An Integrative Approach to Leader Development

Connecting Adult Development, Identity, and Expertise

David V. Day
Michelle M. Harrison
Stanley M. Halpin

An Integrative Approach to Leader Development

Connecting Adult Development, Identity, and Expertise

An Integrative Approach to Leader Development

Connecting Adult Development, Identity, and Expertise

David V. Day
Michelle M. Harrison
Stanley M. Halpin

Psychology Press
Taylor & Francis Group
New York London

Psychology Press
Taylor & Francis Group
270 Madison Avenue
New York, NY 10016

Psychology Press
Taylor & Francis Group
27 Church Road
Hove, East Sussex BN3 2FA

© 2009 by Taylor & Francis Group, LLC

Printed in the United States of America on acid-free paper
10 9 8 7 6 5 4 3 2

International Standard Book Number-13: 978-0-415-96462-3 (Softcover) 978-0-415-96463-0 (Hardcover)

Except as permitted under U.S. Copyright Law, no part of this book may be reprinted, reproduced, transmitted, or utilized in any form by any electronic, mechanical, or other means, now known or hereafter invented, including photocopying, microfilming, and recording, or in any information storage or retrieval system, without written permission from the publishers.

Trademark Notice: Product or corporate names may be trademarks or registered trademarks, and are used only for identification and explanation without intent to infringe.

Visit the Taylor & Francis Web site at
http://www.taylorandfrancis.com

and the Psychology Press Web site at
http://www.psypress.com

Dedication

This book is dedicated to the professional soldiers in the United States Army and to their career-long commitment to growth and development as individuals and as leaders.


Digitized by the Internet Archive
in 2023 with funding from
Kahle/Austin Foundation

https://archive.org/details/integrativeappro0000dayd

Contents

Authors *ix*
Preface *xi*
Acknowledgments *xv*

SECTION 1: OVERVIEW AND PURPOSE

1 *Introduction* 3

SECTION 2: PERSPECTIVES FROM ADULT DEVELOPMENT LITERATURE

2 *Accelerating Leader Development* 19

3 *Leader Development as Adult Development* 31

4 *Understanding Personal Trajectories of Development* 43

SECTION 3: FUNDAMENTAL ASPECTS OF ADULT DEVELOPMENT

5 *Identity Development* 57

6 *Moral Development* 71

7 *Epistemic Cognition, Reflective Judgment, and Critical Thinking* 85

SECTION 4: LEARNING-BASED APPROACHES TO LEADERSHIP

8 *Mental Models: Leadership as a Set of Cognitive Frames* 105

9 *Expertise—Leadership as a Set of Skills* 119

10 *Leader Development through Learning from Experience* 133

11 *Leadership Development and Teams* 159

SECTION 5: INTEGRATIVE THEORY OF LEADER DEVELOPMENT

12 *Developing Expert Leadership* 171

13 *Identity Processes in Leader Development* 183

14 *Adult Development Processes in Leader Development* 213

SECTION 6: FUTURE DIRECTIONS

15 *Research Needs and Practical Implications* 233

References 263

Appendix A 295

Appendix B 305

Subject Index 309

Author Index 325

Authors

David V. Day is the Woodside Professor of Leadership and Management in the School of Business, University of Western Australia. Since 1999 he has also held the position of adjunct research scientist for the Center for Creative Leadership. Prof. Day has published extensively on the core topics of leadership and leadership development. He serves as an associate editor of the *Journal of Applied Psychology*, *Leadership Quarterly*, and *Human Resource Management Review* and is a consulting editor for several other influential journals in the field. Dr. Day is the lead editor on the book *Leader Development for Transforming Organizations: Growing Leaders for Tomorrow* (Lawrence Erlbaum Associates, 2004) and the author of the publication *Developing Leadership Talent. A Guide to Succession Planning and Leadership Development* (Society for Human Resource Management Foundation, 2007). He is a member of the Academy of Management, International Leadership Association, International Association of Applied Psychology, Society of Organizational Behavior, and Fellow of the American Psychological Association and the Society for Industrial and Organizational Psychology. He received his Ph.D. in industrial-organizational psychology in 1989 from the University of Akron.

Michelle Harrison is a junior lecturer (assistant professor) of organisational behaviour in the Kemmy Business School at the University of Limerick, Ireland. She received her Ph.D. in industrial/organizational psychology at The Pennsylvania State University in 2008. In addition to examining the processes of leader development, her research focuses on understanding the influence of leadership on employee well-being at work, including factors such as meaningful work, work–life balance, and creativity. She received her B.A. from St. Mary's University of Minnesota and her M.S. from The Pennsylvania State University.

Stanley M. Halpin (Stan) has worked for the Department of the Army for 38 years. He is also an adjunct member of the faculty of the Graduate School, Kansas State University. For the last 25 years he

has served as the chief of the U.S. Army Research Institute's research group at Fort Leavenworth, Kansas. This group, until recently known as the Leader Development Research Unit, has conducted research on the U.S. Army's tactical decision making processes, staff performance, and development of training techniques for decision makers and decision making groups. Over the last few years the Research Unit has extended its research program to address leaders' interpersonal and team skills as well as cognitive skills. Dr. Halpin has a B.S. in industrial and labor relations from Cornell University and an M.S. and Ph.D. in social psychology from Purdue University.

Preface

A primary reason for this book is grounded in our belief that the world needs more and better leaders. This is a comprehensive need that cuts across domains, regardless of whether they are business, education, military, public service, or something else. Better leadership is needed. We are not proposing a theory about the creation of more world-class leaders in terms of those who lead nations, armies, or other organizations at the top-most level. That would be wonderful, but our aim is more modest. We believe that anyone in any role or position can be developed to become a more effective leader through the processes of *leader development* that are described in this book.

Although there is no shortage of leadership theories or developmental practices for leaders, what is missing is any form of a comprehensive theory of leader development (i.e., theories about the development of individuals as leaders). This is a void that we attempt to fill—at least to some extent. We have no illusions that what we offer is the grand unified theory of leader development. Rather it is part of the process of theory building or *theorizing* about leader development that we hope will help to advance an overarching science of leader development.

The origins of this book began with an Army Research Institute technical report on industry best practices in leader development (Day & Halpin, 2001), followed by an expanded exploration of the topic in an edited volume on leader development for transforming organizations (Day, Zaccaro, & Halpin, 2004), and supported by our other work on how leaders develop (Day, 2000; Day & Harrison, 2007). Through our work on these projects it became apparent that there were many practices—and even some apparent "best practices"—that are used in organizations to stimulate leader development. But even in cases such as the U.S. Army and the Center for Creative Leadership (organizations with which we have first-hand, in-depth experience), or any Fortune 100 multinational corporation where the organization has an explicit philosophy and consistent practices to support leader development, the overarching approach is largely atheoretical. This lack of theory causes

great difficulty when trying to address practical issues such as "what if we provide less schooling, but more practical experience?" or "what if we provide a young officer (or junior executive) with a greater variety of intense leadership challenges?" Without theory, there is no touchstone for making informed, scientifically grounded decisions about such questions nor is there a framework for advancing leader development research in an informed and systematic manner.

This book is a beginning, a first step, in taking leader development in organizations beyond conventional wisdom toward a scientifically sound research-based set of principles and practices. We looked beyond our own academic disciplines to bring to bear accumulated wisdom from researchers who have developed well-established and accepted theoretical perspectives on adult development processes in general, then wove in the ideas that have emerged in more targeted research on adult education, development of cognitive skills, identity development, self-regulation, moral and ethical development, and related topics. What we present is an integrated (or integrative) theory that provides a coherent framework for describing and understanding how leader development takes place. The theory will not answer directly all of the practice-based questions concerning such things as the proper balance between classroom and practical experience, but it provides the framework for exploring such questions in a systematic way.

The issue we raised in the opening paragraph about developing more and better leaders deserves additional comment because it is controversial to many researchers and practitioners. Some have wondered, if everyone is a leader, then who will follow? This misses the point by a wide mark because it reveals a traditional, limited, *entity-based approach* to leadership. This perspective is naïve because it assumes that leaders and followers are different people entirely. We believe that a more realistic perspective is based in a *process approach* to leadership. From this approach it is assumed that everyone (or nearly everyone) takes on both leader and follower roles in his or her personal and professional worlds and that these roles are dynamic in nature. Whereas one person might be exercising leadership in a team by virtue of having the most formal or informal influence, it could change in an instant if someone else brings greater expertise (expert power) or a more helpful understanding (sensemaking) to the issue at hand. The locus of leadership is dynamic and changes over time, even possibly within the same role episode. Everyone needs to be made a better leader in terms of being better prepared to participate in the process of leadership as the situation demands and as challenging events unfold.

Across our interactions with various organizations and audiences, one issue seems to be at the center of much interest and concern. This issue involves how to accelerate the leader development process. The conventional wisdom seems to be that formulating a leadership competency model and then developing the included competencies in aspiring leaders is the best way to accelerate leader development. But what

supports the development of leaders and their leadership competencies? We believe that the levers to accelerating development really reside in trying to better understand those supporting issues. Rather than focusing exclusively on competency acquisition, the key to long-lasting development may be with those underlying or supporting processes.

We propose that leader development occurs at multiple levels in an ongoing, dynamic fashion across the lifespan. At the most visible exterior level is the acquisition of leadership competencies through the development of relevant expertise. When framed solely in terms of competencies, leader development is similar to developing expertise in other domains, which requires concentrated practice over an extended period of time—perhaps as long as 10 years. But there are individual differences in the process in terms of how quickly expertise is acquired and how likely it is to stick. At a next deeper level, we propose that processes associated with self-regulation and identity development moderate the process of becoming an expert leader. In particular, taking on the identity of a leader is seen as pivotal in accelerating developmental spirals. At the deepest or most interior level, we argue that leader development occurs within the broader domain of adult development. Understanding key adult development processes associated with the selection, optimization, and compensation of motivating goals and goal-related resources provides the fundamental platform for the ongoing development of a leader identity and the self-regulation processes that accelerate or impede the acquisition of requisite leadership skills and competencies.

Based on this perspective, effective acceleration of leader development would focus more on the interior processes of adult development, identity development, and self-regulation, and less on the exterior level of observable competencies. Becoming an expert leader in terms of acquiring the competencies to exercise effective leadership comes about as a natural by-product of developing the internal core that supports this expertise. In terms of physical development, building a stronger individual involves an intense focus on acquiring core trunk strength (back, abdomen, and chest) that is necessary for then gaining strength in the extremities (arms, legs). Focusing solely on the extremities in weight training is unlikely to build much overall individual strength and may result in the greater likelihood of injury. It is a rough analogy, but we believe that focusing more on the core areas of leader development will lead to stronger and more effective leaders in terms of their competence and expertise.

Although we propose a lifespan perspective on leader development, at its core we focus more on adult development than child or adolescent development. We believe that this is appropriate for several reasons but the most pertinent is the basic difference in what motivates how adults and children develop. Whereas child development is driven to a large degree by biological maturation processes, adult development is driven mainly by experience. But as W. Edwards Deming (so-called father of the quality movement in Japan and the U.S.) was noted to say:

Experience without theory teaches nothing. Our hope is that through this theory-building effort we begin to provide some of the theory that has been missing to date in the field, which will help to enhance the lessons of experience that are so important for leader development.

David Day
Perth, Western Australia

Michelle Harrison
Limerick, Ireland

Stan Halpin
Ft. Leavenworth, Kansas

Acknowledgments

We are grateful for the input from members of the Army Research Institute's Leader Development Research Unit who played a key role in shaping the ideas presented in this book. In particular, we acknowledge Michelle Zbylut, who is a fount of information and ideas and who served as a valued sounding board at many points in the development of the ideas presented here; Sharon Riedel, who provided substantive input on early drafts of Chapter 7; and Bob Solick, who provided a detailed thoughtful review of the semifinal draft of the manuscript.

Faculty members at the Center for Creative Leadership were instrumental in shaping many of the ideas reflected in this book. In particular, we wish to acknowledge Patricia O'Connor for her support, encouragement, and insights during various stages of writing.

We thank Bob Lord for offering a rich source of ideas and providing us with a positive role model. Bob has always been willing to think broadly about leadership, avoiding the distraction of the current leadership research Zeitgeist, while looking for solutions to the puzzle of effective leadership and leader development practices.

This work was supported in part by the United States Army Research Institute for the Behavioral and Social Sciences. The views expressed are those of the authors and should not be construed as an official Department of the Army position, unless so designated by other authorized documents.

SECTION

1

Overview and Purpose

CHAPTER

1

Introduction

The growth and development of people is the highest calling of leadership.

—Harvey S. Firestone (Founder, Firestone Tire & Rubber Co.)

Leader development is arguably the most important single program of any army.

—Lieutenant General (ret.) Frederic J. Brown, U.S. Army (2003, p. 68)

Regardless of the equipment, materiel, logistics, or the organization and tactics, successful armies depend on well-trained soldiers and highly developed leaders. Although it has been said that armies fight on their stomachs, which emphasizes the importance of logistical support, armies win through the leadership that creates and implements effective responses to the spectrum of conventional and nonconventional threats (e.g., terrorism) faced around the world. Effective leadership begins with leader development. The Army's leader development system is emphasized by many senior leaders as a critical component in its ability to effectively serve the nation. But what do we really know about the process of leader development? Army doctrine speaks of a progressive and sequential growth process. But does this provide a meaningful framework for Army leader development? Is it consistent with what is known about adult development, skill acquisition, and other related bodies of research?

The goal of this book is to present an integrative theory of leader development. Although this theory was developed with the U.S. Army in mind, we believe that the basic propositions and hypotheses generated by this theory-building process are relevant for understanding and improving leader development in other contexts. The Army is a very large organization with more than 1 million soldiers, more than half serving in the National Guard and Reserve, and its presence can be found in 120 countries around the world. The Army also has a unique

and serious mission of protecting and defending the United States and its territories. But the nuances of that mission can run the gamut from peacekeeping and humanitarian operations to counter-insurgencies and active combat situations. Upholding this mission is becoming an increasingly complex endeavor. The Army is also unique in that few nonmilitary organizations would expect its employees to sacrifice their lives or take others' lives as part of their jobs. Another interesting aspect of the Army is that it does not hire from the outside, so there is no make/buy decision when it comes to its leaders. Relying completely on internal hires is unusual but not unheard of in the corporate world. For example, the pharmaceutical company Pfizer does not hire managers from the outside either. Over the last 30 years (as of 1997) every one of their research directors has come up through the ranks (Steere, 1997).

Your organization may not have the same demographics or mission as the Army, but we believe the central points from this integrative theory apply to leader development across a wide spectrum of organizations. In a recent study of global human capital issues (IBM Global Business Services, 2008), companies cited a lack of leadership capability as one of their top workforce challenges. Over 75 percent of companies indicated that *building leadership talent* is a significant challenge, and that is especially the case for companies in the Asia Pacific region (88% indicated that this is a significant challenge). Furthermore, as noted in the opening quote from Harvey S. Firestone, the growth and development of people is the epitome of leadership. We take the position that leadership development is a journey encompassing the entire adult lifespan. To best understand and intervene on leader development it is important to have a sound foundation in human development and especially adult development. The present theory identifies and integrates the most relevant aspects of developmental theory as it applies to leader development.

Knowledge that speaks to the process of human development but has not been systematically or rigorously linked to the process of leader development has been accumulated in many scholarly disciplines. In addressing the present knowledge gap, our leader development theory integrates knowledge and theoretical perspectives from a number of different disciplines dealing with sources of individual differences in human behavior that are relevant to the development of leaders—especially cognitive, social, developmental, and organizational psychology. An integrative approach is essential because the human organism is a complex system that cannot be understood adequately by looking at only one part of an interdependent system. A developmental theory of complex leadership skills and competencies cannot be adequately based on any one particular discipline or theoretical perspective, regardless of whether it is a leadership theory, a developmental theory, a cognitive skills theory, or a social identity theory. All of these various perspectives help to inform the leader development process; however, no single approach can address the full complexity and richness of the leader development process. As a result, our approach is eclectic in nature, but falls generally within the broad field of psychology.

There have been previous attempts at developing an integrative theory of leadership, drawing together many different leadership theories under one conceptual umbrella (e.g., Chemers, 1997, 2000). But there do not appear to be any recognized attempts at an integrative theory of leader development (Avolio, 2007). There may be good reason for this gap in the literature because the implications associated with the word "development" are far-reaching. Perhaps most important is the recognition of *time*. Development occurs over time, and in the case of leader development in the U.S. Army, over the course of an entire professional career or perhaps even the majority of the adult lifespan. Development also involves *change*, which has had historically its own particular research difficulties (Cronbach & Furby, 1971; Day and Lance, 2004).

In particular, development involves growth of some sort—a qualitative or quantitative change in state. Putting these two parameters together yields the even trickier notion of *change over time* that includes topics such as personal trajectories, growth modeling, lag times, end states, and a whole host of other related topics. For all of these reasons associated with addressing time, change, and change over time, an integrative theory of leader development has to be as much about development as leadership. Rather than spending a great deal of effort trying to identify just what leadership is, our approach adopts a perspective that is grounded in Army doctrine and manifested in leadership competencies. A good deal of work has been dedicated to defining leadership and delineating effective leadership, yet little attention has been dedicated to its development. So in many respects, this integrative theory is more about development than it is about the specifics of effective leadership. In that spirit we have given more attention to the questions of *how* and *why* leader development processes unfold than to the question of *what* in terms of the specific content of leadership. The latter has already received a great deal of attention in both scholarly literature and the popular press.

A question that presents itself immediately concerns whether there is a need for an integrative theory of leader development. Why is such a theory needed at all? The answer, like leadership itself, is multifaceted. The first part is practical. As discussed in more detail in the next chapter, there is a pressing need to accelerate leader development in the Army as well as in most other types of organizations. As noted by a Personnel Director of a government agency, "Fifty percent of our leadership positions across the organization could be vacated in the next five years, so the need to build leaders and pass knowledge on is consistent across the organization" (IBM Global Business Services, 2008, p. 20).

Additional challenges stretch the current levels of leadership capability in the Army. Specifically, there is an increase of *task migration* from higher echelon to lower echelon leaders (Brown, 2003; Bartone, Snook, Forsythe, Lewis, & Bullis, 2007). For example, what might have been expected as a typical task of a lieutenant colonel a decade or so ago may now be performed by a major or even a captain. What was previously

done by a captain might now be taken on at times by those who might not even be in the commissioned officer ranks. We believe that similar task migration is occurring in other disciplines partly as a function of the trend toward removing layers of organizational hierarchy and flattening organizational structures. It is also generally the case that leaders in all types of organizations are being exposed to increasingly novel and complex challenges. As their attention is drawn to these new challenges, those leaders in subordinate positions need to take responsibility for the rest of the work that was previously taken on by the higher level leaders. As a result, role expectations are expanded and heightened across all organizational levels.

This ongoing task migration from upper- to lower-echelon leaders requires greater leader competence at much lower leader echelons than previously needed. Part of the impetus behind task migration is the overarching strategic imperative of the Army to be as flexible and adaptive as possible "to meet the threats across the spectrum of conflict, from global war to isolated instances of asymmetric terrorism" (Brown, 2002, p. 10). An added impetus comes from proposals to take better advantage of developing computer-based networked information systems within military operations (Alberts, Garstka, & Stein, 1999; Alberts & Hayes, 2003). As the following quote indicates, the future possibility of network-centric (i.e., edge) organizations has wide-ranging leadership implications given the proposed need to self-synchronize these networks:

> ... the leader [needed] for a particular task at a particular time (and place) emerges. Exactly who "takes charge" will differ as a function of the characteristics of the individuals and the situation ... empowered individuals and organizations that constitute an edge organization have a greater "bandwidth" for action than their unempowered counterparts in traditional hierarchies. (Alberts & Hayes, 2003, pp. 184–185)

Not addressed in their discussion is the implicit assumption that the "empowered individuals" who emerge as leaders will be capable of successfully executing this leadership role. What development paths should be set down for the next generation of leaders who will function effectively in such an organization?

A well-developed theory can help answer this type of design question by describing proposed mechanisms—call them levers or forces—that drive the leader development process. These may take the form of relevant individual differences, general developmental processes, or other key aspects of leader development. By systematically investing research resources in examining and empirically testing these developmental forces, the expected result is a set of scientifically supported findings that can be implemented in practice to accelerate the leader development process. It is for reasons such as this that the eminent social psychologist Kurt Lewin noted that "nothing is as practical as a good theory" (1945, p. 129).

In a similar vein, in his classic discussion of the role of theory in psychological research, Melvin Marx provides a quote from E. G. Boring:

> I remember how a professor of genetics many years ago showed me published drawings of cell nuclei before and after the discovery and description of chromosomes. Chromosomes kept showing up in the later drawings, not in the earlier. In other words, microscopes do not reveal concepts until the concepts have been invented. (Boring, 1953, as cited in Marx 1965, p. 6).

An integrated theory of leadership development will not provide a new microscope for examining leadership behavior; however, it will provide a clearer and more accurate view as we examine the feasibility of relevant organizational concepts and evaluate the possible utility of their implementation.

Another reason for the need for theory is to serve as a guide to where to devote research investments. As in most domains, resources available for conducting scientific research on the topic of leader development are finite. A pertinent question thus becomes where should the investments of these limited research resources be made? The answer to this question should be guided by theory or some other rational overarching strategy. Otherwise, there is the risk of trying to make sense of myriad findings across any number of independent studies that have little apparent theoretical connection. A cumulative effect of theory-based research findings has much greater practical potential than a disparate set of seemingly unrelated results. In short, theory helps to focus research efforts and provides for ways of integrating findings across studies. The goal of science is to understand, predict, and control phenomena of interest. Theory is the frame or skeleton on which empirical science is hung. It provides the meaning for interpreting the results of scientific research.

W. Edwards Deming (the father of the quality movement in the U.S.) was fond of saying that experience without theory teaches nothing. Theory provides the overarching sensemaking frame for experience (broadly defined as any empirical fact). Without a theoretical framework to connect and integrate experiences there is no sensemaking, and thus there can be no learning. Theories are the structures of ideas that explain and interpret facts. As another great American—Homer Simpson—put it: "Facts are meaningless. You could use facts to prove anything that's remotely true." We need theories to put facts into context so that they can be sensibly interpreted and to help protect us from repeatedly "proving" things that are not remotely true.

Although it may be tempting to use the terms framework, model, and theory interchangeably, to do so would be inaccurate. These terms range from low to high on a continuum of scientific rigor. We have the audacity to call our contribution a theory of leader development with full realization that using the term *theory* with an academic audience is like waving the proverbial red flag in front of a bull. It is just asking for trouble. Theory holds a very special place in the hearts and heads of

academics. We hope that you can reserve judgment for the time being as we try to distinguish between these various concepts and explain why we believe that our approach is one of building theory, or *theorizing*, as Karl Weick (1995b) said.

At the simplest level, frameworks can take the form of taxonomic lists of variables or constructs. The more intermediate term "models" offers some speculation on the relationships among variables or constructs. But it is theories that are the most formal and rigorous of these concepts because their value resides in the precision of predictions (propositions and hypotheses) that serve as their foundation. One other distinction should be drawn and that is between theory and doctrine, which will be discussed in the following section.

THEORY VERSUS DOCTRINE

The Army historically has not had an officially espoused theory of leadership or leader development, but it does have doctrine. What is the difference—if any? Actually, there is a very big difference between theory and doctrine. In an ideal world, theory would lead to testable, falsifiable, and, ultimately, empirically supported hypotheses. These would then form the basis of doctrine. In the real world, however, it does not often work that way. A good example of this real-world discrepancy can be found in the Army, where leadership and leader development doctrine have been around for many decades in spite of not having a formal leader development theory. Nonetheless, the Army is a high-performing organization and arguably the very best at what it does. In other domains, corporate organizations have policies and practices associated with leader development but rarely if ever are these based in theory. There remains a need for theory if there is to be a science that supports the practice of leader development. Theory provides the structure for ideas and facts to make coherent sense, which is vitally important for something like evidence-based management (Pfeffer & Sutton, 2006) to be useful. Otherwise, we have the Homer Simpsons of the world using unconnected facts to prove anything that is remotely true—or not. Many consultants live in this world of atheoretical "facts" as evidenced by their assurances that their particular leader development program is effective even though they are unable to explain why or how it is so.

In a literal sense, doctrine refers to something that is taught; a principle or body of principles presented for acceptance or belief. Army doctrine pertains to how professionals within the Army believe the force will be deployed. It is a reflection of technology and of the political climate. For these reasons, Army doctrine changes roughly every five years. As noted by General (ret.) Gordon Sullivan:

> Doctrine touches all aspects of the army. It facilitates communications between army personnel no matter where they serve. It establishes a

> shared professional culture, an approach to operations, and serves as the basis for curriculum in the army school system. Doctrine permeates the entire organizational structure of the army and sets the direction for modernization and the standards for leader development and soldier training. (Sullivan, 1999, p. xviii).

Army leadership doctrine is codified in Field Manual (FM) 6-22 (Department of the Army, 2006). Central to the FM 6-22 doctrine is the Army leadership framework of BE, KNOW, DO that outlines what a leader must **be** in terms of values, attributes, and character; what a leader must **know** in terms of leadership competence; and what a leader must **do** in exercising leadership with regard to influencing, operating, and improving. Another important aspect of the Army's leadership doctrine is the emphasis on effective leader development to provide a trained and ready army. Effective leader development, in turn, rests on a foundation of training and education, expectations and standards, and values and ethics. This foundation supports the three leader development "pillars" or core domains of institutional training (i.e., Army school system), operational assignments, and self-development.

Combining the BE, KNOW, DO framework with the pillars of leader development provides a powerful heuristic for orchestrating a potentially effective leader development process. The developmental pillars offer a perspective on *how* the leader development process transpires and the BE, KNOW, DO framework addresses the *what* or the content of leader development. But what is not addressed in FM 6-22 (Department of the Army, 2006) is a cogent explanation of *why* leader development occurs at all even under these favorable conditions. There is little attention given to explanations—especially scientifically grounded ones—as to why leader development occurs or ways to intervene reliably on the process with the goal of accelerating desired outcomes. Theory, which can be defined as a body of scientifically acceptable principles offered to explain phenomena of interest, provides the appropriate guidance to answer these types of questions.

The Army hardly can be faulted for putting doctrine ahead of theory when it comes to leader development. After all, it has been noted that until very recently the leader development process had not received much serious scientific attention and that a science of leader development is still in its early infancy (Day & O'Connor, 2003). One of the hallmarks of science is an emphasis on theory testing. This is a problem, however, if there are no theories of leader development to test scientifically. There are some recent notable studies that have begun making headway on these issues (e.g., Chan & Drasgow, 2001; Dvir, Eden, Avolio, & Shamir, 2002), although it should be noted that these studies were designed to test specific leadership theories in a training context and are not theories of leader development.

Not only should theory inform doctrine, but doctrine should also shape how theory is applied in practice. For example, the Army specifies

that an effective leader demonstrates competence in various cognitive, behavioral, and social domains. But how does this competence develop? What are the mechanisms that underpin the development of leadership competencies? These are the kinds of questions that theory is designed to address. If competence is desired, then how does it develop over time, why does it develop (or not), and how might interventions be designed to speed its development? These are important questions that arise from Army doctrine that theory can help to address.

WHAT IS THEORY?

> In theory there is no difference between theory and practice. But in practice there is.
>
> —Yogi Berra

One would think that, with all attention paid to theory, theory testing, and the scientific method, there would be clear consensus on what constitutes sound theory. Unfortunately, this does not appear to be the case. There seems to be greater consensus on what theory is *not* (Sutton & Staw, 1995) than what theory *is*. According to Sutton and Staw the following all pertain to parts of a scientific paper that are not theory: (a) references, (b) data, (c) lists of variables or constructs, and (d) hypotheses or predictions. We can add the perspective of Stephen Jay Gould that facts are not theory either, nor are data, typologies, or metaphors (Bacharach, 1989).

Bacharach (1989) offers a generic definition of theory as "a statement of the relations among concepts within a set of boundary assumptions and constraints" (p. 496). Others have argued that strong theory is made of compelling answers to the questions of *how*, *when*, and most importantly *why* (Merton, 1967). Theory is about the connections among phenomena; it emphasizes the nature of causal relationships in identifying what comes first as well as the timing of events. Conversely, the goal of description is to answer the question of *what*. Strong theory goes beyond the mere description of phenomena of interest and delves into the underlying processes with the goal of understanding why things occur or do not occur. As summarized by a prominent organization theorist, good theory explains, predicts, and delights (Weick, 1995b).

Bacharach has proposed a general set of criteria for evaluating organizational theories. In designing a theory, he argues that three interrelated issues need to be elaborated: (a) variables, (b) constructs, and (c) relationships. A *variable* is any observable entity capable of assuming two or more values (Schwab, 1980), whereas a *construct* is more of a hypothetical configuration of a given phenomenon. Although variables are often thought of as any measured attribute or property in which objects, events, or people can vary, constructs are the underlying phenomena of

interest and are not necessarily measured. For example, IQ is a variable, whereas intelligence is a construct. The *relationships* take the form of propositions (construct to construct) and hypotheses (variable to variable) that are proposed as a way to summarize the essential ingredients of a theory. Bacharach notes:

> [T]héoretical systems take the form of propositions and proposition-derived hypotheses. Whereas both propositions and hypotheses are merely statements of relationships, propositions are the more abstract and all-encompassing of the two, and therefore relate the more abstract constructs to each other. Hypotheses are the more concrete and operational statements of these broad relationships and are therefore built from specific variables. (Bacharach, 1989, p. 500)

Criteria for Theory Evaluation

Bacharach proposed two primary criteria for evaluating theory: (a) falsifiability, and (b) utility. The notion of *falsifiability*, grounded in Popperism (Popper, 1959), involves whether a theory can be refuted empirically. To be falsifiable, a theory must be constructed in such a way that it is sufficiently coherent so that it is possible to be refuted. The dimension of *utility* refers to the usefulness of theoretical systems such that they provide both explanation and prediction. Incomplete theoretical systems can be used to make predictions but they do not provide explanations (i.e., they fail to adequately answer the *why* question).

Applying the falsifiability and utility criteria to the components of variables, constructs, and relationships provides a detailed framework for evaluating theories (see Table 1.1). A sound construct relies on a clear and coherent operational definition (Bridgman, 1945). Making construct definitions operational improves precision, and at minimum, they must be such that they are "repeatable and performable on demand" (p. 246). It is considerably more difficult to falsify an ambiguously defined construct than one that is clearly defined in operational terms. Issues regarding the falsifiability of variables also revolve around measurement concerns, especially reliability.

The falsifiability of relationships often comes down to evidence of logical and empirical adequacy. Logical adequacy requires demonstrating that the relationships in the theory are nontautological and the nature of the relationship between antecedent and consequent are specified. Empirical adequacy has to do with how the propositions and hypotheses are operationalized. They must be operationalized in such a way that the theory is possible to disconfirm (Popper, 1959).

The utility or usefulness of variables and constructs pertains to the issue of scope. Theory needs to appropriately balance the competing concerns of comprehensiveness and parsimony. Overall, constructs and variables with broader scope have greater explanatory power. However,

TABLE 1.1 Criteria for Evaluating Theories

	Falsifiability	Utility
Variables	Operationally defined? Measurement issues • Reliability • Content validity	Variable scope
Constructs	Clarity and parsimony Construct validity • Convergent • Discriminantnt	Construct scope
Relationships	Logical adequacy • Nontautological • Specified nature of relationship Empirical adequacy • More than one object or time frame	Explanatory potential • Specificity of assumptions regarding objects • Specificity of assumptions regarding relations • Scope and parsimony of propositions Predictive accuracy • Probabilistic versus theory based

Note: Adapted from Bacharach (1989).

constructs and variables that are too broad run the risk of being unsuitable due to poor measurement qualities (leading to problems with variable falsifiability) or due to a failure to demonstrate discriminant validity (and consequent difficulties with construct falsifiability). When it comes to the utility of relationships, the overarching concerns are with explanatory potential and predictive adequacy.

Explanatory potential rests on the specificity of assumptions regarding objects of analysis and the relations among objects in addition to the balance between scope and parsimony of propositions. Scope is defined as the range of phenomena addressed in the theory, such that a theory that can accommodate a wide range of objects of analysis (e.g., leaders at all organizational levels not just those at upper levels; or leaders from all backgrounds not just Army leaders) is preferable to one that is applicable to a single object only. Parsimony in this context refers to the ratio of hypotheses to propositions. A theory that contains a higher ratio of hypotheses to propositions (e.g., 5:1) is preferable to a theory with a lower ratio (e.g., 2:1). Essentially, the former can potentially explain more relations than the latter. Thus, in the context of theory, parsimony is more in line with explanatory potential than with simplicity per se.

Predictive accuracy of a theoretical system refers to its ability to make sound predictions within a bounded framework of space and time. Given a large sample and extensive time in terms of how often objects are measured, it is possible to demonstrate empirical prediction even with little or no theoretical explanation (Cohen, 1994). Thus, it is far superior to be able to make focused predictions that can be supported by data rather than those unbounded by space or time.

To summarize, a good theory has (a) well-defined variables with a broad enough scope to address a meaningful range of behavior, (b) clear and parsimonious constructs with suitable scope and appropriate validity, and (c) relationships that provide logical, defensible, and useful predictions. In evaluating theory, it is important to address these multidimensional criteria as a whole, recognizing that a theory cannot be seen as acceptable by meeting just one or two ideal criteria. Furthermore, only a theory that meets the entire set of criterion indicators can be endorsed as acceptable or superior to alternative comparison theories—at least until disconfirming evidence is presented. In terms of developing the present theory of leader development, certain criteria were seen as more relevant than others. Specifically, the important notions of variable and construct falsifiability rely to a large degree on empirically based analyses (e.g., reliability analysis, convergent and discriminant validity analysis). Although we are unable to collect primary-source data to evaluate these criteria at present, we are able to evaluate the psychometric data on existing variables and constructs that may be valuable in our theory development efforts. Attempts will be made to address all other criteria for theory evaluation outlined by Bacharach and others.

HOW BAD THEORIES DESTROY GOOD PRACTICES

An argument has been offered in the management literature suggesting that the imposition of bad management theory on organizations has contributed to the kinds of corporate scandals witnessed recently (Ghoshal, 2005). In fact, the author's tone was quite accusatory, claiming that business schools were guilty of "propagating ideologically inspired amoral theories" that "have freed their students from any sense of moral responsibility" (p. 76). Pretty harsh words, but the underlying point seems to be valid: most management theories seem to be value-less, or at least values-light. Indeed, until the recent trends in positive psychology (Snyder & Lopez, 2002) and positive organization scholarship (Cameron, Dutton, & Quinn, 2003) there was very little discussion of values in management or leadership theory (with the possible exception of transformational leadership theory; e.g., Bass & Steidlemeier, 1999; Kuhnert & Lewis, 1987). For example, a highly regarded study that was one of the first to address managerial competence defined job competency as "an underlying characteristic of a person which results in effective and/or superior performance in a job"

(Boyatzis, 1982, p. 21). The author is silent about the kinds of values that support effective job performance, with the exception of cultural values that might serve as some boundary conditions in the external environment.

Because of the seriousness of its mission, the Army cannot afford a valueless theory of leader development. Army leaders shoulder an awesome responsibility in terms of human life—for those under their command as well as those with whom they engage in both the civilian and military sectors. Because of this responsibility, it has been said that the Army is a kind of organization fundamentally different from those in other domains (business, education, religion). When an organization such as Enron fails at such a spectacular level there are many, many people who are hurt. But this is mainly—but not completely—financial damage. If the Army fails, the hurt is much more traumatic in terms of physical injury and death. That is why any theory of Army leader development must be solidly grounded in Army values and doctrine. But it is also true that leader development in any organizational context should be grounded in the core values of the organization.

The development of Army leaders occurs as part of the ongoing moral development of its leaders, which is embedded in an even longer-term process of adult development. This brings the focus back to a point made at the beginning of this chapter: Any comprehensive theory of leader development must be eclectic in its content. Moral development, values-based leadership, critical thinking skills, self-awareness, identity development, skills acquisition and expertise, adult learning, and mental models are all potentially important theoretical components, as are process-based concerns related to modeling personal trajectories of development, and ultimately, accelerating the leader development process in practice. Such an ambitious practical concern requires a solid basis in good theory and sound values. This is our overarching goal.

PLAN OF THIS BOOK

In the course of completing this theory development project, we reviewed hundreds of theoretical and empirically oriented research papers across a diverse array of topics and disciplines. This extensive review of the literature is summarized into a series of chapters that are presented in the following section. Collectively, these chapters represent the foundational content for the integrative theory of leader development. Readers who are mainly interested in the theory and believe they have sufficient background in the literature may choose to skip directly to Section 5. For particular sections of the theory where it is likely that additional background would be helpful, references to specific background chapter(s) are identified in the text. Despite this invitation, we believe, like most systems theorists, that differentiation always precedes integration. Thus, we sincerely hope these various chapters on specialized topics are

helpful background in understanding the foundation for our proposed integrative theory of leader development.

The background papers in Section 2 cover a variety of related topics, including developmental theory relevant to the overarching goal of accelerating leader development (Chapter 2); conceptualizing leader development through the lens of adult development (Chapter 3); and assuming a longitudinal focus and the implications of personal trajectories of development (Chapter 4).

Section 3 provides an overview of three components of adult development that are relevant for understanding leader development: identity development and the role of leader identity development (Chapter 5), moral development and the influence of values and ethics in leadership development (Chapter 6), and epistemic cognition, reflective judgment, and critical thinking skills needed for developing leaders (Chapter 7).

Section 4 provides a discussion of various approaches to understanding leadership: mental models and conceptualizing leadership in terms of a knowledge structure (Chapter 8), considering leader development as gaining expertise through skills acquisition and competency development (Chapter 9), learning from experience and adult learning as the basis for leader development (Chapter 10), and leadership as systems output from teams and organizations.

As noted previously, Section 5 elaborates on the integrative theory of leader development that focuses on developing the expert leader. The three general areas that the theory integrates are based in (1) the expertise literature, and how leaders develop through skills acquisition and competency development; (2) identity processes and individual differences in self-regulation that guide leader development; and (3) how selection-optimization-compensation processes of adult development can be used to maximize developmental gains and minimize losses in accelerating leader development. This section also includes a number of theoretical propositions that compose the theory.

Section 6 offers conclusions and final thoughts about the integrative theory, and makes suggestions on moving from theory to research and then from research to practice. This section also summarizes ways in which the theory can contribute to the enhancing and accelerating leader development. Specific hypotheses offering further detail of the propositions and potential boundary conditions for the proposed theory are also discussed.

SECTION

2

Perspectives from Adult Development Literature

This section introduces various perspectives from the adult development literature. The included chapters explore issues such as: (a) What is developing when we discuss leader development, (b) Can the leader development process be accelerated, and (c) How can we measure and model leader development? Specifically, Ch. 2 focuses on what it means to accelerate development. Ch. 3 discusses how leader development can be best understood as grounded in adult development. Finally, Ch. 4 focuses on particular methodologies regarding measuring and modeling change and development.

CHAPTER

2

Accelerating Leader Development

The Army used to have all the time in the world and no money; now we've got all the money and no time.

—General George C. Marshall (attributed)

I took a speed reading course and read *War and Peace* in twenty minutes. It involves Russia.

—Woody Allen

OVERVIEW

A central theme of this book is that the leader development process can be accelerated through the application of scientifically based principles derived from theory and research from diverse areas such as developmental psychology, lifespan development, adult learning, Gestalt psychology, expertise and skill acquisition, leadership, and growth modeling, as well as training and development (among others). These various areas contribute diverse perspectives that are helpful in better understanding the leader development process, yet there has been little effort directed at synthesis and integration. The systems theory maxim that differentiation always precedes integration (Gharajedaghi, 1999) certainly seems to apply to the state of the field of leader development. There is a multitude of differentiated perspectives but no integrated theory of leader development. Accelerating leader development depends foremost on having a comprehensive, integrated theory on which to base research and practice (Day & Zaccaro, 2004). Our purpose is to provide the much needed integration across these differentiated perspectives.

Although no doubt there are limits to what can be accomplished when the goal is accelerated development, it is not as simple as taking a speed reading course.

An immediate question to be addressed is why the need for accelerated development at all? What are the drivers of this apparent need to bring about the development of leaders more quickly than is presently accomplished? Naturally, there is no single (or simple) reason behind this need, just as the notion of acceleration may be oversimplifying our intent. There seems to be little argument that the challenges faced by individuals and organizations have become increasingly complex. As an example, terrorism might be the epitome of the kind of complex challenges that require different ways of leading. Terrorist actions are unpredictable, often uncontrollable, and require a sophisticated repertoire of thinking and acting to adapt quickly to threats. Terrorism may seem like an extreme example to nonmilitary organizations, but there are many examples of this kind of complex challenge where there are no pre-existing resources, tools, solutions, or sensemaking strategies for accurately naming and describing the challenge (Heifetz, 1994; Weick, 1993).

One strategy that has been widely adopted in responding to the greater number of complex challenges in today's environment is to reduce bureaucracy, primarily by cutting layers of management. In reducing bureaucracy, organizations are changing their structures, reducing layers of management control, and seeking to become more agile and responsive to their environments. As a result, the structure that holds organizations together is becoming increasingly tenuous. Karl Weick (1993) wrote about what he called a "recipe for disorganization" that might be more prevalent than typically thought. The recipe reads:

> Thrust people into unfamiliar roles, leave some key roles unfilled, make the task more ambiguous, discredit the role system, and make all of these changes in a context in which small events can combine into something monstrous (p. 638).

Under such conditions even the sturdiest of organizations are at risk when the formal structure is so severely challenged. The result, Weick warns, is that "there is no leader, no roles, no routines, no sense" (p. 643).

Leadership offers a potent antidote to structural disorganization. But rather than expecting a single leader to hold the answers to every complex challenge (which is an impossible feat), organizations can be buffered from disorganization by preparing people at all levels to better participate in leadership processes. It is more than a mere slogan that all organizational members need to be leaders and all leaders need to be better prepared to participate in leadership, whatever its form. Regardless of whether there is a real leadership crisis within organizations today or that it just seems that way, the fact remains that organizations are more vulnerable as they restructure and are vulnerable more often to various types of internal and external threats. As a result, there

is an acute need to develop leadership more comprehensively across all organizational levels and to do so as quickly and efficiently as possible (Day & Halpin, 2004).

The notion of accelerating leader development implies that developmental experiences or initiatives might be condensed, shortened, or somehow reduced in reaching a developmental target more quickly. This assumption requires additional explanation because it could easily be misconstrued. We are not suggesting, for example, that acceleration simply means that a 5-week leader development program might ultimately be completed in 3 weeks. Nor are we suggesting that career tracks might be radically altered such that an individual might be able to attain a rank of major in the same amount of time it has traditionally taken to attain the rank of captain (again, for example). There is an adage in the Army that soldiers train to standard and not to time. Despite this saying, the reality of training is that it is often the reverse. Distinct time boundaries are often placed around training and development experiences, regardless of organizational context. Even when a standard is reached, there are few assurances that this standard could be re-attained or that mastery performance could be repeated continuously. There are important (and limiting) implications of this tendency.

OPTIMIZING DEVELOPMENT

A distinction has been made in the applied psychology literature between typical and maximal performance (Sackett, Zedeck, & Fogli, 1988). Typical performance pertains to the usual level of functioning or output with regard to a particular job or task. Another way of thinking about this is as the individual performance level under ordinary working conditions. In the leadership domain it might be construed as the "average leadership style" demonstrated by a leader. Maximal (or maximum) performance is defined as performance under conditions when there is explicit awareness on the part of an individual that he or she is being evaluated. Under those conditions there is intentional effort to maximize performance. Performance is measured under limited time duration so that the performer's attention remains focused on the accepted goal of maximum performance. In leadership terms this might be similar to crisis leadership or leadership in a dangerous or stressful situation.

Research on job performance indicates that typical performance and maximal performance are not highly correlated, especially for novices. On typical and maximal speed measures, Sackett et al. (1988) reported a correlation of .14 for new hires (novice) and .32 for experienced employees (expert). This raises a potentially important criterion of the gap (or correlation) between typical and maximum performance as an index of developmental readiness. The lower the gap or the higher the correlation between what someone handles typically and what can be accomplished optimally under the proper circumstances might serve as

an indicator of how ready someone is for a new developmental challenge. The underlying implication is that a large gap between typical and maximal performance is consistent with a novice status whereas a small gap is more indicative of expert status, with the latter being readier for further development. We should note that this is still only speculation or just an interesting hypothesis for the time being.

An interesting point when it comes to standards-based training is that reaching a particular standard during training and development may be the result of maximal rather than typical performance. But as this performance level eventually becomes the norm over time in terms of becoming typical performance, it is routinized to the degree that additional cognitive, social, and physical resources are available for handling a different and perhaps more complex demand. In this case typical performance is more aligned with maximal performance and thus the individual is developmentally ready for a challenging stretch assignment.

The distinction between typical and maximal performance (and the implications of this distinction) is important for understanding developmental issues as well. It has been noted that after adolescence, people do not routinely function at their highest developmental level. Task performance varies systematically (but usually below the highest level) as a function of environmental conditions such as practice and contextual support (Fischer, 1980; Kitchener, Lynch, Fischer, & Wood, 1993). There are both intrinsic and extrinsic motivational issues at play. Consequently, because discontinuous jumps in development require optimal performance levels, most skill development in adulthood at best shows slow, gradual improvement (Fischer & Kenny, 1986).

There are two proposed implications from these findings. First, as noted, discontinuities or sudden alterations in the pattern of development occur only when people are performing at or near their optimal level for the most complex skill they control. In other words, typical and maximum performance is highly correlated. Fischer and Kenny (1986) note that most adults show a large gap between their optimal level and the level at which they usually function. Second, environmental conditions largely determine when people perform consistently at their optimal level. At higher developmental levels, support and practice become increasingly necessary for high-level functioning (Kitchener et al., 1993). The environment must provide a context that induces and supports performance of behaviors that constitute the skill. There also must be the motivation (whether intrinsic or extrinsic) to practice until the skill has been mastered and then used continuously so that mastery is retained.

