in practice that create the need for further understanding, pushing the theorist to develop new ideas and to conceptualize how something works. The purpose of this chapter is to describe approaches to application within the General Method of Theory Building in Applied Disciplines (Figure 7.1). Specifically, this chapter will

FIGURE 7.1 Apply Phase of Theory Building in Applied Disciplines
• define the Apply phase,
• describe the general inputs to this phase,
• summarize Apply phase activity,
• describe the outcomes of successful Apply phase activity, and
• discuss a set of quality indicators for how to apply a theory.

**WHAT IS APPLICATION?**

Once a theory has evidence to support it, the test of consistent practical utility begins. “A theory must also be threaded through the *Apply Phase*. The application of the theory to the problem, phenomenon or issue in the world of practice is in the practice component of the applied theory-building research method. Application of the theory enables further study, inquiry and understanding of the theory in action” (Lynham, 2002a, p. 233).

Within the applied discipline of communication, there is a thread of applied theory research called *signal theory*. Signal theory looks at information from different sources that two individuals or organizations have available and then how they proceed.

A number of investigators of the signal theory realm have reported their findings. One group of authors reviewed the available literature to make an application assessment of the theory (Connelly, Certo, Ireland, & Reutzel,
2011). One interesting conclusion they had was for theorists to apply signal theory in new ways so as to learn more about the theory in action and its limits.

The Confirm phase involves the careful study of the relationships included in the theory. Evidence is collected that either supports or refutes the theory. Assuming the evidence established a level of fit between the theory and its operation in the real world, there is still much to be gained through continued application.

It is the application of the theory to real-world situations and problems that enables the theorist to refine the theory and judge its consistency in a variety of contexts (Lynham, 2002a). Some situations may be quite similar to the original intended application domains, and some may vary significantly. These various conditions provoke learning, adjustments, insights, and updates that have the potential to increase the theory’s usefulness. Stated simply, application is practice. Ideally, good ideas and expert practice come together to solve problems efficiently and consistently. And, in intentional theory building, this combination is a requirement. All too often, scholars are divorced from the real world of practice, and practitioners do not reflect in a disciplined manner. For theory building in applied disciplines, new ideas must be operationalized, confirmed, and then used in application. A track record of application success gives theories credibility and utility.

Many domains of human/human systems activity are practiced long before they are examined with deep scholarship. Although this book has positioned the Conceptualize phase as a logical starting point, it should be easy to recognize the Apply phase as a logical starting point as well. For example, one strategy discussed in the Conceptualize phase was to talk with practitioners; another is for practitioners to talk to researchers. So the link between application and new ideas is strong, though often mismanaged.

The idea of being “in the pink” means to be on top. Dan Pink’s popular book A Whole New Mind is thoughtful, catchy, and deeply descriptive of a potential shift in work skills in advanced societies. He professes that a shift away from strictly analytic thinking to include synthesis thinking and a variety of “right brain” skills will soon be required. Pink described six “senses” that would drive highly valued work well into the coming decades:
design, story, symphony, empathy, play, and meaning. With compelling stories and examples of each, Pink has convinced many of a changing workforce.

While Pink’s book is certainly interesting and motivational, it does not describe how to use his ideas or develop the needed “senses.” There is no guide, no new skill, and no aid for applying this information. The reader is left with an interesting read but can do nothing differently after reading the book.

Pink’s book, like much of the popular business and practitioner literature, is wholly an exercise in the Conceptualize phase of theory building and a rush to marketing the idea. The book offers no suggestions for measurement or assessment; no inquiry of its accuracy or fit with the real world; and no tools, frameworks, or strategies for practice. You are left in the dark as to how to apply it and have little evidence of application outcomes.

Theories have to begin somewhere, and new ideas are commonplace. It is hard to imagine getting “in the pink” through the book A Whole New Mind. So much more work is required.
INPUTS TO THE APPLY PHASE

Before application can proceed, a theorist must have something to apply. In theory building, it is the set of concepts with relationships specified along with measurement and outcome criteria that have been tested. Ultimately, these are the most useful theories to apply. However, as we have seen, it is quite common for consultants, managers, and researchers to skip one or more of the theory-building phases. In other words, people apply armchair theories all the time, and these cases usually do not yield verifiable results. Sometimes they do. The core responsible input to the Apply phase is a theory—a set of linked concepts with relationships specified, propositions and results indicators defined, and evidence that theory has utility in its bounded domain. While theory building does not necessarily happen along a linear path, it is reasonable to assert that the previous phases of theory building must be completed to some degree in order to have a theory that can be applied.

To be fair, the starting point for theory building in applied disciplines, as we have mentioned, can be the Apply phase itself. This would be the practitioner bumping around in actual practice in search of a solution and uncovering an idea that appears to be working. This idea can be the igniter of a theory-building project, causing the investigator to formally move to the Conceptualize phase.

Another critical input to application is in the translation of the theory into implementable actions. Scholars seek knowledge in applied disciplines ultimately in hopes of improving a realm of human/system interaction. The Apply phase focuses on using the theory in varied settings, testing its applied robustness in achieving improved results. Inherently, the theory needs to imply some understandings and changes to current practices.
The Apply phase of theory building in applied disciplines is almost always very interesting. The approaches to applying theory in practice can be fairly free-flowing—free-flowing in the sense that application settings can be so varied and that the timing of an application exercise in the larger theory-building journey changes everything.

There are three steps to the Apply phase: (1) analyze related problems; (2) propose, create, and implement solutions; and (3) assess results (see Figure 7.2). The possibilities around using the quantitative, qualitative, and mixed methods approaches to the Apply phase also add to the mix.

A foundation of theory-building effort resulting from the Confirm, Operationalize, and Conceptualize phases allows comfortable movement to the Apply phase. For example, the earlier thinking, questions, methods, data, and data analysis can be mirrored in this phase. It is like everything to this point has been checked out and now we just put it out there in application to see if the expected still happens. Without this deep reservoir of prior effort, other Apply phase suggestions follow within the qualitative, quantitative, and mixed methods approaches.

FIGURE 7.2 Steps in the Apply Phase of Theory Building in Applied Disciplines.
Qualitative

Most people working with applied disciplines, academics and practitioners, cannot wait to apply their ideas. For the impatient practitioner, trying out a new idea— with or without theory—is the norm.

The colorful example of throwing spaghetti on the wall to see if it sticks had to have been discovered this way—qualitatively. What then? The next steps can be a continuation of applications, conformations, operationalizations, or conceptualizations. They could be randomly or systematically pursued: spaghetti uncooked, barely cooked, cooked, overcooked; smooth walls, rough walls; a hard toss, a light toss; on Tuesdays, in mornings, and at night? Once the sticking spaghetti theory was fully built, a qualitative metaphor evolved related to throwing out our ideas to see which ones stick.

Quantitative

We know plenty of old-time expert craftsmen who carried a little book in their pocket to record quantitative data related to their realm of work. They wrote down numbers—measurements of space, temperatures, time—to establish specifications, ranges, and cutoff points. The Apply phase by itself can create solutions-in-action that could ultimately be simply that, or it can sometimes create actions-into-theories. The quantitative measures that usually exist in most
applied discipline application settings make theorizing from the data a natural endeavor. So it is—the full recognition in applied disciplines that successful practice can precede theory explanations.

**Mixed Methods**

Mixed methods are again a natural fit for the Apply phase of theory building in applied disciplines when this phase is the starting point. Things pop out to the alert and inquisitive practitioner. Haven’t we all discovered so much of what we “know” from this practice aspect of life? Yet, only a few pursue the follow-up task of theory building for the purpose of really knowing about the phenomenon and how it works.

**THE APPLY PHASE OF THEORY BUILDING**

The Apply phase of theory building in applied disciplines has a unique role since it is practice in the raw. Practice will go on, with or without theory. With theory-building documentation in place, the Apply phase can spout out interesting details related to the application context of the theory under investigation. With no theory documentation or preconceived notions, the astute practitioners can yield totally “out of the box” responses within the realm of practice.

It is hard to read books about accidental learning and exceptional people without paying homage to the improbable. The biography of Apple computer visionary Steve Jobs is one example (Isaacson, 2011). Another is The Black Swan (Taleb, 2007). A black swan, in this context, is a highly improbable event with three characteristics: (1) it is unpredictable, (2) it carries a massive impact, and (3) after the fact, an explanation is concocted that makes it appear less random and more predictable.

Taleb (2007) laments that people and their general “inability to automatically transfer knowledge and sophistication from one situation to another, or from theory to practice, is a quite disturbing attribute of human nature” (p. 53). While provocative, not all agree with this perspective. Crawford’s (2009) book Shop Class as Soulcraft describes in great detail the potential of the application phase through shop work experience on motorcycles by highlighting the intellectual challenges, learning, analysis, and problem solving inherent to his work. The interesting thing is that the Apply phase can provide unexpected rich results that are unavailable elsewhere. The risk here is the infatuation with solutions without theory and the temptation to sermonize.
OUT PUTS OF THE APPLY PHASE

The major outputs of the Apply phase are simple and straightforward. They are applied procedures based on the theory and continued evidence of the theory’s fruitfulness (potential) or effectiveness (problems solved). These outputs depend on the theorist translating the theory into practical procedures and continuing to collect evidence. Secondary outputs of the Apply phase are hints toward the continuous Refinement phase. These are subtleties learned throughout application that suggest ways of potentially modifying the theory. For example, the boundary may need to be widened based on experiences. It may occur to the theorist that a major construct is missing from the original Conceptualize phase. Or it may turn out that better measurement and assessment tools are found. All of these give reason to revisit the theory and make modifications so as to increase the fit with the real world.

Hospital administrators, doctors, and nurses often make uncomfortable roommates. It is fun to contemplate this thought as long as you are not the patient. In Chapter 5, we presented the three-legged stool as the performance improvement theory icon (Swanson, 2007a, p. 16). The components included three theory legs—systems, economic, and psychological theories—joining and integrating at the stool seat, and resting on an ethics rug.

The Theory of Performance Improvement claims to potentially describe all applied situations in human-made systems including a hospital of administrators, doctors, and nurses. What was not discussed earlier is that specific applied disciplines are inclined to rely more heavily on one leg versus the others. The hospital administration will likely rely more heavily on the economic leg, the doctors on the systems leg, and the nurses on the psychological leg. Nursing scholars create theories of caring (Swanson, 1991), versus the thinking models of doctors (Groopman, 2007) and hospital management’s economic theorizing (Newhouse, 1970). The Apply phase for each of these in isolation will tell one story. The Apply phase with the three in the same room will tell an even richer story in terms of their interplay, mutual support, and compromises.
QUALITY INDICATORS FOR THE APPLY PHASE

The main quality indicator for the Apply phase, taken from Patterson (1983), is fruitfulness. *Fruitfulness* refers to the theory’s ability to generate new knowledge. And that is precisely what theory building does, when all of the phases are carried out. Theory building generates new solutions to problems, and when done well, it offers a reason to move away from older solutions that may have run their course. Ultimately, fruitfulness involves some level of prediction. As Patterson stated, “the capacity of a theory to lead to predictions that can be tested, leading to the development of new knowledge,” is an overarching goal of theories and theory building.
CONCLUSION

The essential work of the Apply phase is to make the theory usable in the real world, to solve problems in similar conditions to those in which the theory was intended. The Apply phase mandates harmony between theory and practice. At times this means translating the theory into practical procedures or tools that can be applied. These often take the form of interventions, workshops, and new policies. Another form is to ignite the process of theory building from an incidental application act that proves fruitful.

This chapter has summarized the Apply phase in two versions of three core strategies: (1) aim, (2) fire, and (3) learn—versus (1) fire, (2) learn, and (3) aim. Both these versions produce outputs that lead directly into the Refine phase and are stated simply as evidence that the theory conceptualization exists, continues to work (or not), and provides direction for advancement.
THE REFINE PHASE presents a tenacity challenge to the theory builder of applied disciplines. Because of the real-world focus and the ever-changing world, applied theories need to be continually refined to assure their present-day integrity. Thus, the lines between the Apply and Refine phases are blurred. Applied theories are never finished. Theories must undergo continuous assessment of their fit and utility in the ever-changing world of practice. The Refine Phase involves a variety of activities that may push the theorist to revisit all of the other theory building phases. By necessity, the Refine Phase occurs over time. “The intentional outcome of this phase is to ensure that the theory is current and relevant, and that it continues to work in the practical world. It also ensures that when the theory is no longer useful, it is disconfirmed, adapted, or discarded” (Lynham, 2002a, pp. 234). The Refine Phase also marks the ongoing and iterative nature of theory building in applied disciplines.

The purpose of this chapter is to describe specific approaches to the Refine phase of theory building in applied disciplines (Figure 8.1). Specifically, this chapter will

• define the Refine phase,
• describe the general inputs to this phase,
• present a Refine phase case example, and
• describe the outputs of the Refine phase.

FIGURE 8.1 Refine Phase of Theory Building in Applied Disciplines
WHAT IS REFINEMENT?

The Refine phase requires additional efforts in conceivably all the other phases. Continuous refinement of an applied theory is a process keeping the theory under the microscope. Asking questions about its continued integrity and being willing to open up any and all of the theory-building phases in light of the present state of that theory is required.

The Refine phase suggests that a successful theory builder’s work is not done and to settle in for the long term. Given a mature theory, other scholars can enter into the realm with theory such as to confirm or disconfirm it in a new setting or under new conditions, or to reconceptualize the theory. The act of refinement can add to, or challenge, the robustness and utility of the theory.
INPUTS TO THE REFINE PHASE

It may sound trite, but the two most important inputs to the Refine phase are “open minds” and “thoughtful minds.” Because so much effort has already been expended in getting through the other phases, there is a risk of becoming tired and complacent.

**Open Minds**

The person or team behind the original theory development can get to the point of being too invested in the theory they created. It may be hard for them to pull back. Yet, given objectivity, who else would be in a better position to question, refine, and sustain the theory? Conversely, newcomers to the theory do not have the same stake as the theory originator. Thus, they more likely have the potential of an open mind.

**Thoughtful Minds**

Thoughtful minds will intelligently assess and question the sum of the theory documentation—strengths and deficiencies. This perspective, along with awareness of changes in practice settings, can guide continuous refinement efforts. The reward is that added insight gained through refinement has great potential in sustaining the life of a theory and in setting its limits.

In addition, the secondary outputs of the Apply phase are direct inputs in the Refine phase. These are the subtleties gained throughout applying the theory in a variety of settings. These various applications suggest ways of potentially modifying the theory. Insights may arise that lead the theorist to consider shrinking the boundary of the theory. Other theorists may wish to engage in a theory-building effort but use an alternative philosophical orientation and research paradigm. Different measurement and assessment tools may be found. All of these may move the theorist into a previous phase of theory building to make adjustments.
REFINE CASE EXAMPLE

In the Refine phase of theory building in applied disciplines, all aspects of the Conceptualize, Operationalize, Confirm, and Apply phases are fair game. There is no one path for approaching refinement. Once an avenue is selected, it will be aligned with one of the theory-building phases. At that point, the guidelines from that specific phase come into play as they did when they were first pursued.

A Refine phase case example from our own work will be used here as an illustration. The example is a theory of performance that was specifically built to explain performance in human systems/organizations that have been created for productive purposes. The origins of the theory of performance are quite modest and evolved over the years through continuous refinement. What follows is a sequential synopsis of evolutionary applied theory-building events that started from a very modest place and matured incrementally with the support of corporate partners.

1. Learning Theory as the Starting Point. XYZ Corporation requested the status theory of learning for corporate trainers to guide them in training decisions. Synthesis of the learning theories and research yielded a simplified three-track learning theory conceptual framework (behavioral, gestalt, and purposive behaviorism) that evolved into the whole-part-whole learning theory. Over the years, operationalization, confirmation, and application have supported and tweaked the whole-part-whole learning theory.

2. Training Systems Theory. XYZ Corporation requested an expansion of the three-track learning theory into a systematic training technology system to be used by the corporate trainers. The training system development effort involved researchers consulting with training and development staff from multiple corporations, with a major decision being made that employee expertise be the primary purpose of training and systematic output.

3. Theory of Work Analysis. Expert and neophyte hourly and salaried workers were interviewed and observed on the job to better understand workplace expertise. A major outcome was the creation of a work theory conceptualization of (1) procedural work, (2) process and troubleshooting work, and (3) knowledge work. Fundamental development and refinement of the theory and methodology tools for analyzing these three types of work behavior
expanded the theory realm of work analysis. Researchers carried out preexperimental confirm/disconfirm studies on the three work analysis methods. Dozens of application cases were conducted in XYZ Corporation and numerous other corporations. Incremental changes were incorporated as a result.

4. Economic Theory. XYZ Corporation felt pressure to be able to demonstrate financial return on training and work redesign investments coming out of the theory-driven systematic training and analysis of work expertise. This initiated an articulation of microeconomic theory along with the creation of a performance improvement economic model and method creating the linkage between systematic interventions (not just training) and performance outcomes.

5. Training for Performance System. Based on work analysis theory and economic theory developments, researchers reconceptualized the training system from the training technology system to the training for performance system. Nontraining performance variables in the up-front training analysis and in the follow-up evaluation became part of the system, along with partnering with nontraining personnel for more holistic interventions.

6. Theory of Performance Improvement. The addition of the economic theory development experience, along with the focus on larger system performance as the ultimate organizational outcome, established an expanded boundary deserving of its own theory. At this point, it became performance improvement, with or without training, and a conceptualization of a new theory. The Theory of Performance Improvement, applicable to organizations, drew upon selected psychological, economic, and systems theories and integrated the three into a unique theory. Multiple visual conceptualizations accompanied this applied theory. One is a three-legged stool with each leg representing a component theory leg. Another is a five-level Taxonomy of Performance going from understanding to invention/creation. A Performance Diagnosis Matrix provides conceptual understanding and serves as a data collection and analysis tool. These “thinking” tools are complemented by a series of high-level and detailed process tools that operationalize the performance improvement process. Confirmation came largely through mixed methods case studies in a variety of private and public sector organizations. Application of the theory has resulted in revisions.

This example of theory building in applied disciplines has been abbreviated—hopefully, not abbreviated so much that the sense of adventure, growth, and advancement is lost. The steps and stages were incremental, with periodic bursts
of advancement and redirection. The bursts were unexpected gifts.

**THE REFINE PHASE OF THEORY BUILDING**

The Refine phase features three general steps to consider: (1) generating new insights, (2) investigating new insights, and (3) updating the theory. These three steps require revisiting one or more previous steps of theory building, and the process of addressing these steps is almost always more time-consuming than assumed.

**Step 1—Generate New Insights**

New insights come from theorizing, research, and practice. The phases aligned with these activities are all four of the preceding phases: Conceptualize, Operationalize, Confirm, and Apply. Insights can come at any time, though they most often emerge when putting the theory into practice in the Apply phase. Insights adding refinement to the theory can be slight and specific, or they can be overwhelming and large scale. Either case requires changes to a theory; and when the changes could be foundational, a choice is made to adjust or start over. Insights from the Confirm phase are specific to the accuracy and fit of the theory with the real world. In other words, they direct the theorist to specific relationships examined in the theory, indicating areas where the thinking may not capture things as they are. Insights from the Apply phase are directly related to the practice of the theory and suggest ways of improving the ability or efficiency of achieving desired changes.

**Step 2—Investigate New Insights**

The phases of the theory that the new insights affect are important to consider. For example, insights that required changes to the Conceptualize phase will require new thinking about the relationships involved and boundaries. Then measures will need to be identified and tested. On the other hand, insights that suggest changes in the Apply phase require the development of new practical procedures, but do not necessarily require adjustments in any other phase. The complexity of modifications to a theory is directly related to their location in the phases. In any case, when changes to a theory are made, evidence must again be collected about the accuracy.

**Step 3—Update the Theory**

The goal of the Refine phase is simple: make nonfitting parts of the theory fit. Because fit with reality is the key, any modifications of the theory require the
collection of evidence to confirm it. Once confirmed, the theory is updated. There may be follow-up modifications to practical procedures in the Apply phase, but this is entirely dependent on the type of changes.

**Summary of the Steps**

The Refine phase allows a great deal of freedom to the theorist. The goal is to maximize the accuracy, fit, and confidence of the theory and its connection to the real world. All of the resources and steps in the previous phases are considered fair game, and a theorist is free to move beyond those and use additional approaches as well (Figure 8.2).

Often, this phase requires work in multiple other theory-building phases. Modifying theories is hard work, and there is no prescribed solution. However, the five-phase theory-building framework presented in this book functions as a guide for novice and experienced theorists alike.

**FIGURE 8.2** Steps in the Refine Phase of Theory Building in Applied Disciplines
OUTPUTS OF THE REFINE PHASE

The primary output of the Refine phase is a modern theory, meaning it is up-to-date, is congruent with current practices, and continues to show results. This output is straightforward in that the weak and strong spots of the theory have been identified. Constant interplay between this and other phases of theory building result in a theory that is modern and useful.

Another important output of the Refine phase is direction into one or more of the theory-building phases to make modifications. This direction is based on learnings from the Apply and Refine phases. Both of these phases give insights to the theorist that can be used to improve the theory.

QUALITY INDICATORS FOR THE REFINE PHASE

There are no unique quality criteria for the Refine phase of theory building other than criteria carried forward from the other phases. The purpose of this phase is to recognize that theories are never really complete. Their continuous molding and shaping comes from integration of research, theory, and practice and gives the theorist a sense of which area may provide the greatest opportunities for advancing the theory.

Again, the Refine phase ultimately pushes the theorist back to one or more of the other theory-building phases to make improvements that enhance the accuracy or fit of the theory in the real world. If the defined quality indicators in each phase have been used, then the resulting theory will meet the desired results of each phase.
CONCLUSION

This chapter has given structure to the refinement of theories. The Refine phase mandates the continuous improvement of theories and directs the theorist to one or more previous phases in which to make adjustments and improvements. Open and thoughtful minds are required to consider feedback about the utility of theories, especially when the theorist has a hard time stepping back to look at the larger picture. In the end, the theory must aid in the thinking and practice of an instance of human/human systems interaction. The theory and the theorist must be open to adjustment as the surrounding worlds of knowledge and practice are constantly changing.

SUMMARY OF THE FIVE-PHASE GENERAL METHOD OF THEORY BUILDING IN APPLIED DISCIPLINES

The Refine phase completes the presentation of major steps required for sound theory building. Previous chapters have covered each of the other four phases in detail, including guided instruction for applying the tools and concepts we have presented. It is important to realize that the phases are interconnected and work together as a system. In a single graphic, Figure 8.3 illustrates all five phases and the major steps required within each phase.

This representation gives the whole perspective of theory building in applied disciplines. Taken from this point of view, it should be easier to observe that the phases connect directly with each other and that changes in one area require the consideration of changes throughout the other phases. It should also be easy to see that most theory-building efforts are concentrated in one of these phases. By giving structure and definition to each phase, we have raised the bar for what might be called theory. We have also provided tools and frameworks for the challenging and stimulating work of theory building in applied disciplines.

Part Three provides detailed examples of theories that have made the transitions through all of the phases. It also presents a tool for assessing the status of a given theory and lays out explicit suggestions for how to engage in theory building.

FIGURE 8.3 Steps Within All Phases of the Theory Building in Applied Disciplines Method
PART THREE

Successful Theory Building

9 Case Example: Marsick and Watkins’s Learning Organization Theory
10 Case Example: Chermack’s Scenario Planning Theory
11 Figuring Out the Present Status of a Theory
12 Whatcha Gonna Do?