Returning to the theme of accelerating leader development, we hope that the distinction drawn between typical and maximum performance can help underscore an important limitation of trying to accelerate development beyond the limits of individual potential. The risk of focusing solely on time as the criterion of interest in the research and practice of leader development is that the result (ironically) would

likely be that development is slowed. Without adequate environmental support and sufficient opportunity to practice a skill to mastery, there will likely be only slow, incremental change in development. Providing a supportive (yet challenging) environment with a reasonable amount of time to attain mastery (i.e., minimize the gap between typical and maximum performance) might be necessary for quick, discontinuous jumps to higher developmental levels. The key is to find that ideal balance between investing sufficient resources needed for mastery without wasting additional resources unnecessarily.

An Army example might help to better illustrate this issue. Informal discussions among Army officers indicated that an especially meaningful developmental experience was the opportunity to serve as a platoon leader a second time. However, most officers only had one opportunity to serve in this capacity. What then made this apparently such an important source of leader development for these officers? One potential explanation can be found in the social cognition literature on cognitive scripts and another in the organizational literature on sensemaking (Gioia, 1986).

Cognitive scripts are a specialized type of schema for action. Scripts guide behavior in familiar situations such that actions can be determined and undertaken almost in a "mindless" (i.e., automatic) manner. The first time someone assumes responsibility for a platoon there is no cognitive script in place to know what to do or how to guide behavior automatically. Everything seems to require a great deal of cognitive effort. Behavior is deliberate and mindful and there are fewer cognitive resources available for understanding what is happening around the platoon leader (i.e., sensemaking). But by one's second rotation as platoon leader there is more of a script in place and more opportunities for learning not only what to do and how best to do it, but most importantly, why it should be done. A richer implicit theory is developed and a more meaningful developmental experience is the likely result.

In addition to a more developed implicit theory, it is also likely that leadership self-efficacy is enhanced in such cases. Self-efficacy refers to an individual's belief in his or her capabilities to reach given goals (discussed more thoroughly in Chapter 13). The officer in his or her second platoon leadership assignment has more confidence with regard to how to take charge of a platoon, how to deal with disciplinary issues, how to build a positive working relationship with the senior noncommissioned officer, and so forth. An identity as a leader has begun to emerge and take shape. Furthermore, expertise as a platoon leader has developed to a higher level.

It would be interesting to go beyond anecdotal accounts and conduct a longitudinal examination of any long-term career effects of this second leadership experience. Do two-term platoon leaders have a better developmental experience and perform more effectively as company commanders than one-term platoon leaders? There may be heightened developmental readiness among those platoon leaders who have more

likely reached optimal (maximum) performance in their second platoon leadership experience than those who take on a more complex assignment as a company commander after only one stint as a platoon leader. We hope to foster a better understanding of these processes by placing them within a context of a broad theoretical understanding of leader development. The eventual goal is the design and development of interventions to provide similar consolidation and growth in order to accelerate leader development.

DEVELOPMENTAL READINESS

We believe that a key issue in enhancing (as well as accelerating) leader development is assessing the *developmental readiness* of individuals. As alluded to above, developmental readiness refers to how prepared an individual is to benefit and learn from a developmental experience. Readiness is thought to be a function of optimal functioning at the present level, but more specifically related to individual differences such as an appropriate learning orientation as well as the self-efficacy for leadership (Avolio, 2004). It is interesting that Avolio believes that developmental readiness is also related to a person's level of moral reasoning. He argues that individuals with lower levels of moral reasoning will have difficulty critically evaluating how they come across as leaders (i.e., lower self-awareness). Such individuals are less capable of stepping back to see how their actions affect others. With heightened moral reasoning comes the reflective capacity that allows an individual to more fully reevaluate his or her own leadership and the relationships that are built with others.

This illustrates an important point about the multifaceted and multifunctional nature of development. As discussed in the next chapter on adult development, it is helpful to portray a web of development in which various strands interact in mutually reinforcing ways rather than thinking of development as unidimensional and having a singular function. Leadership competencies, moral reasoning, critical thinking skills, and social identity are different but interrelated components of adult development. They may follow somewhat different developmental trajectories, but they tend to be mutually reinforcing.

In the education literature, there has been a great deal of interest in *aptitude–treatment interaction* (ATI) models (Cronbach & Snow, 1977). The basic notion of ATI is that certain treatments or interventions are better suited to individuals at a particular aptitude level. An example from the field of education would be the hypothesis that a child has the necessary aptitude for one kind of reading method and not for another. The implication is that to maximize learning (or development), the appropriate treatment must be matched to the aptitude level of the learner. Aptitude is often defined in terms of readiness (Snow, 1991). This perspective apparently harks back to Alfred Binet, who identified

properties, qualities, states, or conditions of persons (rather than traits or entities) that enable profitable learning or development under given situational conditions. These properties are likely to include behavioral, affective, as well as cognitive factors. The ATI perspective proposes that different composites of these factors are relevant to different learning or developmental situations and that a complex reciprocity exists in which a person may be ready to profit from one kind of treatment (e.g., developmental experience) and not from another aimed at the same goal.

From the preceding description it should be evident how the ATI approach is also relevant to the topic of accelerating leader development. The concept of developmental readiness is very close in meaning to how aptitude has been conceptualized in the ATI literature. Matching individual aptitude to appropriate developmental experiences is likely to enhance and accelerate learning and leader development. Conversely, mismatching aptitude with an experience could retard or otherwise impede development. Although there are a number of unresolved issues about how to best measure aptitude or readiness, there are clearer guidelines on how to evaluate and assess ATI research. For example, the typical ATI experimental design has been re-conceptualized as a set of individual growth models for individual differences in response to intervention (Rogosa, 1991). This allows researchers to incorporate maturational processes into their models and thus provide a better estimate of ATI effects.

ZONE OF PROXIMAL DEVELOPMENT AND DEVELOPMENTAL POTENTIAL

A basic assumption originating in the child development literature, but also relevant to adult development, is that a particular task, experience, or intervention must occur within an individual's *zone of proximal development* for growth to occur. This concept was first introduced by Vygotsky (1986/1934), who proposed that a task must be within someone's developmental reach such that with effort and minimal "scaffolding" by others, an individual can move to a higher level of functioning. Certain factors keep tasks within an adult's zone of proximal development.

One important factor is the foundational capabilities that contribute to effective individual learning. These capabilities tend to be somewhat task-specific (although some might be more generic than others) and contribute to basic competency on a task. In the domain of leadership, the fundamental parameters of a particular technical challenge would need to be understood before a leader could have the credibility to set the direction of a team. These types of foundational capabilities are not stable over the lifespan, and intervening to enhance the capabilities can increase an individual's "zone" and, in turn, enhance development. A relevant example might be found in the assertion that leader development in the form of enhancing individual human capital usually

must precede leader*ship* development, which pertains primarily to the growth of social capital between individuals (Day, 2000). In simpler terms, individuals first must have the basic kinds of skills to be able to build effective relationships with others before social capital that is embedded in those relationships with others can be realized.

Another important factor that shapes an individual's zone of proximal development is the level of support from the environment, or the capacity to acquire adequate support resources. Having a social support network that can provide feedback, modeling, as well as reinforcement, in addition to environmental support associated with a formal intervention, can help an individual bridge certain gaps and allow development to occur despite inadequacies in foundational capabilities. Conversely, environmental obstacles can interfere with the use of basic capabilities or environmental pressures can greatly exceed an individual's capacity. In such cases in which foundational capabilities are exceeded and where there is a lack of contextual support, the zone of proximal development is not likely to be reached. In such cases, individuals often feel "in over their heads" and subsequent development rarely occurs (Kegan, 1994). A person is overwhelmed by the experience and has a difficult time making sense of things. The ability to make sense of one's experience is critical to learning and without learning there is not much hope for development.

Foundational capabilities and contextual support alone are insufficient; there also needs to be motivation to engage in the experience and to learn. Development cannot be forced and it will not occur unless there is at least a minimum level of motivation and some degree of a learning orientation in addition to a performance orientation (these terms will be explained in greater detail in subsequent chapters). And as noted in the section on optimizing performance, environmental support is critical for helping individuals reach mastery and thus prepare them for rapid jumps in development.

Related to the concepts of zone of proximal development, as well as developmental readiness, is the search for the *potentialities of development* (Baltes, Staudinger, & Lindenberger, 1999). This search falls under the general category of intra-individual plasticity or malleability (i.e., capable of being shaped by the environment or experience). The search for the conditions and range of developmental plasticity (including its age-associated changes) is fundamental to the study of development. A relevant distinction has been drawn in the study of plasticity between baseline performance, baseline reserve capacity, and developmental reserve capacity (Baltes, 1987; Kliegl, Smith, & Baltes, 1989).

Baseline performance refers to what individuals can do on a given task under standardized conditions of assessment. *Baseline reserve capacity* identifies the current level of plasticity available to an individual. This capacity consists of an individual's performance capability if the conditions of assessment are optimized without any additional efforts targeted at enhancing the cognitive and motivational resources available to a person. *Developmental reserve capacity* is targeted at specifying

what is possible (in principle) if cognitive and motivational optimizing interventions are used. It involves the assessment of performance following interventions or experiences that are targeted at optimizing an individual's cognitive and motivational potential or reserves (Kliegl et al., 1989). The concept of developmental reserve capacity is of particular relevance to the goal of accelerating leader development. With appropriate methodologies, it might be possible to assess the amount of developmental reserve capacity an individual possesses and estimate a personal trajectory for leader development. Major efforts have been made to develop the kinds of methodologies that can be used to gain a full exploration of age-related changes in plasticity and any limits on plasticity.

One set of methods that has been developed to study individual differences in cognitive plasticity among adults is called *testing-the-limits* (Kliegl et al., 1989; Lindenberger & Baltes, 1995). The overarching goals of testing-the-limits research are to "compress time by providing for high-density developmental experiences ... and to identify asymptotes of performance potential (plasticity)" (Baltes et al., 1999, p. 482). These asymptotes are obtained under optimal conditions of support, and thus are hypothesized to estimate the upper range of age-specific developmental potentiality. Testing-the-limits involves a class of intervention strategies (rather than a specific methodology) that seeks to explore and quantify the effects of theory-guided practice and other procedures associated with cognitive engineering. Using these procedures allows researchers to estimate maximum levels of performance potential (i.e., developmental reserve capacity) in a step-by-step fashion. The result is a fine-grained picture of what participants would be able to do under idealized experiential conditions.

Testing-the-limits research procedures have not been used extensively, are extremely time intensive, and have been designed primarily for micro-level cognitive processes (e.g., mnemonic memory). Despite these limitations, there are also potential advantages of using versions of such procedures in conjunction with leader development. For example, the similarities between testing-the-limits research and research conducted on expertise (Lindenberger & Baltes, 1995) suggest that the aspects of leader development involving skills acquisition and the development of expertise may be especially suited to testing-the-limits types of research. The potential practical value lies in better understanding the kinds of optimization strategies that can enhance and accelerate leader development.

CONCLUSIONS

The focus of this chapter was on further explicating what is and is not meant by accelerating leader development and why it is considered to be a critically important objective. As organizations face increasingly

complex challenges across the complete spectrum of operations, there is a heightened vulnerability for organizational failure. Leadership can provide much of the glue that holds an organization together as structures begin to pull apart. Coupled with the notion of task migration (see Chapter 1), there is an acute need for enhanced leadership across all levels and specialty functions.

We suggested that one way of accelerating the leader development process is to optimize development through minimizing any gap between typical and maximum performance. The closer someone's typical or average performance is to how he or she can perform maximally (above some standard), the more likely that the person is developmentally ready to move to the next level. Additionally, the concept of developmental readiness is very close in meaning to how aptitude has been conceptualized in the ATI literature. Matching individual aptitude to appropriate developmental experiences is likely to enhance (and accelerate) learning and leader development. Conversely, mismatching aptitude with an experience could delay or retard development. Thus, integrating research and theory from industrial-organizational psychology, developmental psychology, and the instructional design literatures provides distinct insights into some possible ways that leader development can be accelerated—at least theoretically.

Additional perspectives, primarily from research in the area of developmental psychology, have discussed the notion of potentialities of development (or developmental potential). This literature supports the assertion that there are individual differences in the malleability of developmental trajectories. Extrapolating the results of this research to the area of leader development suggests that through the use of customized "testing-the-limits" assessment techniques it might be possible to determine the developmental reserve capacity of a leader. This would provide concrete evidence regarding that leader's readiness for moving to the next developmental level. In sum, matching specific "treatments" or developmental interventions with specific "aptitude" levels in terms of readiness could spark the acceleration of leader development.

In conclusion, there is reason to believe that proper interventions in the leader development processes might accelerate development. In terms of acceleration, we are referring more to how to make development "stick" rather than focusing just on how to bring it about quickly. Given all of the complexities associated with adult development processes, the latter perspective may be an unrealistic goal. It is important to note that the literature suggests that accelerating the "stickiness" of development is theoretically possible; however, there are no concrete research findings that show exactly how this might be done with leaders or what kinds of effect sizes might be expected. In sum, research is needed to address these kinds of issues, especially in terms of better understanding just how malleable leader development is and what level of acceleration is reasonable to expect. Nonetheless, the literature does suggest that it is reasonable to hope that accelerating leader development is a scientific and practical possibility.

SUMMARY AND IMPLICATIONS FOR AN INTEGRATIVE THEORY OF LEADER DEVELOPMENT

- Research from developmental psychology and the field of adult development indicate that support and practice can facilitate discontinuous jumps in individual development. It is reasonable to suggest that similar discontinuous jumps to higher levels could also be accomplished in leader development. A key component in this process is the use of support and practice to make sure that individuals are performing as leaders as close as possible to their respective optimal levels.
- Leaders may benefit differentially from the identical assignment, experience, or intervention. Understanding the developmental readiness of leaders for a particular learning experience would likely accelerate their development. Aptitude–treatment interactions propose that the best developmental outcomes are experienced when interventions (experience, assignments) are matched with individual aptitude (readiness).
- Putting leaders "in over their heads" is a risky developmental strategy. It is best to try and stretch the leader's zone of proximal development and build from there rather than adopting a "sink or swim" approach to leader development.
- There are general methods of measuring an individual's developmental reserve capacity. Additional research is needed to develop measures to better assess the reserve capacity of leaders in terms of their skills, competencies, or expertise. This data could then be used in designing or choosing the most ideal assignments, experiences, or interventions to accelerate leader development.

CHAPTER

3

Leader Development as Adult Development

> The story of the human race, as well as the story of any one life, might be told in terms of commitments.
>
> —Margaret Farley (1986, p. 12)

The leader development process is thought to unfold over time and could conceivably traverse the entire lifespan. At a minimum, leader development encompasses the development of leadership knowledge, skills, abilities, and mental models in adolescence, young adulthood, and into adulthood and even old age. For this reason, it is surprising how little integration there has been between the fields of leader development and adult development. Very little has changed since it was noted almost 20 years ago that there have been few direct applications reported of adult developmental theory to work settings (Cytrynbaum & Crites, 1989). We are aware of only a few applications of social-constructivist development theory to the topic of leadership (Kegan & Lahey, 1984; McCauley, Drath, Palus, O'Connor, & Baker, 2006) and more recently to the topic of leadership development (Torbert & Associates, 2004), as well as a chapter that examines the implications of the adult development literature for the theory and practice of leadership development (Mumford & Manley, 2003). But these works are exceptions and provide, at best, very preliminary insights into how one could actively intervene in adult development processes in order to promote leader development.

Perhaps leader development has always been about adult development but the connections have been more implicit than explicit. Laske (2002) has restated a need for a cogent theory of executive (i.e., leader) development as adult development. We agree, and the purpose of this

chapter is to explicitly explore the relevance of adult development theory and research for conceptualizing leader development.

THE RELEVANCE OF ADULT DEVELOPMENT

Why is the adult development literature relevant? One reason is that it considers age-related changes as sources as well as outcomes of maturation. Leader development theory and research have largely ignored the well-documented findings that some components of intellectual development start to decline after a certain age (e.g., fluid intelligence, basic information processing) while other components continue to develop across the lifespan (e.g., crystallized intelligence, cultural knowledge; Baltes, Staudinger, & Lindenberger, 1999). Yet age-related declines in cognitive processing are not inevitable or universal, especially for adults who remain engaged in intellectually challenging tasks (Schooler, Mulatu, & Oates, 1999).

Others have proposed that different growth curve functions exist for various components of intellectual functioning, including intelligence-as-process (i.e., fluid intelligence), crystallized intelligence, personality, interests, and knowledge (Ackerman, 1996). In short, there are naturally occurring maturational effects that are likely to interact with the experiences typically used as leader development initiatives. As far as we know, there has been virtually no attention given to these types of possible age-related interactions in the leadership or leadership development literatures. As noted by Simonton (1988), "Unlike research on creative achievement, investigations on the life span development of exceptional leadership have been far more sporadic and inconclusive" (p. 255).

Adult development research and theory also are relevant to leader development because they are intended to generate knowledge about three specific components of individual development: (1) within-person commonalities in development, (2) between-person differences in development, and (3) within-person plasticity (malleability) in development (Baltes et al., 1999). The last point, in particular, holds promise for better understanding the possibilities of accelerating leader development. Baltes and associates (1999) reviewed the literature regarding cognitive interventions on development and concluded that the "evidence of the powerful role of experience and practice in the acquisition, refinement, and maintenance of the cognitive pragmatics is overwhelming" (p. 496). This evidence also includes neuropsychological evidence of changes in brain activity as a function of experiential interventions (Woodruf-Pak as cited in Baltes et al., 1999). The results strongly suggest that differences in level of intellectual performance are influenced by variations in aspects of the physical or sociocultural environment. By extension, there is evidence to suggest that leader development experiences can change the performance potential of individuals, at least within some age-related boundaries.

Perhaps the most compelling reason to consider leader development as adult development stems from the ultimate meaning of lifespan

development, described by Baltes et al. (1999) as "essentially a process of selective adaptation and transformation" (p. 483). The orchestrating processes of development are conceptualized as *selection* (goals/outcomes), *optimization* (means/resources), and *compensation* (response to loss of means). The outcomes are seen as the maximization of objective and subjective gains and the minimization of losses (Baltes, 1997). Successful aging in the form of continuous development across the lifespan is seen as the attainment of salient goals or states of functioning. The adaptation and transformation processes of lifespan development also can be considered as fundamental to leader development. After all, leaders are first and foremost adult human beings who are shaped by these fundamental processes of lifespan development.

From an overall historical perspective, lifespan developmental theory has been constructed in two different ways (Baltes et al., 1999). A *person-centered* or holistic approach considers the person as a system and attempts to build theory by describing and connecting developmental stages or states into one overall pattern of lifelong individual development. A good example of this approach is Erikson's (1959) theory regarding eight proposed lifespan stages of psychosocial development. The second approach takes a *function-centered perspective* that focuses on a category of behavior or a particular mechanism (e.g., information processing, personality, perception, leadership skills) and describes the lifespan changes in the mechanisms or processes associated with the category. The contemporary concept of lifespan developmental psychology (Baltes & Goulet, 1970) was advanced as a way of incorporating both approaches into one theoretical framework.

Baltes (1997) identifies three basic goals of development: growth, maintenance, and the regulation of loss. Understanding the differences among these goals is necessary to understand the extent to which age-related dynamics related to biology and external support (e.g., psychological, social, and material resources) help to shape the pathways of development. The allocation of available resources for growth (i.e., behaviors used for reaching higher levels of functioning) is thought to decline with age, whereas investments in the maintenance of functioning and the regulation of loss in adaptive capacity increase over the lifespan. Thus, a systematic lifespan shift in the relative allocation of resources to these three major developmental functions is thought to occur. An important developmental challenge, especially in later phases of adulthood, is appropriately and effectively allocating resources to these different developmental goals. As noted by Baltes et al. (1999), "The mastery of life often involves conflicts and competition among the three goals of human development" (p. 478). This becomes a particular challenge for growth because the older the adult the more time and practice it takes to attain the same learning gains. Furthermore, the older the adult the more they are in need of culture-based compensations to generate and maintain high levels of functioning.

Baltes and colleagues have summarized these processes in terms of the selection-optimization-compensation (SOC) "metamodel." A fundamental assumption of this approach is that at all stages of human development individuals manage their lives successfully through the three SOC processes that collectively provide the cornerstones of developmental regulation (Baltes, 1997; Baltes & Baltes, 1990; Freund & Baltes, 1998, 2002). Freund and Baltes (2002) define the various SOC components in this way:

- Selection: Setting goals or reconstructing one's goal system in the face of loss (e.g., focusing on most important goals, adaptation of standards, search for new goals)
- Optimization: Acquiring and investing goal-relevant means (e.g., resource allocation in terms of time and effort, practice of skills, acquiring new skills/resources)
- Compensation: Using alternative means to maintain a given level of functioning when specific goal-relevant means are no longer available (e.g., substitution of means, use of external aids or help from others, activation of unused skills/resources)

Although one perspective on lifespan development suggests aging adults will become better at selection, optimization, and compensation because of their accumulating life experiences (Baltes & Baltes, 1990), these processes typically are acquired and mastered in adolescence and young adulthood. Indeed, developmental theorists have noted the value-added contribution of the SOC model to the adolescent literature (Lerner, Freund, De Stefanis, & Habermas, 2001). Exposure to new experiences (especially challenging ones) in adulthood spurs the emergence of new levels and profiles of SOC (Freund & Baltes, 2002). This research suggests that younger individuals might be assisted in acquiring effective SOC processes that improve their respective life management skills and enhance their development as leaders well into later adulthood. In short, successful aging may be a necessary but insufficient condition for effective leader development.

A final point regarding the relevance of adult development to leader development comes from research on age-related effects associated with work-related learning and development activity (Maurer, Weiss, & Barbeite, 2003). Their model was based on data from 800 employees from across the U.S. workforce in a 13-month longitudinal study. The authors examined chronological age as well as perceived relative age as the predictors of participation in workplace development, where perceived age was defined as estimated age of an individual compared with others in his or her workplace in terms of how they feel, look, and act. Neither age nor perceived relative age were directly related to attitudes toward participation, intentions to participate in development, or actual participation; however, the effects of age were fully mediated

or explained by individual preparedness and career factors, as well as situational support. These effects were subsequently partially mediated by self-efficacy and the perceived intrinsic and extrinsic benefits of development. Although the relative magnitude of their effects was small (but statistically significant), these findings nonetheless suggest that there are some possible age-related effects associated with the cognitive, affective, and motivational drivers of participation in developmental activities. But overall, these results suggest that older workers will be more likely to be involved in developmental activities to the extent that they believe in the need to further develop their skills, receive intrinsic benefits from participating, have social support for development at work and outside of work, and possess career insight.

DO ADULTS DEVELOP?

Moshman (2003) reexamined the overarching question of whether adults really develop at all. From a traditional perspective, development is defined as a "universal process of structural transformation that constitutes progress toward maturity" (p. 44). Thus, the sorts of changes that occur in adulthood are not, in the strictest sense, developmental changes. He further points out that changes in adulthood are largely a function of specific experiences, and that there are rarely universal endpoints from which changes can be evaluated as developmental (i.e., progressive) or not. Given that many adults believe they are still developing—an assumption that is shared by many theorists as well—the strict conceptualization of development might need to be reconsidered. Moshman offers the perspective of a revised conception of development that includes three specific components: (1) development as qualitative change, (2) development as progressive change, and (3) development as internally directed change.

Three particular domains have been offered in which development clearly continues long beyond childhood. These domains also meet the proposed developmental criteria of qualitative change, progression, and internally directed processes. They are epistemic cognition, moral development, and identity formation (Moshman, 2003, p. 49). The development of *epistemic cognition* involves the rational construction of a series of increasingly complex perspectives about knowing and the nature of knowledge (See Chapter 7 for further detail). The developmental sequence involves qualitative changes from one epistemic perspective to another more sophisticated perspective. The sequence is considered to be developmental because it meets the criteria outlined by Moshman that it is qualitative, progressive, and internally directed. This also highlights a key principle in many approaches to adult development: subsequent stages or functional states transcend, but do not replace, earlier ones.

Moral development is the second area of adult development identified by Moshman, with a focus mainly on Kohlberg's theory and the research conducted within his framework (e.g., Kohlberg, 1981). The theory describes six moral stages or levels of thinking about moral and ethical issues (see Chapter 6). It is important to note that this approach tends to study moral reasoning rather than moral behavior; however, there is evidence suggesting a definite link between moral judgment and behavior. Thus, it may be reasonable to conclude that "moral judgment ... plays[s] a role in the way subjects lead their lives in important, real-life situations" (Rest, 1986a, p. 110).

Identity formation, proposed by Moshman as the third component of adult development, involves the development of an explicit theory of oneself as a person (see Chapter 5). It is a highly organized and reflective structure of self-conceptions that enables and facilitates self-construal. Identity construction is thought to be an ongoing and lifelong process that certainly does not end with adolescence (although a major developmental task of adolescence is identity formation; Erikson, 1959). Identity formation is generally thought of as an active process that is substantially guided by an individual (i.e., internally directed) and that later identity conceptualizations replace earlier ones (i.e., progressive). The process of identity formation is related to the process of developing the leadership meta-competency of self-awareness (Hall, 2004).

ADULT DEVELOPMENT AS POSTFORMAL OPERATIONS

The origins of adult development as a separate field of study from general developmental psychology can be traced to theorists and researchers who sought to examine development beyond the stage of formal operations first proposed by Piaget. Postformal operations grew out of the perceived limits associated with having a terminal stage of development (Piaget's formal operations) thought to be achieved in late adolescence or early adulthood (Piaget, 1985). Commons and Richards (2003) compared about 25 such theories and synthesized the results into four postformal stages. As such, this work is very much an extension of Piagetian theory, with development conceptualized as progressing through a universal set of developmental stages (i.e., a person-centered or holistic approach). By universal, it is meant that all individuals are thought to develop through the same sequence of stages at around the same point in their lifespan. In postformal theories, however, progression to higher levels is not automatically assumed, given that progression is heavily dependent on the experiences of an individual and the environmental support for higher-level development. Whereas most individuals are thought to attain formal operations sooner or later, the same cannot be assumed of postformal stages. This conceptualization reinforces a point made by Moshman (2003) that adults most likely do develop but do so in ways that are very different from how children develop. The role of

experience is much more instrumental in adult development than in child development, in which biological maturation plays a predominant role.

Many of the formal theories of development, including adult development, are organized around discrete sequential stages (Piaget, Erikson, and Kohlberg are all good examples). The notion of stages, however, is somewhat arbitrary and overly prescriptive. Especially in adulthood, development might be better conceptualized as a continuous process in which there are different skill trajectories for different adults. The point is that biological forces may play less of a role in shaping adult development than child development, especially regarding intellectual development associated with mental models, knowledge structures, and other things not directly related to basic information processing. The latter function has been shown to exhibit robust age-related declines.

An interesting finding has been reported by Benes (as cited in Fischer & Pruyne, 2002), who noted that the process of myelination, which significantly improves the transmission of neural signals in the brain, not only continues through adulthood but also shows a major growth spurt in the 40s and 50s. This is important evidence of biological and neurological development across the lifespan; myelination was originally thought to end in childhood. Thus, the neurological evidence of age-related change even in middle- to late-adulthood does not imply the same pessimistic implications for development that are typically associated with the biologically based deficit or loss models of adult development. Furthermore, it offers the provocative idea that midlife provides an important opportunity to develop abstract and reflective thinking. An unanswered question concerns the reasons that some individuals apparently continue to develop abstract thinking capabilities in their middle adult years and others apparently do not. The role of experience and especially intellectually challenging experiences could be one plausible explanatory factor.

WEB OF DEVELOPMENT

A common but overly simplistic way of thinking about development is as a ladder in which individuals progress upward through identical stages, but perhaps at different rates of growth (i.e., some climb the ladder more quickly than others). The traditional biological conceptions of growth or physical maturation are based on linear, unidimensional, unidirectional, and unifunctional models (Baltes et al., 1999). A point that is often overlooked in the search for such simplicity is that development takes many forms and many components contribute to the development of a complex skill or activity (e.g., leader competencies). In contrast to the traditional biological conceptions of growth, the overall ontogenesis of mind and behavior is more accurately portrayed as dynamic, multidimensional, multifunctional, and nonlinear. Multifunctionality is especially

important from an intervention perspective because it includes the systems concept of equifinality whereby the same developmental outcome can be reached by different means and combination of means.

The use of static metaphors has focused attention on what is stable in development rather than what changes and the conditions under which changes occur (Stevens-Long & Michaud, 2003). Rather than thinking of a ladder, development may be more accurately thought of as a web with different strands that have different development trajectories depending on specific contextual influences (Fischer & Bidell, 1998; Fischer & Pruyne, 2002; Stevens-Long & Michaud, 2003). These different strands could represent different skill domains with the connections between strands representing possible relationships among skill domains. The various directions of the strands could also indicate variations in developmental pathways and their combinations into high-order competencies.

This web of development also has been conceptualized as a more complex and multilayered system in three dimensions where the components mutually influence each other in dynamic ways (Thelin & Smith, 1998). Stevens-Long and Michaud (2003) elaborated on this by suggesting that "each of these strands is really a plane ... [and] consider that for each component of development there may be several possible landscapes that develop over different contexts" (p. 8). This conceptualizes development more in terms of *complex adaptive systems*, which have been described as "neural-like networks of interacting, interdependent agents who are bonded in a cooperative, dynamic by common goal, outlook, need" (Uhl-Bien, Marion, & McKelvey, 2007, p. 299). Although this is a complex approach to understanding developmental processes, at its core is the important point that has been supported empirically: growth curves for different skills may change across situational contexts depending on the level of social support that is available (Fischer & Bidell, 1998).

The primary point regarding both of these conceptualizations of the web of development is that the process of development is dynamic and nonlinear. It is dynamic in the sense that there is no single level of competence. Although this point is most often made with respect to reflective judgment capabilities, it could be generalized to other forms of competence as well. What this means in terms of everyday functioning is that individuals are likely to show great variation in skill levels in their daily functioning. One major purpose of facilitating adult development is to reduce this variability and support optimal levels of functioning. As discussed in Chapter 2, research has indicated that those individuals functioning at or near optimal levels will more likely show discontinuous jumps to the next developmental level than those operating at less optimal levels. In terms of the nonlinear aspects of development, it means that each person "spins a unique web that accords with the pace, direction, and focus of his or her individual learning and development" (Fischer & Pruyne, 2002, p. 179). The various strands of development

interact and combine with other strands over time, perhaps forming completely new skills or competencies.

There are important implications of conceptualizing leader development as a web of development. One such implication is that the various components of leader development (e.g., knowledge, skills, abilities, mental models) interact and influence each other. A web of development also recognizes that any experience is multifaceted, as multiple skill domains are affected within a single experience. From a systems perspective in which differentiation always precedes integration (Gharajedaghi, 1999), the development of different skills (differentiation) will result in processes that combine such skills into more holistic and higher-order bundles (integration). Thus, the leader development process might be conceptualized as an ongoing system of differentiation and integration (Day & Lance, 2004) in which lower-order or more basic kinds of knowledge, skills, and abilities interact in developing more molar and holistic competencies. Some of these basic knowledge, skills, and abilities may drop from the model over time if they no longer are important for leader functioning. A good example of this might be a specific technical skill that is necessary for functional leader behavior at early points in development but become less important and perhaps irrelevant at higher levels of functioning. This line of thinking acknowledges a point made by Baltes (1987) that development inherently includes processes not only of growth but also decline (i.e., development as a gain–loss dynamic).

CONCLUSIONS

A primary message we wish to impart in this chapter is that there has been a missed opportunity for advancing the notion of leader development as adult development (Mumford & Manley, 2003). The importance and relevance of this message is directed toward basic issues around adult development, including the robust findings of biologically based age-related changes that affect functioning and developmental potential. The selection-optimization-compensation (SOC) theory advanced by Baltes and his colleagues argues that there is a systematic change across the lifespan in terms of how developmental resources are allocated among these three *orchestrating processes of human development*. This point of relevance notwithstanding, perhaps the most pressing reason to consider leader development as adult development is the perspective that lifelong development is essentially a process of selective adaptation and transformation (Baltes et al., 1999).

Mumford and Manley (2003) offered macro-level suggestions to explain how the SOC processes of adult development might be used to improve the process of leader development. They focused on the selection of situations that will influence leader development, the actions of an

organization in selecting leaders or assigning them to specific situations and the actions of the individual in selecting situations. Optimization can take the form of performance interventions or social interventions to improve basic task and relational leadership skills. The timing of these interventions is also critical to avoid the risk that the intervention will not enhance development (Mumford, Marks, Connelly, Zaccaro, & Reiter-Palmon, 2000). It is even possible for interventions or experiences that are too far outside one's zone of readiness to result in negative developmental outcomes (Lerner et al., 2001). Finally, compensation can take the form of actions performed as a result of feedback about certain weaknesses as a leader (i.e., to change capabilities or leadership competencies) or by changing the leadership situation. As mentioned, these are relatively broad macro SOC strategies. Much has yet to be learned about the more micro self-regulatory SOC processes that can shape leader development in an ongoing manner.

The central developmental process of adaptation and transformation can be seen in terms of how leaders change and grow as a function of environmental challenges. The transformation of leaders is one that transpires across nearly the entire lifespan. It is too bad that much of the research and theory has conceptualized and studied leader development as relatively short-term (even cross-sectional) and static as opposed to a longitudinal and dynamic process. In addition, traditional perspectives have conceptualized the developmental process as linear, unidirectional, unidimensional, and unifunctional. Rather than a developmental ladder in which change can be only up or down, conceptualizing the space as a web of development opens up a number of rich possibilities in terms of how specific components (e.g., knowledge, skills, and abilities) develop and combine to from more holistic attributes (e.g., competencies).

Using the SOC theoretical lens to understand the leader development process as adult development might also provide leverage for accelerating leader development. Evidence from lifespan development psychology suggests the existence of between-person differences in plasticity (i.e., malleability) regarding potentialities of development. Thus, there may well be upper and lower boundary conditions for accelerating development. Concepts such as developmental readiness, triggers for development, as well as methodological procedures such as "testing-the-limits" (discussed in the previous chapter) all have relevance for advancing a more sophisticated (and practically useful) perspective on leader development as adult development.

SUMMARY AND IMPLICATIONS FOR AN INTEGRATIVE THEORY OF LEADER DEVELOPMENT

- Aging and maturation processes throughout the lifespan are likely to affect leader development in important ways. There is little, if any, research on these expected effects.

- Adults develop, potentially across the entire lifespan, but the underlying processes are different from how children and adolescents develop. Adult development is much more dependent on experience and other environmental factors than with children, whose development is mainly driven by biological and maturational processes. Thus, leader development is likely to be mainly experientially driven and heavily shaped by environmental factors.
- Selection-Optimization-Compensation processes are keys to effective self-regulation in adulthood. They are considered to be the orchestrating processes of successful aging and might serve as catalysts of leader development.
- The primary components of adult development are epistemic cognition, moral reasoning, and identity formation/development/change; these determine the necessary knowledge, cognitive skills, abilities, and mental models needed for effective leadership. Successful leader development would need to integrate these aspects of adult development with the specific elements that are needed for effective leadership.
- Adult development is more usefully conceptualized as a web rather than a ladder. Instead of a linear, up-or-down progression (i.e., ladder), development should be seen as a dynamic and nonlinear process. In understanding and shaping leader development, an important consideration would focus on how lower-order knowledge, skills, and abilities interact and combine over time and with experience to form higher-order leader competencies.

CHAPTER

4

Understanding Personal Trajectories of Development

One key to successful leadership is continuous personal change. Personal change is a reflection of our inner growth and empowerment.

—**Robert E. Quinn (1996, p. 3)**

LONGITUDINAL ISSUES IN LEADER DEVELOPMENT

This chapter takes a detailed look at relevant and important theoretical and methodological issues associated with time. Whenever the focus of study is development, the most appropriate research methodology is longitudinal in nature. Without a longitudinal focus, potential confounds associated with cohort effects in cross-sectional designs cannot be ruled out (Cook & Campbell, 1979). For example, in comparing a sample of Army colonels against a sample of captains on relevant developmental outcomes, it might be tempting to draw meaningful causal inferences about any noted differences (e.g., Mumford, Marks, Connelly, Zaccaro, & Reiter-Palmon, 2000). That would be a mistake, because the potential confounds make such inferences untenable. Other examples of drawing inaccurate conclusions include conducting cross-sectional research on different "generations" (e.g., baby boomers, generation X, generation Y) and concluding that noted differences in attitudes reflect a "generation gap" (Wong, 2000) or that there are different "learning styles" across generations based on interviews and surveys conducted using a cross-sectional research design (Deal, Peterson, & Gailor-Loflin, 2001).

When it comes to studying change, experts have pronounced that "cross sectional data—so easy to collect and so widely available—will not suffice" (Singer & Willett, 2003, p. 3). Such approaches ignore some basic but critically important caveats. As noted by one team of prominent developmental methodologists:

> It is never possible to know [from cross-sectional research designs] whether observed differences between people within different age groups reflect the aging process or the fact that the people being compared have lived through different historical periods. The best that the researcher can hope for is that as many alternative explanations as possible have been eliminated through careful selection of respondents. (Cavanaugh & Whitbourne, 2002, p. 88).

Thus, a major problem with cross-sectional designs in studying aging is that any obtained differences might be confounded by historical artifacts, maturational forces, or a whole host of threats to the causal inference being drawn (Cook & Campbell, 1979). In short, there are alternative explanations for these cohort differences that cannot be ruled out with the use of cross-sectional designs.

All longitudinal methods and designs are not created equal. An attempt to estimate or model a longitudinal growth curve that explains the data for an entire sample could fail to explain the change for any given individual in the sample with any accuracy. In ordinary least squares (OLS) regression procedures a best-fitting regression line is estimated based on minimizing the average distance from each data point to the fitted slope. In OLS it is therefore possible to have an overall regression line that is statistically significant but does not intersect any single data point in the sample, nor perfectly reflect the slope of any one set of data points associated with an individual in the sample. In addition, the resulting regression line could be estimated as linear even when the underlying data follows a distinctly nonlinear trend. Any of these errors could lead to major misinterpretations regarding the nature of change and development that is reflected in the study.

In any study in which variables are measured at multiple times for each person in the sample it is possible to conceptualize the data as reflecting personal regression lines or trajectories of change over the measured time span. Each participant in the sample has a unique change trajectory associated with his or her data. An example of this type of approach is illustrated in Figure 4.1. There are five distinct trajectories that reflect changes in leadership proficiency over time. One way to conceptualize these curves is as *inter-individual* effects. That is, each curve reflects the change or development of leadership proficiency over time *between individuals* in the sample. Another way to conceptualize these curves is as *intra individual* effects in which each curve reflects the development of different aspects of leadership proficiency *within an individual* in the sample. This figure raises two important considerations regarding how best to model development: (a) levels of analysis (within- and between-person effects), and (b) time and the timing of effects.

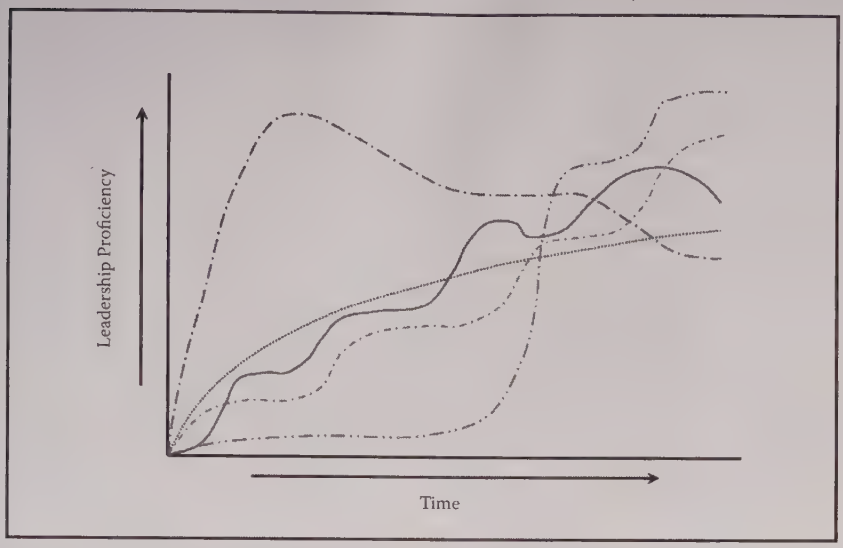


Figure 4.1 Personal trajectories of development (adapted from Goodwin & Halpin, 2004).

Levels of Analysis in Development

It has been argued that "leadership development is *always* a multilevel development process" (Avolio, 2004, p. 94) as it includes a leader and relationships with followers, peers, and supervisors and is embedded in a higher level of organizational climate and culture. Figure 4.2 represents a rough diagram of some of the major components in a multilevel longitudinal view of leader development. Followers, peers, superiors, and mentors all have perspectives on a leader's skills, knowledge, abilities, and mental models, which are shaped by the fundamental components of adult development (Moshman, 2003) consisting of epistemic cognition, moral reasoning, and identity (see Chapter 3). These elements are embedded in an organizational system within which the climate and culture influence (facilitate or retard) the components of adult development as well as the process of developing leadership-related skills, knowledge, abilities, and mental models.

Leader development also inherently involves intra-individual change and inter-individual differences in change. At the most fundamental level, development is concerned with changes that occur within an individual (i.e., intra-individual). Development is not a linear, unidimensional, unidirectional, and unifunctional process as conceptualized by traditional biological models of the aging process (Baltes, Staudinger, & Lindenberger, 1999). As reflected in the trajectories portrayed in Figure 4.1, development can be a downright curvy affair. Certain aspects of intra-individual development might progress in a generally

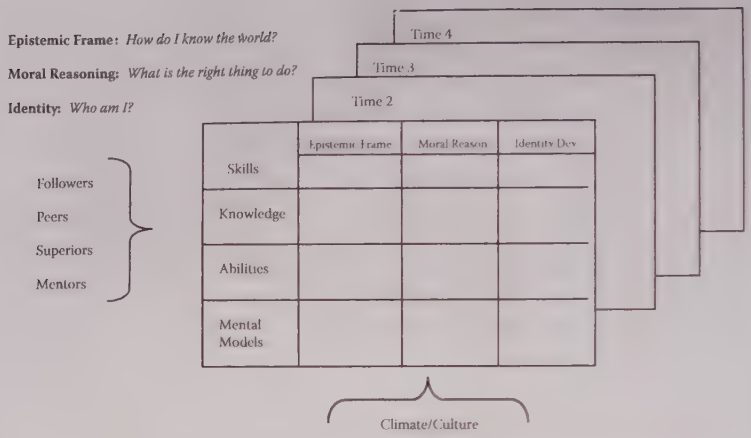


Figure 4.2 Elements and process influences in leader development.

positive manner until some other challenge or task demand is made on an individual that stretches developmental resources beyond what can be handled. At that point, development might stall or possibly reverse direction completely in that someone reverts back to a less developed mode of functioning. This is especially likely if performance optimization is not attained prior to these new challenges (see Chapter 2). Research evidence suggests that development would be at best a slow, gradual, and incremental process without the foundational capabilities and environmental support necessary for optimal performance (Fischer & Bidell, 1998; Fischer & Kenny, 1986).

Also relevant to an intra-individual perspective on development is the conceptualization of development as a gain–loss dynamic. An important theoretical proposition from the lifespan literature is that "*any* process of development entails an inherent dynamic between gains and losses ... no process of development consists only of growth or progression" (Baltes, 1987, p. 611). Nonetheless, successful development is thought to occur when there is a relative maximization of gains and minimization of losses (Baltes, 1997). Another perspective on developmental losses is that a particular skill (in the case of leader development) combines with other skills to form a broader leadership competency. It may appear as if the original skill is lost; however, it has instead become part of a more complex entity. In some cases, a skill might lose its relevance to leader functioning over time and decay or become dormant because of changing job responsibilities. But it should be noted that this application to leader development is at a more macro (i.e., skill) level than what has been discussed in the lifespan development literature. In that domain the focus has been almost entirely on intellectual development (e.g., a combination of crystallized and fluid intelligence).

The notion of inter-individual difference reflects the likelihood of differences in the rates and trajectories of development between individuals. It is assumed that adults do not all develop in the same way or at the same rate. One reason for this differences is that adult development is primarily a function of experiences rather than biological maturation, which is a major driver of development in children. Indeed, the compensation processes that are considered an important developmental imperative in adulthood are directed at responding to age-related losses in functioning (Baltes et al., 1999). But even if two adults were exposed to the same experience there is no certainty that they would develop equally. Due to differences in developmental readiness, one individual might find the experience challenging and a trigger for enhanced development (Avolio, 2004), whereas another individual might find the experience too challenging and feel overwhelmed by it. For the first individual the rate of development would be positive (but not necessarily linear) throughout the experience. In the second case, the rate of development could actually be negative if the experience was so overwhelming that it interfered with functioning.

Inter-individual differences in development challenge a common (although perhaps implicit) assumption that the same experience will bring about the same type and level of development across individuals. Research and theory suggest that this is simply not a tenable assumption (see Quiñones, 2004; Quiñones, Ford, & Teachout, 1995; Tesluk & Jacobs, 1998). Because development is multidimensional and multifunctional it is quite possible that different functions will develop in two individuals exposed to the identical situation. One person might experience a spurt in the development of communication skills, whereas another experiences enhanced abstract reasoning. Or both functions could be enhanced in both individuals but to different degrees. Even within the Army it has been shown that there are approximately seven different "types" of leaders who display differences in personality, skills, and patterns of career development (Mumford, Zaccaro, Johnson, Diana, Gilbert, & Threlfall, 2000). One of the challenges of constructing and implementing an integrated theory of leader development is determining how best to assess the various components of development and track them over time.

Time and Development

Because development is inherently a longitudinal phenomenon, time is a critical variable in all developmental models. Many of the classic theories of development (e.g., Erikson, Kohlberg, Piaget) have adopted a person-centered (holistic) approach that describes and connects age periods as stages of development organized into an overall pattern of lifetime individual development (Baltes et al., 1999). A complementary perspective takes a function-centered approach that describes lifespan changes in the mechanisms and processes of a given behavior or skill.