THEORY BUILDING IS important work. Many scholars and scholarly practitioners avoid theory building because it can span over long periods of time. Concurrently, many expert practitioners avoid the detail and precision required to document what they know. Either way, knowledge is lost, and applied disciplines do not advance as much as they could.

Available examples of applied discipline theories rarely are complete—that is, displaying efforts through all five phases of the method. Unfortunately, people have all too often used the term theory building to refer to only the Conceptualize phase. For sure, the two general components of theory building—the theorizing itself, and the assessment of the adequacy of the theorizing—require different skill sets. It seems reasonable that divergent thinkers may be inherently well equipped to generate the ideas and concepts that form the basis of a theory, and convergent thinkers prefer to investigate particular aspects of theories that have already been postulated. Maybe some scholars are trained to begin their research by scouring the literature for relevant problems in journal articles on general topics of interest? They then pick up where others have left off. Another possible explanation is that some researchers begin by asking practitioners about their most pressing and difficult challenges. This inquiry leads to uncovering a variety of related practical problems but does not cover a sustained theory-building effort in the same realm over time in different contexts.

The reasons for small numbers of modern examples of theory building, from concept to assessment, are mostly left to speculation. What is of great importance is that established experts in applied disciplines consider the benefits of engaging in the full theory-building process—from concept to refinement. This approach can provide emerging experts with a research agenda to span a career and stands a much better chance at replicating solutions to practical
problems. For a seasoned expert, there is the long-term satisfaction of deeply understanding a theoretical realm, developing robust explanations, and applying them in practice.

**Part Three** gives two comprehensive examples of theory building that have followed the five-phase theory-building method for applied disciplines. In addition, the phases and steps presented in this book are translated into a practical assessment tool for immediate use to figure out the present status of any theory. Finally, we conclude with a set of clear strategies to get started in theory-building work.

**Chapter 9**, “Case Example: Marsick and Watkins’s Learning Organization Culture Theory,” illustrates a specific theory of learning organization culture and how it demonstrates activity in all five phases. Each phase is described with regard to how the authors approached it, completed it, and may be revisiting it.

**Chapter 10**, “Case Example: Chermack’s ScenarioPlanning Theory,” functions in the same illustrative way as **Chapter 9**. However, because coauthor Chermack’s theory is the focus of the content, we describe our recent firsthand experience with theory building, explaining our choices in detail.

**Chapter 11**, “Figuring Out the Present Status of a Theory,” is a translation of the five phases of this book into a usable assessment tool for determining the maturation and completeness of existing theories. The Theory in Applied Disciplines Status Assessment Tool is described and its use illustrated by applying it directly to the theories discussed in the previous two chapters.

Finally, **Chapter 12**, “Whatcha Gonna Do?” is a next-steps enticement into theory-building work. We hope to whet your theory-building appetite by providing three ways you can immediately engage in theory building: (1) auditing an existing theory, (2) testing an existing theory, and (3) building a new theory.
Case Example: Marsick and Watkins’s Learning Organization Culture Theory

**WHILE THE LEARNING ORGANIZATION** is a concept that came to the forefront with the publication of *The Fifth Discipline* (Senge, 1990), the first mention of the term *learning organization* was in 1979 (Huczynski & Boddy, 1979). Numerous other authors contributed to the literature in this area in the 1990s and developed the concept further (Coopey, 1995; Garvin, 1993; Kim, 1993; Nevis, Dibella, & Gould, 1998; Tsang, 1997; Watkins & Marsick, 1993). This chapter looks at the concept of the learning organization from a theory-building perspective. Only one contribution to the learning organization literature has framed its approach in terms of theory building—Watkins and Marisck’s (1993) book called *Sculpting the Learning Organization*.

The overarching purpose of this chapter is to provide an example of theory building that has been conducted using a variety of techniques. This chapter applies the method and its phases to profile a theory that began to emerge almost a decade earlier. In this case example, the task is to illustrate each of the five phases applied to Marsick and Watkins’s specific theory of learning organization culture (Watkins & Marsick, 1993, 1996, 2003). This chapter will

- describe the Conceptualize phase as applied to the learning organization,
- look at the Operationalize phase as applied to the learning organization,
- discuss the Apply phase as applied to the learning organization,
- describe the Confirm phase as applied to the learning organization,
- examine the continuous refinement and development of a theory of the learning organization, and
- discuss a set of quality indicators that have been applied to the learning organization theory-building work.

**WHAT IS A LEARNING ORGANIZATION?**

*Learning organization* is a term used to describe organizations that have developed ways to promote continuous learning as a part of their unique cultures. Generally, the learning organization functions at two levels: (1) the people level and (2) the systems level (Argyris & Schon, 1974). Various
mechanisms can be used to promote learning, such as rigorous innovation programs, investments in research and development, and even performance management. While a variety of authors were working around the same ideas, Senge’s 1990 book, *The Fifth Discipline*, became widely popular and introduced the concept of the learning organization to many people.

**A THEORY OF LEARNING ORGANIZATION DIMENSIONS**

Yang, Watkins, and Marsick (2004) described the learning organization as follows:

The construct of the learning organization normally refers to organizations that have displayed these continuous learning and adaptive characteristics, or have worked to instill them. Organizational learning, in contrast, denotes collective learning experiences used to acquire knowledge and develop skills. (p. 34)

Some authors have promoted the need to differentiate learning organizations and organizational learning. The purpose of this chapter is not to engage in a deep discussion of the variations on learning in organizations; however, the differentiation between the two terms deserves some mention. “While organizational learning analyzes learning processes without paying much attention to the outcomes, a learning organization is mainly prescriptive, linking to improvement” (Song, Joo, & Chermack, 2009, p. 47).

The learning organization is more than an organization that promotes learning. Watkins and Marsick (1993) drew from over 30 years of experience working with organizations interested in increasing their capacity to support learning at all levels. The outcome was in the form of a theory of the learning organization, which they have worked to enhance over the last 15 years (Watkins, 2005).

**CONCEPTUALIZE PHASE OF LEARNING ORGANIZATION CULTURE THEORY**

Again, based on over 30 years of practical experience, initial ideas about learning in organizations began to take shape (Watkins & Marsick, 1993).

**Step 1—Defining the Concepts**

The authors describe their process as “theory building” (p. 13) that involved extensive literature reviews, case studies, and long-term research projects aimed at action science and action reflection learning (Watkins & Marsick, 1993). Additional efforts sponsored by the American Society for Training & Development “solicited case studies . . . resulting in seventy individual responses
and thirty-two submitted cases” (p. 17) of large-scale learning projects across the theorizing. The combination of experience in organizations, deliberate theorizing, literature reviews, and case studies resulted in seven core dimensions of the learning organization that constitute their theory in the Conceptualize phase. The theory is based on seven key constructs shown in Figure 9.1. Each of these constructs has substantive evidence to support a rationale for its inclusion in the theory.

**Step 2—Organizing the Concepts**

Watkins and Marsick (1993, 1996; Marsick & Watkins, 1999) are not precise about how their seven dimensions became linked or exactly how the relationships among the dimensions can be characterized. However, the authors have clarified that significant effort working in organizations, studying cases, and reviewing relevant literature led to the view that the seven dimensions are interrelated, though they have not specifically described how.

**FIGURE 9.1 Watkins and Marsick’s Dimensions of the Learning Organization**

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuous learning</td>
<td>Opportunities for ongoing education and growth are provided; learning is designed into work so that people can learn on the job.</td>
</tr>
<tr>
<td>Inquiry and dialogue</td>
<td>The organizational culture supports questioning, feedback, and experimentation; people gain productive reasoning skills to express their views and the capacity to listen and inquire into the views of others.</td>
</tr>
<tr>
<td>Team learning</td>
<td>Work is designed to use teams to access different modes of thinking; collaboration is valued by the culture and rewarded; teams are expected to learn by working together.</td>
</tr>
<tr>
<td>Embedded system</td>
<td>Necessary systems to share learning are created, maintained, and integrated with work; employees are accessible to these high-and low-technology systems.</td>
</tr>
<tr>
<td>Empowerment</td>
<td>People are involved in setting and implementing a shared vision; responsibility is distributed so that people are motivated to learn toward what they are held accountable to do.</td>
</tr>
</tbody>
</table>
**System connection**

The organization is linked to its communities; people understand the overall environment and use information to adjust work practices; people are helped to see the effect of their work on the entire organization.

**Strategic leadership**

Leadership uses learning strategically for business results; leaders model, champion, and support learning.

As their work evolved, the seven dimensions became known to characterize learning culture that was eventually positioned as a predictor of firm financial performance (Ellinger, Ellinger, Yang, & Howton, 2002, 2003; Song & Chermack, 2008b), knowledge performance, and behavioral performance.

**Step 3—Defining the Boundaries**

By definition, the theory was bounded to organization systems—*learning organization* refers to the organization itself and thus automatically established the boundary of the theory. These are organizations (profit and nonprofit) that exist to perform some function or service and deliver a product or good that is needed. It is quite clear, for example, that Watkins and Marsick did not originally intend for their theory to function at the state, national, or international levels. While the work has evolved over time and has been translated and applied in numerous other languages, the core unit in which the theory is operating is still the organization.

**OPERATIONALIZE PHASE OF LEARNING ORGANIZATION CULTURE THEORY**

Throughout the 1990s, Watkins and Marsick engaged in a variety of rigorous efforts to clearly and precisely operationalize their thinking about learning organizations. Through a variety of workshops, an idea emerged to create a measurement and diagnosis instrument that would indicate the current state of a learning organization culture.

**Step 1—Describe the Propositions**

Although they did not explicitly state these propositions, the following propositions are the logical outcomes of the thinking that has led up to this point:

Proposition 1: If continuous learning opportunities are positively associated with learning organization culture, then as continuous learning
opportunities increase, learning organization culture improves.

Proposition 2: If dialogue and inquiry are positively associated with learning organization culture, then as dialogue and inquiry increase, learning organization culture improves.

Proposition 3: If collaboration and team learning are positively associated with learning organization culture, then as collaboration and team learning increase, learning organization culture improves.

Proposition 4: If systems to capture and share learning are positively associated with learning organization culture, then as systems to capture and share learning increase, learning organization culture improves.

Proposition 5: If empowering people is positively associated with learning organization culture, then as empowering people increases, learning organization culture improves.

Proposition 6: If connecting the organization to its environment is positively associated with learning organization culture, then as connecting the organization to its environment increases, learning organization culture improves.

Proposition 7: If providing strategic leadership for learning is positively associated with learning organization culture, then as providing strategic leadership for learning increases, learning organization culture improves.

These propositions are the natural, logical outcome of the theorizing done by Watkins and Marsick. Again, these have not explicitly been stated in their work, but it is clear that these assumptions and propositions are foundational to their conceptualization of a learning organization theory. The other main point to add is that Watkins and Marsick specifically oriented their approach based on two levels: (1) the people level of the organization and (2) the system level of the organization. Thus, the propositions could apply to either people or systems, or both.

**Step 2—Describe the Results Indicators**

This step is where Watkins and Marsick’s work on a theory of learning organizations encountered a barrier. There were no adequate or appropriate measures of learning organization culture that assessed the characteristics they were finding to be so important in successful learning organization cultures. As a result, a large part of their work shifted toward developing an appropriate assessment of learning organization cultures.
Step 3—Develop Research Questions

Logical research questions can be derived from the propositions for the proposed theory of learning organizations. The development of research questions is a relatively simple exercise in the context of the learning organization theory because they are potentially so closely connected to the propositions and results indicators. The research questions that are a natural outcome of the previous steps are the following:

- What are the effects of continuous learning opportunities on learning organization culture?
- What are the effects of dialogue and inquiry on learning organization culture?
- What are the effects of collaboration and team learning on learning organization culture?
- What are the effects of systems that capture or share learning on learning organization culture?
- What are the effects of empowering people on learning organization culture?
- What are the effects of connecting the organization to its environment on learning organization culture?
- What are the effects of strategic leadership for learning on learning organization culture?

As can be expected, these research questions would each logically become the basis for separate inquiry studies. They are also a clear extension of the Conceptualize phase of theory building. The issue for this specific theory-building effort was that measurement and assessment techniques did not exist, so a final research question has become the basis of the learning organization theory evolution:

- Can a comprehensive assessment instrument for learning organization cultures be developed?

This research question has framed the bulk of theory building for Watkins and Marsick. In addition, the results have constituted a major contribution to the theory: research and practice of learning organizations.

CONFIRM PHASE OF LEARNING ORGANIZATION CULTURE
Once it was clear that the theory of learning organizations had a logical conceptual framework and that the Operationalize phase was somewhat limited due to a lack of available measures, Watkins and Marsick shifted toward developing a specific measure of learning organization cultures. Their goal was to gain “insight into essential steps that will help companies more quickly and successfully move toward their goals” (Marsick & Watkins, 1999, p. 3).

**Step 1—Design the Inquiry Study**

Beginning with learning-based workshops, Watkins and Marsick realized that an applied measure of learning organization culture did not exist and could be of great value. They started to build a questionnaire around the seven dimensions they had identified as critical to a learning organization culture. Each item on the questionnaire began with the phrase “In my organization . . .” so as to create uniformity among the items, and each was measured on a six-point Likert scale. The questionnaire was reviewed numerous times with experts and students to check for utility, plain language, and basic validity and reliability statistics. This information was used to change or delete weak or poorly worded questions so as to ensure a robust overall questionnaire. The resulting questionnaire was named the Dimensions of Learning Organization Questionnaire (DLOQ).

**Step 2—Collect and Analyze Data**

Once initial score reliability and validity were established, the researchers began larger, more complex studies that emerged along two strands of research: (1) further, more complex validity studies and (2) a variety of survey-research studies conducted through the authors’ home institutions (the University of Georgia and Columbia University’s Teachers College).

Watkins and Marsick invited Baiyin Yang to join their research team with an explicit goal of continuing to confirm the score reliability and construct validity of the DLOQ. Because of his statistical analysis expertise, Yang led several studies that examined psychometric validity, including the DLOQ’s score, construct, and content validity with large sample sizes. These turned out to be very powerful studies that secured a sense of confidence in the initial theorizing by Watkins and Marsick. The authors have been generous with their questionnaire, offering it for use by theorists and encouraging additional studies that explore its utility as a diagnostic and research tool.

The second stream of research studies that sought to use the DLOQ as a research variable measure was also a productive one. Many authors have
positioned the DLOQ as a variable in their own sets of inquiry studies. For example, scenarioplanning theory has positioned learning organization culture as an outcome variable of the scenarioplanning process.

To summarize, the DLOQ has been of high utility over the past decade. A summary of research studies (both validity and other) is provided in Figure 9.2. These studies illustrate a great interest in learning organizations as a relevant and important variable in organizational research. This entire set of inquiry studies could be thought of as a continued effort in the Operationalize phase of theory building for the theory of learning organization culture.

**FIGURE 9.2** Dimensions of Learning Organization Questionnaire Studies

<table>
<thead>
<tr>
<th>Use of DLOQ</th>
<th>Authors (Year)</th>
<th>Name of DLOQ/Related Variable</th>
<th>Country</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input Role</td>
<td>Ellinger, Ellinger, Yang, &amp; Howton (2002)</td>
<td>Learning organization (LO)/Financial performance</td>
<td>USA</td>
</tr>
<tr>
<td></td>
<td>Ellinger, Ellinger, Yang, &amp; Howton (2003)</td>
<td>LO/Financial performance</td>
<td>USA</td>
</tr>
<tr>
<td></td>
<td>Hernandez (2003)</td>
<td>LO Environment/Tacit knowledge transfer; Financial/knowledge performance</td>
<td>Columbia</td>
</tr>
<tr>
<td></td>
<td>Maria (2003)</td>
<td>Learning culture (LC)/Use of innovation</td>
<td>Malaysia</td>
</tr>
<tr>
<td></td>
<td>Egan, Yang, &amp; Bartlett (2004)</td>
<td>Organizational learning (OL) Culture/Job satisfaction, Motivation to transfer learning, Turnover intention</td>
<td>USA</td>
</tr>
<tr>
<td></td>
<td>Power &amp; Waddell (2004)</td>
<td>LO/Self-managed work teams; Performance indicators</td>
<td>Australia</td>
</tr>
<tr>
<td></td>
<td>Ismail (2005)</td>
<td>LO Culture/Innovation</td>
<td>Malaysia</td>
</tr>
<tr>
<td></td>
<td>Kumar &amp; Idris (2006)</td>
<td>LO/Institutional characteristics; Knowledge performance</td>
<td>Malaysia</td>
</tr>
<tr>
<td></td>
<td>Wang &amp; Yang (2007)</td>
<td>LO Culture/Job satisfaction; Organizational performance</td>
<td>China</td>
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<tr>
<td></td>
<td>Wang (2007)</td>
<td>LO Culture/Job satisfaction; Organizational commitment</td>
<td>China</td>
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<tr>
<td></td>
<td>Berg &amp; Chyung (2008)</td>
<td>OL Culture/Informal learning engagement</td>
<td>USA</td>
</tr>
<tr>
<td>Authors</td>
<td>Study Title</td>
<td>Variables</td>
<td>Country</td>
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<tr>
<td>Davis &amp; Daley (2008)</td>
<td>LO/Business overall performance&lt;sup&gt;a&lt;/sup&gt;</td>
<td>USA</td>
<td></td>
</tr>
<tr>
<td>Song (2008)</td>
<td>LO Culture/Knowledge creation practices&lt;sup&gt;a&lt;/sup&gt;</td>
<td>Korea</td>
<td></td>
</tr>
<tr>
<td>Estrada (2009)</td>
<td>LO/Evidence-based practice&lt;sup&gt;a&lt;/sup&gt;</td>
<td>USA</td>
<td></td>
</tr>
<tr>
<td>Joo &amp; Lim (2009)</td>
<td>OL Culture/Proactive personality&lt;sup&gt;d&lt;/sup&gt;; Job complexity&lt;sup&gt;c&lt;/sup&gt;; Organizational commitment&lt;sup&gt;a&lt;/sup&gt;</td>
<td>Korea</td>
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<tr>
<td>Michna (2009)</td>
<td>LO/Organizational performance&lt;sup&gt;d&lt;/sup&gt;</td>
<td>Poland</td>
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<tr>
<td>Park &amp; Rothwell (2009)</td>
<td>OL Climate/Career-enhancing strategy&lt;sup&gt;c&lt;/sup&gt;; Protean career&lt;sup&gt;a&lt;/sup&gt;</td>
<td>Korea</td>
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<tr>
<td>Park (2009)</td>
<td>OL Climate/Subjective career success&lt;sup&gt;c&lt;/sup&gt;; Protean career&lt;sup&gt;a&lt;/sup&gt;</td>
<td>Korea</td>
<td></td>
</tr>
<tr>
<td>Hung, Yang, Lien, McLean, &amp; Ku (2010)</td>
<td>OL Culture/Dynamic capability&lt;sup&gt;c&lt;/sup&gt;; Organizational Taiwan performance&lt;sup&gt;d&lt;/sup&gt;</td>
<td>Taiwan</td>
<td></td>
</tr>
<tr>
<td>Joo &amp; Park (2010)</td>
<td>OL Culture/Career satisfaction, Turnover intention, Organizational commitment&lt;sup&gt;a&lt;/sup&gt;</td>
<td>Korea</td>
<td></td>
</tr>
<tr>
<td>Input Role, continued</td>
<td>Joo (2010)</td>
<td>OL Culture/Organizational commitment&lt;sup&gt;c&lt;/sup&gt;; Turnover intention&lt;sup&gt;a&lt;/sup&gt;</td>
<td>Korea</td>
</tr>
<tr>
<td>Park (2010)</td>
<td>OL Climate/Subjective career success&lt;sup&gt;a&lt;/sup&gt;</td>
<td>Korea</td>
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<tr>
<td>Reardon (2010)</td>
<td>LC/Worker response&lt;sup&gt;a&lt;/sup&gt;</td>
<td>USA</td>
<td></td>
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<tr>
<td>Yoon, Song, Lim, &amp; Joo (2010)</td>
<td>LO Culture/Team creativity, Knowledge creation practice&lt;sup&gt;c&lt;/sup&gt;; Team performance&lt;sup&gt;d&lt;/sup&gt;</td>
<td>Korea</td>
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<tr>
<td>Abu-Tineh (2011)</td>
<td>OL/Career resilience&lt;sup&gt;a&lt;/sup&gt;</td>
<td>Qatar</td>
<td></td>
</tr>
<tr>
<td>Song, Jeung, &amp; Cho (2011)</td>
<td>LO Culture/Organizational learning process&lt;sup&gt;a&lt;/sup&gt;</td>
<td>Korea</td>
<td></td>
</tr>
<tr>
<td>Ali (2012)</td>
<td>LO/Performance satisfaction&lt;sup&gt;a&lt;/sup&gt;</td>
<td>Malaysia</td>
<td></td>
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<tr>
<td>Diani (2012)</td>
<td>Work environment/Training transfer&lt;sup&gt;a&lt;/sup&gt;</td>
<td>Lebanon</td>
<td></td>
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<tr>
<td>Mediator Role</td>
<td>Song &amp; Kim (2009)</td>
<td>LO Culture/Individuals' organizational behaviors&lt;sup&gt;b&lt;/sup&gt;; Organizational commitment&lt;sup&gt;a&lt;/sup&gt;</td>
<td>Korea</td>
</tr>
<tr>
<td>Song, Kim, &amp; Kolb (2009)</td>
<td>LO Culture/Interpersonal trust&lt;sup&gt;b&lt;/sup&gt;; Organizational commitment&lt;sup&gt;a&lt;/sup&gt;</td>
<td>Korea</td>
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<tr>
<td>Moderator Role</td>
<td>Joo &amp; Shim (2010)</td>
<td>OL Culture/Psychological empowerment&lt;sup&gt;b&lt;/sup&gt;; Organizational commitment&lt;sup&gt;a&lt;/sup&gt;</td>
<td>Korea</td>
</tr>
<tr>
<td>Wei, Zheng, &amp; Zhang (2011)</td>
<td>LC/Structural equivalence&lt;sup&gt;b&lt;/sup&gt;; Knowledge transfer&lt;sup&gt;a&lt;/sup&gt;</td>
<td>China</td>
<td></td>
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<tr>
<td>Output Role</td>
<td>LO/Motivation&lt;sup&gt;b&lt;/sup&gt;</td>
<td>USA</td>
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<tr>
<td>Angela, Silva, &amp; Leila (2011)</td>
<td>LO/Leadership styles&lt;sup&gt;b&lt;/sup&gt;</td>
<td>Lebanon</td>
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<tr>
<th>Correlation</th>
<th>LO Characteristics/Scenario planning&lt;sup&gt;c&lt;/sup&gt;</th>
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<tbody>
<tr>
<td>Chernack, Lynham, &amp; van der Merwe (2006)</td>
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<thead>
<tr>
<th>Evaluation of DLOQ</th>
<th>Individual learning behavior, Performance (Firm)</th>
<th>USA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ellinger, Ellinger, &amp; Keller (2002)</td>
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<tr>
<th>Evaluation of DLOQ</th>
<th>LO, Performance</th>
<th>Australia</th>
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<tbody>
<tr>
<td>Dymock (2003)</td>
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<td>McHargue (2003)</td>
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<tr>
<th>Evaluation of DLOQ</th>
<th>LO, Performance (financial•knowledge•mission)</th>
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<tbody>
<tr>
<td>Somerville &amp; McCon nell-Imbiotis (2004)</td>
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<tr>
<th>Evaluation of DLOQ, continued</th>
<th>LO, Performance (financial•knowledge)</th>
<th>Malaysia</th>
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<tbody>
<tr>
<td>Rose &amp; Kumar (2006)</td>
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<tr>
<th>Evaluation of DLOQ, continued</th>
<th>LO</th>
<th>USA</th>
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<tbody>
<tr>
<td>Amy (2008)</td>
<td></td>
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<td>Jamali, Sidoni, &amp; Zouein (2009)</td>
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<thead>
<tr>
<th>Evaluation of DLOQ, continued</th>
<th>LO, Performance (financial•knowledge)</th>
<th>USA</th>
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<tr>
<td>Weldy &amp; Gillis (2010)</td>
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<tr>
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<th>LO</th>
<th>Jordan</th>
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<tbody>
<tr>
<td>Al-jawazneh &amp; Al-Awawdeh (2011)</td>
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<thead>
<tr>
<th>Evaluation of DLOQ, continued</th>
<th>LO, Performance (financial•knowledge)</th>
<th>India</th>
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<tbody>
<tr>
<td>Awasthy &amp; Gupta (2011)</td>
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<thead>
<tr>
<th>Validation of DLOQ</th>
<th>LO</th>
<th>Iran</th>
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<tbody>
<tr>
<td>Nazari &amp; Pihie (2012)</td>
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<thead>
<tr>
<th>Validation of DLOQ</th>
<th>LC, Performance (financial•knowledge)</th>
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<tr>
<th>Validation of DLOQ</th>
<th>LC, Performance (financial•knowledge)</th>
<th>N/A</th>
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<thead>
<tr>
<th>Validation of DLOQ</th>
<th>LO</th>
<th>China</th>
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</table>
Step 3—Connect the Results to the Theory