This approach, taken in developing the present leader development theory, treats time as a continuous variable rather than being divided into discrete steps or stages. Adopting a stage approach too often leads to thinking about development more as a lock-step ladder than as a continuously constructed web. Put somewhat differently, a stage approach too often leads to thinking about development as a simple progression of steps; it is akin to following a mapped-out route from start-point to destination on a map. The more complex picture suggested by Baltes and colleagues is more like wandering through the countryside without a map, having in mind a destination but with no clear pathway to reach that destination, and having a willingness to explore along the way.

It would be easy to be lulled into false generalizations about development if one is not careful to specify the actual timeframe considered. Development is potentially played out in both short-term and extended time periods; it can occur in a given relatively brief experience as well as over a long-term career. The perspective adopted matters a great deal because it can lead to very different conclusions regarding the rate of development. Looking only at the slice of development portrayed in Figure 4.3(A) would result in the conclusion that there was steep, positive, and linear change in development. Examining only the slice in Figure 4.3(B) would lead to a conclusion that there was no change in development of leadership proficiency. The slice portrayed in Figure 4.3(D) would support a completely different conclusion: that development was curvilinear with an overall decline in leadership proficiency. That conclusion, in particular, is problematic because it overlooks two key elements when a longer career perspective is

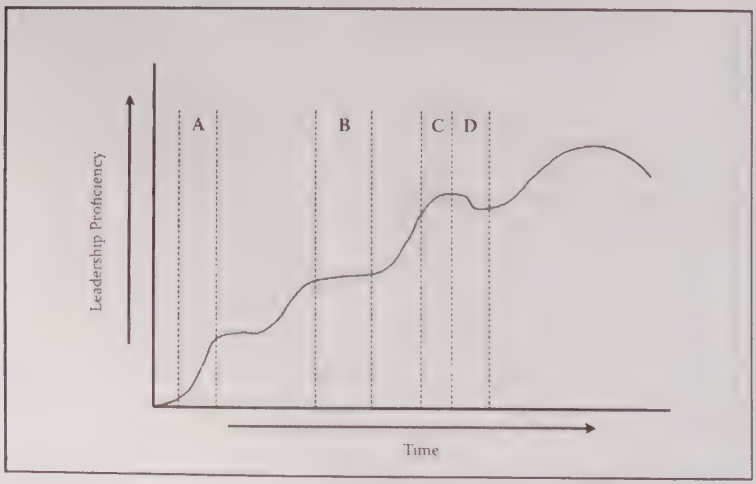


Figure 4.3 Growth curve of leadership proficiency across a career (adapted from Goodwin & Halpin, 2004).

taken: (a) the overall developmental trend is positive, and (b) the declines in section D are relatively small and short-lived.

The moral of the story is that the timeframe for measuring development is critically important and researchers need to choose their timeframes based on theory, taking into account the likelihood of lag times between experience and subsequent development. As noted by George and Jones (2000):

> Although theories in organizational behavior, more often than not, specify relationships among constructs in causal terms, the duration of effects, the time lag between causes and effects, and differences in rates of change are often left unspecified (p. 670).

There have been recent efforts to build better theory around the timing of when things happen. Mitchell and James (2001) reviewed all of the empirical studies published in two prominent journals in the field of management (*Academy of Management Journal* and *Administrative Science Quarterly*) for the entire year of 1999. Their review and synthesis indicated eight general configurations regarding timing and causality that are organized around an increasingly complex of set of assumptions (pp. 534–535):

1. X causes Y (implying that X must precede Y).
2. X causes Y and the relationship is stable over time (every time X occurs Y will occur).
3. X causes Y, and Y changes over time (time lag is important between X and all subsequent occasions when Y occurs).
4. X causes Y, but over repeated exposure to X, Y changes (time lags important for an additional reason: we need to know at what point in time the exposure to X produces a change in Y).
5. X causes Y, and then a changed X causes a changed Y (besides time lags, we need to know the time involved that results in different levels of X).
6. X causes Y, which causes a changed X, which causes a changed Y (this pattern introduces cyclical recursive causation and necessitates knowing the X→Y lag as well as the Y→X' lag time).
7. X causes Y, which causes a different variable Z, which may in turn cause a different variable Q (mediation is hypothesized and the time lags between all the variables may be important).
8. X causes Z, but the strength of the relationship varies as a function of the level of Y (a classic moderated relationship, where the X–Z starting, stopping, and lag times are important as well as the "almost never discussed" time lags between Y and Z).

Sorting out these kinds of time-based relationships clearly can get very complicated. Mitchell and James (2001) make a strong case for why "theoretical propositions need to display a specific awareness of time and context" and that "such issues demand both complex and

creative thinking on the part of the theorist" (p. 543). This would appear to be the particular case for those of us engaged in developing an integrated theory of leader development. One compelling reason for this need is that all of the various theoretical configurations of time and the timing of effects that are discussed by Mitchell and James would likely be represented in the "web of lifespan leader development." Although the task is daunting, building sound theory involving the timing of developmental events can increase the hope of understanding and accelerating leader development.

Another relatively recent treatise on time and theory building outlined specific dimensions of time to consider in theory and different ways these dimensions could affect the "what," "how," and "why" of theory (George & Jones, 2000). Several of the time dimensions have distinct implications for leader development. The dimension addressing the *duration of steady states* and *rates of change* pertains to how long a particular state lasts or is stable over time (i.e., duration), and how long it takes to change from one state to another (i.e., rate of change). Comparing the duration of steady states of development could be an important criterion, with shorter durations being preferable to longer ones at various skills or competency levels. Interventions that focus on changing (i.e., speeding up) the rates of developmental change could be designed and evaluated. *Incremental versus discontinuous change* is another key dimension of time to consider. Are there places in the web of development where very small changes in one thing lead to very big changes in another? The notion of developmental readiness might pertain to this time dimension. A person who has reached the point of developmental readiness in terms of taking on a more complex developmental challenge may be more likely to experience a discontinuous jump in development (i.e., punctuated equilibrium) than if a person has not reached that point of readiness. George and Jones (2000) also discuss the time-related issues of *frequency*, *rhythm*, and *cycles* as well as *spirals* and *intensity*. These dimensions address aspects of nonlinearity and recursive relationships thought to be associated with change over time, which were articulated in the previous discussion regarding the web of development.

In sum, there is an increasing awareness of the important role that time plays in most organizational theories, with an absolute mandate for addressing time in research and theory on development. The good news is that there appears to be some recent guidance on how to better include the various dimensions of time as well as relationships regarding timing and causality in our theory. Nonetheless, studying change over time remains as a very challenging topic, but one that is essential to developing and testing theories of leader development.

Methodological Issues (Briefly)

A rich history of change measurement and modeling provides a number of useful modeling and statistical procedures. Historically, change

has been very difficult to measure and model appropriately and accurately (Cronbach & Furby, 1971) in part because change (or development) is not a unitary concept; there are many different types of change. Fortunately, recent advances in modeling and statistical estimation procedures have solved many of the key problems in change measurement.

Day and Lance (2004) compared various approaches to the measurement of longitudinal change across nine different criteria (e.g., controlling for random measurement error, considering continuous and discontinuous change patterns, accounting for intra-individual and inter-individual change). A general conclusion reached from this review was that multilevel growth modeling provided the preferred approach to modeling change. Although the development of such procedures can be traced back to the 1950s, serious attention has been given to this methodology only in the last 20 years. And only within the last decade have these techniques been used successfully to model "real-world" data in the field of applied psychology. Techniques such as latent growth modeling, random coefficients modeling, multilevel growth modeling, and hierarchical linear models are various names for a family of approaches that estimate and compare growth curves, and that can accommodate both intra-individual and inter-individual change (Raudenbush, 2001).

Growth modeling is a powerful technique for estimating change trajectories and testing hypothesized effects on change. Day and Lance (2004) illustrate how latent growth modeling could be used to model the development of leader cognitive complexity over time. They also extend their example in discussing how certain interventions such as feedback, distance learning, and simulations might be examined with regard to the longitudinal modeling of leader development.

In another recent example, formal leadership role responsibilities were modeled as a time-varying covariate of the task performance of leaders (Day, Sin, & Chen, 2004). Time-varying covariates, or time-varying treatments, involve cases in which events or interventions occur as a time series unfolds. Each "treatment" affects the next event and so on. In the Day et al. study, the sample consisted of the individual performance data for all team captains of the modern era of the National Hockey League (NHL). The time-varying treatment was whether each captain was a captain in a given season. Contrary to conventional wisdom in the NHL, the results indicated that those years in which the player served as captain were associated with better (not worse) individual performance. This was found to be both an intra-individual effect (a player had superior performance during seasons when he was a captain compared with other seasons played) as well as an inter-individual effect (compared with noncaptains in a given season, the captains had superior performance).

This example is provided to illustrate the power of multilevel growth models and the types of research questions that can be addressed

with them. It should be noted, however, that the problem of causal inference for time-varying treatments (assuming no randomization) is exceptionally challenging. According to Raudenbush (2001), "It is a cutting-edge issue on which progress is being made, but methodological workers in this area have not yet achieved a consensus on the best way to proceed" (p. 522). Thus, all the problems associated with change modeling have not been solved and there is plenty of methodological work yet to be done.

An important issue with regard to conceptualizing and testing longitudinal models pertains to the sequencing of events in a time series analysis. In the domain of leader development, for example, it is possible to think of a hypothesized series of developmental effects that would be indicative of accelerated development (e.g., cognitive complexity → social complexity → behavioral complexity; Day & Lance, 2004). This example hypothesizes that cognitive complexity is needed (number and variety of personal constructs held by a person) before social complexity can be developed (complexity regarding the demands and intricacies of various social situations), which is needed before behavioral complexity can develop (number of different roles that can be performed by an individual). The central question is how do we know whether this hypothesized model of sequential change is supported by the data?

A recently developed technique called latent transition analysis provides one such way of testing models of sequential change in longitudinal data (Collins, Hyatt, & Graham, 2000). A distinct advantage of this method is that it provides estimates of "stage prevalence" (i.e., the likelihood of being classified at a given stage or level) and the incidence of stage transitions adjusted for measurement error. One limitation of latent transition analysis is that individuals are not conceptualized as being arranged along a continuum (e.g., leader development) but rather placed into latent categories. Thus, the approach appears relevant mainly for testing person-centered models of development, in which discrete stages or levels of development are hypothesized. Nonetheless, advances are being made at a rapid rate in this field and techniques to test transition effects in continuous models of development will likely be available soon to researchers.

In conclusion, huge strides have been made within the past two decades regarding how to conceptualize and model intra-individual and inter-individual change. These forms of personal trajectories (Raudenbush, 2001) offer a powerful tool for understanding development—including leader development—as well as a potential means for accelerating it. Leader development is inherently multilevel and closer attention needs to be paid to time and the timing of events in order to understand the causal relations underlying the leader development process.

SUMMARY AND IMPLICATIONS FOR AN INTEGRATIVE THEORY OF LEADER DEVELOPMENT

- Leader development implies a longitudinal focus. As such, time is a critical concern in leader development theory and research. The importance and relevance of time takes several forms: (a) understanding developmental changes of leaders across their careers; (b) predicting when certain experiences, assignments, or other interventions are most likely to be effective in enhancing leader development, and (c) understanding and shaping the developmental process that occurs during a given experience, assignment, or intervention.
- Leader development is multilevel. There are intra-individual (within-leader) changes in developmental trajectories, depending on the particular skill or competency being developed, as well as on the particular developmental level of the leader. There are also inter-individual (between-leader) differences in developmental trajectories.
- The timeframe taken to study leader development is critical. What may seem to be developmental declines may be only temporary setbacks/regressions when compared with a longer time period.
- Time lags are important considerations in evaluating the developmental effects of leader development interventions. It is unrealistic to expect that every experience or intervention will have immediate developmental implications. There may also be interaction effects resulting from pairing or bundling certain experiences together in time.
- Modeling change and the effects of time can presently be done rigorously and accurately. Longitudinal and multilevel methods are available (e.g., hierarchical linear modeling, latent growth modeling, multilevel growth modeling) that can estimate individual developmental trajectories and examine simultaneously the intra-individual and inter-individual changes.

SECTION

3

Fundamental Aspects of Adult Development

The focus of the following chapter on identity—as well as the next two on moral development and epistemic cognition, respectively—represent a change in the focus of the book from some of the important processes associated with adult development to a more detailed examination of what develops in adults. The development of identity, moral reasoning, and ethical behavior, as well as cognitive frameworks for more sophisticated sensemaking (i.e., epistemic cognition) are all thought to be major developmental tasks for adults. Each of these areas is of fundamental concern in leader development. Identity (what people think of themselves and their role in the world), morality and values (what people believe are the proper limits on behavior), and epistemic cognition (which shapes how people frame their own reality and make sense of others' behavior) together build the core that supports leader development. A broad view of leader development must consider how these aspects develop.

CHAPTER

5

Identity Development

> The problem of self-identity is not just a problem for the young. It is a problem all the time. Perhaps the problem. It should haunt old age, and when it no longer does it should tell you that you are dead.
>
> **—Norman Maclean (1992, p. xiii).**

Identity is important generally because it grounds individuals in understanding who they are, what are their major goals and aspirations, and what are their personal strengths and challenges. The culmination of an individual's attributes, values, knowledge, experiences, and self-perceptions defines one's identity. Identity is also important more specifically as demonstrated in the Army leadership framework (i.e., BE, KNOW, DO), which captures identity-defining aspects of leadership to build one's leader identity. A fully developed and integrated leader identity can help build an individual's confidence in interpersonal communication and in decision making in new and unpredictable circumstances (Baumeister, 1995). In short, identity provides the touchstone for individuals (and individual leaders) in successfully addressing complex challenges in their lives.

IDENTITY DEVELOPMENT THEORY

Identity is an expansive term that depicts ones self-concept—how an individual perceives the entirety of oneself in relation to the environment including relationships with others and assimilation into societal norms, beliefs, and standards (Bronfenbrenner, 1979). Identity also refers to the integration of various components of oneself, one's sub-identities. Individual identity develops and crystallizes across the lifespan, beginning with a young child's awareness of significant others and an initial sense of self and extending to the older adults' summation, integration, and evaluation of one's life accomplishments (Erikson, 1959). Currently,

research in identity is moving away from a static, unitary concept of identity toward a dynamic, multifaceted, and active conceptualization of the self (Baltes & Carstensen, 1991). This includes the *working self-concept* that is thought to guide action and information processing on a moment-to-moment basis (Lord & Brown, 2004). The working self-concept is the highly activated and contextually sensitive portion of the general self-concept (i.e., identity). Markus and her colleagues (e.g., Markus & Kunda, 1986; Markus & Wurf, 1987) introduced the notion of a dynamic self-concept to support their contention that the self-concept is not a unitary entity but an amalgamation of selves that vary in terms of activation across time and context.

Research on self and identity development is vast and growing, yet it appears to be divided into distinct developmental and organizational perspectives in the psychological literature. The developmental literature focuses on stages or components of the development process, whereas the organizational literature tends to focus on the role of identity in predicting work-related outcomes mainly at the individual level. It should be noted, however, that some organizational researchers have begun to address the notion of identity change (e.g., Ibarra, 1999). Although there is great opportunity for these literatures to inform each other, little overlap currently exists among disciplines.

Much of the early identity development research focused mainly on adolescents and young adults; however, this research was also sparked by the concept of "identity crises" that were hypothesized to occur in Erikson's (1950) fifth stage of psychosocial development. This stage involves a crisis of ego identity versus role confusion, in which individuals—usually adolescents—ask themselves, "who am I and how do I fit in this world?" Erikson (1959) suggested a period of moratorium in which an individual explores possible roles and identities before deciding upon a meaningful, unified self-concept. Successful resolution of the crisis involves identity achievement, in which an individual has a high sense of self, is self-certain, and develops a set of ideals. Erikson also described the development of fidelity or loyalty to a particular identity in society.

In comparison, unsuccessful resolution involves identity diffusion, in which an individual is marked with an unstable and threatened self, self-doubt, and extreme self-consciousness. The lack of personal identity is referred to as repudiation, in which an individual fuses to the identity of others or a group. Extreme cases include cult or gang membership, or perhaps even personal relationships (usually romantic) in which a person loses his or her sense of self. Another maladaptive tendency is fanaticism, in which an individual is overly involved in a particular role beyond the point of tolerance or respect for others. In an intense organization such as the Army, there is need for awareness on the part of leaders concerning the signs of adaptive and maladaptive identities that form in those they command. Across all types of organizational contexts, some individuals can get so attached to their respective positions and titles that these manifestations are equated with personal identity.

This can create an unhealthy situation for the individual and perhaps even the organization.

As initially proposed, Erikson's ego identity was theoretical, descriptive, and difficult to test. Marcia (1966) developed a framework based on crisis and commitment principles as a way to empirically study the identity construct. Crisis refers to a period of decision-making in which various identity options are explored and tried out, whereas commitment refers to settling on a component of self-definition. Marcia's identity status paradigm reflects the interaction pattern of an identity crisis and commitment to an identity: identity achievement (presence of both crises and commitment), moratorium (crises and commitment later), foreclosure (commitment without crises), and identity diffusion (no crises, no commitment). Although Marcia's paradigm was originally a typology of outcomes rather than a developmental process, Waterman (1999) suggested that adolescents develop from diffusion to achievement. Other researchers argue the status model is not especially sensitive to developmental change and therefore is not appropriate for suggesting a developmental change direction (Van Hoof, 1999).

In an extensive review of identity development, Bosma and Kunnen (2001) noted three themes of the determinants of development: (1) openness to experience and change in the individual, (2) the importance of context in terms of support and opportunities for growth, and (3) the importance of the outcome of previous development. A common thread running through many theories of development is the notion that an individual is not likely to work on identity development if he or she is not ready or open to being influenced by information through feedback or self-reflection. Similarly, development is likely to be stunted in environments that are not safe or supportive. Environments that provide role models, expectations, and support are most conducive for development. Finally, the outcomes of previous development play a role as a determinant of identity development. If an individual feels guilt or fear based on previous developmental experiences, future development could be affected adversely.

Identity development may be cyclical rather than linear. Bosma and Kunnen (2001) further suggest that development is an iterative process of conflict and resolution between an individual's commitments and information from the environment. Healthy development is balanced between assimilation, in which an individual adjusts the interpretation of the context to be consistent with self-schema, and accommodation, in which an individual makes an adjustment of his or her commitments or identity. Over-assimilation leads to rigidity and distortion of reality, whereas a complete reliance on accommodation results in chaos and superficial commitments.

Loevinger (1976) emphasized the role of social cognition in identity development, arguing that reasoning and understanding about one's own experiences in terms of the role of self and others shapes identity formation. According to Loevinger's theory of ego development, an individual

progresses through eight stages or "milestones" in which one's frame of reference or ego develops more sophisticated and complex structures in response to demands of the environment. Ego growth occurs in the areas of impulse control, interpersonal relationships, and conscious preoccupations. Experiences that create disequilibrium in the structure of the individual's existing stage, and are personally salient, emotionally engaging, and interpersonal in nature are thought to facilitate ego stage transition (Manners, Durkin, & Nesdale, 2004).

Measurement of ego development has centered on the *Washington University Sentence Completion Test*, in which individuals are instructed to complete sentence stems and responses are content-analyzed. A recent meta-analysis indicated that Loevinger's construct and measurement of ego development was related to many criteria (after controlling for verbal intelligence), including positive relationships with adjustment and openness to experience, and negatively related to delinquency and conformity (Cohen & Westenberg, 2004). Interventions, such as instruction, group discussion, and experiential exercises have been found to increase ego development stages (Manners, Durkin, & Nesdale, 2004).

An individual's overall identity develops as sub-identities are expanded, defined, and integrated through experience, self-reflection, and discourse. According to Kegan (1982, 1994), development occurs as an individual experiences increasingly complex situations, is able to deal with the complexity, and integrates the experiences with the self. Furthermore, an individual grows through a series of ongoing differentiation and integration episodes that are guided by subject–object relations. In early stages, an individual is not able to separate various knowledge principles and the self (i.e., the self is subject to those principles), but grows as he or she is able to take an objective view (i.e., hold the principle as object), and finally control or integrate the principle with the self. An individual moves from being subject to implicit assumptions that he or she *sees with*, to being able to hold those assumptions as object and use them to *see through* experience explicitly. When a principle can be held as object, then a person is able to differentiate the self from the assumption and integrate the explicit assumptions with the self. For example, at very early stages of development an individual is subject to a number of drives and impulses without being able to separate him/herself from such impulses or to see them objectively. Through development, there is an emerging awareness that one has impulses but is not defined by those impulses. Development can be facilitated by asking certain questions in an environment where one is safe to challenge subjective roadblocks by making or holding them as object.

POSSIBLE SELVES AND PROVISIONAL SELVES

Similar to the term *ego*, which describes an individual's frame of reference, self-schema refers to an individual's representations of structures

of the self. One type of self-schema that may provide insight into the development of the self is the notion of possible selves, which refers to how someone wants to be or is afraid to be in the future. Possible selves can serve as motivators in that an individual may behave so as to promote the achievement of a desired possible self, such as a "happy self" or to avoid the realization of a feared possible or "nightmare self " (Cross & Markus, 1991)

Possible selves may signify the direction of development, the person one is attempting to become. Additionally, possible selves may aid in the interpretation and evaluation of the current self. Comparing one's current self with the possible selves can serve as a standard for satisfaction as suggested by control theory (e.g., progress toward a desired self indicates satisfaction). Similarly, an individual may revise a possible self to a more attainable self as a way of more quickly or painlessly reducing the discrepancy between actual and possible selves, which may also serve to maintain satisfaction of the current state. In addition, possible selves may aid in the choice of activities to pursue, and the choice of domains to further develop or optimize. Possible selves may also help an individual maintain self-esteem by compensating for domains where loss is experienced (Baltes & Carstensen, 1991).

Several additional factors can contribute to one's own view of the self. For example, an individual who holds an independent self-construal believes there is one true or real self; whereas an individual who holds an interdependent self-construal believes that social roles and relationships define the self (Markus & Kityama, 1991). Consistency in behavior may be less important for well-being for those individuals with an interdependent self-construal than those with an independent construal (Cross, Gore, & Morris, 2003).

The concept of identity development as seen through the lens of possible selves has been further developed and integrated with concepts relating to role modeling and experiential learning to explain how possible selves are created, refined, retained, and rejected. Ibarra (1999) suggested that, in the context of work transitions, individuals try out temporary and incomplete professional identities called *provisional selves*. Further, individuals proceed through a three-task process in adapting aspects of their personality to new role demands in development of a complete and consistent professional identity. First, individuals observe role models, noting attitudes, routines, and impression-management tactics used by others possessing a desired role identity. Next, individuals experiment with provisional selves, generally by imitating behaviors of role models. Finally, individuals evaluate the effectiveness of the acquired persona against others' reactions and feedback as well as against internal assessments of the fit between who they want to be and what they were portraying. The larger the repertoire of possible selves and images an individual develops in the observation stages, the more easily one can negotiate successfully this notion of identity fit or congruence. In short, identity change and development is a process of gathering

variation in the self, experimenting with provisional selves, and selecting or rejecting those selves based on internal and external evaluation.

Levinson (1986) suggests that much of life is spent in transition in which one's life structure is built through incorporating past experiences with the current life stage. Sometimes transitions are marked by public recognitions in the form of rites of passages, most commonly conceptualized through a coming of age (Gander & Gardiner, 1981). In the workplace, rites of passage can be described through ceremonial initiations, such as a dinner to mark an individual's gaining partnership or an officer's promotion in the military. Socialization efforts can also serve to facilitate a role or identity transition. Thus, socialization may be a formal program that takes place within a company, or it may be a process that takes place informally. Regardless of how it is defined or the exact form it takes, organizational socialization is often the primary way in which newcomers adapt to new jobs or new roles within the organization (Chao, O'Leary-Kelly, Wolf, Klein, & Gardner, 1994).

SOCIAL IDENTITY THEORY

In addition to a personal identity, identity can be developed based on social group membership. Personal identity can be thought of as individual attributes, such as an individual's traits and abilities, whereas social identity comprises various group classifications (Ashforth & Mael, 1989). According to social identity theory (Tajfel, 1981), social identity can be defined as:

> that part of an individual's self-concept which derives from his knowledge of his membership of a social group (or groups) together with the value and emotional significance attached to that membership (p. 255).

Social identity theory examines the role of the collective self in group and intergroup processes; it provides the link between collective phenomena and an individual's social cognition and behavior (Hogg & Ridgeway, 2003).

Wren and Mendoza (2004) clarify social identity and collective (i.e., group) identity. They conceptualized collective identity as an objective identity of the collective, whereas public identity is derived from the subjective individual understanding of group membership, the social identity. Individuals maintain a positive self-concept and enhance self-esteem through having a positive view of the collectives of which they are members, which define the "in-groups." Social identity can be developed through increasing the salience of group membership and positive differentiation of one's own groups versus others' groups, the latter being termed "out-groups."

Employees may have multiple personal and social identities within and outside of organizations. Work-related social identities may include

identification with one's profession, organization, or workgroup. A 6-year qualitative study of medical residents resulted in a theory about professional identity construction (Pratt, Rockmann, & Kaufmann, 2006). In essence, the researchers found that professional identity changes occurred when the residents' ideas about who they were as professionals—their professional identity—did not match with their work. As these "integrity violations" occurred, they would prompt identity changes, with the magnitude of the violation predicting the type of identity change. Changes in identity were internalized through social validation processes involving feedback from important others (e.g., role models, superiors) in the work network. In this way, work identities are not only forged but also customized as the work becomes more complex, motivating a change in professional identity.

Externally imposed events can also drive identity change. Corley and Gioia (2004) reported on an inductive, interpretive case study of organizational identity change in the spinoff of a Fortune 100 company's top-performing unit. The authors examined the process by which the labels and meanings associated with the organization's identity underwent changes as a result of the spinoff. With the forced change in organizational identity, individual members experienced what was termed *identity ambiguity*. This is defined as the lack of a clear sense of "who we are" or "who I am" on the part of members. The study illustrates how organizational change can affect organizational as well as individual identity. In general, the strength of identification (whether it be with one's profession, organization, or workgroup) tends to vary based on type of employment (self-employed or working for a large organization) yet all are important predictors of job satisfaction (Johnson, Margeson, Ilgen, Meyer, & Lloyd, 2006).

Other social identities, such as a cultural identity, transcend organizational membership (Chao & Moon, 2005). Social identities generally tend to be value-free and can spontaneously emerge from various types of nominal groups—even ones that are randomly generated in a research lab. On the other hand, cultures are value-based and do not spontaneously generate from groups with minimal interaction among group members. Cultural identities therefore involve "deep tacit knowledge that links those with like values" (Chao & Moon, p. 1131).

Social identity, as well as personal identity, has been associated with adjustment, coping, and psychological health. Crocker, Luhtanen, Blaine, and Broadnax (1994) noted that collective self-esteem is derived from various perceptions of group membership, including feeling that one is a worthwhile member of a group, perceptions that the group is valuable, and perceptions that others value group membership. All three components were found to be related to decreased depression and hopelessness and one's perceptions were additionally related to increased life satisfaction and self-esteem. Similarly, Cameron (1999) found that in-group affect and centrality were related to group-derived efficacy, which was in turn related to life satisfaction. Further, in-group

ties were related to self-esteem, which was in turn related to life satisfaction and decreased depression.

IMPLICATIONS FOR LEADER DEVELOPMENT

There are several important reasons that identity development should be incorporated as an integral aspect of leader development. First, developing one's identity facilitates critical leadership behaviors. Baumeister (1995) argues that the two most prominent functions of the self are as an interpersonal tool and an aid to decision-making. The need for interpersonal skills and decision-making has long been recognized in the leadership literature. For example, over 50 years ago it was argued that "[l]eadership is the most conspicuous manifestation of social effectiveness" in that leadership implies a person's social competence is honed enough to attract a following (Link, 1950, p. 7). In addition, the Normative Decision Model of leadership focuses entirely on how a leader's decision procedures vary by aspects of the situation and can affect decision quality and acceptance of a decision by followers (Vroom & Yetton, 1973).

In contemporary organizations, interpersonal skills are needed for communicating a vision and motivating, directing, and supporting followers as well as interacting with other leaders and superiors. A developed identity provides a leader with an understanding of his or her words and actions, and how they may be perceived by others. A confident, consistent identity also provides someone with a dependable display of leader attributes and behaviors, which can provide the foundation for trust. Similarly, a well-defined identity provides a leader with a reliable set of priorities, values, and preferences, which can aid in decision-making. Identities help define goals that direct one toward the realization of desired possible selves and away from the realization of the undesired or so-called nightmare selves.

Much of leader development is related to personal development and identity development. Day and Lance (2004) noted the importance of integrating leader identity into one's self-schema. They discussed how leader development occurs as one's leader sub-identity becomes differentiated, more complex, and is ultimately integrated. In essence, effective leader development is the differentiation and integration of leadership and personal experiences, values, and confidence. Self-reflection and integration need to be planned and strategic (i.e., intentional) as individuals may not undertake personal development activities or see their potential benefit on the job without prompting (Birdi, Allan, & Warr, 1997).

Common to theories of identity development is the emphasis on being self-aware. For example, emerging self-awareness and conceptual complexity is thought to occur during Loevinger's fifth stage, or the self-aware ego stage. Whereas this stage is theorized to occur in early

adulthood, the majority of adults do not progress much beyond the beginning steps of being self-aware (Loevinger, Cohn, Bonneville, Redmore, Streich, & Sargent, 1985). This suggests that individuals could benefit from interventions designed to enhance self-awareness, if for no other reason than that research has shown that self-awareness is positively related to managerial job performance (Church, 1997).

In the leadership literature, self-awareness is often described as being critical for leader development and success. Leader development can be viewed as the process of enhancing the fit between the requirements of the leader role and personal identity (D. T. Hall, 2004). Self-awareness helps one increase that fit through assimilation and accommodation, to change aspects of the leader's identity or to change aspects of the environment to be a better leader. Self-awareness provides a leader with the ability to reflect on individual strengths and areas that need additional development to better facilitate growth and continuous learning. Identification with the leadership role and sufficient self-confidence are important precursors to actually attempting developmental leadership activities (Lord & R. J. Hall, 2007).

Lord and R. J. Hall (2005) have proposed that, as leaders develop, their identities shift in focus from individual (i.e., me), to relational (i.e., you and me), to collective (i.e., all of us) levels. Thus, leader identity is thought to change in terms of its underlying level of inclusiveness, ranging from least inclusive (i.e., individual) to most inclusive (i.e., collective). However, they have pointed out that self-identity is a richly elaborated knowledge structure, and the self could more properly be considered a *confederation of selves* (Lord & R. J. Hall, 2005). At any one time, only a part of the structure, which they refer to as the working self-concept, may be active, depending in part on role demands. This line of thinking parallels and extends that from the constructive-developmental literature, especially the models of cognitive development proposed by Loevinger (1986), Kegan (1982, 1994), and Torbert and associates (2004). Also, see McCauley, Drath, Palus, O'Connor, and Baker (2006) for a review of the constructive developmental theory literature as it pertains to understanding leadership and facilitating leader development.

An important component of effective leadership is building the autonomy and leadership capabilities of followers. Kark, Shamir, and Chen (2003) noted the importance of followers' identification with effective leadership. They found that transformational leadership was positively related to both followers' dependence and their empowerment. Personal identification with the leader explained the relationship between transformational leadership and dependence on the leader, whereas social identification explained the relationship between transformational leadership and empowerment. Building the social identity of a group may lead to more beneficial outcomes than facilitating identification with subordinates, suggesting that an important component of leadership is to promote collective interests associated with a shared ingroup identity. The role of possible selves also may be important at the

collective as well as individual level. Lord, Brown, and Freiberg (1999) suggest that leaders can impact subordinate motivation and affect by proposing possible collective selves. Instilling high expectations and confidence in a future desired collective identity can aid in the development of the collective and facilitate striving for higher standards in the name of this collective.

Lord and Brown (2004) highlight the importance of the role that leaders play in developing the self-concepts of followers, which facilitates their work behavior. As they note, "Leaders are thought to affect organizational outcomes largely through their impact on subordinates. Thus, leaders may initiate the leadership process, but they do not complete it. Subordinates do" (p. 185). The authors argue that leaders develop followers through the development of their working self-concept, or the current and active components of the self, including self-views, current goals, and possible selves. Adopting a social cognitive perspective, Lord and Brown note that effective leader behavior translates into followers' working self-concepts through sensemaking and affective reactions. When followers are able to effectively code and categorize leader behavior as possessing meaningful underlying cognitive structures such as patterns of values, the result is that their own working self-concepts develop. Additionally, leader action produces emotional reactions in followers that can also facilitate self-concept development.

Fostering relational or social identification may also be beneficial for development by meeting a basic psychological need of making connections with others. Feelings associated with identifying with another may help support an individual through the difficult process of development. Alternatively, feelings of social exclusion such as alienation or "lonely future" have been found to undermine self-regulation. As such, fostering a sense of identification or the perceptions of acceptance can aid in self-regulation. As the authors eloquently put it:

> [T]he immense advantages and rewards that flow from social acceptance may make people normally willing to tolerate the costs and sacrifices that self-regulation requires. But people may lose that willingness when social acceptance and its rewards are not forthcoming (Baumeister, DeWall, Ciarocco, & Twenge, 2005, p. 603).

Identity development may also be facilitated through many organizational and personal interventions such as using formal ceremonies to mark identity passages, creating supportive environments, using self-assessment tools and feedback, self-reflection, and participating in a variety of experiences (D. T. Hall, 2004). A common aspect across most theories is the belief that identity development occurs through individual experiences. Research and theory support the conclusion that experiences that help a leader reflect on their existing self-schema can prompt further identity integration. Positive experiences can facilitate the development of a desired possible self, which can motivate and

direct behavior. To optimize gains through a particular experience, a supportive environment is necessary to enhance identity development just as it was shown to be important for optimizing development in general (see Chapter 2).

In addition to supportive environments, self-awareness and identity also can be developed through feedback. Feedback that is timely, accurate, and specific can help provide individuals with an understanding of how others see their leader abilities. Providing feedback can stimulate an individual to engage in self-assessment and self-awareness. Additionally, feedback gives a leader a comparison of his or her levels of performance with a standard (Kluger & DeNisi, 1996) stimulating the development or improvement of possible selves. Feedback also drives the acceptance or rejection of provisional selves (Ibarra, 1999). In general, self-regulation processes rely on feedback. The role of self-regulation in leader development will be addressed in more detail in a later chapter (Chapter 12).

The role of leader identity development has received attention in other related areas. In particular, a Leadership Identity Model was proposed in the domain of student leadership. Based on a qualitative grounded theory approach using in-depth interviews with 13 students in the fourth or fifth years of their undergraduate studies, a general stage model of leadership identity development was proposed (Komives, Owen, Longerbeam, Mainella, & Osteen, 2005). In particular, the authors proposed six developmental stages, beginning with the emerging awareness of leaders and progressing to integration and synthesis (see Table 5.1). As with other developmental stage theories, only a small percentage of the population is thought to progress to the highest stages.

Across the stages proposed by Komives et al. (2005), the focus of leadership moves from being completely on the individual to a broadened perspective to include others to an even broader perspective that encompasses everyone. As a result, self-identities are changed to include an integrated leadership role that was enacted on an ongoing daily basis. This is consistent with the views of Lord and R. J. Hall (2005) who have proposed that, as leaders develop, the focus shifts from individual to relational to collective identities. It is also generally consistent with socio-constructive theories of human development that cognitive growth is a function of taking ever-inclusive world views (e.g., Kegan, 1982, 1994; Loevinger, 1973).

In conclusion, not only is identity development an ongoing lifelong process, this chapter illustrates its relevance to leader development. Part of developing as a leader is identifying a more articulated and complex conception of self as leader. The theory and research we reviewed also indicate that various kinds of experiences can promote identity development. This body of literature leaves us to determine how best to enhance and accelerate complex leader identity development.

TABLE 5.1 Stages in the Student Leadership Identity Development

Stage 1: Awareness—Usually initiated in childhood when there is the recognition that there are such people as leaders, usually parents or other authority and historical figures (e.g., presidents of the United States).

Stage 2: Exploration/Engagement—A time of experiencing groups, taking on responsibilities (although perhaps not in a formal leadership position), and engaging in institutional involvement with clubs (e.g., Boy Scouts), student organizations (student council), or sports teams.

Stage 3: Leader Identified—This is a leader-centric stage in which participants see that groups are composed of leaders and followers and that it was the leaders who did the leadership. Someone was a leader only if he or she occupied a formal leadership role; furthermore, there was only one leader per group. Komives and colleagues (2005) proposed that all or nearly all students enter college with this perspective on leadership.

Stage 4: Leadership Differentiated—Students begin to differentiate leadership beyond the role of a formal leader and begin to see that anyone in the group could take part in leadership. This stage also included an emerging recognition that leadership was a process between and among people.

Stage 5: Generativity—Becoming actively committed to a larger purpose as well as commitment to the groups and individuals who are involved in that purpose. The core values and beliefs embedded in the group's purpose began to be internalized by students.

Stage 6: Integration/Synthesis—A time of continuous active engagement with leadership as a daily process—as part of self-identity. Students demonstrate increasing intrinsic confidence and strive for congruence and integrity.

Source: Adapted from Komives Owen, Longerbeam, Mainella, & Osteen (2005)

SUMMARY AND IMPLICATIONS FOR AN INTEGRATIVE THEORY OF LEADER DEVELOPMENT

- Identity is a multifaceted construct in which the self potentially is organized into many sub-identities. A leader identity is an important component of the self, especially with regard to continuous and ongoing leader development.
- A well-defined leader identity can guide leadership behavior and build trust through consistent actions and positive role modeling.

- Identity shapes what goals are set and pursued. Building a leader identity would therefore likely influence the kinds of self-development goals that are set.
- Identity processes support learning and change. Developing an expert leader in terms of an expert competency base would be supported by the development of a strong leader identity.
- As leaders develop, there may be a shift in focus from individual to relational to collective identities, consistent with taking increasingly inclusive world views.

CHAPTER

6

Moral Development

> Character is that which reveals moral purpose, exposing the class of things a man chooses or avoids.
>
> —**Aristotle**

> A [leader's] hardest task is not to do what is right, but to know what is right.
>
> —**Lyndon Johnson**

Much of a leader's work has moral and ethical implications. Leadership situations often involve aspects that are characteristic of an ethical dilemma, defined as an apparent conflict between moral imperatives in which obeying one would result in transgressing another. Recognizing ethical dilemmas when they occur, understanding various courses of action and their relative implications, and acting in the most appropriate manner that is consistent with core values and beliefs requires a fairly sophisticated level of moral reasoning. Thus, developing moral reasoning and ethically grounded behavior is critical for all leaders. Moral courage and ethical behavior can be strengthened through the moral development of "growing" leaders, which may ultimately depend on individual self-awareness and reflection (May, Chan, Hodges & Avolio, 2003). The failure of moral courage and the problematic ethical standards exercised by some of the most successful companies in the world (e.g., Enron, Siemens, Worldcom) argues for greater attention to the moral development of all organizational leaders.

MORAL DEVELOPMENT THEORY

Moral development theory has followed major shifts in historical thought beginning with early philosophers concerned with what is good and bad

(i.e., ethics). In the classical period, great thinkers such as Aristotle, Plato, and Socrates held in common the assumptions that (a) objective moral standards existed, (b) that these standards were part of the natural world, and (c) that the human mind could come to know these standards through the process of reason (Kurtines, Alvarez, & Azmitia, 1990). What these philosophers debated was the specifics of moral ideals. During the Medieval period, the emphasis turned to the role of faith rather than reason in discovering moral objectives. Moral objectives were oriented toward Christian principles as reflected in the Bible rather than a universal justice standard. With the rise of modern science, trends in moral theory in the current era include a shift away from a religious orientation and toward a more relativistic perspective on moral ideals.

Research on moral development grew immensely in response to Lawrence Kohlberg's (1976, 1981) theory of moral development, which is built on the influential developmental stage theory posed by Jean Piaget (briefly discussed in Chapter 3). Kohlberg's theory can be described as focused on macro-morality, emphasizing morality in the formal societal structures and Kantian principles rather than daily face-to-face interactions (Rest, Narvaez, Bebeau, & Thoma, 1999a).

Within the Kohberg framework the *preconventional* level (stages 1 and 2) represents a hedonic perspective that attempts to maximize personal reward and avoid punishment (e.g., do what you're told and you won't be punished). Individuals at this level are preoccupied with reasoning from a self-interest viewpoint. There is a concern for others only to the extent that they might control rewards and punishment or that exchange with others may lead to satisfaction of one's personal needs. At the *conventional* level (stages 3 and 4) right and wrong is identified mainly in terms of social relationships. One's social context in terms of family, friends, coworkers, and society at large determines morality (e.g., be considerate, nice, and kind and you will make friends). Moral behavior is what is expected by others, what helps others, or helps to maintain the social order. At this level there is a primary orientation on social rules and obligations. At the *postconventional* level (stages 5 and 6) moral reasoning is marked by an internalization of universalistic moral principles involving rights, respect for others, and justice.

Although originally indicated as a developmental theory for children, stage development has been found to occur well into later life, although at a slower rate of progression (Armon & Dawson, 1997). Consistent with Piaget's theory, Kohlberg argued that the stages of moral development are universal, invariant, and independent of social experiences. Individuals are thought to progress upward from stage 1, only one stage at a time in a linear (i.e., ladderlike) fashion, and without regression to earlier stages. Whereas some evidence supports the universality of Kohlberg's stages in terms of progression and direction (Nisan & Kohlberg, 1982), cross-cultural differences have been noted in the respective stage content as well as the highest stages attained (Snarey, Reimer, & Kohlberg, 1985).

There also have been pointed criticisms of possible gender bias in Kohlberg's theory. Gilligan (1982) argued that traditional feminine concerns of care for others equate women to lower stages of moral development and therefore women are assessed as less morally mature. Alternatively, Gilligan proposed that females speak "a different voice" on morality, one characterized by a caring and interpersonal responsibility, whereas males follow a justice orientation characterized by individual rights, duty, and protection. According to Gilligan, Kohlberg's theory fails to account for this difference, thus the claim of gender bias. Although early research on moral reasoning may have suggested females average lower moral reasoning development than males (Fishkin, Keniston, & MacKinnon, 1973), a more recent meta-analysis found little or no gender difference (Jaffee & Shibley Hyde, 2000). In addition, other researchers have argued that gender differences may occur in the process rather than the outcomes of development. Boldizar, Wilson, and Deemer (1989) hypothesized that life experiences and value orientations toward those experiences would exert differential influences on the processes (but not necessarily the outcomes) of moral development for women and men. Results suggested no significant outcome differences between women's and men's adult levels of moral development, education, or occupational attainment, but the processes linking education, occupation, and marriage to adult moral development did differ for men and women. These results were interpreted as reflecting the influence of contemporary patterns of sex role socialization on adult processes of moral development.

Others have criticized Kolberg's cognitive developmental perspective on morality as being too rigid. Specifically, Krebs and Denton (2006) suggested viewing moral development in a step-ladder progression limits an individual's ability to draw from earlier stages. They suggest replacing the notion of moral maturity with one of moral flexibility in which an individual can draw from previous perspectives on morality depending on the situation.

Rest et al. (1999a) addressed some of the remaining criticisms of the stage theory in what the authors termed a "neo-Kohlbergian approach." Rest and his colleagues have taken the general Kohlbergian framework and placed it into the context of individual development. Within their cognitive development framework, Rest et al. suggest that individuals develop as they progress through a series of six stages organized into three levels of increasing sophistication of moral reasoning and moral judgment. This new approach turned the focus away from distinct sequential stages of development to more general, less-sequential moral schemes with overlapping waves that guide an individual's moral reasoning. Rest and colleague's first schema, *personal interest*, roughly equates to Kohlberg's second and third stages in which decisions are made concerning the personal risk the actor has in the consequences of the action. The second schema, *maintaining norms*, which equates to Kohlberg's fourth stage, centers on established practices and laws

emphasizing the need for social structures and society-wide cooperation. The final schema focuses on *postconventional* thought in which "moral obligations are to be based on shared ideals, which are reciprocal and open to debate and tests of logical consistency, and on the experience of the community" (p. 307) rather than an appeal to rules or regulations as in the maintaining norms schema.

In addition to the process of development, the neo-Kohlbergerian approach also differs in assessment of development. Moral schemas are assessed with the Defining Issues Test that is based on written or selected responses to various moral dilemmas. This is different from Kohlberg's recommended use of interviews in which an individual verbally responds to series of moral dilemmas as assessed by the Moral Judgment Interview and Standard Issue System (Rest et al., 1999a).

Arguably, one of the most critical debates in moral development theory is that of the potential gap between moral reasoning and moral behavior. Blasi's (1980) review of the relation between moral judgment and action served as a catalyst for the development of theories of moral development that included, but went beyond, mere cognition. He concluded that moral cognition predicts behavior, but there is significant variance still left unexplained. Rest (1986a) devised a four-component model to explain the link between moral reasoning and behavior and delineated four essential psychological processes. The model suggests that failed moral action can occur from a break in any of the components. It implies that all components are necessary for moral behavior and follows a general logical sequence; however, Rest notes that in an overall sense individuals may be particularly strong or weak in any given area.

The first component, *moral sensitivity*, involves the interpretation of the situation including how one's actions would affect others. Second, *moral judgment* involves recognizing the morally ideal behavior. The third component, *moral motivation*, integrates the individual's affect and social understanding of the dilemma and implies that one highly morally motivated would choose the moral ideal. Finally, *implementation* involves carrying out the chosen moral decision. According to Rest, developmental activities should focus on all four components, rather than solely on moral cognition. Rest's four components have been used in the area of professional ethics education in which emphasis is placed on developing all components rather than just emphasizing moral reasoning. In addition, individualized attention in the form of interventions is often recommended to focus on particular area weaknesses (Bebeau, 1994).