The results of the inquiry studies cited in Figure 9.2 have been overwhelmingly supportive of the theory of learning organization culture. Evidence has been collected from a variety of organization types, industries, countries, languages, and locations that confirms the utility of the theory and the accuracy or fit of the authors’ theorizing with reality.

Additionally, an analysis of the variable position of the DLOQ has been conducted (see Figure 9.3). Each of these individual studies (and particularly the validity studies) has made reference to what the results mean for the research and practice of learning organization. In short, efforts to confirm/disconfirm the theory of learning organization have spanned a decade and the collective outcomes confirm the theory in the real world.

APPLY PHASE OF LEARNING ORGANIZATION CULTURE THEORY

The Apply phase was in many ways the starting point for the learning organization culture theory developed by Watkins and Marsick. The issues related to learning organization cultures were a part of their work before the term learning organization was recognized. In addition, Watkins and Marsick have been simultaneously delving into research, theorizing, and practice. The culmination of how to work with the DLOQ and related concepts was published in another book titled Facilitating Learning Organizations (Marsick & Watkins, 1999). This book sought to “offer advice to facilitators and change agents who wish to build systems-level learning in order to create knowledge that can be
used to gain a competitive advantage” (p. 4). The book is in many ways a chronicle of the Apply phase.

**FIGURE 9.3** Frequency of Dimensions of the Learning Organization and Related Variables

<table>
<thead>
<tr>
<th>Type</th>
<th>Variable (Frequency)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Roles of DLOQ</strong></td>
<td>Input (28), Mediator (2), Moderator (2), Output (2), Correlation (1)</td>
</tr>
<tr>
<td><strong>Antecedent</strong></td>
<td>Motivation, Self-managed work teams, Psychological empowerment, Interpersonal trust, Individuals’ organizational behaviors, Structural equivalence, Leadership styles, Institutional characteristics</td>
</tr>
<tr>
<td><strong>Mediator/Moderator</strong></td>
<td>Job satisfaction (2), Job complexity, Proactive personality, Career-enhancing strategy, Subjective career success, Dynamic capability, Organizational commitment, Team creativity, Knowledge creation practice, Tacit knowledge transfer</td>
</tr>
<tr>
<td><strong>Outcome</strong></td>
<td>Organizational/Business/Team/Financial performance (9), Organizational commitment (6), Job/career/performance satisfaction (3), Turnover intention (3), Innovation (2), Knowledge/Training transfer (2), Protean career (2), Career resilience, Evidence-based practice, Knowledge creation practices, Motivation to transfer learning, Organizational learning process, Subjective career success</td>
</tr>
</tbody>
</table>

*Note: Frequency in parentheses is shown only when a variable was used more than one time. Each of these individual studies (and particularly the validity studies) has made reference to what the results mean for the research and practice of learning organization. In short, efforts to confirm/disconfirm the theory of learning organization have spanned a decade and the collective outcomes confirm the theory in the real world.*

*Source: Song, Chermack, and Kim (2013).*

**Step 1—Analyze Related Problems**

*Facilitating Learning Organizations* is full of examples of application in a variety of companies, from Johnsonville Foods to the Public Service Enterprise Group. It is a set of miniature case studies. In almost every case, the DLOQ is
positioned as a diagnostic tool. It is an analysis tool. Using the DLOQ can help to identify problems among its seven dimensions; therefore, it is often used as a starting point for organizational change. Most of the cases document using the DLOQ as an analysis tool and then jumping into a variety of facilitator tips for how to react to various states identified by the DLOQ diagnosis.

**Step 2—Propose, Create, and Implement Solutions**

The unique thing about the DLOQ is that it can potentially identify and locate the problem area and suggest immediate solutions. For example, if the “dialogue and inquiry” dimension is shown to be lacking, a variety of techniques can be used to promote conversations across the levels of the organization. If the “team learning” dimension returns a low score, a variety of approaches to team building and work design can be implemented. If “connection to the external environment” is shown to be an issue, revised strategy and strategic learning options can be considered. The DLOQ has tremendous utility as a diagnostic tool, and this step is perhaps where it shines in the Apply phase.

Secondary to a diagnostic tool is using the DLOQ as a variable characteristic. For example, a variety of organizational interventions are designed to impact culture. The DLOQ gives other theorists a ready-made, operationalized measure of learning organization characteristics to use. Many of the inquiry studies summarized in Figure 9.2 used the DLOQ in this way; and as such, from an assessment perspective, the DLOQ can be used as an initial measure of learning culture with intent to improve it, or as an initial measure of a variable within another research system.

**Step 3—Assess Results**

Watkins and Marsick have gone far beyond anecdotes. Results of studies using the DLOQ have been scrutinized in the double-blind, peer review process. Therefore, the results are credible and scholarly. In almost every instance of inquiry, the studies that have focused on the DLOQ have assessed the results in the context of either (1) establishing further validity and reliability of DLOQ scores or (2) addressing practical problems in practice. With the addition of their cases and practical advice for facilitators published in *Facilitating the Learning Organization*, Watkins and Marsick have led a charge to develop a theory-based approach to learning organizations that has established evidence of confirmation and considerable application.

**Refine Phase of Learning Organization Culture Theory**
The continuous nature of the approach to developing theory chosen by Watkins and Marsick is admirable and has been consistently multifaceted. In other words, the authors have consistently advanced multiple phases of theory building at the same time. More than many applied theory examples, the learning organization culture theory has consistently developed over time in terms of its utility in research, measureable aspects, and application. In addition, it has gained attention and use across several disciplines, including adult learning, human resource development, and management.

Given that extensive effort has been undertaken to examine the psychometric properties of measurement validity and that reliability has been established, the greatest opportunity for continuous refinement is in the use of learning organization culture as an outcome variable for a variety of possible interventions and more definite application processes. While *Facilitating the Learning Organization* contains many practitioner tips and advice, it does not provide a guiding framework or process steps (even if generic) for instilling the seven dimensions. There is still room to advance the understanding of “how to” develop a learning organization.

**SUMMARY AND STATUS OF LEARNING ORGANIZATION CULTURE THEORY**

This chapter has illustrated the phases of theory building using the learning organization culture theory developed by Watkins and Marsick (1993; Marsick & Watkins, 1999). Each phase of the theory-building process was described, as well as the major direction of the theory building and potential areas for continued development. Following the same format, the next chapter describes the application of the various phases and steps of this book to the theory of scenario planning created by Chermack (2004, 2005).
Case Example: Chermack’s Scenario Planning Theory

**THIS CHAPTER ILLUSTRATES** the direct application of the General Method of Theory Building in Applied Disciplines to creating a new theory. Scenario planning has been claimed as a strategic learning tool (Chermack & Swanson, 2008), and numerous organizational scholars have contributed to its development (Healey & Hodgkinson, 2008; Keough & Shanahan, 2008; Korte, 2008; McWhorter, Lynham, & Porter, 2008; van der Merwe, 2008; Wack, 1985). In this case example, the task is to illustrate each of the five phases in building a theory of scenario planning (Chermack, 2004a, 2005). Specifically, this chapter will

- describe the Conceptualize phase as applied to scenario planning,
- discuss the Operationalize phase as applied to scenario planning,
- examine the Apply phase as applied to scenario planning,
- describe the Confirm phase as applied to scenario planning,
- describe the Refine phase as applied to scenario planning, and
- discuss a set of quality indicators that have been applied to scenario planning theory-building work.

**WHAT IS SCENARIO PLANNING?**

Scenario planning is a method involving group participation that aims to help shift participants’ perceptions of their external environment. The shift is critical in helping the organization achieve its goals in an uncertain environment. The intended outcomes of scenario planning include individual and team learning about driving forces of change in the business environment, integrated decision making, integrated understanding of how the organization can achieve its goals amid uncertainty, and increased dialogue among organizational members.

These outcomes collectively allow individuals and the organization to be better prepared for a variety of circumstances that an uncertain future can present. Scenario planning functions as a series of workshops, interviews, and team-based activities. Scenarios are narrative stories that follow particular paths into the future based on research, trends, and the key concerns of the people who will use them (Schwartz, 1991; van der Heijden, 2005; Wilson & Ralston, 2006).
Scenario planning is a disciplined method for imagining possible futures that companies have applied to a great range of issues. For example, Royal Dutch/Shell has used scenarios since the early 1970s as part of a process for generating and evaluating strategic options (Wack, 1985).

The use of scenario planning in organizations has increased significantly since Shell’s reported success in using scenarios to avoid the impacts of the oil crises in the 1970s and 1980s (Ramirez, Selsky, & van der Heijden, 2008). More recent applications of scenario planning have expanded to include urban planning, health care, and small businesses.

An integrative framework for scenerioplanning practice was established (Chermack, 2011) based on sound research, theory, and practice. Integrating previous literature until the year of publication, this theory proposed a framework for practice that could accommodate various other approaches to scenario planning. The remainder of this chapter describes the development of that framework according to the processes described in this book.

**THE CONCEPTUALIZE PHASE OF THE SCENARIOPLANNING THEORY**

The initial attempt at constructing a theory of scenario planning (Chermack, 2004a) was based mainly on the scenarioplanning literature, as little empirical research had been conducted on the topic. The effort was deductive, beginning with an extensive knowledge of the literature and then working toward the development of key concepts that ultimately function together in a system that can be called a theory (Dubin, 1978).

Specific strategies used to develop the concepts included an integrative literature review, conversations with practitioners, analysis of individual experiences, philosophical orientation considerations, imaging, systems diagramming, and a focus on involved and related variables. These practices led to a clear direction in terms of the overlap generated by considering all of the results.

**Step 1—Defining the Concepts**

Almost all of the strategies described in the Conceptualize phase of theory building were used to generate five key concepts in a theory of scenario planning (Chermack, 2004a, 2005): (1) organizational learning, (2) mental models, (3) decision making, (4) organizational performance, and (5) dialogue—a concept added after receiving feedback from practitioners. Using the five concepts in a systematic way was the scenarioplanning framework’s method to produce the
results claimed by practitioners. The addition of this fifth element can be viewed as a form of continuous refinement while still working in the Conceptualize phase. It is a good example of the nonlinear nature of theory building and the lesson that a theorist will typically jump around among the phases.

**Step 2—Organizing the Concepts**

Visualizing the concepts and organizing them into a configuration that was satisfactory to the theorist involved the use of sticky notes and systems diagramming. Over the course of six months, researchers tested several such configurations using whiteboards to help visualize the process until arriving at the final configuration.

**Step 3—Defining the Boundaries**

A decision was made to bound the theory of scenario planning at the organizational level. Certainly, arguments can be made for broad definitions of organizations, but it was generally taken to mean that the theory of scenario planning was intended to apply to for-profit or nonprofit organizations that are not too broad, possess a tangible distinctiveness, and have operated with a sense of continuity over time (Albert & Whetten, 1985).

In large, global organizations, adjustments may be required to accommodate the overall size of the organization. Wack (1985) offered the following useful summary:

> Scenarios are like cherry trees: cherries grow neither on the trunk, nor on the large boughs; they grow on the small branches of the tree. Nonetheless, a tree needs a trunk and large branches in order to grow small branches. The global, macro-scenarios are the trunk; the large branches are the country scenarios developed by Shell operating companies, in which factors individual to their own countries—predetermined and uncertain—are taken into account and added. But the real fruits of the scenarios are picked at the small branches, the focused scenarios that are custom tailored around a strategic issue or a specific market or investment project. (p. 83)

So, in cases of large, global organizations, multiple rounds of scenario building may be required at the regional or business process level for the process to be successful. However, the ultimate bounding of the theory was still at the organizational level. Cases exist of scenario planning used at the city and national levels; although these have yielded case studies, no coherent program of research has emerged from more eclectic applications of scenario planning.

**OPERATIONALIZE PHASE OF THE SCENARIOPLANNING THEORY**
Because of a general lack of empirical research on scenario planning, the theorists decided to use Dubin’s (1978) approach to theory development. Operationalization therefore proceeded with straightforward identification of propositions, empirical indicators, and hypotheses.

**Step 1—Describe the Propositions of the Theory**

The concepts identified in the conceptual development phase drove the propositions. In other words, each concept had a logical reason for being selected as a part of the theory, and the logic for inclusion was clarified in the propositions as well, as a clue to the directional relationships expected.

Proposition 1: If scenarios are positively associated with learning, then learning will increase as a result of participation in scenario planning.

Proposition 2: If learning is positively associated with the alteration of mental models, then mental models change as a result of learning.

Proposition 3: If a change in mental models alters decision structure, then a change in mental model implies a change in the approach to decision making.

Proposition 4: If changes in decision making are positively associated with firm performance, then firm performance will improve as a result of altered decision-making strategies.

Proposition 5: If scenarios are positively associated with dialogue, conversation quality and engagement, then dialogue, conversation quality, and engagement will increase as a result of participation in scenario planning.

**Step 2—Describe the Results Indicators**

Scenarios work like an on/off switch: the use of scenarios initiates the process the theory attempts to explain. If scenarios are used as the basis of the planning exercise, then the theory associated with scenario planning is expected to be able to explain the outcomes of the planning exercise. The empirical indicators begin with measurements of learning and are as follows:

Empirical Indicator 1: The value of concept (learning) will increase as a result of participation in scenario planning as measured by the Dimensions of Learning Organization Questionnaire.

Empirical Indicator 2: The value of concept (mental models) will increase
as a result of participation in scenario planning as measured by the Mental Model Style Survey.

Empirical Indicator 3: The value of concept (decisions) will increase as a result of participation in scenario planning as measured by the General Decision Making Style Survey.

Empirical Indicator 4: The value of concept (performance) will improve as a result of participation in scenario planning as measured by any instrument that measures firm performance.

Empirical Indicator 5: The value of concept (dialogue, conversation quality and engagement) will increase as a result of participation in scenario planning as measured by the Conversation Quality and Engagement Checklist.

The empirical indicators fall in line with a logical extension of the concepts and an appropriate measurement instrument. A detour was required for empirical indicator 2: there was no existing measure of mental models that was appropriate for the context of scenario planning. Existing measures of mental models were driven by interview transcription analysis and mind-mapping software that did not yield a useful way to compare mental models across a variety of participants. Through two years of instrument development and initial validation studies, Chermack, Song, Nimon, Choi, and Korte (2012) established the Mental Model Style Survey, developed specifically for application in scenario planning and organizational change contexts. The survey was later expanded and examined in a different setting (Chermack, Glick, Cumming, & Veliquette, 2011).

Otherwise, the measurement instruments used to assess the theory of scenario planning were selected based on access, brevity, utility, and track record. The theorists invested a considerable amount of time in learning about the available measures in each domain of interest, conducting library searches and literature reviews, and skimming previous research that used the instruments before making a selection in each case.

**Step 3—Develop Research Questions**

The research questions for the proposed theory of scenario planning followed a logical connection to the results indicators described in the previous step. Developing research questions was a relatively simple exercise in the context of the scenario planning theory because the philosophical orientation and research paradigm allowed the research questions to emerge based on the stepped work up to this point. The research questions each framed a separate study on scenario
What are the effects of scenario planning on learning organization culture?

What are the effects of scenario planning on participant perceptions of mental models?

What are the effects of scenario planning on participant perceptions of decision-making styles?

What are the effects of scenario planning on objective measures of organizational performance?

What are the effects of scenario planning on participant dialogue, conversation, and communication skills?

These research questions came directly from the process of specifying propositions and identifying results indicators. They all took the same structure and form based on best practices in quantitative research methods.

CONFIRM PHASE OF THE SCENARIO PLANNING THEORY

The theorists conducted several studies over approximately ten years to confirm the theory of scenario planning. Because there was a variety of relationships to assess, they selected a study design that would support the greatest power in answering the research questions that could be easily replicated in multiple studies.

Step 1—Design the Inquiry Study

The theorists chose a quasi-experimental research design as the frame for all of the theory research conducted because it is the design best suited to answer the research questions posed. The approach was a pretest/posttest, treatment/control group design. This enabled observed changes in a treatment group to be checked and attributed to the intervention (scenario planning) because the control groups showed no changes. A summary of these research studies is provided in Figure 10.1.

Because the lead theorist was affiliated with a research university, in all cases Internal Review Board (IRB) permission was sought and granted according to university research rules and regulations. IRB approval ensures the integrity of the research and that human subjects were given the proper treatment as research protocols dictate.
**Step 2—Collect and Analyze Data**

In all of these studies, data were generally collected and analyzed the same way. Each study involved the theorists gathering pretest survey results from participants in the first scenarioplanning workshops. Surveys were printed in hard copies, and participants filled them out in real time, in a process that was built into the workshops (Glick, Chermack, Luckel, & Gauck, 2012, p. 498). Participants self-selected a code so that pre-and posttests could be matched. Posttest data were collected at the final scenario workshops, again in hard copy. Data were entered into a computer and analyzed with SPSS, which is a statistical software package that can perform a variety of complex statistical analyses.

![FIGURE 10.1 Inquiry Studies Examining Chermack’s Theory of Scenario Planning.](image-url)

<table>
<thead>
<tr>
<th>Study No.</th>
<th>Study Citation</th>
<th>Sample Size</th>
<th>Replicated?</th>
<th>Results Support the Scenario Planning Theory?</th>
</tr>
</thead>
</table>
Step 3—Connect the Results to the Theory

Four of the five research studies have been replicated, and four of the five research studies used a quantitative research paradigm. All of the four studies from the quantitative research paradigm used significance tests and calculated effect sizes to make more powerful statements about changes in the data as a result of the scenario planning intervention. These studies supported the theory of scenario planning, as significant results were found with medium to large effect sizes. In other words, the relationships found between scenario planning and these four content areas were compelling and directional in favor of how it was theorized. The study that used a qualitative research paradigm featured interviews with a variety of organizational decision makers who had used scenario planning within the previous three to six months. Participants were asked to reflect on the utility of scenario planning and give specific examples of how the exercise may have influenced or would influence their firm performance. Again, in all cases specific attention was given to what the study results meant in terms of the accuracy of the theory.

**APPLY PHASE OF THE SCENARIOPLANNING THEORY**

The eventual outcome of the research studies described in the previous section

<table>
<thead>
<tr>
<th>Study</th>
<th>Title</th>
</tr>
</thead>
</table>
was a book titled *Scenario Planning in Organizations* (Chermack, 2011). The book is a practically focused work that uses the theory of scenario planning to develop an approach to practicing it. It describes practical procedures that can be used in workshops that will result in improved performance in the areas studied.

**Step 1—Analyze Problems**

Over the past ten years, the lead theorist also engaged in the practice of scenario planning. Various problems were addressed with the scenario method, and the common factor for all of them was uncertainty around a decision that needed to be made. The scenarioplanning method can address various problems, from specific issues like investing in a new product or technology to something as broad as exploring the future of the industry. Emerging from a decade of practice of scenario planning, the theorist discovered that uncertainty in decision making was the common factor that influenced strategy development.

**Step 2—Propose, Create, and Implement Solutions**

Because of detailed study according to rigorous criteria in the variety of inquiry studies, the theorist was able to delineate several processes and process steps required to apply scenario planning according to what the theory suggested. Stated another way, the theory drove the development of practical procedures that could be applied in any organization. Again, a variety of clients have sought scenario planning over the last ten years; and each case, while unique, presents some similar characteristics. Each instance of application received a version of the processes borne out from the theory-based investigation of scenario planning. Some cases were facilitated more rapidly than others, and some simply took more time. However, the end result has been that as long as some basic hallmark characteristics of scenario planning are fulfilled, the theory tends to operate as hypothesized.

**Step 3—Assess Results**

Practice results have indicated that scenario planning can be effectively deployed to address a variety of purposes in a variety of contexts. Some similarities are required, such as uncertainty in the environment and open minds. The set of anecdotal evidence in the form of written reports to project stakeholders, including an analysis of results, indicate a successful theory-building project.

Continued practice and inquiry is, of course, required. Consistent project feedback is not focused on potential inaccuracies of the theory; rather, it is
focused on what might be missing from the original Conceptualize phase of theory building. Specifically, clients have indicated that perhaps elements like trust, engagement, resilience, grief, change management, and a clearer link to strategy could be reasonable and logical elements of a theory of scenario planning. Because of this feedback, the theorist is directed back to the Conceptualize phase for considering continuous refinement opportunities.

**REFINE PHASE OF THE SCENARIO PLANNING THEORY**

The Apply and Refine phases are closely linked, with the lines between them blurred. A decade of practicing scenario planning while following theoretically sound ideas has led the theorist to the possible inclusion of multiple additional elements of the theory. For example, as noted, feedback from practice has suggested that organizational trust, employee engagement, employee resilience, coping with grief, and complex change management are all areas where scenario planning could foreseeably play a supporting role. Thus, the theorist returns to the Conceptualize phase to consider including these elements in the theory. Where and how they fit into the original theory is unclear and requires a significant amount of literature review and synthesis.

To add to the Operationalize phase and include these constructs requires yet even more scholarly work in determining appropriate instruments. However, the general research design is already established; and once measurement instruments are found, inquiry studies could be generated quite quickly. In fact, inquiry studies for each of these variables are all underway as of the date of this publication, and results will be reported in scholarly journals similar to those cited earlier.
CONCLUSION

This chapter has illustrated each phase of theory building with reference to an actual theory-building project on scenario planning. The purpose was to give a concrete example of a real theory and to describe how each set of steps was accomplished. In addition, directions for future research and adjusting the theory based on research and practice were discussed.
Figuring Out the Present Status of a Theory

THE BULK OF THIS BOOK has been an effort to detail and illustrate the use of the five-phase General Method of Theory Building in Applied Disciplines. This chapter demonstrates another way of using the method—as a tool for assessing the status of theories. Specifically, this chapter will

• summarize the method’s holistic utility,
• describe how the method can be used to assess theories, and
• illustrate the use of the method to assess applied discipline theories.