Similar to Rest's notion that individuals differ with respect to moral sensitivity, moral judgment, moral motivation, and implementation, other researchers have investigated the self and morality. Blasi (1995) expanded on the cognitive theories of morality by integrating the role of the self in a three-component model of moral identity. According to Blasi, "The highest degree of moral integration is achieved when one's moral understanding and concerns become a part of one's sense of identity" (p. 229). The first component of his model is the *moral*

self, which deals with the centrality and salience of morality in one's life. Individuals vary in the degree to which commonly accepted moral standards and values are present in daily life as well as the degree to which personal goals are aligned with moral goals. The second component, *personal responsibility for moral action*, focuses on the moral judgment-action paradigm. This component refers to a moral motivation or the degree to which an individual feels moral obligation to follow the morally ideal behavior. Blasi noted the distinction between recognizing the moral ideal and feeling a responsibility to comply. The final component, *self-consistency or integrity*, refers to congruence in moral action and reasoning.

An understanding of one's "moral identity" can help explain the noted gap between moral judgment and behavior, especially in terms moral motivation. Moral motivation suggests that all moral behavior is determined by the desire to maintain moral congruity, yet individuals may not be aware of this desire. Bergman (2004) distinguishes moral motivation and moral motives, which are conscious explanations for behavior. Moral motivation comes from a deep structure of personal identity congruence, whereas moral motives translate deep structure of moral motivation into action. Motives include factors such as ambition, need to please, fear, kindness, and courage. Wren (1991) suggests the following sequence: self → moral motivation → moral thinking → moral motive → action. In other words, moral behavior stems from motives which are ultimately built on moral thought integrated in the self.

Instead of focusing on universal age-based stages in moral reasoning, moral motivation theorists look to the sources of moral motivation and individual differences in moral motives. Schulman (2002) has proposed that moral motivation is shaped by three separate and independent sources: (a) the arousal of *empathy*, (b) moral affiliations and identification with *moral models*, and (c) the *commitment to moral principles* or personal standards of right and wrong. Thus, people are motivated or moved to act in moral and ethical ways because they identify with the feelings of another (or others), they are influenced via social learning mechanisms by an ethical and moral role model (Brown, Treviño, & Harrison, 2005), and because their behavior is shaped by internalized principles of moral and ethical behavior.

Schulman notes that much of the so-called "base behavior" found in the world is a function of the absence of one or more of these sources of moral motivation. Base behavior is a product of moral motivation deficits in the form of too little empathy, inadequate attachment to appropriate moral role models and lack of a moral community, and a deficiency of appropriate moral principles. Efforts to enhance moral behavior through developmental interventions are likely to be more successful by focusing on improving moral motivation than by trying to move targets to higher levels of moral reasoning. Moral motivation is likely to be much more malleable than stages of moral development offered by traditional theorists like Kohlberg and Piaget.

Nisan's (1991) moral balance model offers another explanation of how moral congruence may be achieved. His cognitively-focused extension of moral identity is based on the concept of limited morality in which individuals do not always hold moral ideals, but allow themselves to deviate, given they remain above a set standard. Within the balance model, individuals calculate a sort of moral balance based on their morally relevant behaviors within a given time frame as compared to personal standards. Individuals strive to maintain a balance in order to preserve their moral identity by performing good deeds that raise the balance.

Several other theories have been proposed to describe moral development, many of which focus on the moral development of children. For example, behavioral and learning models emphasize the importance of observable behavior rather than moral reasoning per se. In the learning and behavioral theories, moral development occurs as an individual's understanding and conformity to moral rules grows based on such processes as reinforcement, imitation, and role-playing (Gewirtz & Pelaez-Nogueras, 1991). Similarly, social-constructivist theories emphasize the development of morality through cultural and social rules. Within this perspective, moral ideals are not objective, but rather relative to the social and cultural norms in which the individual lives (Davidson & Youniss, 1995). Furthermore, dialectical models of moral development also reject a universal moral standard and instead turn their focus to the role that conflict plays in developing morality (Baumrind, 1978). A slightly different perspective is provided by domain theory, which proposes a distinction between social rules and morality. According to domain theory, morality actively develops as an individual makes sense of the social environment in terms of fairness and welfare of others. In contrast to stage or schema theories, domain theory suggests development in social convention (i.e., social rules and structure) is a separate development domain than morality (Turiel, 1983).

One of the most consistent and strongest correlates of advanced moral reasoning is education, particularly higher education. Rest and Narvaez (1991) concluded "one of the influences of the college experience is that it provides general intellectual stimulation that causes students to overhaul and rethink the basic ways in which they make moral judgments" (p. 239). As well as formal educational influences, post-conventional moral reasoning has also been found to relate to depth of multicultural experiences. In other words, individuals who were able to spend time in another culture or develop friendships with others from a different culture demonstrated more sophisticated moral reasoning than those whose experiences and friendships were within the bounds of the same culture (Endicott, Bock, & Narvaez, 2003). There also is evidence of parental influences on moral development in young adulthood. During this time, fathers' moral judgment and education were the strongest predictors of both sons' and daughters' moral reasoning (Speicher, 1994).

The discussion above highlights the size and scope of the moral development literature. Although the literature is vast there are some

summary comments that can be made. First, individuals develop morally, moving from avoiding punishments to following rules to internalization of moral principles based on consideration of special circumstances. Moral reasoning is a key component of moral development. Moral reasoning and behavior are linked, but advanced moral reasoning does not always translate directly into advanced moral behavior. Individuals differ with respect to how integrated and salient their sense of morality is within their identity.

ENVIRONMENTAL INFLUENCES ON MORAL AND ETHICAL BEHAVIOR

A recent theoretical synthesis on the *normalization of corruption* in organizations helps to better understand the role of environmental influences on moral or ethical behavior. According to Ashforth and Anand (2003), corruption or unethical behavior becomes normalized in organizations through the interrelated processes of institutionalization, rationalization, and socialization. All three processes have implications for the development of moral reasoning and, more important, for the enactment of ethically grounded behavior (e.g., moral courage).

The process of *institutionalization* is thought to follow a sequence of phases in which an initial corrupt decision or action becomes embedded in the structure and processes of an organization, which leads to the routinization of corruption. Amoral or unethical actions become normative, adapted to, and enacted mindlessly. A key process underlying this hypothesized sequence of institutionalization is the existence of a permissive ethical climate that encourages amoral actions. A key factor that is thought to contribute to a permissive climate is leadership. It is noted that leadership "plays a huge role in the institutionalization process. Leaders not only control many of the levers of institutionalization, but are very potent role models for organizational members" (p. 6). They further observe that leaders do not have to actively encourage, reward, or engage in amoral actions themselves to create an amoral climate. An emphasis on ends rather than means that is linked to strong rewards and punishment for attaining or not attaining difficult objectives can create a permissive ethical climate. In addition, tacitly condoning unethical behavior can be perceived as similar to authorizing the corruption. As part of the moral development of leaders, the role of others' leadership in creating an appropriate ethical climate in an organization or organizational unit must be addressed.

The *rationalization* of corruption is based on the finding that "corrupt individuals tend not to view themselves as corrupt" (Ashforth & Anand, 2003, p. 15). It is thought that corrupt individuals deny the implications of their actions through the use of rationalizing ideologies, which helps individuals and groups distance themselves from the deviant moral implications of their actions. There are numerous possible rationalizing

ideologies, which tend to operate in a complementary fashion to create a self-sealing system of beliefs. Some of the specific ideologies include:

(a) *Legality*, in that actions are excused because that are not technically illegal.
(b) *Denial of responsibility*, whereby an actor claims there was no choice because of actions beyond his or her control (e.g., complying with direct orders).
(c) *Denial of injury*, where it is construed that no one was really harmed, the organization can recoup losses through insurance, the organization does not appear to care, or the loss or damage is slight.
(d) *Denial of victim*, in forms such as assuming that the victim(s) deserved their fate, the amoral action was justified as revenge, or that previous unfair treatment provoked the action.
(e) *Appeal to higher loyalties*, in which universalistic ethical norms are seen as subordinate to more important values (e.g., group loyalty).

Rationalizing ideologies often operate in ways such that the actor is unaware of their basis in rationalization. Moral development can help enhance a conscious awareness of the use of rationalizing ideologies by the leader or others under his or her supervision, and thus help to defuse them as sources of normalized corruption.

Ashforth and Anand (2003) pose the important question of how an ethically sound person becomes embedded in corruption. Their answer is based on the dynamics of *socialization*, and in particular, the reciprocal processes of cooptation, incrementalism, and compromise. Initially, rewards induce newcomers to change their attitudes toward an amoral act, followed by an escalation of commitment regarding their corruption resulting in cognitive dissonance and an attitude change. The final stage occurs when values are compromised in response to managing the cognitive dissonance fostered by the amoral behavior (i.e., behavior → cognition). As leaders often play a pivotal role in organizational socialization processes as well as serving as key sources of ethical guidance through positive role modeling (Brown et al., 2005), ensuring sound moral judgment in leaders is of utmost importance for maintaining the ethics of the organization.

Theory and research support the assertion that context matters when it comes to ethical behavior and moral development. Influential work in the field of ethical climates in organizations has demonstrated that organizations have distinct types of ethical climates and that there is variance in the ethical climates even within organizations (Victor & Cullen, 1988). Although the early research pointed to institutional and cultural antecedents of ethical climate (e.g., social norms, organizational form, and firm-specific historical factors), recent research has suggested that the level of leader moral development is related to the ethical climate of an organization (Schminke, Ambrose, & Neubaum, 2005). This relationship was moderated by the extent to which a leader uses his

or her capacity for ethical reasoning (i.e., congruence between leader moral development level and actions) as well as organizational age. The influence of a leader's moral development was stronger for those leaders whose moral actions were consistent with their moral reasoning and in younger organizations. Further, having a strong sense of the moral self can neutralize the effects of moral disengagement strategies (whether they stem from the organization or social environment) on individual cognitions and emotions regarding morally questionable situations, such as war (Aquino, Reed, Thau, & Freeman, 2007). Findings such as these highlight the importance of the moral development and moral motivation of leaders.

IMPLICATIONS OF MORAL DEVELOPMENT FOR LEADER DEVELOPMENT

It has been suggested there might be relatively few things that develop (in the truest sense of the word) much past adolescence. But as discussed in Chapter 3, a fundamental component of the ongoing development of adults is thought to be moral development (Moshman, 2003). Building on this premise we believe that a theory of leader development as adult development requires an incorporation of how morally-based thinking and behavior develops in adults. The ethical and moral development of leaders is an important concern for at least three reasons: (1) nearly every decision a leader makes has ethical implications, (2) leaders serve as role models to others and are the targets of identification and emulation of followers, and (3) leaders shape the climate of their respective organizations. On this last point, a recent search of a popular online book vendor using the search term "values-based leadership" resulted in over 600 book titles on the topic being identified. There is clear market demand for a better understanding of this aspect of leadership.

So what have we learned about how moral reasoning or moral motivation develop? The evidence suggests that formal education is one of the most potent influences on moral development (Rest, 1986a). Thus the role of formal classroom educational experiences should be examined with regard to how the "schoolhouse" contributes to moral development. Other research suggests the importance of cross-cultural experiences in advancing moral development (Endicott et al., 2003). Job assignments in different cultures would therefore likely enhance moral development as well. But the theoretical contribution of Ashforth and Anand (2003) is important in acknowledging the critical role of environmental factors in shaping moral behavior. Leader development experiences of any kind are unlikely to enhance moral reasoning or moral behavior without the proper environmental support. This illustrates why it is necessary to have leaders with sophisticated moral reasoning skills and the character to model this sophistication in their behavior. Without such skills and character, developmentally oriented

experiences are unlikely to contribute much with regard to accelerating moral development and could even have harmful effects if not supported by positive role models and institutional support.

There is additional empirical support for the importance of moral development in leaders. Moral reasoning (as measured by the Defining Issues Test) was found to positively relate to transformational leadership (Turner, Barling, Epitropaki, Butcher, & Milner, 2002). Additionally, an important component of servant leadership is to encourage the moral development of followers with the goal of developing them into independent moral agents (Graham, 1991). Treviño, Brown, and Hartman (2003) noted that ethical leaders exuded traits such as integrity, displayed values-based transformational leadership skills, and used communication and rewards systems to encourage ethical behavior of subordinates. One study failed to find a relationship between moral development and leader emergence or effectiveness in a longitudinal examination of leader development in a military academy setting (Atwater, Dionne, Avolio, Camobreco, & Lau, 1999); however, a more recent investigation found that the level of psychosocial development in military cadets predicted peer, subordinate, and supervisor ratings of their performance as leaders several years later (Bartone et al., 2007).

There are numerous additional reasons that moral development should be considered as an important component of leader development as adult development. More sophisticated moral reasoning essentially boils down to an enhanced individual capacity to take broader and different perspectives into account, thus helping leaders envision more possibilities, create innovative solutions, and quickly make sense of complex situations (Dixon, 1993). Researchers in moral development have also noted a connection between enhanced moral reasoning and more sophisticated moral behavior (Rest, 1986b). Thus, there appears to be positive transfer from thinking to behavior, which is consistent with the social psychology imperative that thinking is for doing (Fiske, 1992). The corollary to this imperative is that doing causes thinking (Carlston, 1994) suggesting that using experiences or simulated experiences that require sophisticated forms of moral behavior may prompt advances in moral reasoning.

Developing the moral self can also enhance congruence in thought and action, which in turn enhances psychological health. Research suggests a positive relationship between moral reasoning and more affirmative coping strategies when dealing with a loss (Lonky, Kaus, & Roodin, 1984). In a study of moral exemplars, Colby and Damon (1992) noted that when there is perceived unity between self and morality, judgment and conduct are directly and predictably linked and action choices are made with greater certainty. In short, developing an integrated moral identity can build confidence in decision-making. These studies indicate that moral development may be intricately intertwined with identity development. Furthermore, both moral development and identity development may co-vary with the development of more advanced critical thinking

skills, the capacity for reflective thinking (K. W. Fischer & Pruyne, 2002; Kitchener & King, 1990), and other forms of postformal thinking (Commons & Richards, 2003; Cook-Greuter, 1990; Kegan, 1994).

It can also be argued that advances in moral development may help an individual to better integrate the self with other individuals, the situation, and the environment. On the other hand, stagnation in moral development may impede the ability of the leader to grow and develop. In order to develop leaders, a certain degree of readiness is required of leaders in terms of the ability to reflect on behavioral alternatives and to be aware of the effect that own behavioral choices have on others. More sophisticated levels of moral reasoning allow one to become more self-aware and self-reflective (Avolio, 2004), although it is equally plausible that greater self-awareness and more self-reflection can lead to more sophisticated levels of moral reasoning. Furthermore, an important component of the development of moral leadership relates to the leaders' ability to consider the interest and development of followers, the organization, and society at large in addition to their own growth. An internalized moral standard can help prevent leaders from using power for personal gain instead of for a broader social good. Modeling ethical behavior can also influence other important organizational outcomes such as promoting prosocial behavior and decreasing counterproductive behavior (Brown & Treviño, 2006).

AUTHENTIC LEADERSHIP DEVELOPMENT

Although most formal leadership theories fail to address in much detail the issue of moral development of leaders, a recent addition to the literature is an exception to this general rule. Terms such as authentic transformational leadership (Burns, 1978), ethical charismatic leadership (Howell & Avolio, 1992), idealized leadership (Avolio, 1999), and authentic leadership development (Avolio & Gardner, 2005) refer to leadership set apart by its foundation on a moral code. This "true" leadership is based on leaders' inherent responsibility to take the perspective of their followers, consider followers' best interest, and align their vision with the needs of the followers.

Authentic leadership development (Gardner, Avolio, Luthans, May, & Walumba, 2005; Luthans & Avolio, 2003; May et al., 2003) focuses on the development of leaders who are authentic persons and have authentic relationships with followers and associates. Authentic leaders and their relations with others are characterized by (a) transparency, openness, and trust; (b) guidance toward "worthy" objectives; and (c) an emphasis on follower development (Gardner et al., 2005).

The moral component of authentic leadership was addressed by May et al. (2003). The authors proposed a model linking authentic decision-making, authentic behavior, and authentic leadership development. *Authentic decision-making* was proposed to be composed of a sequence

in which moral dilemmas are recognized, followed by transparent evaluation of alternatives, leading to the intention to act authentically. In this model, *authentic behavior* follows from intentions to act authentically resulting in authentic moral action, which, if sustained over time, contribute to sustainable authentic behavior. Self-awareness and reflection are considered to be pivotal components of *authentic leadership development* that are enhanced through sustainable authentic behavior. Self-awareness and reflection are the drivers for the development of three important influences on authentic decision-making and behavior: (a) moral capacity, (b) moral courage, and (c) moral resiliency.

The *moral capacity* of a leader is thought to influence the relationship between characteristics of a moral issue and whether the leader recognizes the issue as a moral dilemma. Moral capacity depends on how the leadership role is viewed by a leader (i.e., serving as a "moral standard bearer"), the perspective-taking ability of the leader, and the extent of learning from previous experiences in dealing with moral issues. As noted by May et al. (2003), authentic leaders "develop mental models that facilitate the moral recognition required to address these dilemmas" (p. 253). The topic of mental models and leader development will be taken up in a later chapter in this book.

Moral courage is defined as the "leader's fortitude to convert moral intentions into actions despite pressures from either inside or outside of the organization to do otherwise" (May et al., 2005, p. 255). Without a sufficient level of moral courage, the link between intentions to act authentically (ethically) and authentic moral action is weakened. The notion of a leader's "fortitude" could be a function of individual differences in specific self-regulation components, such as self-regulatory strength, defined as the capacity or ability needed to inhibit, override, or alter responses (Baumeister, Heatherton, & Tice, 1994). In other words, there needs to be both the motivational resources as well as the personal discipline to turn intentions into actions.

Moral resiliency refers to the ability to adapt in a positive way in the face of significant adversity or risk in terms of acting authentically. As such, it is thought to influence the relationship between authentic moral acts and sustainable moral behavior. Whereas moral courage is needed to motivate moral actions in the short-term, moral resiliency is needed to continually adapt and cope with situations that may threaten the leader's moral actions over a sustained period of time.

The recent developments in building a theory of authentic leadership development are welcomed given its focus on leaders' values, ethics, and by extension, their level of moral development. As noted previously, these important aspects of honorable and ethical behavior have been overlooked by most of the major leadership theories with the possible exception of transformational leadership theory (e.g., Bass & Steidlmeier, 1999; Kuhnert & Lewis, 1987) and servant leadership (Graham, 1991; Greenleaf, Frick, & Spears, 1996). Despite these positive developments, to date most of the work is conceptual and theoretical

in nature. With the single exception of the Turner et al. (2002) study in which leaders' scores on the Defining Issues Test of moral reasoning were positively related to transformational leadership ratings provided by followers (but not transactional leadership), there is no empirical basis for any claims of the importance of moral development to leader development. Nonetheless, there is every reason to believe that ethical dilemmas will continue to present themselves to leaders in all types of organizations, but especially for Army leaders given the noted increases in complexity across the entire spectrum of Army operations. And most important, Army leaders deal with issue of paramount importance – life and death. For all of these reasons, the moral development of leaders is a vitally important part of any leader development process in the Army or any other organization in which ethical dilemmas are likely.

SUMMARY AND IMPLICATIONS FOR AN INTEGRATIVE THEORY OF LEADER DEVELOPMENT

- Leadership and ethics are inherently intertwined. Just about every decision made and action taken by a leader has ethical implications. Leader development needs to include the development of ethical and moral reasoning to address these implications.
- There is evidence that moral development progresses along a developmental trajectory and that such growth is strongly influenced by formal education. Environmental factors, including the variety of one's prior experiences, also play an important role in shaping moral behaviors.
- Leaders are role models and targets of identification and emulation by followers.
- The climate of an organization or other work unit influences the thinking and actions of its members. A primary responsibility of a leader is to set an appropriate ethical and moral climate. Having a highly developed sense of moral reasoning would benefit a leader in setting the proper climate.
- Positive values and morality are thought to be important components of authentic decision-making, behavior, and leadership that help leaders to recognize and address moral dilemmas.

CHAPTER

7

Epistemic Cognition, Reflective Judgment, and Critical Thinking

Marge (Simpson): "Homer, the plant called. They said if you don't show up tomorrow don't bother showing up on Monday."
Homer: "Woo-hoo! Four-day weekend!"

> Nothing is more tragic than ignorance in action.
>
> —**Johann Wolfgang Goethe**

A knowledgeable understanding of the environment is a key to effective leadership. Knowing and understanding what is happening, what may happen or could happen in the future, and being able to discern appropriate actions to shape events is the essence of leadership at any level of an organization. The knowledge that one derives from available information is limited and shaped by one's fundamental assumptions about the world and by one's ability to reason with and make sense of that information (Fallesen & Halpin, 2004). In this chapter we discuss the development of the patterns of thought that support leaders' successful understanding.

The initial focus of this chapter is on epistemic cognition. Along with identity and moral reasoning, epistemic cognition is one of the "big three" of adult development. That is, as discussed in Chapter 3, epistemic cognition is one of just a few core aspects of an individual that are thought to develop well into adulthood (Moshman, 2003). Development in this sense is more that just change —it represents an internally

directed, qualitative progression to a more complex or sophisticated state. The purposes of this chapter are to examine the nature and the importance of epistemic cognition, to show how it relates to the concept of reflective judgment (another highly researched topic in adult development), to propose how certain critical thinking skills may develop, and to examine potential implications for leader development.

WHAT IS EPISTEMIC COGNITION?

Epistemology focuses on individual ways of thinking about knowledge and knowing, or as a philosophical discipline "the origin, limits, methods and justification of human knowledge" (Hofer, 2002, p. 4). The term epistemic refers to knowledge in more general terms and how it is acquired. Research in personal epistemology (i.e., an individual's cognitions about the nature of knowledge and the nature of knowing; Pintrich, 2002) and epistemic cognition try to understand the individual's own definition of knowledge, the construction of knowledge, the evaluation of knowledge, and how knowing occurs. One's personal epistemology influences how one views knowledge and truth and shapes one's worldview.

Kitchener (1983), who is credited with introducing the term epistemic cognition into the adult development literature, describes thinking as occurring on three levels: (1) cognition, which describes the basic processing of thought; (2) meta-cognition, in which an individual can monitor one's progress in learning; and (3) epistemic cognition, which describes an understanding of the limits, certainty, and criteria of thought. As part of epistemic cognition, an individual might reflect upon the sources of one's learning, the certainty of the absolute versus relative truth of one's learning, the simplicity or complexity of knowledge, or justifications for that knowledge.

To better understand what is included in personal epistemology, it may be helpful to know how the field developed. Much of the pioneering research on epistemic cognition grew out of Perry's (1970) work, which originally intended to describe college students' educational experience and the development of students' intellect and ethics. He noted that much personal growth and transformation occurred during the time spent in college and he interviewed college students in order to describe these changes. Although Perry predicted differences in personality as a function of individual growth and development, what he discovered was changes in the complexity of the understanding of one's world, field of study, relationships, and self. He noted changes in how students approached learning and their chosen field throughout their experience. From these original interviews and other studies, a model of personal epistemic development was created, which described (at that time) a series of nine stages of development. Generally, the model proceeds from a dualistic perspective at the more basic levels (i.e., right versus wrong) to a relativistic perspective. According to the model,

development reflects an ability to acknowledge a relativistic view, yet make certain commitments through meaning-making and learning about one's self in relation to the world. Through his research Perry came to see a liberal arts education as being inherently about individual development and the "evolution of individuals' thinking structures and meaning-making toward greater and more adaptive complexity" (Moore, 2002, p. 26).

The field of epistemic cognition is complex because changes in our historical perspective influence the research perspective, which in turn influences the research questions that are asked as well as the interpretation of the resulting findings. For example, a "classical" or traditional thinker assumes a certain dualistic perspective whereas a more postmodern perspective assumes that epistemic development occurs as one comes to understand the relativistic nature of truth and that truth is context dependent. Varying worldviews are thought to influence the construction of stages of development and direction of development.

Some helpful examples illustrate epistemic development. For example, Perry (1970) equates the epistemic development of college students with the biblical allegory of the fall of Adam and Eve. After eating of the fruit from the Tree of the Knowledge of Good and Evil, Adam and Eve became aware of good and evil. Similarly, college students gain knowledge about values and truth and therefore realize they must make meaning of their lives through the choices they make. On a different level, changes in one's ideas of learning take place as well. For example, early in their careers students may view themselves as sponges in which learning occurs by retaining facts and absolute truths provided by a teacher. Later in the same careers, they may come to view their roles more as active agents in the learning process than as passive sponges. Their views of teachers may change such that a teacher is not an absolute authority on a particular topic, but someone possessing specific expertise who can serve as an aid in the process rather than the creator of the learning.

Epistemic cognition can be further understood by looking into other potential related constructs. The strongest and most consistent predictors are age and education level (note the parallels with moral reasoning, which is also heavily influenced by age and especially education; Rest, 1994). Many researchers (see K. W. Fischer & Pruyne, 2002; King & Kitchener, 1994 for comprehensive reviews) suggest that epistemic cognition develops with maturity and life experience, yet an intellectual climate in which critical thinking and reasoned debate occur is necessary to foster development to the highest levels. Some authors suggest that modern American society fosters an environment where most people follow a "to each his own" adage in which social and political positions are viewed as personal taste and opinion rather than critically evaluated through reason. In short, everyone is entitled to an opinion and every opinion matters to the same extent.

Consider the following quote from the journalist Anna Quindlen (2005):

> In 1998 a study ... reported the most common discussion model among students was stating what they were certain they already believed, not learning what they did not or exploring the views of those with whom they disagreed (p. 82).

Such a culture may stunt epistemic growth in that critical reasoning about the merits or origins of various opinions is not encouraged (Kuhn & Weinstock, 2002). What seems clear, however, is that the development of epistemic cognition in adults is influenced mainly by individual differences and environmental factors, and less influenced by physiological changes that characterize much of childhood development.

In childhood and adolescence, epistemological sophistication has been related to academic performance (Schommer, 1993). This may be related to the study habits of the students. To illustrate, a student with more sophisticated epistemic cognition may approach studying as a tool for better understanding an area, rather than just the memorization of facts. Epistemic cognition also has been studied in the context of reasoning in everyday life. For example, studies have examined the reasoning process jurors make when weighing evidence and coming to a verdict as well as the certainty in the correctness of their decisions (e.g. Kuhn, Weinstock & Flaton, 1994). Epistemic cognition has been found to underlie those reasoning skills and argument abilities of jurors (Weinstock & Cronin, 2003). There is evidence that those who hold more sophisticated epistemic beliefs will adopt problem-solving strategies that result in a more thorough analysis of possible alternatives (Fallesen, 2000). Also notable for understanding the development of leader identity in adolescence and adulthood, epistemic growth may be causally related to, or occur simultaneously with, identity development (Chandler, Hallett, & Sokol, 2002).

There is an ongoing debate about some aspects of epistemology and many have called for continued research to provide clarification. For example, a number of researchers have moved away from conceptualizing epistemological development as representing unidimensional stage development to occurring instead on multiple levels (K. W. Fischer & Pruyne, 2002; Hammer & Elby, 2002). There is also some debate on what constitutes the underlying dimensions of development. Particularly in early work, epistemic cognition was thought to manifest itself similarly across many domains, yet other researchers challenge that assumption. Future research is called for to clarify questions regarding the domain specificity or generality of epistemic cognition. Two fundamental research questions that call for the most attention are: (1) how does epistemic cognition develop, and (2) what are the mechanisms for change that drive epistemic development (Pintrich, 2002). The present literature suggests that it may be a combination of internal psychological process and environmental factors that drive the development of

epistemic cognition, yet the exact mechanisms for change are not well known. Most models suggest a process whereby individuals must first experience disequilibria in which their existing beliefs fall short or are violated; they come to a new realization and integrate the new with the old (Hofer, 2002). Understanding the underlying processes is of utmost importance for predicting and facilitating the development of epistemic cognition, and concomitantly, accelerating the processes associated with adult development in general and leader development in particular.

Although the number of stages in the development of epistemic cognition continues to be debated, the proposed sequence of development is thought to follow a universal progression. The suggested sequence of development involves movement from "a dualistic, objectivist view of knowledge to a more subjective, relativistic stance and ultimately to a contextual, constructivist perspective of knowing" (Hofer, 2002, p. 7). This type of progression parallels the developmental trajectories offered by others, especially that of Kegan's constructive developmental approach (Kegan, 1994) and Torbert's conceptualization of leadership development (Torbert & Associates, 2004), as well as more basic theories of cognitive skills development (K. W. Fischer, 1980).

A different branch of eptistemic research is based on Kruglanski's theory of lay epistemology (Kruglanski, 1989; Kruglanski & Webster, 1996). The theory suggests that people form hypotheses about various topics, acquire a certain amount of knowledge supporting this hypothesis and "freeze" on a topic, assuming their hypothesis is correct. Because there are innumerable pieces of information about any given topic, an individual at some point stops collecting information and decides that a proposition is correct. The theory also considers individual differences in the motivation for personal epistemic development. Individuals vary in their need to form accurate representations of the world, to avoid being invalidated, to possess knowledge on a given topic, and in their need to be correct. These needs influence when an individual decides to freeze on a topic. Epistemic motivation refers to "the desire to develop and hold accurate and well-informed conclusions about the world" (De Dreu, Beersma, Stroebe, & Euwema, 2006). At high levels of epistemic motivation, individuals engage in deeper-level effortful processing, whereas at low levels of epistemic motivation individuals typically rely on heuristics and other cognitive shortcuts. Epistemic motivation is also referred to as a need for cognitive closure. Although it is often considered an individual difference, epistemic motivation is influenced by situational factors. Specifically, time pressure, noise, and fatigue have been found to decrease epistemic motivation and increase need for cognitive closure, whereas demanding accountability for choice has the reverse effect.

In sum, epistemic cognition refers to how an individual thinks about knowledge and knowing. It shapes one's view of knowledge, truth, and learning across academic, work, and social realms. As one develops a more sophisticated epistemology, he or she is able to take

other concerns and perspectives into consideration. A person's view of knowledge moves from an absolute black and white view of the world to one that is more context-dependent and nuanced. Through epistemic development, one engages more in reasoning, critical thinking, and a thorough consideration of context dependencies. The research on epistemic cognition has come a long way, but there are still many questions left to answer, particularly regarding the underlying processes of its development.

REFLECTIVE JUDGMENT MODEL

A line of research closely related to the concept of epistemic cognition is that of reflective judgment, which addresses interpretive judgments about ill-structured problems (i.e., those that cannot be described with a high degree of completeness, cannot be resolved with a high degree of certainty, and those in which experts disagree about the best solution). The name was apparently based on the original observation of John Dewey, who proposed that when it becomes known that some problems cannot be solved with certainty, what is needed is reflective thinking (King & Kitchener, 2002). In other words, reflective thinking is called for only after the recognition of a real problem or when there is uncertainty about a problem solution (King & Kitchener, 1994). Reflective judgments are therefore made to bring closure to situations that are uncertain. According to King and Kitchener (1994):

> Reflective thinking requires the continual evaluation of beliefs, assumptions, and hypotheses against existing data and other plausible interpretations of the data. The resulting judgments are offered as reasonable integrations or syntheses of opposing points of view (p. 7).

The Reflective Judgment Model (King & Kitchener, 1994, 2002; Kitchener, 1983) is based on research conducted over a 20-year time span. It proposes seven stages of reflective judgment organized around three major developmental periods. The major premises underlying the model are that the concepts of justification for an assumption of knowledge vary in predictable and universal ways. In short, it is a developmental stage theory much in the tradition of Piaget, Kohlberg, and Kegan. In the *pre reflective* reasoning period, the basic epistemic assumptions center on the belief that knowledge is gained through the word of an authority figure or through firsthand observation or evaluation of evidence. What is "known" is assumed to be absolutely correct and known with complete certainty.

In the *quasi reflective* reasoning period, people recognize that knowledge, or more accurately claims about knowledge, contain elements of uncertainty. This uncertainty is attributed to missing information or to shortcomings in the methods used to obtain the data. Judgments are seen as highly idiosyncratic because of a failure to understand how

data or evidence entails a conclusion (King & Kitchener, 2002). In the *reflective* thinking period, a core assumption is that no knowledge claims can be made with absolute certainty. Rather than being paralyzed with that assumption (leading to what has been called "analysis paralysis" in the popular press), people engaged in reflective thinking make judgments that they see are "most reasonable" and they feel are "reasonably certain" based on their evaluation of the available data. The seven stages of development are summarized in Table 7.1, along with characteristic ways of thinking at each stage.

Much of the research conducted on the Reflective Judgment Model through the early 1990s was summarized in King and Kitchener's (1994) book on the topic of developing reflective judgment. The core of this book focuses on the comprehensive research program conducted using the Reflective Judgment Interview (a 1-hour, semi-structured discussion of four ill-structured problems). This includes one study that considered the interview responses of over 1,700 participants as well as another study that was a 10-year longitudinal investigation of three different cohorts. Subsequently reported research is summarized and integrated with the earlier research by King and Kitchener (2002). Questions addressed in the 2002 review include whether the reflective judgment stages form a developmental sequence (yes), whether there are educational level differences in reflective judgment (yes), whether there are clear-cut differences in reflective judgment by gender and ethnicity (no, although there is some debate on this), and what is the relationship between reflective judgment and other constructs in the intellectual and personality domains?

The answer to the last question is more complicated given the number of other constructs that have been studied in conjunction with reflective judgment. The short answer is that reflective judgment appears to be moderately correlated (.40 to .50 or so) with the kinds of constructs one would expect would be related (e.g., need for cognition, moral judgment, and tolerance for diversity); however, none of the personality variables studied to date or development processes in other areas (including ego development) account fully for the development of reflective judgment. It should be noted, however, that research on the relationship between personality and the development of reflective judgment is still "in its infancy" (King & Kitchener, 2002, p. 53).

An issue with great relevance to our theory-building goals is how to best develop reflective judgment. It is important to note that the proper perspective to take is that of development rather than training. Training is often too focused in terms of content and too bounded in terms of time to have long-lasting effects on something like reflective judgment, which is thought to change over the course of the entire lifespan. Longitudinal research with participants between the ages of 14 and 28 has suggested (Kitchener et al., 1993) that contextual support and practice can expand the range of reflective judgment from a functional level (the low end of an individual's developmental range) to an optimal level (the highest

TABLE 7.1 Stages of Reflective Judgment and Characteristic Ways of Thinking

Pre-Reflective Thinking	
Stage 1: Knowing is limited to single concrete instances.	"I know what I have seen."
Stage 2: Two categories for knowing—right answers are contrasted with wrong answers.	"If it is on the news, it has to be true."
Stage 3: Knowledge is uncertain in some areas and certain in others.	"When there is evidence that people can give to convince everybody one way or another, then it will be knowledge, until then it's just a guess."
Quasi-Reflective Thinking	
Stage 4: Concept that knowledge is unknown in several specific cases leads to abstract generalization that knowledge is uncertain.	"I'd be more inclined to believe evolution if they had proof. It's just like the pyramids: I don't think we'll ever know. Who are you going to ask? No one was there."
Stage 5: Knowledge is uncertain and must be understood within a context; thus it can be justified by arguments within those contexts.	"People think differently and so they attack the problem differently. Other theories could be as true as my own but based on different evidence."
Reflective Thinking	
Stage 6: Knowledge is uncertain but constructed by comparing and coordinating evidence and opinion on different sides of an issue.	"It's very difficult in this life to be sure. There are degrees of sureness. You come to a point at which you are sure enough for a personal stance on the issue."
Stage 7: Knowledge develops probabilistically through a process of inquiry that is generalizable across domains.	"One can judge an argument by how well-thought-out the positions are, what kinds of reasoning and evidence are used to support it, and how consistent is the way one argues on this topic as compared with other topics."

Source: Adapted from King and Kitchener (2002) and Kitchener, Lynch, Fischer, and Wood (1993).

level that an individual can consistently produce). Participants operating at optimal levels of reflective judgment for their age were shown to experience significantly more developmental jumps to higher stages. Those operating without support and practice tended to demonstrate gradual, incremental, and slower changes to higher developmental levels. In summary, the research findings of Kitchener et al. suggest environmental contingencies can accelerate the developmental process and change the form of the underlying developmental trajectories. As noted in Chapter 2, the degree to which adolescent and adult development can be shaped by these kinds of environmental contingencies delineates how development processes differ from those experienced in childhood, which are primary shaped by biologically and physiologically driven maturation processes.

Because of its relevance to the Army and the present perspective on leader development, the construct of critical thinking skills is examined next, especially in terms of how it relates to the constructs of reflective judgment and epistemic cognition.

CRITICAL THINKING SKILLS

Like most organizations, the Army needs leaders who can think critically. But what does critical thinking mean and what are the kinds of thinking skills that support critical thinking? Army leadership doctrine (FM 6-22, Department of the Army, 2006) specifies that *critical thinking* is an important component of both ethical reasoning and mental agility. The essence of critical thinking is the ability to get past the surface issues of a problem and to think about the problem in depth.

> Critical thinking is a thought process that aims to find truth in situations where direct observation is insufficient, impossible, or impractical. It allows thinking through and solving problems and is central to decision making. Critical thinking is the key to understanding changing situations, finding causes, arriving at justifiable conclusions, making good judgments, and learning from experience (FM 6-22, 6-1).

While this doctrinal definition could be read as a description of careful but not necessarily critical thinking, the implication is that critical thinking involves applying evaluative judgment to the intermediate products of thought. There are several underlying implications of this general view of critical thinking. First, critical thinking is a conscious, deliberate, cognitive process. Second, critical thinking is an element of goal-directed behavior. Nonetheless, other perspectives on critical thinking imply quite a different set of characteristics of the process. Reviewing the critical thinking literature in psychology, education, and philosophy, S. C. Fischer and her colleagues (S. C. Fischer, Spiker, & Riedel, 2008b) concluded that the literature on critical thinking is highly fragmented and that no dominant model of critical thinking has

been developed. Authors vary substantially in their stated and operational definitions of critical thinking. For example, some authors treat critical thinking as a disposition or style rather than a skill or set of cognitive skills.

There is disagreement as to the breadth of application of critical thinking, with some suggesting that it is limited to specific information related to a particular problem whereas others suggest that one can critically think about an entire book, or an era of history. Despite such differences, six themes appeared in the literature: (1) logic and reasoning, (2) ability to make judgments, (3) a reflective or questioning attitude, (4) the goal-directed nature of critical thinking, (6) meta–cognitive control, and (6) critical thinking as a mental process. Table 7.2 gives a sample of the different definitions of critical thinking, along with their sources and dominant themes.

In an effort to provide a definitive conceptualization of critical thinking, a panel of 46 experts on the topic of critical thinking convened for two years as part of a research project sponsored by the American Philosophical Association (APA; Facione & Associates, 1990). The panel reached a consensus on the definition of critical thinking as the process of purposeful, self-regulatory judgment. An abbreviated version of this definition is shown as the first entry in Table 7.2. However, the APA definition does not include the mental process theme and under-emphasizes themes that are included by others. Furthermore, S. C. Fischer et al. (2008b) report that the APA definition has not been generally adopted by subsequent researchers in critical thinking.

The Fischer et al. (2008b) definition of critical thinking (CT) incorporates the five themes mentioned above:

> CT is a cognitive process that intervenes between a set of initiating situational conditions and the observable performance of one or more tasks. It is purposeful and deliberate cognitive processing that includes checks on the process and products of thinking and serves other higher-level tasks such as decision-making. CT involves the use of meta-cognitive and/or recursive control, consciously controlled logic. The execution of CT skills is powered by an effortful, yet flexible, computational process that is capable of controlled meta-cognitive and recursive monitoring of thinking. The processing engine is distinguished from the quick, yet powerful, recognition-based processing (Klein, 1998) that depends on association strengths and that is subject to well-documented accessibility errors (Kahneman, 2003; Fischer et al., 2008b).

To elaborate their integration of the critical thinking literature Fischer et al. (2008b) developed a model of CT that incorporates and organizes the most important factors discussed in that literature. It incorporates contextual factors such as the task and time available, predisposing attitudes such as questioning and openness, the relationship to moderating variables including domain expertise, experience and education, the relationship to cognitive metatasks such as judgment and problem solving, and relation-

TABLE 7.2 Sample of CT Definitions, Themes, and Source Disciplines Provided in the Literature

Definition of CT	Source	Theme(s)
Purposeful, self-regulatory judgment that results in interpretation, analysis, evaluation, and inference, as well as explanation of the evidential, conceptual, methodological, criteriological, or contextual considerations upon which that judgment is based.	American Philosophical Association (APA), 1990	Judgment Logic and Reasoning Metacognitive Control Purposeful
To be moved by reasons; a willingness, desire, and disposition to base one's actions and beliefs on reasons.	Siegel, 1988	Logic and Reasoning Questioning/Reflective State of Mind
The testing and evaluation of proposed solutions provided by creative thinking.	Moore, McCann, & McCann, 1985	Judgment
A practical reflective activity that has reasonable belief or action as its goal.	Ennis, 1987	Logic and Reasoning Purposeful Questioning/Reflective State of Mind
Art of thinking about your thinking while you are thinking in order to make your thinking clearer, more accurate, or more defensible.	Paul, et al., 1990	Metacognitive Control
To question definitions, evidence, actions, and beliefs; to consider what is, what was, or might have been, and what may yet be.	Moss & Koziol, 1991	Questioning/Reflective State of Mind
The process of evaluating statements, arguments, and experiences.	D'Angelo, 1971	Judgment
The careful and deliberate determination of whether to accept, reject, or suspend judgment about a claim.	Moore & Parker, 1989	Judgment

(*continued*)

TABLE 7.2 (*continued*)

Definition of CT	Source	Theme(s)
Problem solving process that is not restricted by habit or conformity but is free to be uncommon to what seems normal or natural.	Perkins, 1993	Mental Process Questioning/Reflective State of Mind
Deciding rationally what to or what not to believe.	Norris, 1985	Judgment Logic and Reasoning
An investigation whose purpose is to explore a situation, phenomenon, question, or problem to arrive at a hypothesis or conclusion about it that integrates all available information and that can therefore be convincingly justified.	Kurfiss, 1988	Questioning/Reflective State of Mind
The propensity and skill to engage in an activity with reflective skepticism.	McPeck, 1981	Questioning/Reflective State of Mind
Assessment of the logical and empirical adequacy of a nonfictional statement.	Baker & Anderson, 1987	Judgment Logic and Reasoning
Involves three elements: (1) an attitude of being disposed to consider thoughtfully, (2) knowledge of logical and reasoning methods, and (3) skill in applying reasoning methods.	Glaser, 1941	Logic and Reasoning Questioning/Reflective State of Mind
A style of open-minded reasoning that should be generalizable across content domains.	Sa, West, & Stanovich, 1999	Logic and Reasoning Questioning/Reflective State of Mind

Active, purposeful, and organized efforts to make sense of our world by carefully examining our thinking and the thinking of others in order to clarify and improve our understanding.	Gadzella & Masten, 1998	Metacognitive Purposeful Questioning/Reflective State of Mind
A cluster of elaborative mental activities that involve nuanced judgment and analysis of complex situations according to multiple criteria.	Resnick, 1987	Judgment Mental Process
The use of cognitive skills or strategies that increase the probability of a desired outcome. It is used to describe thinking that is purposeful, reasoned, and goal-directed.	Halpern, 1997	Logic and Reasoning Purposeful
Sound reasoning, judgment that entails analysis, synthesis, evaluation, and imagination.	Dymek, 1999	Logic and Reasoning Judgment
The application of recognition/metacognitive processing, particularly different mental models to solve a given tactical problem or make a tactical decision.	Cohen, Thompson, Adelman, Bresnick & Riedel, 1999	Metacognitive Control Mental Process

Source: Adapted from S. C. Fischer, Spiker, Harris, McPeters, & Riedel (2008).

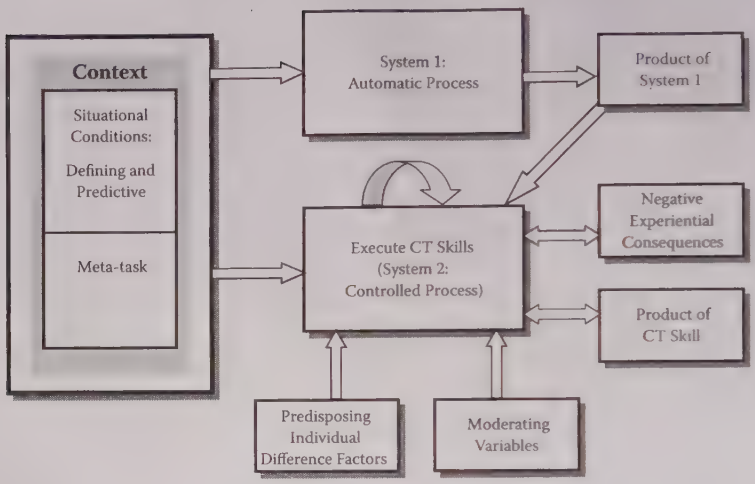


Figure 7.1 Process model of critical thinking (From S. C. Fischer, Spiker, Harris, McPeters, & Riedel, 2008a, 2008b).

ship of critical thinking to other forms of thinking such as intuition (often referred to as System 1 thinking). Figure 7.1 shows this model.

S. C. Fischer et al. (2008b) highlight several key aspects of critical thinking in their process model. First, they see critical thinking as the skills required to deeply process information in response to definable initiating conditions; thus it is seen as highly context dependent. This predictive orientation is in contrast to much of the literature which has an orientation to a post-hoc examination of personal traits that may have contributed to critical thinking. Second, as part of considering critical thinking as highly context-dependent, available information and the specific objective (the "metatask") bound the subsequent behavior. This is in contrast with much of the literature in which the stimulus to critical thinking might be very extensive (e.g., an entire book) or possibly is not defined at all. Third, S. C. Fischer at al. assume that critical thinking is a time-bound, intensive, focused and effortful activity; most of the critical thinking literature does not address this issue but leaves the impression that one can maintain a critical thinking perspective over an indefinite time period. Fourth, they assume that critical thinking has experiential consequences that are often negative. For example, the effortful nature of the critical thinking process may be unpleasant, particularly in cases where the effort does not yield an insightful resolution to the problem being addressed. This is an area that had not been addressed in previous literature. Finally, S. C. Fischer et al. assume that the critical thinking process is amenable to systematic experimentation. In this way one could manipulate the way in which the same information is presented and examine the subsequent process and outcomes.