Theory building is challenging work. Deep thinking and consistent examination of an integrated set of relationships takes time. Plus, there are many barriers to theory building in applied disciplines. Gaining access to organizations with their fickle short-term financial views and organizational politics are two barriers. In addition, measurement and assessment criteria can provide challenges. Even so, the struggle to arrive at “knowing” something offers inspiration that motivates practitioners and scholars to solve complex problems.

The inability to sustain the needed inspiration and motivation will more likely result in half-baked theories that do not lead to the generation of new knowledge intended. It is unfortunate that scholars dedicate effort to advancing “pieces” of theories that do not connect with their larger context and fall short of holistic description of the selected realm. For sure, practitioners would continue to throw a variety of random solutions in a strict mode of trial-and-error effort, hoping something lands in their personal theory phase buckets: Conceptualize, Operationalize, Confirm, Apply, and Refine. Alternatively, a focus on building robust theories that demonstrate activity in all of the phases—full buckets—will yield more fruitful outcomes.

“Scholars cannot be satisfied with the erroneous idea of theory being disconnected from practice” (Swanson, 2003, p. 209). In applied disciplines, scholars and practitioners have to work together to build robust theories. But if theory is an undefined target that includes personal theories and other forms of uninvestigated opinion, no progress will be made.

To advance the building of robust, useful theories for applied disciplines, all
of the phases detailed in this book must be involved in order to legitimately use the term *theory*. Theorists need to confront the deficiencies that falsely carry the label of “theory based” or some variation. Consultants with personal expertise rushing to sell their simple idea while labeling it a “theory” should be called up short. The scholars in applied disciplines who have not set foot in an organization in several years are just as guilty. Connecting deep thinking with difficult problems should be the hallmark of how applied disciplines move forward. The solution, then, is to apply the general method as a theory assessment tool.

**THEORY-BUILDING “BUCKETS”**

Our approach to using the General Model of Theory Building in Applied Disciplines as an assessment tool uses a metaphor of a bucket for each theory-building phase. The question to be answered is simply, How full is each “bucket” for the theory being assessed? A generalization from gestalt psychology theory is that “the whole is greater than the sum of its parts.” Even so, the parts are needed to get to the whole, as well as their interactions. And the major concept that frames our presentation of theory building is evident from the synergy that occurs when systems are known and functioning in optimal conditions.

For theory building, the power lies in the robustness of having worked through all the phases and filling each bucket. When each phase is completed rigorously, the outcome not only accurately describes, explains, and in some cases predicts, but is also highly useful in solving problems and changing the way things are done. The consumer task is relatively simple: asking the question “How full is each bucket?”

*Figure 11.1* integrates the five phases of theory building into a practical theory assessment tool. To get the most out of the tool, the steps of each phase should be assigned an assessment rating of high, medium, or low. This rating refers to the level of information, evidence, and resources available to support each step. A brief description should also be included, and the same should be done for each full phase overall.

**The Conceptualize Bucket**

The goal here is simply to assess the extent to which the concepts have been defined, organized, and bounded. A simple rating of high, medium, or low for each step, with brief comments about the nature of the evidence for each step, will suffice. The status of these three steps points to an overall rating for the
phase.

**The Operationalize Bucket**

The Operationalize bucket consists of propositions, results indicators, and research questions. In many ways, these are simple to assess—either they exist or they do not. Another question arises in whether the information found here is comprehensive, but that is really a question left to other phases. Again, ratings should be applied based on information available for each step and integrated into a phase-level rating.

**FIGURE 11.1 Theory in Applied Disciplines Status Assessment Tool**

<table>
<thead>
<tr>
<th>Phase</th>
<th>Steps</th>
<th>Step-Level Ratings + Comment</th>
<th>Phase-Level Ratings + Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conceptualize</td>
<td>1. Define the concepts</td>
<td>H M L + Comment</td>
<td>H M L + Comment</td>
</tr>
<tr>
<td></td>
<td>2. Organize the concepts</td>
<td>H M L + Comment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Define the boundaries</td>
<td>H M L + Comment</td>
<td></td>
</tr>
<tr>
<td>Operationalize</td>
<td>1. Describe the propositions</td>
<td>H M L + Comment</td>
<td>H M L + Comment</td>
</tr>
<tr>
<td></td>
<td>2. Describe the results indicators</td>
<td>H M L + Comment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Develop research questions</td>
<td>H M L + Comment</td>
<td></td>
</tr>
<tr>
<td>Confirm</td>
<td>1. Design the inquiry study</td>
<td>H M L + Comment</td>
<td>H M L + Comment</td>
</tr>
<tr>
<td></td>
<td>2. Collect and analyze data</td>
<td>H M L + Comment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Connect the results to the theory</td>
<td>H M L + Comment</td>
<td></td>
</tr>
<tr>
<td>Apply</td>
<td>1. Analyze related problems</td>
<td>H M L + Comment</td>
<td>H M L + Comment</td>
</tr>
<tr>
<td></td>
<td>2. Propose, create, and implement solutions</td>
<td>H M L + Comment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Assess results</td>
<td>H M L + Comment</td>
<td></td>
</tr>
<tr>
<td>Refine</td>
<td>1. Generate insights</td>
<td>H M L + Comment</td>
<td>H M L + Comment</td>
</tr>
<tr>
<td></td>
<td>2. Investigate insights</td>
<td>H M L + Comment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Update the theory</td>
<td>H M L + Comment</td>
<td></td>
</tr>
</tbody>
</table>

*Note: H = high, M = medium, L = low evidence of the corresponding activity in the step columns and an overall rating in the phase column.*

**The Confirm Bucket**

The Confirm bucket should contain all of the inquiry studies that feature the relationships defined in the theory. These inquiries give an overall sense of the
theory’s accuracy, fit in the real world, and trustworthiness. Logically, newer theories will almost always have a low rating here. However, it may come as a surprise that when scrutinized at this level, many theories long held in good standing tend to fall apart.

**The Apply Bucket**

Documented cases, facilitation guides, procedural manuals, and other practically oriented documents should be sought when considering this phase. These are indicators of a successful translation of a theory into practical procedures that can be implemented in organizations. The documentation of real-world problems, developed solutions, and evidence that the applied theory helps to solve the problems are the desired characteristics of success in this phase.

**The Refine Bucket**

The Refine bucket is best judged by evidence that the theory was altered and tried again. Such evidence can take the form of more conceptual work, variation from the original Operationalize phase, or modification to any of the other phases. The key is to seek evidence and examples that the theory has been shifted so as to increase its fit with the real world.

The goal is not to quibble over the high, medium, and low scores; rather, it is to gain a perspective of the extent to which each phase was done, whether “excellent” or “needs improvement.” Using this assessment tool requires a degree of familiarity with the realm in which the theory is working. The key task is to search for evidence that each phase has been completed, and then make a judgment as to the significance of the evidence.

*Figures 11.2 and 11.3* are two samples of completed applied theory status assessments of the learning organization and scenerioplanning case examples in the previous two chapters.

**NEXT STEPS FOR THE LEARNING ORGANIZATION CULTURE THEORY BASED ON THE ASSESSMENT**

The theory of learning organization culture developed by Marsick and Watkins (1999) has a documented history of conceptual development, a substantial track record of research, and evidence of adjustment over time. An area for possible extension is in the Apply phase. Marsick and Watkins might consider developing some practical procedures or frameworks for creating or bolstering learning organization cultures in organizations. The seven dimensions
are substantial aspects of organizational life (e.g., team learning, embedded systems, leadership, etc.), and further guidance from the authors and their expertise concerning how to integrate these abstract and often difficult areas would be immensely helpful.

**FIGURE 11.2 Learning Organization Theory Status Assessment**

<table>
<thead>
<tr>
<th>Phase</th>
<th>Steps</th>
<th>Step-Level Ratings + Comment</th>
<th>Phase-Level Ratings + Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conceptualize</td>
<td>1. Define the concepts</td>
<td>H—Concepts are clearly defined using experiences in practice, case studies, and other techniques for conceptualizing.</td>
<td>M—The conceptualize phase is well defined for the learning organization theory but would benefit from more specific details about how the seven dimensions relate to each other. Some may be mediating, moderating, or otherwise dependent on other variables.</td>
</tr>
<tr>
<td></td>
<td>2. Organize the concepts</td>
<td>M—Connections among the concepts are not specific.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Define the boundaries</td>
<td>H—The theory is clearly bounded to organizations.</td>
<td></td>
</tr>
<tr>
<td>Operationalize</td>
<td>1. Describe the propositions</td>
<td>H—Propositions are clearly described.</td>
<td>H—Overall, the operationalize phase is where the learning organization theory really shines. The creation of the Dimensions of Learning Organization Questionnaire has had a long history and continues to increase in its use and value for diagnosis, research, and changing organizational cultures.</td>
</tr>
<tr>
<td></td>
<td>2. Describe the results indicators</td>
<td>H—The bulk of the learning organization theory has focused on this step, creating measurement and results indicators for the seven dimensions of learning organization culture.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Develop research questions</td>
<td>H—A variety of research questions has been defined.</td>
<td></td>
</tr>
<tr>
<td>Confirm</td>
<td>1. Design the inquiry study</td>
<td>H—A variety of inquiry studies has been designed.</td>
<td>H—The Confirm phase consists of over 70 inquiry studies that have verified the theory. The application of the DLOQ continues to grow in part due to the credibility that has been established to support it.</td>
</tr>
<tr>
<td></td>
<td>2. Collect and analyze data</td>
<td>H—A variety of inquiry studies has been carried out.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Connect the results to the theory</td>
<td>H—A variety of inquiry studies has confirmed the accuracy, fit and trustworthiness of the learning organization theory.</td>
<td></td>
</tr>
<tr>
<td>Apply</td>
<td>1. Analyze related problems</td>
<td>M—See phase column.</td>
<td>M—Practical procedures appear in the form of advice and facilitator tips. The authors have not developed a guiding framework that provides a level of detail and leads to practical tools. There is opportunity here.</td>
</tr>
<tr>
<td></td>
<td>2. Propose, create, and implement solutions</td>
<td>M—See phase column.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Assess results</td>
<td>M—See phase column.</td>
<td></td>
</tr>
</tbody>
</table>
Our own familiarity with learning organization research also indicates an opportunity in studying how the seven dimensions fit together and how the constructs may or may not be related to each other. For example, could “embedded systems” be a moderator of “team learning”? Could “dialogue and inquiry” be a driver of “empowerment”? We believe there is opportunity in examining the interrelations among the theory components.

**NEXT STEPS FOR THE SCENARIOPLANNING THEORY BASED ON THE ASSESSMENT**

Based on the judgment used to complete the assessment of the theory, more decisions must be made. Generally, and based on the ratings in Figure 11.3, the weak areas for the theory of scenario planning are confirmation and its application. Opportunity lies in the conduct of further research on scenario planning. Relatively few studies have been conducted that investigate the theory in particular, so key questions will center around how much evidence is enough to judge that the theory is useful and explains some outcomes of the scenario planning process. How many replication studies are needed on the same topic? The overall status of research on scenario planning (beyond the specific theory) is lacking, and little is generally known about what makes scenario planning succeed or fail, and what its outcomes really are. In addition, developing a set of standard procedures and tools for applying the theory are an obvious area for development. Our familiarity with scenario planning allows a degree of insight into the status of the theory and its use, as well as other scenario planning practices.

**FIGURE 11.3 Scenario Planning Theory Status Assessment**
<table>
<thead>
<tr>
<th>Phase</th>
<th>Steps</th>
<th>Step-Level Ratings + Comment</th>
<th>Phase-Level Ratings + Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conceptualize</td>
<td>1. Define the concepts</td>
<td>H—Concepts are clearly defined, Dubin’s method was used, and detail is found on the concepts in Chermack (2004, 2005).</td>
<td>H—Overall, the Conceptualize phase was completed with rigor and followed Dubin’s step-by-step processes.</td>
</tr>
<tr>
<td></td>
<td>2. Organize the concepts</td>
<td>H—Using Dubin’s method, the laws of interaction among the concepts were clearly defined, as well as different states of the theory.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Define the boundaries</td>
<td>H—Again, according to Dubin, boundaries were clearly defined.</td>
<td></td>
</tr>
<tr>
<td>Operationalize</td>
<td>1. Describe the propositions</td>
<td>H—Propositions were clearly stated.</td>
<td>H—All steps of the phases have been clearly completed, and again Dubin’s method was defined and applied in each step.</td>
</tr>
<tr>
<td></td>
<td>2. Describe the results indicators</td>
<td>H—Results (empirical) indicators were clearly stated.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Develop research questions</td>
<td>H—Research questions were clearly stated.</td>
<td></td>
</tr>
<tr>
<td>Confirm</td>
<td>1. Design the inquiry study</td>
<td>L—Several studies have been designed.</td>
<td>M—While there is evidence of some studies that address a variety of the research questions, the theory is still new. Most of the studies have been conducted by a single researcher, which is a limitation. The overall number of inquiry studies is not yet sufficient to judge the theory and make definitive statements about its accuracy, fit, and trustworthiness.</td>
</tr>
<tr>
<td></td>
<td>2. Collect and analyze data</td>
<td>L—Several studies have been implemented.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Connect the results to the theory</td>
<td>L—Several studies have been connected to the original theory.</td>
<td></td>
</tr>
<tr>
<td>Apply</td>
<td>1. Analyze related problems</td>
<td>L—In the grand view of all scenario projects, relatively few have been directed and facilitated by the methods that have grown out of the theory.</td>
<td>L—While practical procedures have been defined according to these steps, they are new. A variety of techniques is applied in scenario planning, and the specific processes developed by Chermack (2011) have not been adopted on a large scale.</td>
</tr>
<tr>
<td></td>
<td>2. Propose, create, and implement solutions</td>
<td>L—No standardized practices have been developed, and practitioners use a variety of alternatives and variations.</td>
<td></td>
</tr>
</tbody>
</table>
Refine

1. Generate Insights
   L—Insights have come from a set of research studies that suggest other variables may be critical to the scenario planning process.
   L—Again a function of how recently the theory was developed, insights have been generated but not yet investigated in a satisfying manner that has resulted in rigorous inquiry studies and updates to the theory.

2. Investigate Insights
   L—Investigation of these insights is underway but is not complete.

3. Update the Theory
   L—The theory has not yet been updated.

L—Most “results” are anecdotes of success.

Note: H = high, M = medium, and L = low evidence of the corresponding activity in the step columns and an overall rating in the phase column.
CONCLUSION

While the primary utility of the General Method of Theory Building in Applied Disciplines is to build theories, another use is to figure out the status of an existing theory. The purpose of this chapter was to illustrate how the General Method of Theory Building in Applied Disciplines could be used to assess the overall completeness of a theory. As a prerequisite, we have argued that a higher standard in applied disciplines is necessary as to what counts for theory. Using our approach, we have argued that a theory must meet basic activity in all of the phases of theory building in applied disciplines. The extent of the activity in each phase has implications for a theory’s maturity, but at a basic level, ideas by themselves do not constitute theory. Inquiry studies by themselves do not constitute theory. The development of an assessment instrument by itself does not constitute theory. No, a more rigorous definition of theory is in order.

From our point of view, theories are ideas that have been translated to assessment criteria, confirmed in rigorous inquiry studies, applied in practice, and are subjected to ongoing assessment and examination. Using the general five-phase method of Theory Building in Applied Disciplines to assess the current status of a theory can ensure that a higher standard for what counts as theory is held and that the next efforts to fill the voids can be determined.

12

Whatcha Gonna Do?

WE ASSUME YOU HAVE READ Chapters 1 through 11 and have now landed here at Chapter 12—our closing effort. Our minds rang with the regular refrain offered by our mutual Italian-American friend: “Whatcha gonna do?” For sure, “What are we going to do?” was exactly what we thought as we approached this concluding chapter.

• Provide an emotional appeal? No!
• Summarize the book? No!
• Look to the future? No!
• Give some solid advice for your next steps? Yes!

Our goal for this last chapter is to offer some practical advice for moving ahead with your theory-building endeavor.
THE SETUP

The General Method of Theory Building in Applied Disciplines Developing (Figure 12.1) has been detailed for the purpose of advancing both theory and practice. This method for assessing and developing sound theory in applied disciplines is meant to fill voids. Both scholars and practitioners have input into this successful methodology. Fusing information from both perspectives can yield a complete and accurate understanding of the realm being investigated.

FIGURE 12.1 General Method of Theory Building In Applied Disciplines

As we have already noted, applied disciplines must meet the standards of both scholarship and practice. The purpose of this book has been to present a complete and detailed method for developing sound theory in applied disciplines. In response to our contention that most theory development methods are incomplete, inappropriate, or totally overwhelming, we have presented down-to-earth thinking, strategies, steps, and tools for advancing theories in applied disciplines.

EVERYBODY IS A THEORIST!

We have discussed the fact that most theory in applied disciplines literature is limited to the Conceptualize phase and that theories-in-use most often do not go beyond personal theories. For sure, there is something to be learned from all
these inputs, but do not be fooled as to their completeness.

In our experience, all applied disciplines have smart, articulate academics in their ranks. Sometimes these people write articles and books about their theories of their discipline. Most often they restrict themselves to the Conceptualize phase, ignore the other four phases, and add a related fable or example of practice to appear complete.

Also in our experience, all applied disciplines have smart, articulate practitioners in their ranks. Sometimes these people write articles and books about their world in action. Management consultants, automobile mechanics, medical doctors, and football coaches are some examples.

A recent practitioner book about medical doctors and how they think is an excellent example (Groopman, 2007). We are struck by the fact that this well-written, 300-page book covering how doctors go about their work diagnosing patients pretty much leaves the medical practice “theory bucket” empty by reporting interesting medical stories with no effort at building a theory of patient diagnosis. Since almost all of us have had firsthand experience being diagnosed as a patient, the potential readership is broad.

In comparison, the conceptually similar diagnosis work conducted by an automobile mechanic is more vague to us because after a few questions, we leave the shop while our car is being diagnosed and end up with little or no conceptualizing, let alone any theory of diagnosis.

Since so many people are exposed to the extensive media rhetoric about coaches of athletic teams, winning coaches are enticed into writing books about their theories of leadership and management that end up being personal theories with little generalizability.

Although all these examples leave many of the theory buckets almost empty, the popular press continues to publish boatloads of articles and books that claim to have the answers.

WHO IS BEST EQUIPPED TO BUILD THEORY?

Edward O. Wilson (1998), a renowned scholar, argued that “complexity is what interests scientists in the end, not simplicity. Reductionism is the way to understand it. The love of complexity without reductionism makes art; the love of complexity with reductionism makes science” (p. 54). He went on to note “that new ideas are commonplace and are almost always wrong. Most flashes of insight lead nowhere; statistically, they have a half-life of hours or maybe days” (p. 55).

Some would argue that theory-building research is the crème de la crème of
the inquiry world. While it might be the most interesting, it probably requires the greatest commitment and tenacity. Thus, with its imposing challenges, theory building will likely entice a limited slice of scholars in any applied discipline. Even so, it is hard to say who they will be. Historically, the people most interested in serious theory building have come from academe. So often, ideas originate with practitioners and are picked up by academics who then claim credit. Theories emerge from practice just as often, if not more, than from academe. We therefore encourage those of you with working theories-in-use to take the plunge and build the robustness around your expertise. This may require reaching out to a partner with research expertise, but these relationships can make all the difference and play to the strengths of both domains.

In any case, from our experience, some characteristics of successful theory scholars include the following:

• Focused: have an intense interest in a particular realm
• Humble: realize that they don’t know everything
• Curious: are driven to know how something works
• Agile: have a mind that can look from various angles and are able to change their thinking
• Toolbox: use a rich and varied selection of inquiry methods
• Respectful: express genuine openness to input from practitioners and scholars
• Patient: accept the reality of extended time required to fulfill the theory quest

NEXT STEPS FOR YOU TO CONSIDER

Here we go in expanding on the thought of “Whatcha gonna do?” as to how to respond to the theory-building method for applied disciplines. We have three possible next steps for those who think they may be interested in engaging in theory building:

• audit existing theory,
• test an existing theory, or
• build a new theory.

Audit Existing Theory
Auditing an existing theory is the easiest of our three suggestions. Even so, this is important work and can be extremely enlightening. We suggest that you choose an applied theory realm you are interested in. Then gather up the relevant literature, use the theory assessment tool we presented in Chapter 11 to record your findings, and complete a short narrative to explain your process and conclusions.

What you find within the five phases of theory building that backs up such popular concepts as leadership, hierarchy of needs, and organizational performance might just surprise you.

**Test an Existing Theory**

Either through confirmation or application, any existing theory is strengthened by additional testing. This may not seem to be the flashy option, but it is important and very doable. A number of factors could ignite such a study. Replicating the theory in practice to confirm the reliability and generalizability of the theory is one. Taking the theory to a new setting to test generalizability is another. Noticing a void in the theory and adding/testing that element is a third factor.

**Build a New Theory**

This suggestion to build a new theory takes on the full challenge. A practical assessment as to what it takes needs to be made before moving ahead. Experienced scholars will find a natural evolution from their smaller frame or segment research efforts. This can be an easy call in wanting to dig deeper within a realm, to add substantively to the theory, and to be prepared for the theory-practice challenge.

Less experienced theory builders will most likely pursue midlevel theories that could possibly frame their focus of scholarship and practice. They should probably avoid pursuing macro theories and theory frameworks for the applied discipline itself.
DESIRED RESPONSE TO THIS BOOK

This book directly addresses the problems of the lack of clarity as to what theory is and its full dimensions. We have attempted to provide a useful method and examples that illustrate solutions to these problems. We declared earlier that Theory Building in Applied Disciplines has no rival theory development methods book. We hope you both agree and have the personal motivation to begin adding sound theory to an important realm of your interest. If we have succeeded, we would like to hear from you. If we have not succeeded, we would like to hear from you.
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About the Authors

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**Thomas J. Chermack** has studied, practiced, and theorized about scenario planning for over fifteen years. His initial interest in scenario planning was due to its unique combination of analysis and creativity in exploring difficult and complex issues. Chermack is motivated to challenge status quo thinking and help people see things differently. His research and practice are founded on theory-building activities.

Chermack is considered a top scholar in the area of scenario planning, and much of his work has focused on the development of foundational theories for scenario planning. Chermack is the author of Scenario Planning in Organizations, published by Berrett-Koehler Publishers, and over sixty research articles that cover the development, practice, and assessment of scenario planning theories in action.

Chermack is associate professor in organizational performance and change at Colorado State University. His research focuses on the theoretical foundations and outcomes of scenario planning and he has won awards of excellence from the Academy of Human Resource Development. He has published widely on the theory and practice of scenario planning, including numerous studies that document its benefits.

Applied disciplines like scenario planning require both reflection and action—
reflection, for understanding how scenario planning works and how it can be improved, and action, for putting new knowledge to use. Chermack has made it a point of his career to study and apply scenario planning, adding a full perspective to his theory work. An emphasis on both inquiry and application has provided a unique perspective and a wealth of experiences that help document his theory-building approach in the method and examples described in this book.

Chermack is also the founder and director of the Scenario Planning Institute at Colorado State University (www.scenarioplanning.colostate.edu). The Scenario Planning Institute (the first of its kind in the United States) is a hub of activity related to scenario planning, including research, consulting with organizations worldwide, and other activities that link Colorado State University to organizations and members of the community, both locally and internationally. The Institute provides another avenue for exploring theory building and helping others engage in the generation of new knowledge.

Chermack’s experiences with the research, theory, and practice of scenario planning have yielded invitations to speak at organizations around the world, as well as seminars, workshops and keynote addresses.
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