The S. C. Fischer et al. (2008b) process model has additional features of interest. It is assumed that all initial processing is done through a System 1 "automatic" mechanism; in practice this would be visible as a quick intuitive reaction to a change in the situation. Some combination of the context, predisposing individual difference variables, and other moderating variables triggers a metacognitive awareness of the need to bring the product of System 1 into conscious awareness where it is subjected to critical thinking processes. This aspect of the model requires considerable additional research to establish the conditions that trigger a transition from automatic System 1 processing to conscious deliberate critical thinking. Knowing more about these conditions would support efforts to develop leaders with the necessary predisposing individual characteristics.

There are alternate perspectives on critical thinking as a cognitive process. For example, Fallesen and Halpin (2004) state that "the most important definitive feature of critical thinking is that it involves careful consideration and discernment of information, premises, goals, and proposed solutions for the purpose of improving solutions" (p. 216). Research stemming from this perspective would tend to focus more on the skills required to "consider and discern" than on the context, the moderating variables, or the experiential consequences. However, any of the cognitive (as opposed to philosophical or educational) approaches to critical thinking would suggest that critical thinking skills in particular contexts like battlefield command might be readily trained (Cohen, Thompson, Adelman, Bresnick, & Riedel, 1999).

A primary objective of S. C. Fischer and colleagues' work was to develop web-based training for Army officers in critical thinking. In their literature review, the authors identified over 100 skills that various authors had labeled as critical thinking skills—which is clearly too many to train. To select those high pay-off critical thinking skills to train, S. C. Fischer et al. (2008b) conducted a study with Army officers that identified eight critical thinking skills (CTS) that are both important and problematic to Army Battle Command: (1) frame the message, (2) recognize gist in material, (3) develop a plausible explanation, (4) generalize from specific to broader cases, (5) use mental imagery to evaluate plans, (6) challenge one's bias, (7) examine others' perspectives, and (8) decide when to seek additional information.

S. C. Fischer et al.'s (2007b) study on selecting CTS to train for Army officers suggests that not all CTS are equally important for all tasks and all domains. If one is going to train CTS, then one should select the skills that are most relevant to the intended domains. Training materials were developed targeting these eight skills in an Army context. Although a full validation has not been conducted, preliminary evidence shows a significant improvement in information processing and decision-making outcomes for those who received the training (S. C. Fischer et al., 2008c S. C. Fischer, Spiker, Harris, McPeters, & Riedel, 2008).

Cohen, Thompson, Adelman, Bresnick, and Riedel (1999) also developed training in critical thinking for Army officers. They propose

a four-step sequence of metacognitive skills that serve to test possible hypotheses when information is uncertain. Their processes use four critical thinking skills: (1) identifying evidence → conclusion relationships, (2) critiquing problems in arguments, (3) correcting problems in arguments, and (4) testing the hypotheses.

The APA study cited previously in this chapter (Facione & Associates, 1990), also outlines key steps to effective thinking and problem solving (also called "five what's and a why"). First, *identify the problem* (e.g., "What's the real question we're facing here?"). Second, *define the context* (e.g., "What are the facts and circumstances that frame this problem?"). Third, *enumerate the choices* (e.g., "Which among the possible options are the three or four most viable?"). Fourth, *analyze options* to find the best (e.g., "What is our best course of action, all things considered?"). Fifth, *list the reasons* explicitly (e.g., "Let's be clear: Why are we making this particular choice?"). Sixth, *self-correct* (e.g., "Okay, let's look at it again. What did we miss?"). Here, the decision-making steps are applied to improve critical thinking processes and are judged likely improve the resulting judgments or decisions made.

Many, if not most, of the other perspectives on critical thinking have associated training suggestions. A quick web search will reveal dozens of critical thinking training programs based on variations of these ideas although a number of these are completely atheoretical. From the perspective of the marketplace, it would seem that there is a felt need to help develop individuals' critical thinking skills and a willingness to provide training tools to accomplish that end. Assuming that such training has its intended impact, is training in critical thinking likely to help develop reflective judgment and epistemic cognition? To address this question we need to better articulate the relationship between critical thinking and these other forms of judgment.

RELATIONSHIP AMONG CRITICAL THINKING, REFLECTIVE JUDGMENT, AND EPISTEMIC COGNITION

King and Kitchener (1994) draw a clear distinction between critical thinking and reflective judgment. They note that critical thinking is often defined in terms of logic or a general set of problem-solving skills. As discussed above, S. C. Fischer et al. (2008b) suggest that this is too limited an understanding of critical thinking. Neither King and Kitchener (1994) nor the various other approaches identified by S. C. Fischer et al. address the importance of epistemic assumptions in distinguishing among types of problems or how these assumptions help to formulate solutions. According to Kitchener's (1983) tripartite model of thinking, critical thinking takes place at the most basic level of cognition, whereas epistemic cognition occurs at the highest level of thinking. In the S. C. Fischer et al. (2008b) model, critical thinking assumes a metacognitive or monitoring-and-correction function, occurring when "System 1"

(automatic recognition-primed thinking) is believed to be inadequate. To complete the mix, sound critical thinking skills are said to contribute to the development of "principled reflective judgment" in adulthood (Facione, 2004, p. 13).

To resolve the overlap and occasional contradictions among these various approaches to theorizing about the cognitive process, we suggest the following framework. At the most general level is one's epistemological beliefs, i.e., beliefs about the nature and scope of knowledge, its presuppositions and basis, and the general reliability of the claims to knowledge (Hamlyn, 1967). Cognitive functions, to include perception, recognition, information processing, and decision making often operate at a semi-automatic ("intuitive") level, influenced in part by epistemological beliefs. One may be aware of and consciously monitor some aspect of one's own cognitive processes; this is generally referred to as metacognition. Kuhn (2000) further delineates metacognition into metacognitive knowing and metastrategic knowing. Metacognitive knowing refers to knowing about declarative knowledge or knowing about knowledge as a product, whereas metastrategic knowing refers to knowing about procedural knowledge or knowing about knowledge as a process.

Epistemic cognition is one form of metacognition whereby the individual specifically attends to the "truth value" of information being processed. Particular attention in epistemic cognition is given to an understanding of the limits, certainty, and criteria of thought. The seven stages of reflective thinking provide one model of the differences that can be expected across a developmental span from low to high levels of epistemic cognition. In any form of meta-cognition, one's acquired skills at critical thinking will provide a set of cognitive procedures to follow, but the individual will be influenced and limited by the maturity of his or her epistemic cognition. Critical thinking also requires an understanding of the limits, certainty, and criteria of thought in order to operate effectively, but the focus is more on situations to be assessed, problems to be solved, and goals to be achieved than on the information and knowledge content per se. Critical thinking works at the application level using epistemic cognition knowledge and thought structures.

Because organizational leaders are faced with ongoing technological advances, complex and changing situations, and increasingly more advanced requirements at lower levels, continuous learning is a key component of effective leadership. Learning how to control and direct one's own thought processes (metacognition), developing mature reflective judgment and a sensitivity to the truth value of information (epistemic cognition), and developing the context-dependent critical thinking skills for given domains would all seem to be important to leader development. Not only do these processes support immediate goal-oriented task performance, but they also support broader learning and development over time. Given that situations are constantly changing, we cannot fully predict the types of knowledge and skills leaders will need. Through epistemic cognition, reflective judgment, and critical thinking,

one engages in more conscious reasoning and a thorough consideration of context dependencies. In other words, these processes underlie the ability to learn from experience.

SUMMARY AND IMPLICATIONS FOR AN INTEGRATIVE THEORY OF LEADER DEVELOPMENT

Epistemic cognition and related cognitive processes are important because they make a difference in the ability of leaders to interpret and assess information and make decisions about complex problems (Kuhn & Weinstock, 2002; Fallesen & Halpin, 2004). A leader who has a more developed epistemic cognition has a better awareness of the limits and certainty of knowledge involved in problem-solving.

There are several implications associated with the noted distinctions between critical thinking and epistemic cognition, including reflective judgment:

- Epistemic cognition, along with identity and moral reasoning, are the fundamental components of adult development. These developmental processes offer potential levers for accelerating leader development.
- Parallels in the conceptualizations of moral and ethical development and epistemic cognition suggest that mature levels of reflective judgment may be required to achieve a mature moral development.
- Development of epistemic cognition needed to successfully tackle novel ill-structured problems requires going beyond the application of well-recognized decision-making rules to understanding the assumptions about knowledge and knowing that make up one's personal epistemology.
- The step from cognition to metacognition involves a degree of self-awareness and the recognition of one's own role in ongoing events (agency). The development of epistemic cognition would seem to support the capacity for metacognition.
- Cognitive demands (e.g. situation assessment and decision making) in complex novel and ill-structured problems would seem to require mature epistemic cognition, reflective judgment, and well developed critical thinking skills. Leaders cannot rely solely on prior training and experience to solve such problems. These aspects of cognitive development should be a significant focus as part of long term leader development across all of the primary venues, including formal education, on-the-job assignments, and self-directed development.

SECTION

4

Learning-Based Approaches to Leadership

Whereas the previous section discussed three areas of adult development for leader development and their relevance for an integrative theory of leader development, this section turns to an explicit focus on leadership by discussing different ways of approaching it. For example, leadership may be conceptualized as a way of thinking, a specific set of skills, or as something else that is gained through experience. Additionally, leadership can be conceptualized as occurring at an aggregate (i.e., team or organization) level rather than just individually. Within each chapter, the relevant literature is reviewed and advantages and disadvantages of each approach are discussed.

CHAPTER

8

Mental Models

Leadership as a Set of Cognitive Frames

Thinking is for doing ... and doing causes thinking.

—**Maxim of social psychology**

Traditional theories of leadership have emphasized the attributes and behaviors of leaders, the quality of relationships between leaders and followers (e.g., leader–member exchange or LMX), the potential influences that leaders have on followers as well as environmental contexts; however, relatively few theories have focused on the cognitive structures and processes underlying leadership. An examination of leader cognition and information processing helps answer questions such as why a leader uses certain behaviors in certain situations and how a leader thinks.

OVERVIEW OF LEADER COGNITION RESEARCH AND THEORY

Much of the research on leader cognition stems from the field of managerial and organizational cognition, which grew out of work by March and Simon (1958). This field emphasizes organizations as collections of information systems of meaning. Managers (as well as leaders) serve the important function of integrating information and making sense out of environmental information. Two distinct camps of research on cognition

in organizations have emerged: the computational perspective and the interpretative perspective.

The *computational perspective* views organizations as information-processing systems. Research and theory on computational models includes the study of information-processing strategies and how constructs such as heuristics, schemas, and scripts can be modeled quantitatively. The *interpretive perspective* views organizations as social entities enacting with the environment in sensemaking. The interpretative approach emphasizes the construction of meaning rather the processing of information, taking context and culture into consideration (Lant & Shapira, 2001).

Broadly speaking, leaders process information in a top-down manner driven by what is consistent with their mental models (Johnson, Daniels & Huff, 2001). *Mental models* have been defined as "mechanisms whereby humans are able to generate descriptions of system purpose and form, explanations of system functioning and observed system states, and predictions of future system states" (Rouse & Morris, 1986, p. 351). In general, mental models are cognitive frames in a particular domain of interest. They organize information about systems, the environments in which they operate, and the response patterns required of systems with respect to environmental dynamics (Veldhuyzen & Stassen, 1977). Mental models arise through the acquisition and integration of information concomitant with experience. The use of visual aids such as diagrams in the knowledge acquisition process has also been found to aid in the development of mental models (Fiore, Cuevas, & Oser, 2003).

Differences in mental models may provide insight into differences in leader behavior (i.e., thinking is for doing). As one example, some leaders may think in terms of transactional leadership (focus on tasks and rewards), whereas others think more in terms of transformational leadership (focus on values and people). Wofford and V. L. Goodwin (1994) proposed that leaders' cognitive structures underlie behavioral differences in transformational and transactional leaders. They argued that some individuals have a general cognitive framework for behavioral patterns for subordinates and thus are geared toward transformational leadership, whereas others have more of a self-schema that emphasizes directiveness and social exchange, which is geared more toward transactional leadership. Tests of this model demonstrated that the greater the extent that leaders' responses to an open-ended questionnaire endorse a particular type of leadership, the more subordinates rated them as behaving in this manner (Wofford, V. L. Goodwin, & Whittington, 1998). The authors suggested that although different cognitive structures underlie specific behavioral sets, some overlap probably also exists and leaders can enact behaviors from other cognitive structures when needed. Nonetheless, the results from this study are in line with the perspective that a well-developed cognitive structure might predict the emergence of a favored so-called "leadership style."

A leader's cognitive frame may play a key role in transformational and charismatic leadership through its support for the creation and articulation of a vision, an image of an idealized future state. Strange and Mumford (2002) proposed that vision formation is dependent upon the reflection and analysis of a leader's mental model. In other words, reflecting on leadership experiences in social systems helps create a mental model for a particular desired state, a prescriptive mental model. The authors distinguished between normative or descriptive mental models and prescriptive models. Normative models refer to mental representations of how a leader views the state of the present systems' operations through his or her individual history, experience, and social feedback. The prescriptive model, on the other hand, arises out of a reflection on the descriptive model and one's personal values as well as the perceived needs of the organization in forming a view of a desired future state. A prescriptive model may vary across individuals as a function of epistemic maturity, knowledge, experience, culture, group norms, as well as self-awareness and reflective thought. Reflection on the prescriptive model and the means to attain it leads to the formation of a vision. The authors recommend encouraging leaders to reflect on their mental models and values with regard to perceived organizational need to further visionary-based leadership.

Research on after-event reviews in a military context demonstrated that the more comprehensive reviews, which included successful as well as failed events, were associated with richer, more elaborated, and articulated causal maps (i.e., mental models) than those reviews that focused only on failure (Ellis & Davidi, 2005). In particular, those receiving feedback on success as well as failed events had maps that contained more nodes (i.e., variables or factors) and more causal links (especially indirect links) between the various causes and the successful outcome. Although their findings also indicated that failure experiences tended to be associated with richer causal maps than success experiences at least initially, providing opportunities for feedback and reflection on success may bolster the after-event review effects on mental model development.

For tasks requiring coordinated action among several individuals, an examination of a leader's cognitive model may not be enough. Cognitive structures have been considered at the team level as well as the individual level. Two illustrations include team mental models and transactive memory. *Team mental models* are the team members' shared schemas or mental representations of the knowledge of the task and team environment (Klimoski & Mohammed, 1994). Member mental models include the four knowledge domain areas of task work, teamwork, equipment, and member characteristics (Cannon-Bowers, Salas, & Converse, 1993). Researchers concerned with team mental models argue that if team members share an understanding of these domains, team effectiveness will be enhanced. Team mental models have been found to enhance team performance on tasks requiring interdependence, but not for tasks that can be performed independently (Minionis, Zaccaro, & Perez, 1995).

Transactive memory refers to a collection of individual knowledge and a group awareness of who knows what. It is a system for encoding, storing, and retrieving information in a group (Wegner, 1986). Generally, transactive memories allow for an expanded pool of expertise, a reduced cognitive demand on each individual, and a reduction in information redundancy. One component of transactive memory—consensus—is significantly related to team mental models and group performance. This suggests that teams may benefit not only from sharing the same knowledge structure, but also sharing an understanding of the individual differences in knowledge expertise. Team processes have been found to explain the relationship between mental model similarity and team performance (Mathieu, Heffner, G. F. Goodwin, Salas, & Cannon-Bowers, 2000) as well as transactive memory consensus and team performance (Marks, Sabella, Burke, & Zaccaro, 2002). Generally speaking, shared cognitions lead to better coordination and backup responses, which in turn facilitate goal accomplishment.

HOW DOES COGNITION GUIDE LEADERSHIP?

Leaders are deluged with multiple information-processing demands as they go about making sense of environmental factors, other individuals, and aspects of their work. To aid in information processing, individuals use cognitive shortcuts that capitalize on the benefits of automatic processing in which less cognitive effort is needed. Compared with demanding, slow, and sensitive controlled processing, automatic processing allows the completion of several tasks simultaneously, demands less attentional resources, and is not affected by cognitive load (Lord & Foti, 1986). Several processes identified by researchers in cognitive and social psychology, such as heuristics, schemas, and scripts may help explain how leaders are able to deal with complex cognitive demands in a relatively efficient and effective manner.

Heuristics

Recognizing that individuals are often limited by cognitive capacities and often make satisfactory rather than optimal decisions, behavioral decision theory has been proposed to explain how information is processed, how individuals form preferences, and how the framing of situations affects decision-making (Kahneman, Slovic, & Tversky, 1982). Behavioral decision theory is especially useful in understanding how individuals make judgments about new, uncertain, or complex situations. The theory suggests that decisions are made through the use of heuristics, or mental shortcuts that aid in information processing. Heuristics support the selection of what particular information to attend to in the environment.

Specifically, information that is consistent with an understanding of a particular domain is quickly assimilated, whereas inconsistent information is either ignored, or in some cases, captures attention for more effortful and controlled analysis. This happens when the information is highly discrepant from an activated schema (defined below) and is evaluated as sufficiently important to "pay attention" to.

Although helpful in processing a lot of information, heuristics also contain the potential for systematic errors (Tversky & Kahneman, 1974). In this way, heuristics allow for efficient information processing that is generally effective, but these cognitive shortcuts can result in cognitive mistakes (i.e., misjudgments of poorly defined, real-life stimuli that have potentially dangerous consequences; Funder, 1987) when overgeneralized or when inconsistent information is ignored. For example, it has been shown that performance raters will falsely recognize performance information and claim that certain behaviors occurred even though they did not because the behavior was consistent with an overall impression that was formed of a ratee (Sulsky & Day, 1992).

Schemas

Schemas can be defined as "cognitive structures that represent organized knowledge about a given stimulus as well as rules that direct information processing" (Lord & Foti, 1986, p. 22). Schemas arise as one perceives factors of the world to be related. Activation of one element in a schema tends to activate other elements as well as those memory experiences that are associated with the element(s). Schemas develop as an individual is repeatedly exposed to similar experiences or events. Over time, schemas become more complex, organized, and abstract. A schema helps an individual quickly filter through information and assists in making decisions in a relatively effortless fashion. It has been suggested that leaders may have hierarchically arranged schemas for goals, tasks, roles, other persons, and various aspects of the work environment (Rosch, 1978).

Lord and Foti (1986) distinguished four types of schemas: self-schema, person schema, person-in-situation schemas, and behavioral scripts. Self-schema refers to an individual's representations of structures of the self, and is closely related to the concepts of identity and working self-concept (Lord & Brown, 2004). Self-schemas guide current and future behavior and aid in processes needed for goal accomplishment. Because individuals are better able to remember information that is self-referent, holding extensive self-schemas aid in the memory of schema-relevant information. For example, an individual with a leader self-schema can better remember examples of leader behavior. Additionally, future-oriented self-schemas, such as possible selves (Cross & Markus, 1991) and provisional selves (Ibarra, 1999), help direct and motivate behavior toward the realization of an ideal future state.

There is a close relationship between the construct of self-schema and that of identity. Schlenker (1985) defines identity as "a theory (schema) of an individual that describes, interrelates, and explains his or her relevant features, characteristics, and experiences" (p. 68). Discussion of how identity and subcomponents of leader identity develop across the adult lifespan inherently includes the cognitive notion of self-schema as well as how a leader self-schema develops and guides an individual's leadership (See Chapter 5 for a review). Engle and Lord (1997) referred to those with strong self-schemas for leadership (as measured by self-reported leadership trait ratings) as *schematics* and those with weak self-schemas for leadership as *aschematics*. In an interesting finding, supervisors who were schematic for leadership were liked less well and had lower exchange qualities with subordinates than those who were aschematic. This illustrates an important point: Seeing oneself as a leader does not necessarily mean that subordinates will see one as a leader.

Leaders may also have person schemas regarding attributes of effective followers just as the followers hold schemas regarding leaders. In this way, a leader may expect a follower who possesses certain attributes to possess other related attributes and behave in certain ways. For example, a leader who observes a serious work ethic in a follower might also believe (correctly or not) that follower to be trustworthy and honest. Leaders' categorization of followers may have important implications for their performance through a self-fulfilling prophesy, in which it has been shown that having either positive or negative expectations regarding an individual's potential is associated with the subsequent performance (positive or negative) of that individual (Eden, 1992). Furthermore, leaders' categorization processes influence the accessibility of a behavioral repertoire that is available to them. When leading individuals who are categorized as low achievers, leaders tend to take a more directive and transactional approach than when leading those categorized as high achievers. Leaders even report a greater number of transactional thoughts about low achievers than about those categorized as highly effective (V. L. Goodwin, Wofford, & Boyd, 2000).

Alternatively, individuals may hold schemas about leaders, as in the case of implicit leadership theories (ILT). An ILT describes a structure of relationships of relevant leadership traits and characteristics believed to be related, which guides and organizes an individual's perceptions, thoughts, and memories about leadership (Epitropaki & Martin, 2004). An ILT defines the assumptions that people hold about what behaviors leaders display and how those behaviors are associated with group and organizational outcomes (Keller, 1999). Research on the so-called performance cue effect (e.g., Binning, Zaba, & Whattam, 1986) has shown that people hold an implicit assumption that good team or organizational outcomes are the result of effective leadership, and conversely, poor outcomes are due to ineffective leadership. These assumptions guide perceptions of who is or is not a leader in a given context. Individuals also may hold situational specific behavioral expectations, which are part of a person-in-situation schema. Such a schema focuses information

regarding the typical and appropriate behavior in a particular situation (e.g., a leader in a situation where there is low follower morale).

Research has demonstrated the relevance of schema theory in applied settings. A longitudinal field study of the role of implicit leadership theories (ILT) on leader–member exchanges demonstrated that the closer their actual manager's leadership trait profile was to the ILT that he or she endorsed, the better the exchange quality with that manager (Epitropaki & Martin, 2005). Exchange qualities were shown to then predict subordinates' organizational commitment, job satisfaction, and well-being.

Behavioral scripts are a final type of a schema that involves a sequence of behaviors toward the accomplishment of goals. For example, an individual might hold a behavioral script for giving a presentation that involves introducing the topic, explaining the core issues at hand, providing examples, summarizing key points, and asking for questions. Examples of leader scripts may involve behavior associated with communicating an organizational vision, building self-confidence, and building trust. Abelson's (1981) script theory suggests that scripts are hierarchically arranged from script tracks to meta-scripts. At the most specific level, script tracks involve the most proximal approaches to goal accomplishment, such as giving a follower more responsibility as part of an empowerment script. Metascripts invoke cues at the highest level of abstraction such as an organizational vision.

Research has indicated that simply imagining oneself in a behavioral script has powerful implications in terms of one's intent to behave in a particular manner and one's expectations for others. Anderson (1983) noted that imagining oneself performing (or not performing) a certain behavior produces corresponding changes in intentions toward that behavior. In addition, the more frequently one imagines oneself in a behavioral script, the greater the intention to change is produced; however, such changes in personal intentions occur only when the self is the main character of the script. Furthermore, Anderson and Godfrey (1987) found that although imagining another person in a behavioral script does not lead to changes in behavioral intention, it does influence expectations regarding that person's behavior. In a leadership context, these studies suggest that guided imaging of behavioral scripts may facilitate certain leader behaviors and change leaders' expectations regarding followers.

Another aspect of cognitive schemas worth mentioning is the potential connection to the topics of "practical" intelligence and *tacit knowledge*. Sternberg (2003b) defined tacit knowledge as "what one needs to know in order to work effectively in an environment that one has not explicitly [been] taught and that often is not even verbalized" (p. 56). In other words, tacit knowledge is specific context-dependent information that is organized and held in memory implicitly, which aids in efficient and effective performance within the specialized context. Another way of conceptualizing tacit knowledge is as a schema or implicit theory that allows for relatively quick and accurate sensemaking. It is not explic-

itly taught or even explicitly acknowledged, but guides performance in that domain of interest. In the present theory, leader development might also be conceptualized in terms of the life-long acquisition of leadership-related tacit knowledge that is organized implicitly in memory. Developing leader self-schemas may involve the acquisition of tacit knowledge of how to think, act, and interrelate as a leader in leadership situations.

Cognitive Complexity

Individuals differ in terms of the organization and depth of their cognitive schemas. One individual difference variable associated with cognitive frames is that of cognitive complexity. Cognitive complexity indicates how an individual transforms specific information into a social judgment and signifies how an individual structures his or her social world. Cognitive complexity has also been defined as the "capacity to construe social behavior in a multidimensional way" (Bieri, Atkins, Briar, Leaman, Miller, & Tripodi, 1966, p. 185). The origins of the construct stem from Kelly's (1955) theory of personality, which states that each individual has a certain number of personal constructs available to perceive events. Cognitive complexity emphasizes the nature of constructs and the differences among individuals in the types and the number of constructs used for evaluating their respective environments. More cognitively complex individuals have more highly differentiated system of constructs for perceiving events than do less cognitively complex individuals. In other words, individuals who are high in cognitive complexity possess the ability to perceive constructs in more dimensions—and actually often do perceive constructs in more dimensions—than do those low in cognitive complexity (Bieri et al., 1966).

Schroder, Driver, and Streufert (1967) suggested that cognitive complexity has three separate dimensions: (1) *differentiation* (the ability to derive different dimensions to make sense of a problem), (2) *discrimination* (the ability to distinguish stimuli on the same dimension), and (3) *integration* (the ability to combine dimensions to generate multiple interpretations of a situation). As an individual moves to greater levels of integration, more dimensions and interpretations of the situations are identified, allowing for better decision-making capabilities. Zaccaro (2001) integrated this work with other theoretical perspectives in his detailed examination of executive leadership.

Another recent attempt to integrate complexity with leadership resulted in the Leaderplex model of leadership complexity (Hooijberg, Hunt, & Dodge, 1997). The essence of the model specifies three particular components of complexity that are central to leadership. *Cognitive complexity* is defined in the familiar terms of differentiation and integration of cognitive semantic space (e.g., Schroder et al., 1967). *Social complexity* is defined as the "leader's capacity to differentiate the personal and relational aspects of a social situation and integrate them

in a manner that results in increased understanding or action-intention valences" (p. 382). *Behavioral complexity* is composed of behavioral repertoire (i.e., a portfolio of leadership roles that can be performed) and behavioral differentiation (i.e., to adapt the behaviors in a behavioral repertoire appropriately to situational demands and expectations). The Leaderplex model has been expanded conceptually to show how it might be modeled longitudinally to address aspects of personal change (Day & Lance, 2004).

COGNITIVE PROCESSES AND LEADERSHIP

Brown and Lord (2001) suggest that an understanding of leadership should go beyond the content of knowledge structures to a better understanding of the processes in which leadership categories are activated. They propose that knowledge structures will be used only when the knowledge structure is accessible and when there is a functional value of that knowledge in a particular context. Information is more accessible when the leader is prepared to use a specific knowledge structure and when it is environmentally primed. Factors such as the stress of the situation (i.e., a crisis situation), the conscious awareness of a knowledge structure, and whether it is self-relevant have been noted to affect accessibility. Additionally, individuals who hold a leadership self-schema are more likely to use an appropriate and relevant category of leadership behavior because they are likely to be highly accessible in memory. Brown and Lord suggest that since leader is a category label that is applied to an individual, the perceived applicability of knowledge structures depends on one's attribution of events. If an individual attributes events to individuals (an internal attribution), then the likelihood of perceiving information as relevant to leadership is enhanced.

Brown and Lord (2001) also argue that the effects of leadership on the cognitive processes of followers deserve greater consideration as an important leadership outcome. They suggest that followers' cognitive processing and categorization explain the link between the effects of leaders' behaviors on followers' motivation, affect, and performance. In essence, effective leadership is dependent upon followers' cognitive processes and sensemaking (also see Lord & Brown, 2004).

Leaders at the executive level are often required to engage in strategic decision-making that includes making sense of one's environment. Milliken and Vollrath (1991) suggest that strategic decision-making depends on behavioral processes such as scanning the environment, analyzing the environment, forming strategies, and executing decisions with the associated cognitive demands of attention, encoding, storage, and retrieval (Johnson, Daniels & Huff, 2001). Strategic leaders, who must monitor the environment for opportunities and threats, try to match environmental cues with their current schemas to categorize opportunities and threats. Factors such as experience, values, time

frame, and leader self-efficacy can also affect the use of certain schemas (Brown, Scott, & Lewis, 2004).

LEADERSHIP AS A KNOWLEDGE STRUCTURE

Taking a cognitive (i.e., information processing) approach to a topic such as leadership or leader development can sometimes seem impractical. What do any of these various terms and concepts (i.e., jargon) have to do with the core issue of accelerating leader development? One way to address this important concern is in examining work that draws from the literature on mental models, knowledge structures, and adult development in addition to leadership.

In his book on rethinking the source of leadership, Drath (2001) articulates three distinct "knowledge principles" that pertain to leadership. These are not the same as definitions of leadership or leadership styles. Instead, knowledge principles are more like leadership schemas or implicit leadership theories that people hold (i.e., tacit knowledge about leadership). Drath's approach is grounded in the adult development literature—especially Kegan's (1994) work—in terms of arranging these principles along a continuum of complexity; thus, there is a solid connection to the work that has been done in the area of cognitive complexity and leadership (e.g., Hooijberg et al., 1997; Zaccaro, 2000).

The least complex knowledge principle—and the one most widely held across many cultures—is *personal dominance*. It is widely held perhaps because it taps into individual and heroic conceptions of leadership. Drath also claims that it is "historically the oldest and conceptually the most basic leadership principle" (p. 13). According to this principle, leadership is something a person possesses (i.e., a trait or individual attribute), the leader is the source of leadership and followers are the receivers of it, and leadership is seen by others as an expression of these personally possessed qualities or characteristics. There is nothing that makes the personal dominance knowledge principle wrong per se, but it is limited as well as limiting if it is the only way that leadership can be conceptualized by a leader (or followers for that matter).

A more complex knowledge principle—one that transcends but does not completely replace personal dominance—is that of *interpersonal influence*. This is a way of understanding that leadership happens through interpersonal processes of agreeing and disagreeing, planning and negotiating; in other words, that someone emerges as the most influential person in a group and thus claims the role of leader. It is qualitatively different from personal dominance as a way of recognizing that leadership is happening. One important distinction from the personal dominance knowledge principle is that leadership is considered a role that is occupied by the most influential person and people can acquire certain qualities and characteristics that allow them to emerge or be

effective in a leadership role. In addition, the interpersonal influence principle sees leadership as actively involving followers in the process of negotiating influence (rather than the followers as passive recipients of leadership).

A third principle, one that is even more complex than interpersonal influence, is that of *relational dialogue*. From this principle, leadership happens when people who are engaged in shared work (and acknowledge that they are mutually engaged) use dialogue and collaborative learning to create contexts in which the shared work can be accomplished across different perspectives, values, beliefs, cultures, and worldviews. From this knowledge principle it is assumed that leadership is a property of a social system and not based in an individual or interpersonal relationship. Leadership happens when people participate in collaborative forms of thought and action, and might be considered more as system output than as input. From this perspective, all individuals in the social system have a responsibility to participate in the leadership process.

So which particular knowledge principle is right? The answer is that all of these principles can be effective (or ineffective) in a given particular situation. In some cases such as crisis situations, a personal dominance approach in which a leader has a solution and needs to direct followers toward it will be much more successful than an approach that attempts relational dialogue. There are other situations in which personal dominance would be inappropriate or ineffective (e.g., ordering others around when listening carefully would be a better approach). In general, however, having the ability, complexity, or cognitive capacity to take on multiple knowledge principles should enhance the repertoire of available leadership strategies to be effective across a wider range of situations. This is also partly determined by the followers' perceptions and expections of effective leadership. If they do not consider dialogue to be an important aspect of leadership then they will be unlikely to cooperate.

Part of any leader development strategy should address the notion of how a leader—and also those considered to be followers as well—can think about leadership and how to develop this thinking to incorporate several leadership knowledge principles rather than just one. A tenet of social psychology is that thinking is for doing (Fiske, 1992). Being able to think about leadership across the entire complexity continuum is likely to be associated with greater effectiveness across a wider set of contexts than being able to think about leadership solely as acting on followers or as always acting with them.

BENEFITS AND DRAWBACKS OF THE COGNITIVE FRAME CONCEPTUALIZATION OF LEADERSHIP

Understanding leadership as a set of cognitive frames has attractive features as well as potential limitations. One of the most important benefits of a cognitive approach to leadership is that it attempts to

explain the underlying processes and mechanisms of leadership, rather than simply focusing on directly observable behavior (Brown & Lord, 2001). Similarly, aspects of the cognitive approach, especially interpretive or sensemaking approaches, incorporate aspects of the environment in suggesting how leadership can be understood in its social context. These aspects focus on how leaders make sense of their environment and find deeper meaning:

> The centrality of information processing is not surprising given that humans are expert person perception processors who quickly translate and map the surface structure (e.g., behaviors and situations) of their social environments into deeper meaning structures (categories, traits, etc.) to form coherent, context specific interpretive frames of their social environments (Brown & Lord, 2001, p. 189).

This conceptualization also fits well with the adult development literature, especially that of Kegan (1994), suggesting that the development of "orders of consciousness" occurs through an ongoing series of differentiation and integration. Similarly, understanding a leader's mental model of leadership is helpful because it likely includes information regarding the level of moral reasoning, abstraction of leader identity, and the complexity of leadership knowledge principles that are held, perhaps implicitly.

Although research has shed light on leader information processing, many questions still remain. The cognitive approach fails to address direct requirements of leaders such as leader behaviors or skills. Another critique of the cognitive approach is that cognitive processes are difficult to measure. Additionally, much effort has been given to understand how leaders make sense of their environment, rather than a focus on how that knowledge is applied (Johnson et al., 2001). Conceptualizing leadership as a set of cognitive frames is attractive on several levels, but may be best when paired with an understanding of the content of these structures and how they inform the knowledge, skills, and abilities require for effective leadership.

CONCLUSIONS

A cognitive approach to understanding leadership provides an insight into understanding differences in leader development through examining the cognitive structures and processes of leaders. Information processing aids such as heuristics, schemas, and scripts provide leaders with shortcuts and frameworks to categorize, store, retrieve, and make sense of the vast information that leaders experience, and to do so quickly. The specific knowledge principles that leaders hold may also be an important constraint (or catalyst) for the type of leadership that is ultimately enacted. For these reasons, the leader development process is one that involves the development and use of leadership-related knowledge structures, such as leader self-schemas, scripts, implicit theories,

and knowledge principles. Although leadership is not a completely cognitive endeavor, leader cognition is important for at least three reasons: (1) thinking is for doing, so cognition shapes behavior; (2) quick and accurate sensemaking is needed for adaptive behavior; and (3) cognition in the form of heuristics, schemas, knowledge principles and the like is developed through experience, so leadership experiences are likely to help develop more complex and sophisticated ways of thinking about leadership (i.e., doing causes thinking).

SUMMARY AND IMPLICATIONS FOR AN INTEGRATIVE THEORY OF LEADER DEVELOPMENT

The self (i.e., identity) is a schema or an organization of knowledge about oneself. Thus, if identity is important to leader development, as has been argued, so are the mental models or schemas that leaders hold about themselves, others, and the environment.

- Because of the complex task and relational environments in which leaders lead, highly developed mental models allow for quick and generally accurate sensemaking. This enhances a leader's adaptability for providing for possible solutions and behaviors without using a lot of cognitive capacity. This is a good thing because it frees up cognitive resources to devote to novel challenges.
- Tacit knowledge is a form of an implicit mental model about a particular domain. Much of effective leadership is thought to be implicit in that it is not directly taught. Understanding how leaders develop would include understanding how their tacit knowledge and implicit mental models of leadership develop as well.
- How someone thinks about leadership influences and potentially limits how leadership is enacted. An important part of leader development involves the deliberate change from a relatively simple implicit model of leadership to one that is more complex, more explicit, and provides for a broader repertoire of available behaviors. This enhances adaptability.

CHAPTER

9

Expertise—Leadership as a Set of Skills

> Not all practice makes perfect. You need a particular kind of practice—*deliberate practice*—to develop expertise.
>
> —Ericsson, Prietula, & Cokely (2007, p. 118, italics in original)

When asked whether leadership can be taught, leading management educators' responses vary from "probably not" to "absolutely yes." There is greater consistency across responses in their belief that leadership could be learned. Most of the educators agreed that some aspects of leadership could be learned, especially leader skills, although the degree of successful learning is likely to vary given individual differences in attributes and motivation (Doh, 2003). Those who advance the perspective that leadership is teachable conceptualize effective leadership as a set of skills or competencies. Skills-based approaches focus on the capabilities that individuals possess to effectively perform organizational leadership roles (Mumford, Zaccaro, Harding, Jacobs, & Fleishman, 2000).

LEADER SKILLS

Two-factor models of leader behavior, such as those developed as part of the Ohio State studies (Stogdill & Coons, 1957) that contributed the behavioral factors of *initiating structure* and *consideration* to the leadership literature, have dominated the theoretical and empirical study of the relationship between leadership and employees' attitudes and the performance of individuals, teams, and organizations. A recent meta-analysis has suggested that there is robust research evidence in support of these

leadership factors in terms of predicting individual outcomes such as followers' satisfaction and job performance (Judge, Piccolo, & Ilies, 2004). Others such as Yukl (2006) charge there is a real failure of the two-factor models due to poor conceptualization in addition to the lack of sound measurement of the specific behaviors making up each factor. Yukl proposes that more specific aspects of the managerial skill sets represented by these factors should be identified and examined empirically.

Individual skills have long been a focus of interest in the leadership literature. Barnard (1938) wrote of the "functions of the executive" (i.e., leader) in terms of the kinds of personal skills and characteristics needed to be effective in cooperative systems. The importance of leadership skills was emphasized in the widely regarded AT&T longitudinal studies. The AT&T Management Progress Study (Bray, Campbell, & Grant, 1974) examined skills related to manager career advancement and found such skills as oral communication, planning/organizing, and decision-making skills to predict manager advancement. Additionally, being given a more challenging assignment was related to further skills development and faster advancements. Similarly, McCauley, Ruderman, Ohlott, and Morrow (1994) found that complex cognitive and social skills were related to leader effectiveness. These skills are developed when a leader is pushed beyond his or her comfort zone (i.e., challenged) to develop and practice different behaviors.

Early taxonomies of skills presented by Mann (1965) proposed four categories of leader skills including technical, conceptual, interpersonal, and administrative skills, the latter of which encompasses aspects of the first three skills. Mann suggested that the need for these skills varies by authority level and type of organization, a claim that was also advanced by other researchers (Jacobs & Jaques, 1987; D. Katz & Kahn, 1978; R. L. Katz, 1955). A basic premise across these approaches is that the higher the organizational level, the greater is the complexity needed by a leader to perform effectively (Zaccaro, 1999). For this reason it is argued that conceptual skills are more important at higher authority levels, whereas human relation skills and technical skills are more important in lower levels of leadership. Other authors suggest that human relation skills remain important, but qualitatively change as a leader moves up the executive ladder (Hooijberg & Schneider, 2001). Interpersonal skills are important in middle- and lower-level management positions to manage conflict, encourage subordinates, and create trust and loyalty, while executives use interpersonal skills for fostering positive and constructive relationships with stakeholders. Similarly, the relative importance of the skills may vary by the distance of the relationship from the followers' perspective. Interpersonal skills and leadership expertise may be especially salient for close charismatic leader–follower relationships, whereas other skills such as rhetorical skills may be more important for distant charismatic leadership relations (Shamir, 1995). Recent research has further demonstrated that different categories of leadership skill requirements emerge at different organizational levels (T. V. Mumford, Campion, & Morgeson, 2007).

Whereas cognitive skills are important across all organizational levels, strategic skills fully emerge only at the highest organizational levels.

Echoing the focus on cognitive and social skills, M. D. Mumford, Zaccaro, Harding, Jacobs, and Fleishman (2000) proposed a skill-based model of leadership. The model suggests that three general skills—complex problem-solving skills, solution construction skills, and social judgment skills—explain the positive relationship between leader traits (abilities, motivation, and personality) and important leader outcomes. The authors proposed that skills develop as a function of experience and leader attributes. Career experiences such as challenging job assignments, mentoring, training, and hands-on problem solving are proposed to facilitate skill development. The model was tested in populations of U.S. Army officers (Connelly, Gilbert, Zaccaro, Threlfall, Marks, & Mumford, 2000) and civilian leaders (Zaccaro, White, Kilcullen, Parker, Williams, & O'Connor-Boes, 1997) and was generally supported; however, the research methodology used novel untested measures of both independent and dependent variables. For this reason, replication of these studies would be useful.

TECHNICAL SKILLS

Technical skills involve the domain-specific knowledge leaders possess in their respective areas. Early studies of leaders showed that technical skills were the best predictors of leader creative performance (Andrews & Farris, 1967; Barnowe, 1975). Additionally, leaders possessing greater technical skills are better equipped to evaluate their followers' work and provide meaningful feedback. Idea generation and structuring activities depend on the leaders' understanding of the work to be done. As leaders reach the upper levels of any organization, however, specific technical skills become less important for success than a systems perspective and the ability to integrate the activities of specialists (D. Katz & R. L. Kahn, 1978).

ADMINISTRATIVE AND MANAGERIAL SKILLS

General administrative skills are considered important for the basic managerial functions of planning, organizing, controlling, and coordinating (Boyzatis, 1982). Research on the managerial function of work found support that interacting skills and initiating skills are two distinct constructs and their evaluation requires different approaches (Shipper & Davy, 2002). The authors argued that the initiating structure component of managerial skills included planning, time emphasis, and control of details. Planning includes preparing, delegating, and maintaining the flow of work among followers. Time emphasis focuses on setting deadlines, and ensuring tasks are completed in a timely and orderly manner. Finally, control of details involves monitoring details of a task to maintain the quality of the completed job.

INTERPERSONAL SKILLS

The significance of interpersonal proficiency has long been noted in the leadership literature. Interpersonal skills are required to understand and analyze social interrelationships among followers in order to better understand their needs. Leadership also requires interpersonal skills to be able to manage emotional displays to elicit strong affective attachment and performance from followers. Impression management, emotional regulation, and the ability to discern other's emotions have been suggested as important leadership skills.

These types of skills have been referred to collectively as *emotional intelligence*. Although it has become a much-maligned and somewhat ambiguous construct due to its overexposure in the popular press literature, some scholars have noted the fundamental importance of emotional intelligence for effective leadership, at least at the conceptual level (e.g., George, 2000). Caruso, Mayer, and Salovey (2002) discuss emotional intelligence as a biosocial (both biological and learned) construct, and describe how it is thought to support the interpersonal skills involved in leadership. They define emotional intelligence as a composite of four areas of skills, including accuracy in (1) perceiving emotions, (2) using emotions to facilitate thought, (3) understanding emotions, and (4) managing emotions in a way that enhances their own personal growth and social relations. Each of these skills can enhance leader effectiveness. For example, being able to perceive emotions in followers may facilitate the adaptation of leader strategies based on followers' reactions. Similarly, understanding of one's own emotions increases self-awareness. Furthermore, a leader can create an emotional climate conducive to decision-making and maintaining morale. Finally, a leader who is able to regulate his or her emotions is better able to use effective coping strategies, to manage followers' moods, and to charismatic (Caruso & Wolfe, 2004). Although the Caruso and Wolfe approach to emotional intelligence would seem to have great applicability to our discussion of leader development, there remain a number of unresolved issues about how to best conceptualize and measure emotional intelligence (Davies, Stankov, & Roberts, 1998).

Zaccaro (1999) has forwarded a similar notion in proposing that *social intelligence* is critical to effective leadership, especially at executive levels. Social intelligence is thought to be composed of two sets of competencies: interactional competencies and social reasoning abilities. It is worth noting that Zaccaro's perspective on the importance of social intelligence, emotional intelligence, and discussion of related competencies is not new to the leadership literature. More than 50 years ago, the notion of social effectiveness was discussed in terms of its relevance and importance to leadership (Link, 1950). Social effectiveness was conceptualized as certain habits and skills that could be acquired through practice. In an interesting twist, leadership was thought of as an aspect of social effectiveness rather than social effectiveness as a supporting leadership competency.

PROBLEM-SOLVING SKILLS

Technical and administrative/managerial skills alone may be inadequate as leaders face many ill-defined and novel problems. Leaders are often called to be innovative in generating solutions to complex challenges. Problem-solving skills usually involve a series of more specific skills such as problem construction, generating alternative solutions, evaluating alternatives, and implementing chosen solutions (Runco & Chand, 1994). Additionally, skills such as information encoding, category search, and solution monitoring have been proposed as important to leadership (Mumford, Mobley, Ulhman, & Reiter, 1991). Problem-solving skills can also be described as cued or not cued. Cued scenarios involve choosing among a set of alternatives, whereas uncued problem solving involves creating and formulating responses (Zaccaro, Mumford, Connelly, Marks, & Gilbert, 2000). One question raised based on this approach is that if leadership is a skill (or skill set) how do these skills develop? One way to address this question is as a skills acquisition issue.

SKILL ACQUISITION

In perhaps the most widely researched model of skill acquisition in organizational studies, Kanfer and Ackerman (1989) focus on the role of attention and the ability–motivation link in developing relevant knowledge and skills. Their approach is based on the idea of task resource dependence—that humans are limited in their attentional capacity. Their model integrates Anderson's (1985) production system phases of skill acquisition, noting that resources people use to learn a task change over time and with practice. The first phase, *declarative knowledge*, suggests that an individual first learns facts about task requirements. During this stage, an individual's attention is almost entirely devoted to understanding and performing the task. Few resources are available for additional tasks or processing. During the second phase, *knowledge compilation*, an individual integrates various processes required to complete the task, thereby reducing the cognitive load. With the reduction of cognitive load, additional attentional resources become available for other processes. Finally, *procedural knowledge* describes the stage in which an individual has practiced a skill to the point of automatization, when only minimal attention is needed to be able to accomplish the task.

Ackerman (1988) proposed three types of abilities that interact with motivation in the skill acquisition process: (a) general intelligence, (b) perceptual speed, and (c) psychomotor abilities. Within the model, motivational and self-regulation processes bring about changes in capacity and allocation of attention. Study results suggested that setting performance goals before the skill was learned was found to result in decreased performance. Further, goal assignments were more effective for low-ability than high-ability individuals. Self-regulatory behavior

was related to self-confidence in goal attainment. The authors concluded that these findings should be taken into consideration when designing skills development programs.

Individual differences such as ability, motivation, self-efficacy or belief in one's own competency, and self-conceptualization may also contribute to predicting or enhancing skills acquisition. Ackerman, Kanfer, and Goff (1995) noted that skills acquisition is dynamic such that individual difference constructs may differentially predict skills acquisition over time and with practice. Similarly, Mitchell, Hopper, Daniels, George-Falvy, and James (1994) note that self-efficacy was most important early in skills acquisition; goals and expectations were more important once the task was learned to some level of minimal proficiency; these results may help to account for the Ackerman (1988) findings on the role of goal setting discussed above.

DEVELOPMENT OF EXPERTISE

In their influential book, Chi, Glaser, and Farr (1988) summarized much of the core literature on the topic of expertise or expert performance. Some of the general differences between experts and novices include that experts are better able to see meaningful patterns in a particular knowledge domain, are able to quickly solve problems with fewer errors, process information more deeply, remember more (particularly when information is organized into meaningful patterns), and spend more time analyzing novel problems (see Table 9.1). Additionally, experts are better able to distinguish difficult problems from easier problems than novices. In novel or unpredictable situations, experts are better able than novices to select information to attend to, as well as to attend to case-specific information, yet still have difficulties integrating this information. In terms of development of a complex skill, experts move more quickly into a schema while novices' understanding of complex skills are more piecemeal, superficial, and fragmented (Lesgold, Rubinson, Feltovich, Glaser, Klopfer, & Wang, 1988). Broadly speaking, expertise develops slowly; however, this development can be accelerated. For example, Chi, Bassock, Lewis, Reimann, and Glaser (1989) found that active self-initiated application of basic learning principles can accelerate the development of expertise (see Table 9.1).

As with leadership, the early belief about expert performance was that it reflected innate abilities and capacities. In other words, expert performers—just as great leaders—were thought to be born, not made. More recent research across a number of different expertise domains has shown that expert performance results from extended deliberate practice and is mediated by acquired complex skills (e.g., competencies) and physiological adaptations (Ericsson & Charness, 1994). It has also been noted that there is a 10-year rule of necessary preparation for developing expert performance. The highest levels of human performance

TABLE 9.1 Characteristics of Experts

Characteristics of an Expert	Implications
1. Excel mainly in one domain.	There is little evidence that an expert in one domain can transfer these skills to another domain.
2. Perceive large meaningful patterns in their domains.	This reflects superior organization of the underlying knowledge base in a domain.
3. Are fast.	Experts can often arrive at a solution without conducting an extensive memory search because of their superior knowledge organization.
4. Have superior short-term and long-term memory.	Due to superior knowledge organization, experts' recall tends to exceed the limits of short-term memory.
5. See and represent a problem in their domain at a deeper (more principled) level; novices tend to represent a problem at a superficial level.	Experts' knowledge categories are semantically or principle-based, whereas the categories of novices are syntactically or surface-feature oriented.
6. Spend a great deal of time analyzing a problem qualitatively.	At the beginning of a problem-solving episode, experts try to understand the problem by building a sophisticated mental representation of it whereas novices jump immediately into trying to apply solutions and solve for an unknown.
7. Have strong self-monitoring skills.	Experts seem to be more aware than novices of when they make errors, why they fail to comprehend, and when they need to check their solutions.

Source: Adapted from Chi, Glaser, & Farr (1988).

across different domains can only be attained after approximately 10 years of extended, daily amounts of deliberate practice activities (Ericsson & Lehmann, 1996). This is consistent with perspectives on leader development that it must be purpose-driven and intentional (Fallesen, 2004) in addition to being ongoing and intensive. Developing expert leaders therefore requires an extensive investment across many years before peak levels of leadership performance can be reasonably attained.

It should be noted, however, that many leadership settings may only require a journeyman level of leadership skill. It would be useful to have a leadership-challenges taxonomy that would predict when and where true expertise in leadership is called for. A variation on this theme that attempts to characterize the variety, complexity and other aspects of leadership experiences is discussed in detail in Chapter 10.

Ericcsson et al. (2007) make the point that deliberate practice is needed to develop expertise. Those authors describe deliberate practice as involving "... considerable, specific, and sustained efforts to do something you *can't* do well—or at all" (p. 118, italics in original). Regardless of the domain, it is only by working on something you cannot do that you can become an expert. It is interesting to note that this research-based recommendation is exactly the opposite of what some popular-press consultants recommend in terms of enhancing people's strengths rather than eliminating their weaknesses (Buckingham & Clifton, 2001). Developing expertise involves deliberate and prolonged practice directed at overcoming skill weaknesses and not building on one's strengths.

Lord and Hall (2005) recently offered their perspective on the development of leadership expertise, in which skilled leader performance depends on both information processing skills and access to relevant leadership knowledge. In other words, leadership expertise is conceptualized in terms of how leaders access and use information as well as the content of their underlying knowledge of important leadership tasks (e.g., Drath, 2001). Whereas novices are thought to rely heavily on working memory processes in constructing novel responses that integrate generic knowledge with the situation, experts rely more on situational understanding and collaboration with others. There are social identity implications stemming from this assertion in that working in collaboration with others to make sense of complex situations and construct adaptive responses may be facilitated by accessing a collective level identity.

In terms of the skills content of various levels of leadership expertise, Lord and Hall (2005) identify six relevant skills domains: (1) task, (2) emotional, (3) social, (4) identity level, (5) meta-monitoring, and (6) value orientation. More specific examples of these skills by the level of leader expertise (i.e., novice, intermediate, and expert) are provided in Table 9.2.

TRAINING, DEVELOPMENT, AND TRANSFER

Conceptualizing leadership as a set of skills implies that such skills are trainable, or that they can be developed (there is a difference). Training can be thought of as those procedures and processes used to teach proven solutions to known problems. It is important to note that effective training will involve providing trainees with some mix

TABLE 9.2 Knowledge Content Emphasis of Different Leadership Skill Levels

Skill Domains	Novice	Intermediate	Expert
Task	Technical task skills	Domain-specific task skills	Principled understanding of task and self-regulation
	Generic decision-making and problem-solving skills	Meta-monitoring capacity	
Emotional	Expression	Empathy and understanding of others	Formal principles of emotional regulation
		Domain-specific emotional regulation techniques	Principles on the effects of situational labeling, change, and social justice on emotions
			Understanding the synthesis of cognition and emotions
Social	Fit with implicit theories	Integration with dyad or group	Capacity to develop others
	Understanding social influence tactics	Communal behaviors	Principle-based (e.g., authentic) leadership
		Self-monitoring skill	
Identity Level	Individual identity	Relational or collective identity includes others or group	Value-based identity grounded in abstract principles
	Leader differentiates self from others		

(*continued*)

TABLE 9.2 (*continued*)

Skill Domains	Novice	Intermediate	Expert
Meta-monitoring	Based on social reactions and task progress	Integrated with identities	Based on formal principles relating identities to value structures
	Focused within one's own emotional and motivational orientation	Greater adjustment to others	Principled understanding of positive and negative emotions/motivation
		Flexibility in emotional and motivational orientations	
Value Orientation	Value orientation learned and applied implicitly	Integration of identities and values	Principled understanding of value structures and their relation to authentic leadership

Source: Adapted from Lord and Hall (2005).

of process and outcome feedback. Development is a much longer-term endeavor in which the purpose is to enhance individuals' capacity for being able to quickly make sense of the environment and adapt effectively by learning their way out of problems (D. V. Day & Halpin, 2004). Explicit feedback is not as readily available in developmental or experiential learning contexts as in a training context, and development may well depend on individual differences in ability to understand and reflect on their experiences. Leader development with the purpose of growing expert leaders requires both training and development approaches.

Skills have been trained in varied ways including classroom, individualized, computer-based, and team training, as well as in corporate universities and on-the-job learning (Kraiger, 2003). A meta-analysis on organizational training programs found medium to large average-effect sizes for various training evaluation criteria, types of skills trained, and methods employed to train individual employees. This suggests that training is valuable and programs are moderately to highly effective (Arthur, Bennett, Edens, & Bell, 2003). Despite these encouraging findings, other factors play into the effectiveness of training.

The relationship between learning and behavior when measured as a training criterion has not received consistent support (Alliger & Janak, 1989; Tracey, Tannenbaum, & Kavanagh, 1995); thus, researchers suggest that environmental variables may influence the transfer of training (Arthur et al., 2003; Tracey et al., 1995). Transfer of training can be defined as "the degree to which trainees apply the knowledge, skills, behaviors, and attitudes gained in training to their jobs. This definition suggests that transfer of training is a function of "factors within the formal training context as well as characteristics in the transfer or work environment" (Tracey et al., p. 239). Although the training context and the work environment are arguably important in the transfer of training, individual differences may further add to our understanding of transfer.

Leader development approaches tend to have less of a problem with transfer because they are more likely to occur in the context of ongoing work (D. V. Day, 2000)—with the notable exception of formal classroom programs. This raises an important consideration with regard to context. Leadership requires a social context that includes a leader, follower(s), and the environment. Leadership training is unlikely to be successful without both concern for context and the recognition of the long-term nature of acquiring expert performance. An advantage of training approaches, however, is that they can provide relatively controlled and supportive environments in which skills can be practiced with ample opportunities for feedback. For these reasons, the better approaches to developing expert leaders will combine both training and development approaches that incorporate aspects of assessment, challenge, and support, which are keys to effective leader development.

BENEFITS OF A SKILLS-BASED CONCEPTUALIZATION OF LEADERSHIP

Understanding leadership as a set of skills has some attractive features. First, a skills-based model speaks nicely for the trainability of leadership. Skills can be taught and perfected through instruction, practice, and feedback. Second, skills-based models extend the behavioral approach that include the well-known dimensions of initiating structure and consideration of others. Skills-based conceptualizations of leadership provide the link between trait theories and behavioral theories. Skills may explain the missing components that allow effective leaders to generate the right behaviors at the right time (M.D. Mumford, Zaccaro, Connelly, & Marks, 2000). Additionally, skills are more easily assessed than other types of constructs such as traits, which facilitate measurement, the selection of leaders that possess certain skills, and the evaluation of skills-based training programs (M.D. Mumford et al., 2000).

Whereas leader skills may be an attractive way to conceptualize leadership, the importance of knowledge structures as a foundation for these skills may be overlooked. There is evidence of a relationship between skills acquisition and knowledge representation. For example, researchers have noted that the similarity between a trainee and expert knowledge structure was correlated with skill retention and transfer (E. A. Day, Arthur, & Gettman, 2001). Furthermore, knowledge structures mediated the relationship between cognitive ability and skill-based performance indicating that these knowledge structures play an important role in transferring abilities to performance. It should be noted that knowledge structures refer to how knowledge is organized and not the content of knowledge (e.g., declarative knowledge). Additionally, M.D. Mumford et al. (2000a) note that effective use of skills is likely to be dependent on the mental models leaders hold (see Chapter 7). Such mental representations have been found to be important in the expertise literature, especially with regard to the acquisition of complex skills (Lesgold, et al., 1988).

With regard to skills development, there are two distinct traditions in the general field of adult development, including leader development. The first tradition stems from behaviorist origins, focusing on the acquisition of microlevel skills and abilities. The role of mental processes is primarily in conjunction with the development of declarative and procedural knowledge. The other tradition has its historical origins in the Gestalt tradition and focuses mainly on changes in abstract reasoning and ego development. The latter (Gestalt) focus is almost entirely on mental processes and structures without much regard for observable behaviors. A comprehensive approach to leader development will need to incorporate both of these traditions. We suggest that an expert leader is someone who not only has sophisticated reasoning skills as well as complex knowledge structures, but also a repertoire of observable skills and competencies that is both broad and deep.

CONCLUSIONS

Conceptualizing leadership as a set of skills may be attractive on several levels, but may be most useful when paired with an understanding of a leader's mental framework of understanding (i.e., knowledge structures or mental models). Leader skills provide good insight into trainable factors that predict leader performance. Furthermore, skills can be developed with training and experience. Time may also be an important consideration as attentional resources are taxed differently throughout the skill acquisition process and skills may be of varied importance in different leadership situations. Finally, individual differences in cognitive ability and motivation may play into one's ability and speed of skill development as well as the ability to apply those skills in leadership situations.

SUMMARY AND IMPLICATIONS FOR AN INTEGRATIVE THEORY OF LEADER DEVELOPMENT

- A number of scholars have proposed skills-based models of leadership: Leadership is viewed as a set of skills that can be learned and mastered over time and with the proper experiences and support, including process and outcome feedback. From a leader development perspective, this approach emphasizes the skill acquisition process and how novices can become experts in a given domain, including leadership.
- The research on skill acquisition supports a two-stage process model in which declarative knowledge (knowledge about the domain) is acquired prior to the acquisition of procedural knowledge (knowledge about how to perform in a domain). In leader development efforts, it is important to link the declarative knowledge that is acquired about the nature of leadership with the procedural knowledge about how to behave in ways that are consistent with the declarative skills.
- There are important "metacompetencies" that influence skill acquisition and the development of expertise. Self-awareness and self-regulation processes influence the process in which novices can become experts.
- The development of expert performance in complex skill domains has been shown to take a minimum of 10 years of concentrated practice. This highlights the relatively long-term developmental process that is required to develop an expert leader. It also highlights the importance of intentional practice over a lengthy period of time to develop expert levels of leadership.
- Developing expertise involves deliberate practice in areas in which a leader does not do well. This highlights the need for assessment, feedback, or other forms of personal data to build a developing

leader's self-awareness as to what needs to be practiced. Further enhancing one's strengths does not build leadership expertise.

- Although a skills-based approach to leader development suggests that leadership skills can be trained, an expert performance perspective takes a longer-term developmental approach. We suggest a new perspective linking training and development initiatives over time to potentially accelerate leader development.

CHAPTER

10

Leader Development through Learning from Experience

> Learning is like breathing; it involves a taking in and processing of experiences and a putting out or expression of what is learned.
>
> —**Alice Y. Kolb and David A. Kolb (2005, p. 208)**

The notion of leader development has become closely identified with developmental experiences. Regardless of whether it is part of a formal classroom program, based on job (i.e., operational) assignments, or through self-directed learning, it is experience that is thought to drive adult development. But what is it about experience that makes it such an apparently potent force for development? More specifically, what (or where) is the theory behind this widespread belief that development comes about from experience? In addressing these questions, this chapter reviews some of the thinking about experience from the fields of applied psychology and adult education. In particular, the respective roles of experiential and vicarious learning are examined as they are central to the leader development process (Popper, 2005).

DEVELOPMENTAL EXPERIENCES

A landmark publication in the area of leader development was a book authored by researchers from the Center for Creative Leadership (CCL) (McCall, Lombardo, & Morrison, 1988), titled The Lessons of Experience: How Successful Executives Develop on the Job. A major

assumption going into this research project was that "on-the job development, while widely recognized as important, has not received the kind of research attention that allows us to make the best use of it" (p. 11). The book and its supporting research were aimed at correcting this noted limitation in the field of executive (i.e., leader) development. Thus, it approached the focal problem with an *a priori* conclusion that executive development could be improved by categorizing what successful executives thought was important to their own development as leaders. Interviews were conducted with successful executives; the executives were asked to reflect on at least three key events in their careers, which were defined as things that made a difference in the ways that they manage and lead. Two additional prompts were provided: (1) what happened and (2) what did you learn from it (for better or worse).

Rather than basing these interviews on any type of theory, these authors attempted to draw key principles about leader development from the data they collected. A major often-cited take-away finding from the study was that executives indeed claimed to develop more from on-the-job than classroom experiences (although the most potent lessons from the classroom involved increased self-confidence). Thus, McCall et al. set out to show that on-the-job development was important and they found this to be the case. A more meaningful point highlighted by this research is that it is not so much experience that drives development but the lessons derived from experience that matter most. Arriving at such lessons requires a certain degree of self-reflection and it seems likely that those individuals at higher levels of personal development would be likely to find greater numbers of lessons and more sophisticated lessons than those at lower developmental levels. Highly developmental lessons of experience are therefore likely to come about as a result of more highly developed abstract thinking.

Subsequent work by other CCL researchers has more deeply and systematically studied the developmental components of managerial jobs. Specifically, researchers developed and gathered validity evidence for the Developmental Challenge Profile (DCP), which is an instrument for assessing the developmental components of managerial jobs (McCauley, Ruderman, Ohlott, & Morrow, 1994). Based on a review of the literature, the authors were able to organize prior findings into three categories of job features that promote learning: (1) *job transitions* (i.e., change in job content, status, or location), (2) *task related characteristics* (e.g., creating change, high level of responsibility, non-authority relationships such as gaining cooperation without authority), and (3) *obstacles* (e.g., difficult boss, hardships, experience with crisis and diversity). A series of exploratory and confirmatory factor analyses resulted in a 15-factor solution that was used in a subsequent validation effort empirically linking these scales to measures of overall development and average learning ratings. Six scales were correlated with the criteria measures in the expected direction. Those scales were: unfamiliar responsibilities, proving yourself, developing new directions, high stakes, managing business diversity, and

job overload. The study demonstrated that developmental components of jobs can be reliably measured and the most important implication of this research was that jobs (or job assignments) could be designed to enhance their developmental power.

Another contribution to the understanding of leader development through work experiences was an annotated bibliography that provided a systematic and comprehensive review of the empirical and theoretical literature (McCauley & Brutus, 1998). Some of the main conclusions, grounded in empirical research, were that: (a) job assignments play a central role in leader development; (b) some jobs are more developmental than others; and (c) different kinds of developmental assignments are associated with different kinds of learning. None of these conclusions are particularly surprising, but their contribution comes from the way that the literature was systematically reviewed and organized to provide empirical support for each conclusion. Also of interest were their conclusions regarding individual variability in on-the-job development. The research findings on this topic were organized around three key conclusions: (1) different people approach learning from their experiences in different ways, (2) some people are particularly adept at learning from work experiences, and (3) gender and other demographic variables are related to the impact of developmental assignments.

Through its work over several decades with leader development practices and programs, CCL has offered its own practical "theory" of developmental experiences and the leader development process. A basic point that most would agree with is that all experiences are not equally developmental. So what are the basic components of any developmental experience? The perspective of those at CCL is that any experience can be made more developmental to the extent that it contains elements of assessment, challenge, and support (Van Velsor & McCauley, 2004). The most powerful developmental experiences are those that have all three elements present. As noted by the prominent development psychologist Robert Kegan, "[P]eople grow best where they continuously experience an ingenious blend of challenge and support" (1994, p. 42). It is argued that assessment is also necessary so that people can understand where they are presently and how others see their strengths and challenges as leaders. Assessment also provides the data to estimate the developmental readiness of an individual for a stretch assignment (i.e., challenge).

Assessment typically means data of some sort that comes from oneself or other people (or both). CCL has been at the forefront of developing and using multirater feedback instruments in their leader development programs. Multirater feedback can provide a rich source of assessment data from multiple perspectives. Good assessment data also help people clarify what they need to learn, improve, or change. The Army has developed several multirater assessment instruments (e.g., Army Research Institute, 1996), which if widely adopted, could help to spark leader development efforts and accelerate the developmental process. Next, *challenge* refers to the type of "stretch" that people need to make to do

something difficult or against their normal habits. Challenging experiences force people out of their comfort zones. Regarding the concepts of developmental readiness and the zone of proximal development, experiences that present too much of a challenge can be debilitating rather than developmental (what doesn't kill you will not always make you stronger). Finally, *support* is beneficial to development because it offers the feelings of safety and reassurance that there is equilibrium to be found on the other side of change. Support is important for the self-regulation process in terms of building self-efficacy or competence belief and in maintaining leaders' motivation to learn and grow.

How might developmental experiences contribute to leader development? According to the CCL model, leader development is a function of two interrelated factors: (1) a variety of developmental experiences that contain the elements of assessment, challenge, and support; and (2) the ability to learn. Learning is paramount to development so perhaps the literature on adult learning offers a theoretical foundation to a better understanding of the developmental processes of adults. The CCL model—although grounded in the center's substantial experience as a leader development organization—cannot be construed as a testable theory, at least not in its present form. It also does not provide much theoretical or empirical insight into our primary objective, which is to better understand how experiences can be used to accelerate leader development. It is more of a generic model or heuristic than a theoretically grounded and empirically tested theory.

Recent research has empirically examined how to improve the lessons that are drawn from successful and failed experience, which may hold important practical implications for accelerating leader development. Ellis and Davidi (2005) studied the effects of different kinds of action-event reviews in a quasi-experiment conducted with male soldiers from two companies of the Israel Defense Forces who were taking a ground navigation course. The key manipulation was the type of action-event review that was received following navigation exercises—either failure-focused after-event reviews (FAER) or failure- and success-focused after-event reviews (FSAER). Support was found for the key hypothesis that performance improvement would be greater when reviews are concentrated on both successful and failed experience (i.e., FSAER) than when they are concentrated on failed experiences only (FAER).

Ellis and Davidi (2005) also conducted structured interviews with 10 soldiers randomly selected from each company (companies were randomly assigned to after-event review condition) to assess the mental models of learners (see Chapter 8 for a detailed discussion of mental models). Results suggested an interaction with time in that those in the failure and success condition showed improvements in their respective mental models (i.e., cause maps) relative to those in the failure-only after-event review condition. Furthermore, the mental maps of the FSAER group at the second measurement period contained more nodes and more causal links between the various causes and successful

outcomes. Results also suggested that across conditions the mental models of failed events were richer than those of successful events at the initial measurement period, most likely due to greater cognitive elaboration of failed events relative to successful events. A follow-up study revealed that AERs that focused on failed aspects of experiences predicted performance for both successful and failed events by focusing on specific and internal causes of behavior, rather than external and global causes of behavior (Ellis, Mendel, & Nir, 2006).

Although the Ellis and Davidi (2005) study did not explicitly address leadership or leader development issues, there are several implications that may be drawn from their findings. First, action-event reviews that focus on leadership episodes could be a way to enhance learning from experience. Second, using action-event reviews in a more balanced way to include both successful and failed experiences could be a viable way to enhance learning and accelerate leader development. Next, after-action reviews need to address what went right as well as what went wrong. Finally, the Ellis and Davidi findings suggest that mental models may serve as the mediating mechanism linking the action-event review (which is basically a form of feedback) with learning and successful performance. This last point illustrates the interconnected nature of many of these concepts. Experience or other forms of developmental activities may ultimately affect behavior and improve performance through their influences on mental models, epistemic cognition, moral reasoning, identity, and other such concepts discussed elsewhere in this book.

MEASURING EXPERIENCE

The literature strongly suggests that most if not all experiences (educational, operational, self-development) have some developmental potential, especially if purpose-driven (Fallesen, 2004). A question that has a less clear-cut answer concerns the level of that developmental potential across various experiences. The previously discussed work by McCauley et al. (1994) that resulted in Developmental Challenge Profile (DCP) is one notable attempt to quantify experience. Although the DCP instrument was shown to have acceptable psychometric properties, its limitations preclude its potential use for measuring experience in all contexts. The DCP was designed to assess the developmental potential of work-related experiences, and in particular, job assignments. Thus, the content of the instrument is less appropriate for trying to assess the developmental potential of other kinds of educational and self-development experiences. Another limitation is that the DCP measures only the perceived job challenges associated with a work-related experience or assignment. As discussed next, experience is a multidimensional construct of which challenge is just one component. The DCP also relies on the perceptions of developmental challenges as

rated by job incumbents; this raises the possibility of response biases distorting the ratings.

A different approach is needed to unpack and analyze the developmental potential of the wide array of experiences that challenge today's leaders. One approach is to step back and try to better understand the fundamental components of experience. A useful model of work experience that has been proposed in the applied psychology literature (Tesluk & Jacobs, 1998) also has potential for being generalized to applications addressing leader development. It should be noted that work experience in the present usage is not limited to one's job. It has been said that every day the Army trains soldiers and grows leaders, and that leadership is a lifelong learning process in the classroom, in personal study, and in practice (Department of the Army, 2005). Thus, leader development is purpose-driven, part of the daily work of every soldier, and is incorporated into all facets of soldiering across the three fundamental leader development venues of institutional education, operational assignments, and self-development. In other leadership settings, it is useful to think about the ongoing development of leaders as a similar function of their own particular, context-specific experiences.

According to the literature in applied psychology, the core components of work experiences are identified as quantitative, qualitative, and an interaction of quantitative and qualitative components (Tesluk & Jacobs, 1998). The *quantitative* component includes two specific measurement modes. The first of these is a traditional conceptualization of length of time working on a task or in a job (e.g., tenure). The second quantitative measurement mode pertains to amount measures (e.g., number of times that a task or duty has been performed). Taken alone, however, the quantitative component is a deficient measure of experience because it does not take into account the nature of that experience.

The *qualitative* component of experience is less well developed in the literature but can be described in terms of the variety and breadth of responsibilities that were performed, the types of challenges encountered, and the complexity of the task. The DCP measure (McCauley et al., 1994) is an example of one approach to quantifying the more qualitative aspects associated with job challenges. In a more objective (i.e., non-ratings) approach, *variety* can be considered in terms of the number of different tasks or responsibilities embedded in an experience; *challenge* can be operationalized in terms of the ratio of new tasks and responsibilities to previously developed ones; and *complexity* can be operationalized in terms of the ratio of higher-level to lower-level tasks and responsibilities that are part of an experience. An alternate measure of complexity could be based on the number of pair-wise relationships that must be maintained, with consideration given to the variety of those relationships (e.g., interactions primarily with a range of subordinates versus interactions with partners and rivals as well as subordinates and superiors). Thus, it is possible to objectively operationalize and assess

the so-called qualitative nature of experience as well as its quantitative components (i.e., tenure and frequency).

The final component of experience involves the *interaction* between quantitative and qualitative components. Of particular relevance to assessing the developmental contribution of an experience is the interaction of time with any of the qualitative components (variety, challenge, or complexity). The term that Tesluk and Jacobs (1998) use for this interaction is *density*, which provides an estimate of the intensity of experience. Other researchers have referred to this type of interaction as the "developmental punch" provided by an experience (Quiñones, Ford, & Teachout, 1995). The other mode of interaction proposed by Tesluk and Jacobs is the *timing* of an experience, or where an experience falls relative to a longer set of experiences that would compose a career. In terms of development, a sequence of assignments or experiences that are timed so that they are designed to build on each other is more likely to facilitate learning and development than if relatively little thought is given to how such experiences are sequenced (Morrison & Hock, 1986).

The interaction component of experience appears to hold the most promise for assessing the developmental potential of experiences and for use in diagnosing individual leader development needs, given that it incorporates both the quantitative and qualitative aspects of experience simultaneously. At present, however, relatively little is know about the appropriate timing of events. It is an area in which theoretical advances have only recently begun (e.g., Mitchell & James, 2001) with virtually no practical guidance. There is increasing interest regarding how to create coordinated and appropriately sequenced leader development strategies that blend job experience, educational initiatives, and guided practical experiences with targeted performance feedback into a systemic process for ongoing leader development across all organizational levels (Vicere & Fulmer, 1998). Also of interest is how much time is required for an individual to achieve mastery learning of relevant knowledge, skills, and behaviors from a given experience (Morrison & Hock, 1986).

An approach used in measuring experiential density in the workplace is to have individuals indicate the length (duration) and amount (number of times) of a particular experience, as well as to identify what tasks and responsibilities were part of a particular experience. The empirical indicators for the quantitative and qualitative components of experience can then be used to compute its density. The major experiential components can be gathered from examining job and task analyses results; examining the complexity and demand characteristics of relationships; and linking with respective essential leadership competencies and the supporting knowledge, skills, and abilities. In addition, taxonomies of developmental experiences can be built with regard to density or developmental punch both in terms of the broad impact for each as well as depth across all relevant competencies.

A limitation of this discussion is its emphasis on the use external factors to define experience. But by their very nature, experience and

the impact of experience are internal to the person. Factors influencing the impact of experience are also not limited to workplace elements. For example, living as an expatriate can introduce complexity that may add to, or even magnify, the impact of job-related elements. In the literature on psychological stress, a distinction is made between stressors (external factors) and stress (the internal, felt, reaction to the stressors). By analogy, we have defined experience largely in terms of the stressors but have paid little attention to the resulting stress, the experience as experienced by the person. We need to better understand the impact of such factors as complexity or density on the individual's experience. By the same token, as suggested in Chapter 9, we need to better understand the relationship between such environmental characteristics and the requisite level of leadership expertise. Again by analogy with the literature on adaptation to stress, and drawing on the notions of developmental readiness explored earlier, we would expect to see an interaction between one's current level of expertise and the environmental demands in determining the amount of learning that results from experience.

We next turn our focus to examining the literature on adult development with the goal of providing additional insight into how experience shapes leader development, and the role that learning plays in this process.

ADULT LEARNING

In attempting to organize an overview of the adult learning literature, a good place to begin is the source that proclaims itself as the definitive classic in adult education and human resource development (Knowles, Holton, & Swanson, 1998). Given that this description is actually in the title of the book, the authors must be pretty confident of their claim. The lead author—Malcolm Knowles—widely considered one of the foremost figures in adult learning, is often acknowledged as the "Father of Andragogy." The term andragogy was first introduced into American culture by Knowles around 1967 (the concept had been evolving in Europe for some time before this). Andragogy is proposed as an integrative framework of adult learning, and can be differentiated from pedagogy, which is the art and science of teaching children (based on the Greek words *paid* meaning "child" and *agogus* meaning "leader of"). Similar to what has been argued in developmental psychology that both children and adults develop but in very different ways, Knowles championed the idea that adults learn in ways very different from those of children or adolescents. The fundamental principle of andragogy is to (a) place the learner at the focus of the learning process, (b) who learns to satisfy internal motives, and thereby (c) shift the responsibility for learning to the individual and away from formal instructional curricula. Thus, individual needs and "real-life" experiences are the platform for adult learning in a social environment (Schwandt, 2005).

Pedagogy versus Andragogy

Some of the key differences between pedagogy and andragogy are summarized in Table 10.1. The pedagogy reflected in these assumptions is a traditional model that is unlikely to be espoused (at least completely) by contemporary educators. Some of the key differences include that, in traditional pedagogy, learners need to know only what is taught by the teacher in order to pass and get promoted. Andragogy assumes that adults need to know why they need to learn something before undertaking to learn it. In pedagogy, the learner's experience is of little worth as a resource for learning as compared with the experience of the teacher, textbook writer, or other "experts." Andragogy assumes that the richest resources for learning reside in adult learners themselves, and thus the emphasis in adult education is on experiential rather than instructional techniques. Knowles et al. (1998) claim that there are important underlying implications stemming from this particular assumption: "To children, experience is something that happens to them; to adults, their experience is who they are" (p. 66). This is interesting—and also confusing—because it could imply from a constructive-developmental perspective that children are at a higher developmental order than adults.

According to Kegan's (1994) theory of individual development, those at a higher level of consciousness hold certain beliefs, assumptions and, by extension, experiences as object (i.e., they can hold them apart from self and rationally reflect and analyze them). At lower levels, individuals are subject to these same beliefs, assumptions, and experiences in that they are so embedded in them that they cannot be held as object. Holding something as object means that you can *have* that particular idea, belief,

TABLE 10.1 Summary of Assumptions about Learning Between Pedagogy and Andragogy

Assumption	Pedagogy	Andragogy
1. The need to know:	Only what the teacher says they need	Why the need to learn something is critical
2. Learner's self-concept:	Dependent on the teacher	Self-directed and responsible
3. Role of learners' experiences:	Of little value compared to the teacher	Rich resource for learning
4. Readiness to learn:	What is needed to pass	What is needed in real-life situations
5. Orientation to learning:	Acquiring subject-matter content	Task-centered and problem-centered
6. Motivation:	Through external motivators	More internally motivated

Note: Adapted from Knowles et al. (1998).

or experience but it is not you. The paradox is that whereas adults are thought to learn from reflecting on experience (i.e., they have experiences and can hold them as object) they apparently are also considered to be completely subject to the same experience (i.e., they *are* their experience). This is just one of several paradoxes when it comes to andragogy.

Two other differences between pedagogy and andragogy are worth noting. In pedagogy, readiness to learn is completely determined by the teacher (with input from parents and state legislators, of course), whereas in andragogy adults become ready to learn when they need certain knowledge to cope effectively with real-life situations. In pedagogy, learners are assumed to have a subject-centered orientation to learning such that they see learning solely as acquiring subject-matter content. Adults are motivated to learn when they perceive that learning will help them perform tasks or deal with life problems, but are thought to be more internally driven than children to learn. An implication of this assumption is that adults will learn most effectively when the content is presented in the context of application to real-life situations. Those who have taught college students or adults in other settings can likely relate to this issue of relevance. How many times have you heard students wonder "how will this help me in the real world?"

Andragogy as an Integrative Concept

The theoretical roots of andragogy are eclectic, perhaps in the extreme. From the social sciences, Knowles et al. (1998) acknowledge the contributions from clinical psychology, especially Freud, Jung, and Erikson (psychodynamism), as well as Maslow and Rogers (humanism). Also acknowledged are the influences of developmental and social psychology, sociology, and philosophy. As might be expected, there are also major influences from the field of adult education (now more commonly referred to as lifelong learning). In particular, the work of Cyril O. Houle at the University of Chicago in the 1950s was cited as influential in coming to a better understanding of how adults learn. Although his study was based on only 22 subjects, Houle apparently was able to discern three distinct categories of learners. *The goal-oriented learner* uses education for accomplishing fairly concrete objectives (e.g., receive a promotion); the *activity-oriented learner* takes part in learning because it provides a source of meaning that is not connected to the content or the stated purpose of the activity (e.g., the "joiner" or course-taker); and the *learning oriented*, who seek knowledge for its own sake. It is interesting that this last type would seem to violate at least one of the basic assumptions of andragogy: that adults need to know why they need to learn something before trying to learn it.

This raises yet another interesting issue about andragogy. Knowles et al. (1998) recognize that "one aspect of the andragogical model that disturbs many people is that not all adults seem to fit the assumptions"

(p. 153). Indeed, individual differences are the hallmark of much of psychology. Knowles handles this apparent contradiction in this way:

> The andragogical model is a system of elements that can be adopted or adapted in whole or in part. It is not an ideology that must be applied totally and without modification. In fact, the essential feature of andragogy is flexibility (Knowles, 1984, p. 418, as cited in Knowles et al., 1998).

Thus, from a scientific perspective, andragogy is apparently less of a theory than it is a philosophy or set of educational practices.

This conclusion about andragogy is further supported by exploring what (or who) is conspicuous in their absence as acknowledged influences on andragogy. Not surprisingly, it is those people and ideas that come from the scientific stream of inquiry. There is little credibility given to what is termed the "elemental model" of learning and the so-called "propounders" who have made a concerted effort to impose order on the system of learning theory. This perspective was advanced by classic learning theorists and researchers such as Thorndike, Pavlov, Watson, Hull, Guthrie, and of course, Skinner. Thus, andragogy is largely disassociated from classical learning theory and the tradition of experimental psychology.

More credence and influence is given in the field of andragogy to functionalism (or "interpreters") stemming from the belief that functionalism "provided the conceptual basis for progressive education" (p. 28). Hilgard and Bower (1966, as cited in Knowles et al, 1998) refer to this approach as "an embodiment of the ideal of growth toward independence and self-control through interaction with an environment suited to the child's developmental level." The rise of functionalism and the corresponding influence of gestalt theories (e.g., Wertheimer, Koffka, Kohler) and field theory (e.g., Lewin) were instrumental in shaping the thinking of two developmental psychologists—Jean Piaget and Jerome Bruner—who are claimed as also having contributed to the eclectic field of andragogy. In short, andragogy has distinct and bounded historical origins as claimed by the leading proponents of the field (Knowles et al.). A bit more background on these historical traditions might be helpful in placing andragogy and the field of contemporary adult education within the goals and objectives of this book.

Two Traditions in Adult Learning

Knowles et al. (1998) provide an interesting description of two "streams of inquiry" that they argue can be differentiated in the field of adult learning. One stream was classified as the *scientific stream* and the other the *artistic* (or *intuitive/reflective*) *stream*. The scientific stream seeks to discover new knowledge through experimental investigation. The most prominent figure in the scientific stream is Edward L. Thorndike, who first published his classic text, *Adult Learning*, in 1928 (Thorndike, Bregman, Tilton, & Woodyard). Basing research on his general principles of

learning (e.g., law of readiness, law of exercise, and law of effect), Thorndike pioneered the field of adult learning by demonstrating scientifically that adults could learn. It is not that people questioned whether adults actually could learn, but rather they accepted it based mostly on faith. Thorndike's studies demonstrated this assumption empirically. Others (especially Herbert Sorenson) extended this thinking by gathering scientific evidence that not only could adults learn but that they also had interests and abilities that were different from children's.

In contrast, the artistic stream seeks to discover new knowledge through intuition and the analysis of experience. The origins of this stream can be traced to the publication of *The Meaning of Adult Education* in 1926 by Eduard C. Lindeman, who was greatly influenced by the educational philosophy of John Dewey. Lindeman defined adult learning in this manner:

> Adult education is the process through which learners become aware of significant experience. Recognition of significance leads to evaluation. Meanings accompany experience when we know what is happening and what importance the event includes for our personalities (Lindeman, 1926, p. 1691).

This description is roughly equivalent to what is presently referred to as the experiential learning cycle (Kolb, 1984)—but predated it by more than 50 years. Lindeman also identified several key assumptions about learners, which purportedly have been supported by subsequent research These assumptions and their implications (see Table 10.2)

TABLE 10.2 Assumptions and Implications of Adult Learning

Assumption	Implication
1. Adults are motivated to learn as they experience needs and interests that learning will satisfy.	Learning needs and interests are the appropriate starting points for organizing adult learning activities.
2. Adult orientation to learning is life-centered.	The appropriate units for organizing adult learning are life situations, not subjects.
3. Experience is the richest resource for adult learning.	The core methodology of adult education is the analysis of experience.
4. Adults have a deep need to be self-directing.	The role of the teacher is to engage in a process of mutual inquiry with adults rather than to transmit his/her knowledge to them and evaluate their conformity to it.
5. Individual differences among people increase with age.	Adult education must make optimal provision for differences in style, time, place, and pace of learning.

constitute the foundation of adult learning theory according to Knowles et al. (1998).

A notable implication of these two traditions, taken in conjunction with those individuals and disciplines acknowledged as important theoretical influences is that andragogy appears to be much more firmly based in the artistic stream of inquiry than the scientific one. Although there is nothing wrong with the artistic stream per se, it does help explain the apparent fixation with postmodernism among many contemporary scholars in the field of adult education and development (e.g., Brookfield, 2000). Given the palpable anti-science sentiment in much of postmodernism, this would seem to limit any contribution that the field of andragogy might make to scientific theory building and hypothesis testing. The extreme relativism of some of the more radical voices in postmodernism asserts that any scientifically based approach to understanding is futile at best and potentially harmful at worst.

Beyond Andragogy?

More recent perspectives on adult learning are examined by Knowles et al. (1998) to the extent that they seem to help explain and refine core learning principles of andragogy. Various theories and research streams are organized into three overarching categories: (1) individual differences in adult learners, (2) learning how to learn, and (3) developmental perspectives on adult learning. The individual differences thought to be most relevant to andragogy are organized into the general areas of *cognitive* differences (including general mental abilities, cognitive styles, and learning styles), *personality* differences (Meyers-Briggs Type Indicator and the five-factor model), and the differential effects of *prior knowledge*. Understanding and addressing individual differences is thought to enhance the utility of andragogy in practice by making it more flexible and "this flexible approach explains why andragogy is applied in so many different ways" (p. 166).

The focus of learning how to learn is in broadening capacity such that learners can adapt to a wide range of learning situations and thereby increase the likelihood and extent of their learning. The concept of lifelong learning is becoming increasingly important in work settings. It is a skill or orientation valued by employers, and could be a distinguishing factor between those who are successful in their careers and those who are not. Knowles et al. (1998) propose that learning how to learn holds great promise for helping adults expand their learning capabilities but admits that "almost all the evidence is anecdotal" (p. 166).

The role of lifespan developmental perspectives in working with andragogical principles of adult learning is thought to be mainly in clarifying and refining adult readiness to learn. Andragogy proposes that adults are most ready to learn when the learning meets an immediate life need and are most motivated when it fills an internal need. Thus, understanding the changes and transitions in adults' lives can enable adult educators to do things such as anticipate learning needs at various life stages,

understand how life events facilitate or inhibit learning in a given situation, prepare adults for life changes, capitalize on "teachable moments" to accelerate learning, and plan learning experiences that are more meaningful to students. To this end, venerable life-stage theories such as those of Levinson, Erikson, and Loevinger are noted as especially relevant to andragogy. Knowles et al. reiterate the points that adult learning is inextricably intertwined with adult development and that adult development occurs along multiple paths and across multiple dimensions.

In sum, this review of adult learning from an andragogical perspective has apparently come full circle, returning to the point that adult learning and adult development are intertwined and that experience is important to both. But it is less clear what andragogy contributes to better understanding the processes of learning and development. Much of the literature appears to be more philosophy (or art) than science, as a review of its historical origins would support. And as discussed in a later section of this chapter, there may be solid reasons that learning from experience may be more difficult than the andragogical literature leads us to believe.

EXPERIENTIAL LEARNING: LEARNING HOW TO LEARN

Another, perhaps more promising, perspective on adult learning comes from Experiential Learning Theory (D. A. Kolb, 1984; A. Y. Kolb & D. A. Kolb, 2005). In broad terms, experiential learning is a philosophy of education based on Dewey's (1938) notion of a "theory of experience." Such a theory was not needed for traditional education practices, Dewey argued, because they were guided by tradition; however, an experiential approach to education needed a sound theory to guide its development as a legitimate educational discipline.

The present theory of experiential learning is based on six overarching propositions, which purportedly have their origins in the work of prominent 20th-century scholars such as John Dewey, Kurt Lewin, Jean Piaget, William James, Carl Rogers, and others "who gave experience a central role in their theories of human learning and development" (A. Y. Kolb & D. A. Kolb, 2005, p. 194). These propositions are as follows:

1. Learning is best considered as a process and not in terms of outcomes.
2. All learning is relearning. What is learned must be reconciled and integrated with current ideas and beliefs.
3. Conflict, differences, and disagreement drive the learning process. A learner moves back and forth between "dialectically opposed modes of adaptation to the world" (p. 194) such as reflection and action and thinking and feeling.
4. Learning is a holistic process of adaptation to the world (and involves more than cognition).

5. Learning results from "synergetic transactions between the person and the environment" (p. 194).
6. Learning is the process of creating or constructing knowledge.

Kolb's work is probably best known for two primary contributions. One of these is the experiential learning cycle of experiencing, reflecting, thinking, and acting. From this cycle, it is argued that action may be the most important part of learning (and most often overlooked) because it closes the learning cycle by bringing reflection and thought into contact with the external world of experience that is created through action.

Kolb's other major contribution is the conceptualization and assessment of individual adult learning styles. In the most recent version of kolb's thinking, there are nine different learning styles that are organized around the axes of Active Experimentation–Reflective Observation and Concrete Experience–Abstract Conceptualization. Two points that flow from this model are that people learn in different ways and through using different modes, and that a balanced learning style enhances the learner's adaptive flexibility. Both of these points have been supported by extensive empirical research.

Unlike the concept of andragogy, Experiential Learning Theory has a solid empirical foundation. Indeed, the theory was originally developed as a way of creating knowledge by conceptualizing phenomena through formal, explicit, testable theory in the tradition of Kurt Lewin (A. Y. Kolb & D. A. Kolb, 2005). This is quite a contrast with the predominant emerging postmodern perspective of andragogy that eschews the value of strong science. As of 1999, there have been more than 1,000 empirical studies conducted to test various aspects of Experiential Learning Theory (D. A. Kolb, Boyatzis, & Mainemelis, 2001). The majority of this research (55%) has been published in refereed journals, with more than half appearing in the education (430 studies) and management (207 studies) literatures. Also unlike andragogy, there has been careful attention paid to psychometric issues associated with the assessment tools that are used in research and practice.

This brief overview of Experiential Learning Theory is a precursor to a discussion of the potentially most valuable contribution from this perspective for an integrative theory of leader development, that is, an emphasis on learning how to learn. It has recently been proposed that the development of managers and leaders must include attention to how to make sense (sensemaking) as well as learning how to learn (Schwandt, 2005). Knowing how one learns requires extensive practice and experience, with self-reflection and reflective judgment (see Chapter 7). Some ways of enhancing the capacity for learning how to learn include repeated exposure to paradox and other forms of dilemma, increasing the dynamic tension that drives adult learning rather than "expedient pedagogical transfer of information by subject matter experts," and exposure to different world views (Schwandt, p. 188). But clearly this is just the beginning of how to spark the development of what has been referred to in other fields as epistemic cognition (Kitchener, 1983).

In attempting to articulate a promising model of learning how to learn, Gibbons (1990) identified three basic kinds of learning (natural, formal, and personal) and three aspects of the learning process (type of learning, source of content, and method of instruction). With natural learning, the type of learning is *interactive* in terms of spontaneous interactions with the environment, in formal learning it is *directed*, and in the personal mode it is *self-initiated*. The source of the learning content in the natural mode is said to be *available* or selected by interest from the available environment; it is *assigned* in the formal mode, but *chosen* in the personal mode. The method of instruction perhaps is the most varied. In the natural mode, the method is *transactional* in that the process occurs between accidental influence and the inner state of the learner; in the formal mode, the method of instruction is *presented*, whereas in the personal mode it is *enacted* such as the learner enacts and monitors his/her own learning procedure.

The learning taxonomy outlined by Gibbons (1990) has implications for leader development. First, it recognizes that there are some general learning style differences that vary as a function of the situation. Second, the basic kinds of learning roughly correspond to the operational (natural), educational (formal), and self-development (personal) foci of Army leader development. And in each respective learning mode, Gibbons maintains there are certain "executive learning operations" (p. 74) that govern the learning that takes place in different types of situations. For example, in the natural learning mode, learners need to acquire skills that help them learn from interacting with others, from exploring the environment, and from practice. In the formal mode, learners need to acquire the learning operations associated with learning from instruction, learning basic learning skills, and how to generalize from a learning activity. In the personal model, learners need to acquire operations associated with deciding what to learn, how to manage one's own learning, learning from experience, and how to take action.

A complete list of these recommended executive learning operations as well as more specific skills associated with each operation is presented in Table 10.3. In terms of leader development, the learning-how-to-learn literature is helpful in pointing out that learning, an important element of the developmental process, likely can be accelerated by first helping leaders acquire the kinds of skills and executive learning operations that will make them more effective and efficient learners across all three of the major developmental venues.

LEARNING ORGANIZATIONS

Extending adult learning to the organizational level, a related topic that has received a tremendous amount of attention in the management and organizational learning literature is Peter Senge's (1990) perspective on building a learning organization. Instead of focusing solely on the personal

TABLE 10.3 Executive Learning Functions and Supporting Skills for the Basic Kinds of Learning

Natural Learning	Formal Learning	Personal Learning
Learning how to learn from...	**Learning how to learn from...**	**Learning how to learn from...**
Interaction with others • Build trust in self and others • Self-confidence	Instruction • Active listening • Question, observe, summarize, record, visualize, apply, and review content	Deciding what to learn • Align with personal goals and purpose • Consider a range of learning options • Design learning plans
Stimulation of the environment • Develop sensory, cognitive, and performative capacities	Performing assigned learning tasks • Perceive task purpose • Follow instructions • Anticipate desired response • Verify answers	Managing one's own learning • Organize subject matter • Gather needed resources • Manage self (time, attention, effort)
Exploring the environment • Intention • Initiative	An assigned learning task • Relate practice to lesson taught • Consciously practice the lesson • Relate what is learned to own experience	Experience • Vicarious learning • Reflection • Modeling
Practice • Imitation • Repetition • Rehearsal	Basic learning skills • Find needed information • Read for understanding • Summarize, organize, and review • Memorize and recall	Being an intentional learner • Integrate thinking, feeling, sensing, and acting • Reflective self-management
The teacher within • Reflective learning • Self-efficacy for learning • Autonomy	Generalizing from a learning experience • Transfer of learning • Integrate with personal knowledge base • Build repertoire of responses to learning situations	Taking action • Forming new attitudes toward taking initiatives • Formulating strategies • Facing risks • Coping with ambiguity

qualities of individual learners or espousing a specific set of learning principles, Senge extends the work on experiential learning and elaborates on the context where learning happens. Specifically, he argues that there are five "component technologies" or *disciplines* that converge to create the conditions for experimentation and advancement (i.e., learning) to occur. He considers these disciplines to be "a body of theory and technique that must be studied and mastered to be put into practice" (p. 10). The five disciplines that Senge has proposed are systems thinking, personal mastery, mental models, building a shared vision, and team learning.

The meaning of the various disciplines is less important from the present perspective than is the underlying idea that organizations can create more positive contexts for learning. Learning occurs in context, and as Senge argues, many organizations are characterized by their "learning disabilities" that inhibit or grossly limit the amount of learning that can take place. He also makes an important point that learning from experience may be more difficult than it is commonly believed. This important issue is addressed in the next section.

ON THE DIFFICULTIES OF LEARNING FROM EXPERIENCE

At some level we may take for granted that the best (or only) way adults learn is through their experience and, by extension, that learning from experience is relatively straightforward and easy. Senge (1990) has pointed to the "delusion" of learning from experience as one of his organizational learning disabilities. The core learning dilemma that confronts organizations is that people appear to learn best from experience but never have the opportunity to directly experience the consequences of many important decisions. The learning horizon for many decisions with strategic implications is too distant. A basic principle of learning theory is that feedback is critical to learning. Without timely feedback, little learning can be expected.

Sitkin (1992) has commented on the major reasons that learning from successful experiences is difficult. In particular, he points to liabilities such as reduced motivation to learn, complacency, reduced attention and information gathering, risk aversion, the tendency to develop homogenous attitudes or behaviors resulting from successful outcomes. To discourage the development of learning patterns reflecting failure avoidance or "resting on one's laurels," Sitkin recommends experimenting with experiences that have the potential to provide modest levels of failure. In doing so, people and organizations can learn and adapt effectively without producing harmful frustration. Instead, his strategy of small losses can foster acceptable risk-taking and build resilience. Nonetheless, when an individual is properly prepared to reflect on success as well as failure, research indicates that there may be better gains in terms of learning and performance as compared with receiving after-event feedback only on failed experiences (Ellis & Davidi, 2005).

Feldman (1986) also has pointed out a number of reasons based on the literature from social cognition that learning from experience is difficult. To realize that learning is necessary (i.e., is there something to be learned?), Feldman argues that one must notice errors. There may be both environmental (e.g., lack of feedback) and psychological barriers (e.g., hubris) that exist to block or impede the recognition of the need to learn. At the cognitive level, attention and memory are biased in the direction of expected events and existing explanations. These biases in our information-processing tendencies direct attention to expectation-confirming cues even when disconfirming information is available. When disconfirming information is made available, attribution processes are often used to discount the discrepant information. Even when the need to learn is apparent, nothing guarantees that learning will be error-free. "Illusory correlations" can mask true associations in experiential data or the environment can provide distorted information. Motivational concerns (e.g., taking the path of least resistance) might preclude more significant learning from taking place. To know that learning has taken place, time and motivation for reflection are required. It is thought that time availability alone is a major impediment to learning, given the work demands placed on many individuals in organizational settings.

The environmental and socio-cognitive factors outlined by Feldman (1986) that make learning difficult also provide suggestions on how to improve learning from experience. Increasing the amount and immediacy of feedback is one such suggestion (consistent with the recommendation for ongoing assessment from the CCL model). Situations that require learning can also be designed, whether they are challenging in the form of stretch assignments or challenges to one's conventional thinking. In terms of enhancing the motivation to learn, acknowledging that mistakes are part of learning may be helpful. It seems that everyone wants to learn, but nobody wants to be wrong. But learning from experience requires one to be wrong at least part of the time. Support for development can be enhanced by not punishing mistakes that are learning induced. A conclusion drawn from this perspective is that the assessment-challenge-support model of development may have both practical and theoretical grounding in the literature. At a minimum, it appears to be better supported than the andragogy framework that has received so much attention in the adult learning and education literature.

LEARNING FROM OTHERS' EXPERIENCE

Building a developmental program full of individually catered, new, and challenging experiences in a supportive learning environment may be ideal for the development of leaders, but often this ideal is impossible due to financial, time, or other resource constraints. Learning that occurs indirectly, such as the observation or narrative of another's experiences, may be an excellent supplement when direct experience is not

practical. As direct experiences tax resources such as time, energy, and finances, learning from others' experience may be a valuable tool for accelerating leader development.

Vicarious Learning

Kolb's work on individual learning styles suggests that some people prefer to learn through observing others rather than using active experimentation. Learning through observation and modeling of others (i.e., vicarious learning), can be planned, as in a training context, or can occur unintentionally even on a daily basis (Manz & Sims, 1981). Much of the work on vicarious learning stems from Bandura's (1977) social learning theory. Bandura suggests that "from observing others one forms an idea of how new behaviors are performed, and on later occasions this coded information serves as a guide for action" (1977, p. 22). In sum, individuals learn through the observation of others and internalization of their behaviors.

Social learning theory stresses that not all learning comes from a consequence basis, such as trial and error learning. Specifically, antecedent learning that occurs before behavior and is based on prior notions of behavior is developed often by observing others' behavior. The theory suggests that an observer progresses through four stages: observation, retention, motor reproduction, and reinforcement. First, the observer attends to modeled events including elements such as the distinctiveness, affective valence, complexity, prevalence, or functional value. Second, the observer must retain the information, which includes the symbolic coding, cognitive organization, symbolic rehearsal, and motor rehearsal of the event. Next, motor reproduction refers to the actual trial behavior, including physical capabilities, self-observation of reproduction, and accuracy of feedback. Finally, observational learning motivates the observer to engage in the behavior through external rewards and self-reinforcement (Bandura, 1969). Individuals are more likely to adopt a modeled behavior if (a) it results in outcomes they value, (b) the model is similar to or admired by the observer, and (c) the behavior has functional value (Bandura, 1977).

Vicarious learning may influence learning in different ways. Manz and Sims (1981) suggest that observation can have three types of learning effects. An individual may learn a new behavior, may be inhibited or disinhibited from engaging in a given behavior, or certain behaviors may be facilitated through observation. Additionally, several factors may influence modeling success, including the credibility of the model, success or failure of the model, how vivid and detailed the behavioral display was, and perceived similarity of the observer to the model.

Along with an influence on behavior, observing a role model can also influence one's identity. Research on the so-called spyglass self suggests that individuals behave similarly to those they observe behaving a certain way through an identity merging process (Goldstein & Cialdini, 2007). The authors suggest that the boundaries between the self and other are

blurry, therefore, observing an important other such as a role model, individuals learn something about themselves and integrate this behavior within their self-concept. In short, when observing an important other, an individual not only sees aspects of himself or herself in the role model, but also sees attributes of the role model in himself or herself.

Others suggest the influence of observational learning is cognitive. Gioia and Manz (1985) suggest the primary basis for vicarious learning is a cognitively held script, which provides a guide for behavior and a means for making sense of the behavior of others. Thus, vicarious learning may influence behavior through influencing the cognitive script one holds regarding certain behaviors. They further suggest that an observer rehearses modeled behavior either physically or mentally. Mental rehearsals include symbolic coding in which an observer summarizes the model's key behaviors (descriptive codes) and specifies principles underlying the model's behavior (i.e., rule codes). Furthermore, Wofford and Goodwin (1994) suggest that a leader's observation of other leaders helps to create a personal leader schema, which provides a socio-cognitive foundation for their behavior as leaders. They argued that some individuals have a general transformational leadership cognitive framework whereas others have a different, transactional leadership, framework. These alternate cognitive frameworks are formed in part through observing other leaders. Additionally, imagining models behaving in a particular manner may influence behavior in the same way (Manz & Sims, 1981). Related to this argument, the positive effect of mentoring on protégé's career success has been theorized to occur through vicarious learning effects (Allen, Eby, Poteet, Lentz, & Lima, 2004).

Although behavioral change can occur through observational learning, the knowledge acquired may be tacit rather than explicit (see Chapter 8 for additional background on tacit knowledge). For example, Nadler, Thompson, and Van Boven (2003) found that individuals who had observed models in a negotiation performed better in a negotiation task than those trained via textbook or experience, but were the least able to articulate the learning principles that helped them improve. The authors suggested that observers had acquired tacit knowledge that they were able to reproduce but unable to articulate.

Vicarious learning has been examined in relation to the observer's expectations of outcomes of performance. It has been argued that models influence one's outcome expectancy and self-efficacy (Manz & Sims, 1981). Observing a model perform at a certain level and obtain a desired outcome or reward can increase the observer's expectancy of achieving a certain outcome with a given level of effort. According to expectancy theory, an increase in outcome expectancy should translate into increased motivation. Additionally, vicarious learning has been theorized to influence self-efficacy, although empirical support is equivocal. For example, Lent, Lopez, Brown, and Gore (1996) found that behavioral modeling predicted student's self-efficacy expectations in a mathematical context. In contrast, however, vicarious learning did not predict social

self-efficacy expectations (defined as confidence in one's ability to engage in social interaction in order to maintain interpersonal relationships in one's social and career lives) beyond what was explained by direct experience (Anderson & Betz, 2001).

Learning from Narratives

In addition to learning through observing others' behavior, learning can also be facilitated by the narrative accounts of others' experiences or through fictional accounts of experience. Narratives encompass the factual or fictional, as well as past or future accounts of events, and are defined as "thematic, sequenced accounts that convey meaning from implied author to implied reader" or "the symbolic presentation of a sequence of events connected by a subject matter and related by time" (Barry & Elmes, 1997, p. 431). Whether in the form of written words, images, or oral accounts, narratives can be powerful teaching aids in that they provide the receiver with rich context surrounding a situation. The use of narratives as teaching aids is prevalent in organizational and educational settings. For example, management educators often include fictional novels in their course syllabi, encouraging students to find managerial wisdom. Additionally, case studies and narrative examples or "stories from the field" are often used to illustrate theoretical or scientific concepts (Czarniawska, 1998). Besides its value for teaching, narratives can be used as a source of data and a method for exploring the applicability of theoretical perspectives, as well as a resource useful in embellishing papers and presentations (Phillips, 1995).

Two main mechanisms have been proposed to explain the effect narratives have on individuals: cognitive elaboration and transportation. Cognitive elaboration refers to the level of processing or effortful thought an individual gives to a message, and has been examined particularly in the persuasion literature. In conditions of high elaboration, deep-level processing occurs and an individual fully considers the arguments of the message; whereas in conditions of low elaboration, the individual relies on heuristics and engages in more peripheral processing (Chaiken, 1980). Deeper processing is more likely to lead to attitude change as the reader carefully considers the central arguments of the message. According to cognitive elaboration models, attitude change occurs based on the amount of processing in which an individual engages.

Green (2005) suggests that individuals become completely absorbed in a story such that their thoughts and emotions become one with the narrative. This experience of a reader's becoming engaged in a story and forgetting the world around him or her has been termed "transportation." The experience of transportation may be similar to a "flow" experience (Csikszentmihalyi, 1990) in which attention, emotion, and imagery are all integrated and focused into an experience. Through transportation the reader may feel strong emotions and motivation congruent with the story and leave somewhat changed by the experience. Attitude change

may happen as a result of transportation because the reader is less likely to counter-argue the claims of the story and may have strong feelings for the characters, which enhances the influence ability of the characters. At high levels of transportation, the story may even seem like a real experience to the reader (Green & Brock, 2000).

As narratives provide a richer picture of a concept or principle, they may be more memorable than the principle alone. Bower and Clark (1969) found that individuals remembered a list of words six to seven times better when a story was built around them. Storytelling has also been found to be beneficial in an organizational setting for memory and gaining perspective particularly when paired with discussion of the issues raised. In a health-care field, studies revealed that individuals gain knowledge, perspective, and appreciation of various issues through sharing stories and holding ongoing discussions of issues raised in the stories (Abma, 1998). Narratives can also be valuable in helping individuals take the perspective of others because multiple meanings can often be gained from a single story. Boland et al. (2001) suggest that "evocative and narrative representations permit the assignment of different meaning to the same thing on different occasions and allow those in a community to know what is appropriate and what is not in that community" (p. 396).

Through discussion of a narrative, leaders may be able to see patterns or limits to their viewpoints, thereby enhancing their self-awareness. For example, narratives are often used in the form of moral dilemmas to encourage deeper thought and development of more advanced moral reasoning (Kohlberg, 1976). Additionally, the story may provide a new perspective to the reader. Green (2005) argues that transportation may reduce the counter-arguments that an individual might engage in because their resources are devoted to imagining the story. Critiquing the story would likely reduce its enjoyment. In this sense, an individual may put up less resistance to new and differing ideas when they are in story format.

The narrative may also provide a framework for making sense of new situations and perspectives. For example, stories have been found to facilitate organizational socialization of newcomers to organizations (Bauer, Morrison, & Callister, 1998). Brown (1985) suggests that stories facilitate the sensemaking of an individual as he or she takes in novel information in the new role and moves through the socialization process. Individuals may be able to take components of their early experiences on the job and put them into the larger picture of the organization through the organization's stories. Additionally, co-workers may tell stories of their experiences, which may help a newcomer to make sense of his or her new role and work environment. The use of narratives may be helpful to orient leaders to new units or assignments in much the same way.

Weick (1995a) reinforces this point in arguing that what is necessary in sensemaking is a good story. He notes that stories are beneficial

as they are reasonable and memorable, they resonate with people, are simultaneously retrospective and prospective, and they touch one's emotions and thoughts. Narratives help simplify the world but are not oversimplified if context is recognized and taken into consideration. Furthermore, storytelling can also be used as a technique to manage sensemaking in an organizational setting by directing what is and is not included in a story. For example, an individual may purposefully leave out certain parts of a story and leave it to the imagination of the listener or reader to fill in the missing details (Boje, 1991).

Czarniawska (2004) argues that in order to understand their own and other people's lives, individuals build stories around them. Narratives portray the intention behind particular actions, giving actions meaning, and allow the listener to reflect on the rationale behind choices of action. Individuals may engage in "anomalous replotting" in which they think about how an outcome could have been different (Gerrig, 1993). They analyze steps in the process and work through a series of changes that would produce a different outcome. In this way, a leader may be able to develop a leadership schema based on subsequent reflection regarding the choices that others make and the consequences of those choices.

In addition to their role in facilitating sensemaking, narratives also may facilitate changes to the self and longer-term identity development (Green, 2005). In short, transportation facilitates an openness to change that may be related to later identity development. The results of empirical measurement of transportation have been found to relate to reliable changes in attitudes and beliefs (Green & Brock, 2000). Narratives encourage an experiential rather than a rational or critical mind-set, which may loosen the boundaries of the self. Transportation may provide a safe environment for an individual to explore a possible self, as the reader is able to step into the shoes of another (Green, 2005). Additionally, identity can be built on how individuals "narratize" their own experiences. To create a story of their development, leaders may facilitate meaning-making of those experiences as well as construct their identity as leaders. Stories provide meaning to events by linking events together with a theme and displaying actors as being purposefully engaged in a succession of related events that contribute to a final outcome. Creating a story of one's experience may help a leader link together these experiences thus contributing to accelerated leader development.

Kitchell, Hannan, and Kempton (2000) argue that storytelling can provide one method of encouraging social identity development. By incorporating aspects of the group into their personal story, one's identity as a group member is made salient. Groups can facilitate the development of identity by encouraging the incorporation of a particular aspect into one's personal story and stimulate the telling of the stories to reaffirm their identities. At a more macro level, Boland and Tenkasi

(1995) discuss that narratives provide a way of developing the identity of members of a particular culture.

The Army has recognized the value of sharing experiences and learning from others' experiences. For example, a special report was compiled of lessons learned from Bosnia (Olsen & Davis, 1999). The report summarized what commanders had learned from their experiences in a peace-keeping mission and how they could have been better prepared for what they encountered for the benefit of future commanders. The Army Research Institute has compiled a set of 66 stories of battle command to be used in conjunction with the Command and General Staff College (Frame & Lussier, 2000), thus bringing lessons of operational experience into the classroom through the re-telling of battle command stories. Everett (1992) has noted the importance of retaining the stories of officers and enlisted soldiers to better learn from Army history. Army's Combat Studies Institute provides a series of reports including case studies of recent operations as well as oral histories online (http://www.cgsc.army.mil/carl/resources/csi/csi.asp). Oral histories provide a more complete picture of experiences for Army research and archives, as well as informing army leaders, commanders, and soldiers of the wisdom gained through their forerunner's experiences. Similar storytelling approaches in non-military organizations might enhance the transfer of tacit leadership knowledge across different levels or generations of organizational leaders.

In sum, learning may occur through direct observation or through a narrative account of another's experiences in addition to direct personal experiences. Narratives can be helpful developmental tools as they aid in memory, facilitate perspective-taking, sensemaking, and can influence changes in one's self-concept. Some situations may be better suited to learning from direct experiences, whereas learning from others may be more beneficial in other types of situations. Argote and Kane (2003) maintain that the use of direct and indirect experiences for learning is dependent on the timing and context of the imparted knowledge. Some research suggests that in an organizational context knowledge transfer occurs more easily during early stages of production before an organization has developed its own learning processes, whereas other research suggests that learning in the form of knowledge transfer is an ongoing process. Additionally, Argote and Kane suggest that information that is context-specific should be best learned through personal experience, whereas information that is not context-specific such as knowledge about tasks and tools is readily learned through others (Argote & Kane, 2003). Effective learning from others may be a way to accelerate leader development. Learning from others' narratives looks promising in the areas of memory and sensemaking. Additionally, vicarious learning through the observation of other leaders may aid in the encouragement of specified desired behaviors and the development of cognitive schemas and scripts, as well influence the expectations of developing leaders.

SUMMARY AND IMPLICATIONS FOR AN INTEGRATIVE THEORY OF LEADER DEVELOPMENT

- Learning is a major determinant of human development. The theory and practice of leader development therefore must address how individuals learn, and how they learn how to learn.
- Leader development is an experientially based process. A major challenge of leader development involves helping leaders better learn from their experiences, whether as part of formal classroom education, job and operational assignments, or self-development initiatives.
- Experiences can be designed to be more developmental for leaders to the extent that they incorporate aspects of assessment, challenge, and support.
- Learning from experience is not a given. There are obstacles to effectively learning from experience that need to be removed in order for experience to contribute to leader development.
- An important element to be considered in learning from experience is the learner's own interpretation of the cause-effect relationships embedded in the experience.
- Feedback in the form of action-event reviews can facilitate learning and performance if both successful and failed experiences are addressed. This form of balanced feedback may contribute to the noted positive outcomes by building more elaborated mental models or "causal maps" that link aspects of experience with successful performance.
- Experiences can be measured in terms of their density or "developmental punch" by estimating the interaction between quantitative (i.e., length and amount) and qualitative (i.e., variety, challenge, and complexity) aspects of experience. Leader development might be accelerated through the use of more potent experiences for those at the proper readiness levels.
- The philosophical principles of andragogy (adult learning) are more appropriate for understanding the learning and development of adult leaders, as compared with the principles of pedagogy. Particularly useful is the andragogy principle that recognizes the context for learning as an important component for adult learning; however, this educational tradition has little empirical literature to substantiate the stated principles.
- The experiential learning cycle of experiencing, reflecting, thinking, and acting can serve as an "implementation intention" to prompt the ongoing, continuous learning and development of leaders.
- Learning from others' experiences can also heighten leader development, especially to the extent that the narratives or other "stories" encourage cognitive elaboration of their major learning points and are framed in such a way as to encourage transportation into the narrative.

CHAPTER

11

Leadership Development and Teams

Finding good players is easy. Getting them to play together as a team is another story.

—**Casey Stengel**

The primary focus thus far has been on the topic of leader development and related issues. Leader development is defined as the acquisition or development of within-individual attributes (i.e., human capital) such as knowledge, knowledge structures, skills, abilities, and competencies (Day, 2000). Essentially, the focus is on developing the individual leader and the qualities that are thought to make for effective leadership. It has been noted that leader development is not the same as leadership development. Developing leadership is thought to occur mainly as a function of between-individual processes. It is based on the assumption that leadership "exists" in the connections between individuals and is a function of the quantity and quality of relationships among a networked group of individuals. Another important distinction is that leadership development involves the creation of social capital primarily at the group, team, or organizational level. Leader development is conceptualized mainly in terms of human capital at the individual level of analysis. A summary of the distinction drawn between leader development and leadership development is presented in Table 11.1.

This distinction between leader and leadership development has important implications. It has been recognized that most leadership development initiatives are really mostly about individual leader development (Day, 2000). The distinction is important because enhancing individual self-awareness through 360-degree feedback or some other assessment for development process does not guarantee that effective leadership

TABLE 11.1 Contrasting Leader Development and Leadership Development

	Focus of Development	
Comparison Dimension	**Leader**	**Leadership**
Capital Type	Human	Social
Competence Base	Intrapersonal	Interpersonal
Leadership Model	Individual	Relational/Group
	• Power/Influence	• Empowering
	• Self confidence	• Mutual respect
	• Integrity	• Moral climate
	• Trustworthiness	• Trust
Skills	Self-awareness	Social awareness
	• Emotional awareness	• Empathy
	• Self confidence	• Collective efficacy
	• Accurate self image	• Accurate group assessment
	• Personal values	• Group values/norms
	• Let go of control	• Team orientation
Beliefs/Attitudes	Commitment to diversity	Inclusive
	Openness to others	Common purpose
	Loyalty	Collaboration
		Conflict management
		Commitment to group

Note: Adapted from Day (2000) with additional modifications by Susan R. Komives.

will develop. Leadership requires a social context to be enacted. Even the most highly developed, self-aware, adaptable, and charismatic leader cannot demonstrate leadership if stranded alone on a desert island. Leadership requires at least two people involved in human interaction (e.g., at minimum a dyadic exchange between a leader and a follower).

In most organizational settings there should be a connection between leader development and high-quality leadership. But because of the lack of rigorous evaluation studies, this link is often assumed rather than demonstrated empirically. For effective leadership to occur, what is required is that a leader's thinking and behavior be guided by those qualities that were the focus of the leader development efforts. But this is not always the case because of issues associated with poor transfer of

development back to the work setting (especially with classroom-based leader development programs) or a lack of support from others for the new ways that the leader is thinking and acting. There is a longstanding adage in the organizational development literature that sending a changed person back to an unchanged system is an exercise in futility. But when that changed person is a formal leader, there is greater hope for successful transfer and organizational change. A formal leader is more likely to have the social status, formal or informal power, and motivation to change a system in positive ways. Indeed, influencing change in a social system might be a perfect example of the kinds of leadership that can happen when a developed leader exercises leadership.

LEADERSHIP AS OUTPUT

The traditional perspective on leadership is that of an individual leader influencing others or engineering the social environment in ways that enhance effective individual, team, or organizational outcomes. From this perspective, leadership is considered an input to group processes that in turn affect relevant outcomes. This is consistent with the input-process-output (I-P-O) model of team performance that has received a good deal of research attention (Ilgen, Hollenbeck, Johnson, & Jundt, 2005). In essence, processes mediate or explain the relationship between inputs and outputs. Within this perspective, a leader brings certain leadership skills and competencies to a team that are used to influence core processes, such as transition (e.g., strategy formulation), action (e.g., coordination), and interpersonal processes (e.g., conflict management) (Marks, Mathieu, & Zaccaro, 2001). Enhanced team processes are causally associated with effective outcomes such as team performance.

Although an I-P-O model of team performance has served as a useful heuristic for conceptualizing the pivotal role of team processes in addressing issues of team performance, it also has distinct limitations. Perhaps the most important of these is that the notion of an outcome implies a final end state. This is problematic because both leadership and team performance do not formally end or have a distinct end product. In terms of the ongoing nature of leadership, team processes, and performance, a much better description than outcome might be that of a search to catch reality in flight (Pettigrew, 1982). Whereas team performance might be an output at one time period, it is an input and part of the process leading to performance in a subsequent time period (Ilgen et al., 2005). This is reminiscent of a quote by Ralph Waldo Emerson: "What we call results are beginnings." Another limitation of the I-P-O framework is that it implies a single-cycle and linear path from inputs through outcomes and does not address the important role of feedback loops on team processes.

There is an emerging perspective that is central to the discussion of leadership and its development in team contexts. This perspective expands the conceptualization of team leadership beyond contributions

to a team by an individual (formal or informal leader), to also consider leadership as an emergent set of processes within a team. From this point of view, leadership is most appropriately considered at the team level of analysis. From a traditional perspective, however, leadership is mainly conceptualized in terms of individual leader skills, abilities, and behaviors (i.e., the human capital of a formal leader). These leader attributes are thought of as inputs to a team, which influences individual and team performance through the enactment of these attributes (i.e., processes). In short, the traditional perspective on team leadership is quite consistent with the I-P-O framework.

The emerging perspective expands the focus to include ways that leadership is drawn from—instead of added to—teams as a function of the processes associated with people working together to accomplish shared work (O'Connor & Quinn, 2004). This approach does not view the traditional perspective of a leader's adding something to the team as necessarily wrong; however, it is limited and limiting because leadership can also been seen as something that emerges in a team as members engage in shared work. In terms of an I-P-O model, leadership is an outcome that provides resources as an input for the next performance cycle.

Central to this leadership-as-outcome perspective is that a team can build its *leadership capacity* through interacting in accomplishing shared work, as long as the team is also intentional or purpose-driven around the learning and development that occurs. As reviewed in a subsequent section of this chapter, formal interventions can assist with the developmental process. In this manner, leadership capacity is a resource that a team can draw from in subsequent performance cycles.

An example of this can be found as a team begins to form. At an initial stage, a team is composed of some number of relatively independent individuals who each have their own needs, goals, and expected outcomes that motivate their behavior. Leadership processes can help align these across individuals—given that creating alignment is thought to be a major leadership task (Van Velsor & McCauley, 2004)—with the result being a shift in the definition of self from completely personal ("I") to at least partially collective ("we"). Instead of a set of independent (and possibly misaligned) individual identities, having the motivation and ability to conceive of themselves in collective terms allows for the identification of the needs of the team, its collective goals and expected team outcomes (Ellemers, de Gilder, & Haslam, 2004).

The creation of a collective (i.e., team-based) social identity serves as a potent leadership resource for subsequent performance. When the central identification is with the team ("we") rather than the individual ("I"), it allows for different forms of leadership to emerge, which creates additional possibilities for participating in leadership. It also is a resource for developing team social capital. Thus, the leadership of the team is developing rather than (or perhaps in addition to) the development of any individual leader. The implication for leader development is that

individuals need to be prepared as leaders to engage in these collective processes that build the leadership capacity of a team or organization.

SOCIAL CAPITAL AND LEADERSHIP DEVELOPMENT

The theoretical perspective that views leadership as an outcome of effective social processes and structure has been present in the literature for some time (Salancik, Calder, Rowland, Leblebici, & Conway, 1975); however, it has not been a very prevalent perspective. Nonetheless, there are benefits associated with considering leadership as an outcome in that it is something created by the team, and in particular, is reflected in the social capital of the team. Unlike human capital in which the focus is on developing individual knowledge, skills, and abilities, the emphasis with social capital is on building networked relationships among individuals that enhance cooperation and resource exchange. Social capital is a resource that adds value to teams and organizations (Tsai & Ghoshal, 1998).

A relevant question is whether individuals can possess social capital. The answer appears to be a qualified yes in that an individual's social capital is a function of his or her relationships with others. Tsai and Ghoshal (1998) propose there are three components to social capital: cognitive, relational, and structural. The *cognitive* dimension refers to resources embedded in shared representations and collective meanings among people. Sharing a mental model with others makes it easier to communicate and otherwise interact with them. The *relational* dimension of social capital pertains to functional assets that are rooted in networked relationships, such as trust and trustworthiness. Clearly, these are important resources for leadership development of a team, primarily because they enhance and hasten team learning (Edmondson, 1999; Edmondson, Bohmer, & Pisano, 2001). The *structural* dimension refers to an individual's network position in relation to his or her contacts. This dimension is especially important in identifying individuals who occupy structural holes (Burt, 1992), or connect otherwise unconnected individuals and networks. Occupying a structural hole is advantageous to an actor because it provides access to non-redundant information as well as greater control over informational resources. Between-ness centrality is another aspect of the structural dimension of social capital. It refers to how connected an actor is with others in the network—to what extent an actor is considered structurally to be a network hub, usually in terms of friendship or advice with others.

Social capital, therefore, can be developed both within and between individuals. Different people can have different amounts of social capital by virtue of their relationships with others. Through estimating the density of connections between individuals within a team and with others outside of the team, it is also possible to consider the social capital of a team. Nonetheless, it is fundamentally a relational construct in that

the resources derived from social capital are based on relations with other people. This raises an interesting question of whether social capital is transferable or portable. If social capital can be developed, can it move with an individual?

It is certain that most forms of human capital are portable. The knowledge, skills, and abilities that are acquired by someone can be applied in multiple domains. For this reason, there has been almost a perverse argument in the human resources literature that investing in training could be a waste of money if trained employees leave an organization before the investment in their skills is recouped. Deciding not to invest in training for fear trained employees might become too valuable to retain may seem to be self-defeating in the long-term, however, it is the case that organizations need to decide carefully whether it is best to "make or buy" certain forms of human capital (Lepak & Snell, 1999). This perspective on designing the human capital architecture in an organization strongly implies that human capital is portable with the person who possesses the capital. The open question is whether the same thing be said for social capital.

An example that might help illustrate this point can be found in the experience of Cantor Fitzgerald, a bond-trading firm that was nearly completely decimated when the World Trade Center towers collapsed. The company lost more than 650 of its employees and its corporate headquarters in a single historical day, but claimed that it would rebuild itself. In an interview for National Public Radio, the president of the company recognized that the human capital would be relatively easy to re-acquire; however, the relationships within the firm would take much longer to develop back to a point where they were before September 11, 2001. From the aggregate perspective of a team or organization, it is difficult to see how social capital might transfer. The resources are embedded in the relationships. Short of hiring an intact team, the only way for those resources to be recouped is through development over time.

It might make more sense to consider the portability of individual social capital as opposed to group or organizational social capital. In some occupations like sales, an individual's relationships with clients are his or her bread and butter. Hiring a salesperson from another company is also to some extent hiring his or her social capital. What would need to be developed is the internal social capital that is associated with relationships required to work effectively with the "home office." Thus, an individual's social capital is portable but with more boundary conditions than with human capital. It may be most important to consider the skills an individual has to build relationships in new contexts and be able to create social capital across situations. In this manner, not only does social capital create human capital (especially in the forms of new knowledge and non-redundant information) but the application of human capital can also create social capital (Coleman, 1988).

INTERVENTION STRATEGIES FOR BUILDING SOCIAL CAPITAL

Given that social capital is important for the development and enactment of leadership, an important issue concerns the kinds of interventions that might be used to enhance it. Day (2000) reviewed several of the most common practices for developing leaders and leadership in the context of ongoing work (e.g., 360-degree feedback, coaching, mentoring, networking, job assignments, and action learning) and included estimates of whether each approach was most suitable for developing human capital, social capital, or both. There are additional kinds of formal interventions most often used for developing teamwork (Day, Gronn, & Salas, 2004) but that also could be implemented with the goal of developing social capital in teams. Day et al. identify the specific component(s) of social capital—cognitive, relational, and structural—that are shaped by each respective intervention. It should be noted that this review of intervention strategies is not exhaustive. Just as there are innumerable ways to develop leadership, there are also innumerable ways to develop teamwork and social capital. A recent meta-analysis of this broad literature has shown that the interventions like those described below do in fact have a positive impact on team performance (Klein, Stagl, Salas, Burke, DiazGranados, Goodwin, & Halpin 2007).

Cross Training

The focus of cross training is to provide individuals with exposure to, and practice on, other teammates' tasks. This training is designed to result in better team member knowledge with respect to teammates' task responsibilities and coordination requirements. Specifically, cross training may involve *positional clarification* (team members are provided with general knowledge of teammates' general position and responsibilities), *positional modeling* (where the duties of each team member are discussed and observed), or *positional rotation* (allows direct, hands-on practice of each member's specific tasks) (Blickensderfer, Cannon-Bowers, & Salas, 1998). Cross training is thought to be especially relevant for developing the cognitive component of social capital in terms of building shared mental models of the various roles in a team. Another term for this particular type of shared mental model is a virtual role system (Weick, 1993), in which all team members can envision the roles and responsibilities of all others, thus enabling team communication and adaptability.

Metacognitive Training

Metacognition refers to the ability to understand and monitor one's own thoughts and the assumptions and implications of one's activities. Metacognitive and regulatory processes must necessarily extend beyond

the self when working in teams. Team members must be able to monitor the team's work pace and be able to step in to assist team members who need assistance when overloaded. Training to improve metacognitive skills is designed to teach team members to become more aware of the strategies they use to learn, determine which strategies are most appropriate, and enable periodic adjustment as necessary. As such, it might be primarily used to enhance the cognitive component of social capital, but it could also pertain to the relational component if it is adopted to help individual team members become more aware of how relationships are built and maintained in a team (i.e., metacognition for social capital).

Team Coordination Training

Team coordination training (also known as crew resource management) has been successfully applied across a wide variety of contexts, including aviation settings and medical environments, as well as in other complex team decision-making situations. The general purpose of team coordination training is to improve decision-making during emergencies and improve communication and coordination within a team. There is a variety of specific types of delivery, but in general the empirical evidence suggests that the communication, coordination, and performance of teams are all enhanced through this type of training (Salas, Burke, Bowers, & Wilson, 2001). Not surprisingly, the focus of team coordination training is on the team rather than individuals. It can be considered to address all of the components of social capital, but especially the cognitive and relational components.

Self-Guided Correction Training

Team self-correction is a process in which teammates think about and discuss teammate roles and responsibilities, team strategy, integral sequences and responses, and related concepts. This training strategy targets mutual performance monitoring, team leadership, and closed-loop communication. The team is taught to diagnose, design, and implement solutions to its team functional problems. Behavioral modeling is one typical method for training team self-correction to build shared expectations among team members that allow teams to use more implicit coordination and enable better overall performance. It is a strategy that can address and enhance all social capital components. The cognitive component is enhanced through developing shared expectations; the relational aspect is developed through communication and dialogue about the key roles and responsibilities of all team members; and the structural component of social capital is enhanced as team members examine and discuss the networked set of relationships that define the team.

Stress Exposure Training

Teams often operate in stressful environments, especially in military and aviation contexts. To better prepare for performing under stressful conditions, stress exposure training can be provided either to individuals or intact teams as a form of stress inoculation. It is designed to make trainees more familiar with the stress environment, build trainees' confidence in their ability to perform under stress, and develop the skills of trainees to make their performance more effective in a stress environment (e.g., Driskell & Johnston, 1998). When applied at the team level, this form of training primarily addresses the development of the relational component of social capital. The team learns about and develops functional resources that allows for effective performance even under trying circumstances. For example, the team learns to trust and rely on others, as well as how to better participate in leadership under adverse circumstances.

Scenario-Based Team Training

The aim of this strategy is to develop team competencies by practicing in simulated environments that are representative of actual operational conditions while receiving feedback linked to specific events that occur during training. At the most complex and realistic level is the live-action simulation followed by an after-action review. The approach tightly links critical tasks, learning objectives, scenario design, and performance measurement and feedback. This training approach has been linked theoretically with important aspects of leadership in multicultural teams that originate in social capital, such as metacognition, social intelligence, communication skills, and flexible cognitive structures (Salas, Burke, Wilson-Donnelly, & Fowlkes, 2004). As such, scenario-based team training could be used to develop all components of social capital.

CONCLUSION

Leader development does not always ensure effective leadership. Leadership requires a social context, and one such context is that of a team. However, the human capital of an individual leader (e.g., leadership competencies) is an important input to team processes that lead to effective outcomes. Leadership can develop within a team over time that "exists" in the network of embedded relationships in that team (i.e., social capital). From this perspective, not only is leadership a concomitant outcome with performance, but serves as an input to future performing of the team. An important aspect of this process, and one that is seen as central to leadership development, is social capital. Perspectives on social capital were discussed, as were some team-level interventions that

could be used to develop it. The ability to develop social capital—individually or collectively—is viewed as an important skill or competency that generalizes across situations.

SUMMARY AND IMPLICATIONS FOR AN INTEGRATIVE THEORY OF LEADER DEVELOPMENT

- Leadership takes place in a social context. Given that one way leaders develop is through intensive episodes of "practicing leadership" over an extended time period, understanding the team-based context of where many of these practice episodes tend to take place can help provide the type of support needed for optimal development.
- Leadership development is ongoing. The "results" of one developmental experience serve as input for a subsequent episode.
- Leaders need to develop social capital as well as human capital. That is, their efforts at building relationships with others is as, if not more, important than acquiring a set of technical or task-related competencies.
- The leadership capacity of an individual leader is important input in building team leadership capacity.

SECTION

5

Integrative Theory of Leader Development

This section formally introduces our integrative theory of leader development. The theory draws from the literature in the previous chapters, focusing on three particular domains: (1) expertise, competencies, and skill acquisition (including adult learning); (2) identity processes, self-regulation, and individual differences in regulatory processes; and (3) adult development processes and lifespan development. In places where we believe more background literature may be helpful, we refer the reader to specific chapters or sections of the book where more background can be found. The theory also is organized around a set of theoretical propositions (i.e., general statements that explicate relationships at the construct level). More specific research hypotheses are provided in the final section of the book.

One other note is in order with regard to the organization of this section. We have chosen to present the theory in an "outside-in" or "surface to deep level" manner. We begin by discussing the most observable aspects of leader development, which are the acquisition of skills and the building of competencies that culminate in what could be considered expert leadership. These observable or "outside" processes are supported by ongoing identity-development spirals that in turn are supported by individual differences in self-regulation (e.g., self-regulatory strength, self-efficacy, self-awareness, goal orientation, implementation intentions). At the deepest, least observable level, are the basic changes associated with adult development and how environmental or situational factors might be used to intervene in some of the well-known changes in cognitive and physical functioning that can be detriments to

development. At this level, particular attention is paid to the orchestration of developmental processes of selection-optimization-compensation and the implications of these processes for leader development. In particular, continuous self-development across all contexts (e.g., classroom, job assignments, experiential exercises) can be enhanced through the application of these orchestration processes.

CHAPTER

12

Developing Expert Leadership

Leader competencies improve over extended periods. Leaders acquire the basic competencies at the direct leadership level. As the leader moves to organizational and strategic level positions, the competencies provide the basis for leading through change. Leaders continuously refine and extend the ability to perform these competencies proficiently and learn to apply them to increasingly complex situations. (FM 6-22, Department of the Army, 2006, 2-8)

Whatever its other causes, military incompetence implies a failure of leadership.

—**Norman Dixon (1976, p. 214)**

GENERAL OVERVIEW

Leadership failure is identified most often through its outcomes. But, as argued by many leadership scholars (Calder, 1977; Lord & Maher, 1991; Meindl & Ehrlich, 1987; Pfeffer, 1977; Staw, 1975), reasoning backward from performance outcomes to accurate inferences about the quality of leadership is risky and prone to bias. Although military incompetence may imply a failure of leadership as Dixon (1976) suggests, evidence of (in)effective leadership rests on more than individual, team, and organizational outcomes. Leadership involves applying appropriate competence and expertise in addressing complex challenges, defined as exceptionally novel or unique problems in which standard solutions are of little help (Drath, 2001; Heifetz, 1994).

Being an effective leader means drawing from a repertoire of skills and higher order competencies that can require nearly a lifetime of experience, intense practice, and learning to master. This lifelong perspective on leader development explains why continuous and ongoing leader development efforts are especially important. Competence is the backbone of leadership effectiveness and individual leader competence is a requisite condition for the enactment of effective leadership. Leaders of any stripe—but especially military leaders—are faced with an awesome responsibility. Leaders therefore need to understand how to prepare themselves to lead and how to acquire the knowledge and skills that will enable them to meet the leadership challenges they will face. Although it is logical to believe that expert leadership results in successful outcomes, it cannot be guaranteed because of unpredictable situational and environmental factors that also shape such outcomes. But failure is more likely if leaders are developed in an ad hoc and atheoretical manner. Comprehensive and systematic leader development cannot guarantee success but it can certainly raise the odds dramatically.

What does it mean to develop as a leader or to be a highly developed leader? We seem to know very little about this process despite the programs, interventions, and resources devoted to achieving that goal. Indeed, there has been quite a bit written about the kinds of programs to promote leadership development and general treatments of important supporting processes. The Center for Creative Leadership Handbook of Leadership Development (McCauley & Van Velsor, 2004) is a prime example of this kind of leader development resource; however, what is missing is a strong theoretical foundation for understanding, predicting, and accelerating leader development. The need is critical because of increasing "task migration" to younger leaders (Brown, 2003, p. 75) in which more junior leaders are being asked to take on those leadership tasks formerly reserved for more senior leaders. Our purpose is to address this need by examining several theoretical areas that inform leader development processes. In doing so, we intend to develop and articulate an integrative lifespan theory of leader development.

The theory provides the framework of an integrative perspective on lifelong leader development that sets a foundation for the approach taken by many organizations to develop individual leader competencies. It is part of the Army's core mission that every day it trains soldiers and grows leaders. It is our intention to elaborate on our earlier work addressing leader development in the Army (Day, Zaccaro, & Halpin, 2004) in building an integrative theory that informs the processes of leader development across the adult lifespan. It needs to be made clear, however, that this is not intended as a competency model outlining the specific kinds of knowledge, skills, and abilities thought to be needed for effective leadership. There is other work directed at that goal (e.g., Horey & Fallesen, 2003, 2004), which resulted in the adoption of a competency framework in the new (FM 6-22 Department of the Army, 2006). Instead, our approach focuses on underlying processes that support the

lifelong development of leadership competence in any organizational context. Thus, our theoretical focus is on process rather than content issues. In particular, we attempt to weave a coherent understanding of the leader development process by connecting the disciplines of skill acquisition and expert performance (cognitive psychology), self-regulation and identity development (social psychology), and adult development (lifespan developmental psychology). By connecting these fields around the overarching topic of leader development, it is expected that the resulting theoretical propositions will provide a unique and interesting perspective on the developmental processes of leaders. Furthermore, we hope that these theoretical propositions (see Table 12.1) and supporting hypotheses (see Tables 15.2, 15.3, and 15.4) will help to guide research efforts in military as well as non-military organizations.

Individual preparation for leadership goes beyond mastering the requisite technical competencies of a job to also include gaining expertise in social and strategic competencies. Furthermore, preparation for leadership involves developing more complex ways of thinking about and enacting leadership that are intertwined with key facets of adult development such as identity and moral development. To understand how leaders develop with regard to competencies, we believe that it is necessary to integrate this perspective with those involving skill acquisition and expert performance, as well as identity and adult development. Previous work has addressed the issue of managerial competence (Boyatzis, 1982; Spencer & Spencer, 1993); however, the development of leadership competence is relatively uncharted territory (although see Lord & Hall, 2005, and Russell & Kuhnert, 1992, for different perspectives on acquiring leadership skill).

The emphasis of this section of the book will be on the integrative aspects of these different perspectives, drawing from diverse fields such as expertise and skill acquisition, competency modeling, social identity and the self, as well as adult development and learning. The reason for this apparent eclecticism (we prefer integration) is that what is expected of leaders is multifaceted and complex. Any theoretical approach that is expected to illuminate the key developmental processes that affect leaders will likely need to be integrative and to draw from various literatures. This is what we have attempted, drawing largely from the social sciences and in particular psychology. Because we are trying to better understand the inherently relational processes associated with leadership, psychological theory is naturally at the core.

DEVELOPING THE EXPERT LEADER

Our view of leader development may be visualized as layers or levels of leader characteristics. Traits, motivational systems, and values compose the innermost layer or foundational level. Built upon these foundational elements are common patterns of behavior, attitudes, and beliefs including those attitudes and beliefs about oneself. Most visible

TABLE 12.1 Summary of Theoretical Propositions Organized by Discipline

	Expertise and Expert Performance
Proposition 1:	Expert leadership can be differentiated from novice (less expert) leadership.
Proposition 2:	The development of leadership expertise occurs as a result of identity changes that take place throughout the lifespan, but particularly in adulthood.
Proposition 3:	Basic level skills combine to form complex and multifaceted leadership competencies.
Proposition 4:	The development of expert leadership follows a longitudinal trajectory that parallels the development of expertise in other domains.
Proposition 5:	Intentional practice in leadership is needed to reach a level of expert leader performance.
	Identity and Self-Regulation Processes
Proposition 6:	Leadership competence is formed through spirals of leader identity formation and change in the context of learning and development through learning that is gained from experience.
Proposition 7:	Individual differences between leaders influence the rate and change in the context of learning and development through direction of the spirals of identity development and leader development.
Proposition 7a:	Self-regulatory strength accelerates the ongoing learning and development of leaders.
Proposition 7b:	Learning goal orientations facilitate development of leader expertise through the use of self-regulation strategies.
Proposition 7c:	A leader's generalized self-efficacy will positively relate to leader development and learning.
Proposition 7d:	Self-awareness will facilitate the development of leader learning and expertise.
Proposition 7e:	Forming implementation intentions regarding initiating leadership practice and persisting through distractions will facilitate leader development.

Adult Development

Proposition 8: Leader development is ongoing throughout the adult lifespan and is shaped by experience as well as through adult development and age-related maturation processes.

Proposition 9: Maintaining an active and healthy lifestyle and building self-regulatory resources may facilitate health and well-being into late adulthood and contribute to lifelong development.

Proposition 10: Individuals engage in selection, optimization, and compensation (SOC) processes in maximizing developmental gains and minimizing losses associated with developing as a leader.

Proposition 11: The development of complex, multifaceted leadership competencies is supported by a web of adult development that is dynamic and nonlinear in nature.

Proposition 12: Moral reasoning and reflective judgment (i.e., epistemic cognition) develop concomitant with positive identity-development spirals.

Proposition 13: Wisdom involves the alignment of morality and moral reasoning (virtue), identity and self-regulation (self) and reflective judgment (knowledge and thinking).

to the external observer (i.e., the top or outside level) are the skills and specific behaviors that a leader brings to a particular leadership situation (in addition to outcomes). These observables can range along a continuum of developmental complexity from relatively simple and unsophisticated to relatively complex and perhaps even profound. A more highly developed leader brings a larger repertoire of available skills and behaviors to bear on a leadership challenge. In addition to manifest skills and behaviors, highly developed leaders are able to think about leadership in more sophisticated and complex ways (i.e., superior reflective judgment; see Chapter 7). This includes more complex moral reasoning skills as well, given that ethical issues are often at the heart of leadership decisions (see Chapter 6). The more fundamental characteristics of the leader and the wide array of psychological processes that support development reside at deeper and unobservable levels. These processes are articulated in a later section on adult development. The end result of development is manifested in observable leadership behaviors (application of leadership competencies) in addition to performance outcomes.

Proposition 1: Expert leadership can be differentiated from novice (less expert) leadership.

The observable or visible components of leader development are proposed as expressions of individual competencies. Although there is no universally agreed upon definition, one way competencies have been defined is as individual characteristics that summarize relatively enduring ways of behaving and thinking. According to work done in the area of competency modeling (Spencer & Spencer, 1993), five types of characteristics support individual competencies. Knowledge and skills are visible to others and relatively easy to develop. Traits and motives are the deepest and most hidden and refer to dispositional characteristics that may be highly resistant to change, but support the development of particular competencies.

Proposition 2: The development of leadership expertise occurs as a result of identity changes that take place throughout the lifespan, but particularly in adulthood.

The middle ground is made up of the attitudes, values, and self-images that compose a person's self-concept and identity. Processes that define adult development such as selection, optimization, and compensation (Baltes, 1997; Baltes & Baltes, 1990) are central to the developing self, that, in turn, are proposed to support the acquisition of leadership competencies and expert leader performance (see Figure 12.1). See Chapter 4 for a review of selection, optimization, and compensation.

No simple coherent theoretical explanations for the development of leadership skills have been proposed. Leadership is such a complex phenomenon that it has proven more fruitful to develop explanations of particular behaviors, skills, and personal characteristics (Mumford, Zaccaro, Harding, Jacobs, & Fleishman, 2000). The difficulty in characterizing and systematically describing value systems (much

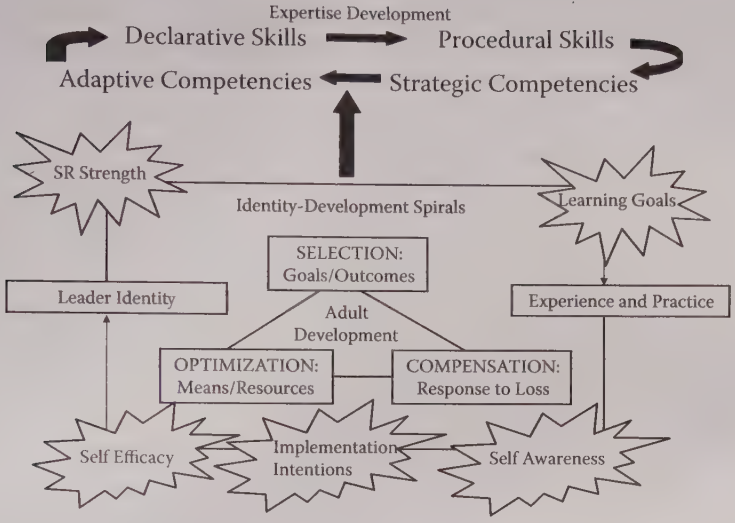


Figure 12.1 Developing the expert leader.

less measuring such aspects of a person) has led to a greater emphasis on the "outside" layers of our model. It is more feasible to conceptualize leader development in terms of skill acquisition than it is to conceptualize it around values. Highly developed leaders are said to possess sophisticated competencies (conceptualized as bundles of various skills) that support effective leader behavior across many and varied situations—from simple to complex. Indeed, there are theories of skill acquisition that might help provide a much-needed foundation to understanding leadership skill acquisition. Perhaps best known is the work of Anderson (1982), which was later refined by Ackerman and associates (Ackerman, 1987; Ackerman, Kanfer, & Goff, 1995; Kanfer & Ackerman, 1989) (see Chapter 9 for more details). From this theoretical perspective, skill acquisition is posited mainly as a function of *declarative knowledge* (knowledge about "what"—i.e., facts and things) and *procedural knowledge* (knowledge about "how"—i.e., processes and procedures).

At the heart of Anderson's (1982) model is the notion that learning goals are structured in such a way as to support the progressive development of knowledge and skill competencies, building from relatively simple to complex forms. The development process follows the universal pathways associated with differentiation and integration. Declarative knowledge is typically involved at the more basic levels in knowing about the facts, concepts, and rules that define the competency domain (part of the differentiation process of understanding distinct concepts). Declarative knowledge becomes proceduralized through practice and experience. This knowledge about situations, responses, and outcomes is integrated in ways that provide context-specific rules for application.

Procedural knowledge develops at more complex levels in that it represents an understanding of conditions and actions that guide the application of knowledge.

Proposition 3: Basic level skills combine to form complex and multifaceted leadership competencies.

Through the use of declarative and procedural knowledge in various situations and contexts more complex "mental models" develop about a domain. For example, a leader knows in what circumstances certain behaviors are more effective than others. These mental models are more highly integrated and complex bundles of declarative and proceduralized knowledge that further allow for the development of *strategic competencies*, which support an individual's understanding of the contingencies that drive changes in priorities and the allocation of attention and effort (Bell & Kozlowski, 2002). In other words, an individual is able to realize circumstances where attention needs to be redirected, when extra effort is needed, or when to use certain skills over others.

At the most advanced or complex level is the development of *adaptive competencies*. Adaptability involves extrapolating competencies to novel situations, understanding the situation as it unfolds, and generalizing one's knowledge and skills (i.e., competency) to cope with unexpected developments and complex challenges (Kozlowski, Toney, Mullins, Weissbein, Brown, & Bell, 2001). For example, a leader might be able to recognize a crisis before it occurs, apply skills learned in one domain to another, or feel confident approaching new or uncertain situations. Thus, the ultimate goal of development can be construed as the formation of strategic or adaptive competencies to support effective leadership in coping with complex challenges (see Figure 12.2).

Although framing a competency-based approach to leader development in the context of a theory or theories of skill acquisition makes some sense, there also are distinct limitations. Leadership competencies are much more multifaceted and complex bundles of knowledge, skills, and abilities than what are typically considered in skill acquisition research—even complex skill acquisition. Another limitation has to do with the timeframe involved. Whereas skill acquisition is usually studied in a relatively bounded period of time, leader development can be ongoing across the adult lifespan. Leader development is therefore closer conceptually to what it takes to become an expert rather than acquiring a particular skill (see Chapter 9).



Figure 12.2 Expertise development.

Proposition 4: The development of expert leadership follows a longitudinal trajectory that parallels the development of expertise in other domains.

Research suggests that important characteristics of experts' superior performance are acquired through extensive experience. Indeed, the effect of deliberate practice on expert performance is critically important and larger than earlier believed possible (Chi, Glaser, & Farr, 1988). Specifically, a minimum of 10 years or 10,000 hours of concentrated practice is needed to attain rudimentary levels of elite performance associated with expert status in a given domain (Ericsson, 1996; Ericsson & Charness, 1994; Ericsson & Lehmann, 1996). Research also has elaborated on the acquired cognitive mechanisms that mediate the development of superior expert performance (Ericsson, 1996). In terms of developing expert leadership, the same amount of time—or more, given the relational aspects of leadership—might be required. From this perspective, leader development is seen as a particular form of expert performance that is inherently a function of adult development given the extensive time commitment. Thus, it requires some grounding in research and theory in both fields.

DEVELOPING LEADERSHIP EXPERTISE: AN ANALOGY

Instead of attempting an entirely abstract conceptualization and description of how we view the leader moving from novice to expert, we can provide a more concrete example in the form of an analogy. Instead of leadership, imagine the domain of music. Specifically, imagine someone (child, adolescent, or adult) who is starting out to learn how to play the piano in a traditional sense. Before any real music can be played the student needs to begin learning the layout of the keyboard, white keys/ black keys, sharps and flats. In short, elemental *declarative knowledge* must be acquired. To reinforce the emerging declarative knowledge, assignments are usually given in the form of some very basic musical pieces as well as elementary scales to practice. This helps to integrate the declarative with *procedural knowledge* and skills. Once a certain level of mastery of the basics is attained, the student might begin adding declarative and procedural knowledge/ skills with regard to chords, and then chord progressions. Practice builds toward automaticity in which scales, chords, simple pieces of music can be played without a great deal of cognitive (attentional) resources devoted to the task. Over time and with extensive practice, the skills repertoire becomes increasingly more complex as more difficult pieces are practiced and learned. Of course, there are individual differences in how easily these skills are acquired and mastered.

As expertise is gradually acquired, bundles of differentiated knowledge and skills are integrated into more sophisticated competencies.

Knowing the keyboard layout and distinguishing individual notes and chords, when combined with the skill of reading music, help to form a *strategic competency* of "sight playing" (i.e., being able to play something without previously practicing it by reading and translating from the sheet music directly to playing). Recitals and other semipublic performances help to build strategic competencies that guide performance in front of an audience.

At some point during this process the student begins to take on the provisional identity (Ibarra, 1999) of a pianist (or at least a piano player)—or maybe not. There are legions of individuals who had lessons and built up certain skills and competencies related to the piano only to quit. Perhaps the task was not enjoyable or practice began to yield diminishing returns in terms of performance gains. Or the piano student would rather be doing something else such as playing baseball (i.e., chooses a different goal). At some point, however, there is the atrophy or outright rejection of this emerging or provisional identity as a pianist. Possibly the student quits piano but switches to the guitar and a different form of the superordinate musician identity begins to form. Those who continue with piano are likely to internalize this aspect of self as a subcomponent of individual identity. With continued practice and experience, even more complex *adaptive competencies* develop that allow for impromptu performances with friends or possibly even professional or semi-professional engagements, either solo or as part of a group. Still, there are very, very few who reach the level of expertise needed to make a living with music, and even fewer who reach a level of peer recognition and acclaim such as Vladimir Horowitz in classical music or Oscar Peterson in jazz.

Leader development is thought to occur in ways similar to the preceding example. There are relatively simple declarative and procedural knowledge and skills associated with first understanding what leadership is and then practicing certain leadership skills (e.g., setting the direction of a group, providing support and encouragement). At some point, if the student is serious about leadership, an aspect of overall social identity becomes associated with "leader." But as in other complex skill domains, it may take at least 10 years of intensive practice and experience as a leader before expert performance levels are reached. Indeed, it may take more than 10 years, because leadership is inherently an interpersonal and relational (i.e., more complex) phenomenon than mastering a musical instrument. It is also the case that few individuals ever reach the elite status associated with being a world-class leader. But just as there are many perfectly serviceable pianists throughout the world, there are no doubt large numbers of good or even excellent leaders in all domains (business, education, military, or politics). Although there may be a large number of leaders who can organize a rally, there are very few who can lead a social movement and bring about large-scale societal change. Leadership is most often recognized and heralded when it is played out in a very large way (e.g., the Civil Rights movement, war, business fortunes and failures). But possibly even more important are the less acclaimed feats of leadership that occur daily. Whereas these

leadership feats may not be accomplished by world-class leaders, the leaders responsible for those feats nonetheless have mastered some level of expertise in the domain. Furthermore, they are critically important to making businesses, militaries, and governments run effectively.

One might object that the music analogy wears thin because in music the piano is always the same, yet with leadership the context and domain are potentially always different. That is, two different leaders may find themselves in completely different environments (e.g., combat versus supply logistics in the Army; operations versus human resources in a corporate environment) requiring the application of different leadership skills. But just as one pianist may be accomplished in a classical repertoire playing with a large orchestra, another pianist might excel in a small jazz trio or quartet where there is an emphasis on improvisation. The point of relevance is that many of the underlying skills and competencies are the same; however, how they are applied can vary in major ways.

PRACTICING LEADERSHIP

An important issue that deserves additional consideration is what it means to practice leadership. In most other expert domains it is clearly known what skills are being practiced and when someone is or is not practicing the skill in question. Furthermore, standards often exist that provide a basis for relative, if not absolute, feedback to the practitioner. For example, the pianist working to master a challenging chord progression will know when the goal has been achieved, because he or she has heard others play at the desired skill level or the student gets feedback from the instructor.

Practice is critically important to developing expert performance. Research has shown that the amount of deliberate (intentional) practice is strongly predictive of the attained level of performance in musicians (Ericsson, Krampe, & Tesch-Römer, 1993). Based on records from detailed diaries of expert-level musicians who had studied music for over 10 years, it was found that the expert musicians with the highest levels of performance practiced for about 25 hours per week, which was three times more than the less accomplished expert musicians. Amateur musicians of the same age were found to practice less than 2 hours per week—less than 10% of the amount for the best group of expert musicians.

Proposition 5: Intentional practice in leadership is needed to reach a level of expert leader performance.

Clearly, deliberate practice matters in the development of expert musical performance. But unlike music, chess, or sports (typically studied domains of expertise), with leadership the practice opportunities are often more serendipitous. For example, someone (peer, subordinate) may ask for advice on a problem. Instead of providing a pat solution, the practicing leader offers support and encouragement to help the other person construct a solution on his or her own. Is this leadership?

Certainly under the transformational leadership heading of "individualized consideration" and "intellectual stimulation" it would be considered leadership behavior. A significant question to consider is whether the leader is aware that he or she is practicing leadership. The question of whether expertise can develop outside of conscious awareness is debatable. What seems more certain is that being intentional about practice is likely to develop expertise more quickly and thoroughly than being ad hoc or unintentional about it. Thus, the role of *intentionality* in practice is proposed as a key process that supports the development of leadership expertise. It is noted that practice implies not merely repetitions of a behavior, but also involves implicit and explicit feedback that is obtained during and after the behavior.

SUMMARY AND IMPLICATIONS OF LEADERSHIP AS EXPERTISE

For certain leadership skills or competencies it might take less than 10 years of practice to become an expert. One example might be the knowledge and enactment of interpersonal relations, which is continuously being modified through the process of living without special support or instruction. In such a case it might be possible to reach an expert level of performance sooner than usual given the ongoing continuous exposure to interpersonal relations as part of the normal human experience. But there are two things to consider. First, there are individual differences in the preference to interact with others (e.g., extroversion versus introversion). Introverts may have a more difficult time mastering the nuances of interpersonal relations than extroverts. Second, becoming an expert leader involves more than one competency; rather, it involves mastering a complex set of evolving skills that start out relatively basic and simple and develop into complex and interrelated competencies over time with practice. That is the essence of the web of development discussed in Chapter 3.

The next chapter examines the proposed key supporting processes in the development of an expert leader. Specifically, the development of a leader identity is seen as important to forming identity-development spirals. Identity formation is a key process in motivating one to seek out developmental experiences and practice opportunities with regard to leadership. If one does not think of oneself as a leader (or aspire to lead), then there is little motivation to develop as a leader. Self-regulation supports these proposed leader identity-development spirals as it is a key contributor to one's persistence in and across development experiences (see Figure 12.1). Positive spirals continue to the extent that perseverance is applied toward ongoing development to more expert or even elite leader performance levels. In this manner, the individual difference of self-regulatory strength is proposed as a critical resource that contributes to identity-development spirals and the perseverance to higher levels of development as a leader.

CHAPTER

13

Identity Processes in Leader Development

BUILDING A LEADER IDENTITY

The importance of self and identity development to healthy adjustment across the lifespan is supported by the theoretical as well as the empirical literature (Leary & Tangney, 2003). Additionally, this area is recently receiving growing attention in the leadership literature (see van Knippenberg, van Knippenberg, DeCremer, & Hogg, 2004 for a review). As mentioned in our earlier chapter on identity development (Chapter 5), one's identity is a multifaceted and dynamic composite of attributes, values, knowledge, experiences, and self-perceptions (Baltes & Carstensen, 1991). Individuals may possess sub-identities for various social roles they hold, or even identities about future desired or ideal selves (Cross & Markus, 1991). Identities can vary in salience, centrality, and the extent to which they are integrated with other sub-identities. A leader identity, in this sense, is an identity or sub-identity that an individual holds regarding his or her role as a leader.

A leader identity does not necessarily relate only to formal leadership roles, but more importantly how an individual comes to think of oneself as a leader. For this reason, leader identity development is an indispensable component of leader development. It has been noted that leader development can be viewed as enhancing the fit between the requirements of the leader role and the personal identity of the leader (Hall, 2004). Leader development therefore hinges upon leader identity development. Similarly, Shamir and Eilam (2005) suggest that the development of authentic leaders depends upon the centrality of their leader identities to their personal identities. Authentic leaders are thought to be motivated to lead from conviction rather than rewards or

personal gains and their actions are based on positive values and beliefs. In terms of their identity, they think of themselves as leaders and enact leadership at all times, not only when officially in a leadership role (Shamir & Eilam). Developing authentic leaders begins with developing strong, salient, and integrated leader identities.

In a similar vein, Komives et al. (2005) proposed a Leader Identity Development model that focuses on the development of college student leaders. They propose various stages of development (see Chapter 5 for a complete review of the various proposed stages) culminating in an internalization/synthesis stage in which students have integrated their self-view as effective in working with others and have confidence that their ability will generalize to any context. They did not need to hold a formal positional role as a leader to know that they were engaging in leadership. Those at the highest stages of leader identity development hold an *interdependent* view of self (as compared with a dependent or independent self-view adopted in less developed stages). This is similar to Lord and Hall's (2005) model linking leader identity development with skills development such that as leaders develop they take on more inclusive identities, ranging from an individual (novice) to relational (intermediate) to collective (expert) level.

Identities serve a number of important functions implicated in effective leadership and leader development. Baumeister (1995) suggests that one's identity serves as an interpersonal tool and an aid in decision-making. A salient and developed leader identity may facilitate communicating a vision, motivating, directing, and supporting followers. Leaders who know themselves (i.e., are self-aware) and think of themselves as leaders will be more confident and consistent in their actions than others with less self-awareness about their leadership capabilities. Most important for leader development, identity provides a basis for motivation. Social psychological theory suggests that humans have an inner motive to maintain a stable, consistent self-concept (Rosenberg, 1979). As individuals are motivated toward self-consistency, someone with a strong leader identity will be motivated to act in accordance with this identity. As such, it is likely that leaders with developed identities would be likely to seek out experiences to enact leadership. Furthermore, if a leader's possible or ideal self is grounded in becoming an exceptional leader, then such a leader would likely be motivated to behave in ways that promote the achievement of a leader identity (Cross & Markus, 1991). In this way, the leader would be expected to seek out opportunities to develop requisite leadership skills and competencies. Conversely, if someone does not identify as a leader, it seems unlikely that there will be much attempt to acquire the kinds of skills or develop the competencies that are needed for highly effective leadership.

Leadership competencies are developed through experiences that also help to develop and crystallize a leader identity. As identities partly comprise knowledge, experiences, and self-perceptions, building one's knowledge and experiences around leadership will likely strengthen a

leader identity. Leader identities are built through the integration of learning and leading experiences with the self. The idea that identities are developed through experience is common to nearly all theories of identity development (Bosma & Kunnen, 2001) and it is expected to be no different when it involves a leader identity. Experience has also been noted as an integral element of leadership development (Day, 2000). Participating in more leadership experiences strengthens the salience and centrality of a leader identity, especially if the outcomes of the experience are viewed in a positive light. Positive leadership experiences are likely to further entrench a leader identity by increasing one's self-efficacy for leadership and motivate a search for additional developmental experiences. But an opposite spiral is also possible. Negative experiences may weaken one's identity as a leader. Leadership experiences even in non-work settings such as volunteer, family, or leisure settings may further the integration of a leader identity with other sub-identities an individual holds.

The process is thought to be a mutually reinforcing one. As leadership competencies develop, the likelihood of a leader identity crystallizing increases, which further supports the motivation to lead and to learn more about leading. Therefore, we propose that leader identities and developmental experiences can be understood as a spiral. A similar set of relationships has been conceptualized in terms of efficacy-performance spirals (Lindsley, Brass, & Thomas, 1995). As articulated by Lindsley et al., the relationship between efficacy and performance is cyclic in that performance influences self-efficacy, which affects performance, and so on. These spirals can be positive or negative in valence and can relate to groups and organizations as well as individuals (i.e., it is an isomorphic multilevel phenomenon). We believe that at a more observable level, such efficacy-performance spirals occur with regard to leadership. The stronger one's self-conception is around being able to lead (self-efficacy for leadership), the better the likely leadership (all things being equal). But at a less observable (i.e., more implicit) level we believe that identity-development spirals also occur in support of the efficacy-performance ones.

> Proposition 6: Leadership competence is formed through spirals of leader identity formation and change in the context of learning and development through leadership experience.

The idea that a relationship of leader's identity and development is a mutually reinforcing one is consistent with action theories of lifespan development in which individuals are thought to be both products and producers of their development (Brandtstadter & Lerner, 1999). Generally, leaders are both shaped by their development and have an active role in it. Similarly, self-completion theory (Wicklund & Gollwitzer, 1982) suggests that individuals strive to attain a chosen identity by seeking out symbols that are consistent with a desired identity. According to this theory, individuals who choose a leader identity seek out experi-

ences or awards and recognitions consistent with being a leader. When people experience a lack of a relevant identity symbols they tend to feel incomplete. The attainment of these symbols is particularly effective in reducing feelings of incompleteness, especially when others recognize they possess qualities or symbol of a desired identity. Leadership experiences serve to help an individual strive to actualize a chosen leader identity (Gollwitzer & Kirchhof, 2003).

SKILLS ACQUISITION, COMPETENCY, AND EXPERTISE

The desired outcomes of developmental experiences vary given the current levels of competence and the needs of the individual, among other factors. The goals of developmental experiences may range from enhancing technical skills to building confidence as a leader. As discussed in the previous chapters, we propose that a leader is developed through a continuum of novice to expert. A novice must acquire relevant leadership skills (through gaining relative declarative and procedural knowledge), build strategic and adaptive competencies, and finally develop expertise through years of intentional practice. We will use this skill-competency-expertise continuum as a general framework when discussing the progression of identity-development spirals.

Although this broad framework is used as an illustration, it is not intended to suggest that leader development is necessarily a linear or continuous process. Leader development may be discontinuous, nonlinear, and cyclical. It is best understood as a cyclical process of lifelong learning and development. For example, a so-called master (i.e., expert) leader will still realize new skills that need to be acquired (i.e., high self-awareness). Furthermore, there are no final end states to leader development, thus differentiating it further from stage theories of development. From the perspective of lifelong learning, leader development is considered to be an ongoing process that is never fully complete.

Leader identity–development spirals capture the general trend of development, but numerous factors influence the strength, acceleration, and direction of such spirals. Therefore, a more indepth investigation of the process is necessary. General factors that influence the spiral are introduced and then individually discussed in more detail below, following the broad skills acquisition-competency-expertise framework (see Figure 13.1).

FACTORS INFLUENCING THE OUTCOMES OF LEADERSHIP EXPERIENCES

The quality of experiences and the ability of the leader to learn from experiences and integrate them with the leader identity determine the extent to which any particular experience has developmental potential

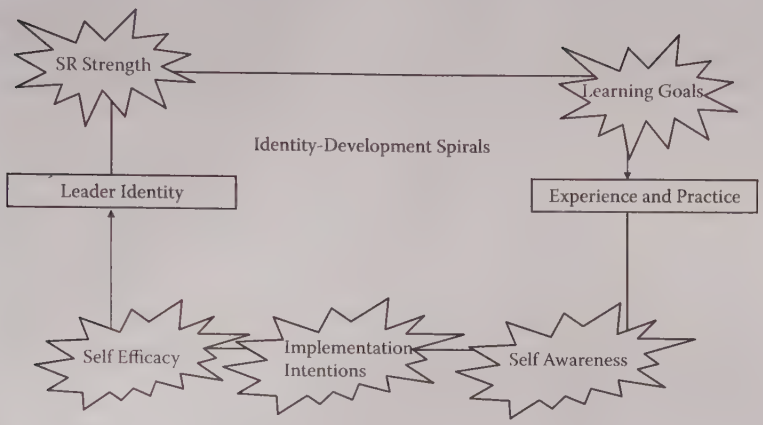


Figure 13.1 Self-regulation processes and development spirals.

or impact (also see Chapter 10). Van Velsor and McCauley (2004) suggest that well-designed developmental experiences include three components: assessment, challenge, and support. Development is most effective when all three components are present in an experience. These components each serve important individual functions, but contribute to overall development by providing the resources for learning and helping motivate leaders to focus on learning and growth.

Assessment provides leaders with information about their current strengths and weaknesses. It provides a referent and clarity about what needs attention and cue on how to achieve it (Van Velsor & McCauley, 2004). At the most basic level, assessment serves as a motivator by providing a leader with performance information that may be discrepant from a self-view. Individuals are motivated to close this performance gap by enhancing performance (Brett & Atwater, 2001). Empirical support exists for the developmental enhancements from feedback even longitudinally. As part of an upward feedback program, Managers who met with their direct reports to discuss previous year's feedback of the manager's performance showed significant performance improvements over a 5-year period (Walker & Smither, 1999).

One of the most common forms of assessment is feedback, especially multi-source feedback, also known as 360-degree feedback. As of the late 1990s, approximately 90% of major Fortune 1000 organizations had adopted some type of multi-source assessment (Atwater & Waldman, 1998). This system involves providing anonymous feedback to managers based on ratings made by at least one supervisor, peer, or subordinate, and sometimes includes self-ratings (Atwater, Waldman, & Brett, 2002). Multi-source feedback provides an individual with a more complete and accurate picture of their performance as people in different reporting roles to a target may experience different aspects of that person's personality and behavior.

But simply providing feedback does not necessarily translate into enhanced leader development. Meta-analytic evidence suggests that feedback interventions improve performance on average but that over one-third of feedback interventions are associated with decreased performance (Kluger & DeNisi, 1996). Several factors influence the outcomes of feedback on development. First, feedback that directs attention to meta-task processes may attenuate the effects of feedback on performance, whereas a feedback intervention that directs attention to task-motivation or task-learning processes augment feedback intervention effects on performance. Overall, results indicate that feedback becomes less effective as attention is directed up the hierarchy of organized levels of control (task learning, task motivation and meta-tasks), that is, away from the task and closer to the self.

Others have suggested an immediate decline in performance or skill level after receiving discrepant feedback, but a subsequent improvement in skill level over time (Klein & Zeigert, 2004). Furthermore, the specificity of the feedback influences outcomes of learning (Goodman & Wood, 2004). More specific feedback may be beneficial for learning what to do when things are going well, but detrimental to learning rules for responding to poor performance. Providing very specific feedback to a learner may focus their learning experience on correct responses and prevent them from encountering varied circumstances and be less able to handle errors.

Challenge refers to how much a particular experience challenges or stretches the individual beyond his or her comfort level. Challenging experiences force individuals to face the limitations of their current skills, abilities, and competencies. Ideally, challenging experiences motivate individuals and push them to acquire new knowledge and skills rather than falling back on habitual ways of responding. Situations that are challenging include those that demand knowledge and skills beyond those the individual currently possesses, are confusing or ambiguous, or are uncomfortable in that the situation is not desired. Difficult goals or conflict also can be sources of challenge (Van Velsor & McCauley, 2004). They also provide the motivation and opportunity to learn. Challenging experiences call for creativity in that they contain opportunities to try a new behavior or reframe existing problems. Additionally, these experiences are motivating because individuals in a challenging situation may desire to attain the rewards associated with reaching difficult goals and/or reduce the discomfort or pain associated with the challenge or failing to live up to the challenge (McCauley et al., 1994).

A developmental experience can be purposely designed to stretch an individual beyond his or her comfort level, but challenge can also be informal or unplanned. McCauley et al. (1994) developed an instrument to measure the extent to which jobs contain developmental components based on the challenge they require. Although challenge provides excellent opportunities and motivation for growth, caution needs to

be taken to ensure a situation is not too challenging as to overwhelm an individual's capabilities. Situations that are overly difficult can lead to feelings of hopelessness, a loss of sense of control, and a focus on emotional coping rather than problem solving. As noted in the findings from years of goal setting research, difficult yet attainable (as compared to impossible or "do your best") goals lead to the highest performance levels (Locke & Latham, 2002).

Although all leaders need to take some responsibility for finding challenging assignments, individuals who are self-employed may find it particularly difficult. One recent study sought to understand career development of "boundaryless careers" (O'Mahony & Bechky, 2006). Through conducting interviews with high-tech and film production contractors, the authors found that development and career progression was acheieved mainly through stretchwork assignments. These are assignments that contain a new element for an individual, something just outside their domain of expertise or previous experiences. Stretchwork was intentionally sought after and attained by acquiring referrals, reframing their abilities, distinguishing themselves from others, or even offering discounts on new types of assignments.

Support shows a leader that others value their developmental efforts. Support helps an individual bear the weight of a challenging situation and can come from other people such as bosses, coworkers, mentors, and family, or from situational factors such as organizational culture or norms or procedures. Leaders need support to maintain a sense of efficacy and openly examine their mistakes (Van Velsor & McCauley, 2004). Further, support may increase learners' confidence in their ability and relieve some personal stress associated with challenge. Support also facilitates the sense that the leaders have permission to try out new ways of thinking or behaving.

As an example, the support offered through mentoring can be described as either psychosocial or career-related (Kram, 1985). First, psychosocial support is interpersonal in nature and includes friendship and emotional support. This type of support is necessary for the psychological development of a protégé, resulting in for example, strengthened self-efficacy. Career-related support enhances a protégé's advancement in the organization and may include sponsorship, increasing the visibility of the protégé in the organization, or placement with challenging job assignments. Meta-analytic evidence suggests that the outcomes of mentoring include higher compensation, greater salary growth, and more promotions, career satisfaction, job satisfaction, and satisfaction with mentor (Allen et al., 2004). Further, the benefits of informal mentorship outweigh the benefits of formal mentorship (Ragins & Cotton, 1999).

In addition to that offered by supervisors, mentors, or teammates, support can also be provided through organizational resources in the form of practices, policies, and climate. Organizational climate has been defined as shared perceptions of the events, practices, and procedures

and the kinds of behaviors that are rewarded, supported, and expected in a setting (Schneider, 1990). Climates are often described with respect to a specific strategy or outcome. An organization's climate for leader development or climate for learning may play an important role in support for development (Klein & Ziegert, 2004).

An organizational climate for learning includes the shared perceptions employees hold about the extent to which their organization expects, supports, and rewards the acquisition of knowledge and skills that may enhance job (or leadership) performance. Both researchers and practitioners have given much attention to related concepts such as learning organizations, continuous learning, and knowledge management. Climate for learning might include providing employees with novel work challenges, permission to experiment, feedback, training programs, or formal or informal technologies that support the sharing of knowledge within an organization.

A *climate for leader development* is more specific than a climate for learning and has received less research attention. This type of climate refers to shared perceptions regarding the extent to which leader development is rewarded, supported, and expected in a particular organization based on the practices, policies, accounts, and events regarding leader development. Organizations that have strong and positive leader development climates provide leaders with more opportunities for development such as feedback, coaching, mentoring, training, stretch assignments, or action learning programs, will tend to reward leaders for developing and refining their leadership knowledge and skills, and provide motivation for leaders to enact newly acquired knowledge and skill on the job.

The importance of a supportive and safe environment has also been noted regarding team learning. One important construct found to play a role in team learning is psychological safety, which refers to shared perceptions team members hold that their team environment is a safe place in which one can take interpersonal risks (Edmondson, 1999). In a team with high psychological safety, members may feel confident to express themselves without fear of embarrassment, rejection, or punishment. Psychological safety describes an environment that is conducive for risk taking in the process of learning (Edmondson, 1999) or adapting to change such as innovations (Baer & Frese, 2003).

INDIVIDUAL DIFFERENCES IN SELF-REGULATORY PROCESSES

In addition to assessment, challenge, and support, which are all aspects of the particular developmental experience itself, CCL includes a fourth element necessary for development: the ability of the leader to learn. Learning from experience involves (a) recognizing when new behaviors and ways of thinking about issues are appropriate and called for,

(b) accepting responsibility for development, (c) have self-understanding, (d) intentionally seeking out growth opportunities, (e) being able to reflect on the process of learning, (f) engaging in activities that provide the opportunity to learn or test the new behavior, and (g) working to develop and use a wide variety of learning tactics to acquire a skill (Van Velsor, Moxley, & Bunker, 2004). The inclusion of ability to learn as an important criterion for development highlights the role that individual differences play in the developmental process. Sternberg identifies what he terms to be "practical intelligence" as an important factor associated with learning from experience, and has some evidence of individual variations on this factor. Unfortunately, very little research in the leadership literature has empirically investigated exactly how leaders learn from experience. Many theories of learning highlight the regulatory processes that facilitate individual learning and development (e.g., Zimmerman, 1989). Several individual difference factors may affect the extent to which individuals can and do engage in self-regulation that builds identity and competence (see Fig. 13.1).

Proposition 7: Individual differences between leaders influence the rate and direction of the spirals of identity development and leader development.

The development of a leader requires one to have a long-term, future-oriented perspective. As such, developmental goals are rarely achievable quickly and therefore involve continuous monitoring and adjustment for success. Additionally, the rewards of development can be delayed, requiring a leader to avoid giving in to habitual or natural tendencies that offer immediate gratification. Self-regulatory processes are required to fight such inclinations. The process of monitoring and adjustment of goal progress involves conscious control over thoughts, behavior, or emotions, and is essential for development. Self-regulation, as an executive function of the self, serves to focus, control, and guide behavior and emotions beyond habits and impulses (Baumeister, Muraven, & Tice, 2000). The executive function of the self regulates important volitional capabilities (Baumeister, 1998) and fosters self-directed intentional behavior including response inhibition, strategy generation and implementation, and flexible action (Denckla, 1996).

Self-regulation serves an important function throughout the leader development process as it plays a role in (a) establishing a goal or desired state, (b) engaging in the appropriate behaviors and emotions needed to obtain one's goal, and (c) monitoring process toward the goal. To meet goals, a delay of gratification is often required. Self-regulation is necessary to monitor cognition, behavior, and emotions to achieve developmental goals. In the training literature, it has been suggested that the self-regulatory system comprises three interrelated components: practice, self-monitoring, and self-evaluation (Kozlowski et al., 2001). Each of the three self-regulatory processes corresponds to three aspects of performance that individuals regulate throughout the

developmental process: practice (behavior), self-monitoring (cognition), and self-evaluation (affect). Behavioral self-regulation is most clearly linked with development, as one must engage in desired behaviors or practice in order to develop. Emotional regulation helps direct attention away from the self and toward the task or problems (Kanfer & Ackermann, 1989). Negative emotions especially draw attention toward the self, depleting attentional resources that could be devoted to the task. Cognitive self-regulation involves planning and monitoring thought. A recent study (Keith & Frese, 2005) has highlighted the importance of affective and cognitive self-regulation in the training process. They found that emotional self-regulation (emotion control) and cognitive self-regulation (meta-cognition) fully mediated the adaptive transfer performance benefits of error management training over error avoidant training programs. This evidence suggests that engaging in emotional and cognitive self-regulation facilitated training transfer effects. Error management training is one way to stimulate these types of self-regulation.

Furthermore, the focus of self-regulation can influence the development a leader identity and a leader's motivation to lead. Kark and Van Dijk (2007) created a comprehensive conceptual framework integrating self-regulatory focus, leader values, possible selves, and leader style. The authors applied regulatory focus theory (Higgins, 1997) as an explanatory mechanism for the influence leaders have on their followers' self-concept. In short, regulatory focus theory suggests that individuals vary in the extent to which they approach pleasure and avoid pain. Although situations influence the intensity of an individual's regulation focus, generally people have a chronic regulatory focus. Those with a strong promotion focus regulate the achievement of awards, have a high motivation for change, seek pleasure, and often focus on achieving an "ideal self," whereas those with a strong prevention focus regulate the avoidance of punishments, have a primary motivation for stability, avoid pain, and focus on the "ought self." As such, the development of a leader identity for an individual with a strong promotion focus is likely through an ideal possible self.

Kark and Van Dijk (2007) propose that leaders' chronic regulatory focus and their value for change influence their motivation to lead. Specifically, those with a strong, chronic promotion focus are likely to have a strong affective motivation, to lead. Because a promotion focus is tied to personal motivation those leaders seek growth because they want to and should be motivated to lead because of affective reasons rather than obligations or external drives. Further, leaders with this desire for change and growth are likely to want to motivate their followers to grow and are more likely to use charismatic or transformational leader behaviors. Displays of these types of behaviors are in turn, likely to prime a promotion regulatory focus in their followers. In sum, it is important to consider whether a leader focuses on regulation of achieving the positive or regulating avoiding the negative.

Effective leaders must regulate their thoughts, behaviors, and emotions to facilitate followers' perceptions of consistency and rationality in order to gain influence (Lord & Maher, 1991). Similarly, regulation is necessary within the development process to persist and be intentional in development. The remainder of this section reviews five particular aspects of self-regulation that are thought to have important implications for leader development in terms of accelerating leader identity-development spirals. Those aspects are: (1) self-regulatory strength, (2) goal orientation, (3) generalized self-efficacy, (4) self-awareness, and (5) implementation intentions (see Figure 13.1).

Self-Regulatory Strength

Recent studies have suggested that the ability to self-regulate is similar to muscular strength. The ability appears to be stronger in some individuals than others, tires after being exercised, and can be built up with practice. Drawing on this analogy, the self-regulatory strength model suggests that self-regulation is an internal resource needed to inhibit, override, or alter responses (Baumeister, Heatherton, & Tice, 1994). Regulatory activities require energy expenditure that can be depleted with use. Individuals are limited in their self-regulatory capacity, but this capacity can be gradually increased over time with practice, similar to how a muscle can be strengthened with exercise.

Baumeister et al. (1994) found that behavioral, emotional, and cognitive regulation all stem from a common regulatory resource such that depletion of self-regulatory resources in one domain can impair self-regulation attempts even in seemingly unrelated domains. For example, exerting restraint by not eating chocolate can deplete resources and subsequently impair persistence in a cognitively demanding task. The self-regulatory strength model has received support in numerous areas such as diet, physical endurance, persistence on difficult tasks, performance on cognitive tests, emotional regulation, and decision-making, among others (for a review see Schmeichel & Baumeister, 2004). Evidence also exists regarding the ability to build the self-regulatory strength through repeated practice (Muraven, Baumeister, & Tice, 1999).

Development requires expending energy regardless of where an individual is in the development process. Similarly, as self-regulation applies to processes involving exerting cognitive, behavioral and emotional effort, it is an important variable throughout the leader development process. Individuals who are better able to regulate their responses may be better suited for development (i.e., have better developmental readiness). DeWaele, Morval, and Sheitoyan (1993) suggest that individuals good at self-management (i.e., self-regulation) are aware of how changes in their life affect their development, are interested in self-development, realize the negative effect of self-regulation failure, are proactive in their self-development, and are responsive to feedback. Broadly speaking, regulation is necessary within

the development process in order to persist and be intentional in development. Self-regulatory processes help a leader focus attention and maintain persistence. The greater self-regulatory strength, the better an individual is able to maintain the energy required to persist at a task and sustain attentional focus (Baumeister, Heatherton, & Tice, 1994). As challenge is a widely recognized component of developmental experiences (McCauley & Van Velsor, 2004), self-regulation is needed to persist through the challenge rather than giving up. Furthermore, strong self-regulation may be particularly important when external resources are lacking. Rather than an individual relying on external goals, feedback, guidance, and support, a leader is able to draw from his or her personal resources to make progress on developmental goals (London, 2002).

Proposition 7a: Self-regulatory strength accelerates the ongoing learning and development of leaders.

Goal Orientation

Core conceptualizations of individual abilities play a large role in channeling self-regulatory processes that guide attention and behavior. For example, if an individual believes that ability is generally unchangeable, he or she has little motivation to invest time and effort in his or her own development. One's goal orientation is based on these core assumptions individuals hold regarding the malleability or rigidity of abilities. An individual with a learning goal orientation views ability as malleable and developable or an acquirable skill (also called an incremental theorist), whereas one with a performance goal orientation views ability as a more or less fixed capacity (also called an entity theorist; Dweck, 1996).

Goal orientation reflects the internal motivational processes that affect an individual's task choice, self-set goals, and effort mechanisms in learning and performance contexts. Individuals with *learning goal* orientations are motivated toward developing competence through acquiring and mastering new skills, seek challenges to perfect competencies, and regard errors as instructive in the process. Conversely, individuals with *performance goal* orientations are focused on demonstrating competence in safe environments, they prefer tasks that minimize errors, and view high effort as indicative of low ability. Performance goal orientation is further delineated into prove and avoid dimensions. A prove goal orientation focuses on demonstrating one's competence to gain a favorable judgment from others, whereas an avoid orientation focuses on avoiding an unfavorable judgment from others (VandeWalle, 1997). Additionally, goal orientation may be situation specific. An individual may have a learning goal orientation regarding leadership but hold a performance orientation in a sports context (Yeo & Neal, 2004).

Considerable attention has been given to how goal orientation relates to training and learning (Brett & VandeWalle, 1999) and thus is

applicable throughout the leader development process. A significant body of the goal orientation literature suggests that this construct explains an individual's underlying motivation and approach to learning. As such, learning goal orientation is conceptually linked to motivation to learn. Motivation to learn has been found to significantly predict involvement in developmental activities. Learning motivation predicted involvement in five types of developmental activity (required training on work time, work-based developmental activities on work time, voluntary job-related learning on personal time, voluntary non-job related learning on personal time, and career planning activities) of manufacturing employees (Birdi, Allan, & Warr, 1997). Furthermore, motivation to learn significantly predicted involvement in developmental activities in a longitudinal study (Maurer, Weiss, & Barbeite, 2003).

The effect of learning goal orientation on learning outcomes can be partially explained through regulatory processes. Research has shown that meta-cognitive activity partially mediates the relationship between goal orientation and learning outcomes (declarative knowledge and self-efficacy) in a computer-based training program (Schmidt & Ford, 2003). Meta-cognitive activity—or thinking about thinking—is a type of cognitive regulatory activity that involves monitoring and controlling one's thought processes. Meta-cognitive monitoring and control behaviors involve such activities as identifying the task and steps to complete the task at hand, evaluating progress, predicting outcomes of progress, deciding where to allocate resources, and prioritizing activities (Schmidt & Ford, 2003). Additionally, meta-cognitive activities explained variance in learning outcomes above and beyond time on task alone. This suggests that individuals who engage in this type of self-regulatory behavior are "learning smarter" by spending their time more efficiently.

In general, goal orientation plays a role in self-regulatory processes in numerous ways. At the most basic level, goal orientation acts as a motivation that helps direct self-regulation in the accomplishment of developmental goals. First, goal orientation is related to both the level and type of goals individuals set. People with learning goal orientations set much higher developmental goals with the goal of mastery, whereas individuals with a performance goal orientation set less challenging goals focused on demonstrating competence (Brett & VandeWalle, 1999). Second, goal orientation is related to the engagement in appropriate behaviors to attain goals. For example, individuals with learning goal orientations are more likely to direct attention to the task rather than the self (Steele-Johnson, Beauregard, Hoover, & Schmidt, 2000). Conversely, people with high performance goal orientations tend to engage in more impression management behaviors. The effort required to monitor self-presentations depletes later self-regulatory resources (Vohs, Baumeister, & Ciarocco, 2005), which are essential for development. Finally, a learning goal orientation may facilitate an individual's ability to monitor progress toward goal achievement. For

example, those with learning goal orientations have been found to be more proactive in seeking feedback, which is one way to monitor progress toward the achievement of developmental goals (VandeWalle, 2003). In sum, individuals with learning goal orientations are more likely to engage in self-regulatory behaviors promoting the achievement of their developmental goals.

Proposition 7b: Learning goal orientations facilitate development of leader expertise through the use of self-regulation strategies.

Generalized Self-Efficacy

Self-efficacy refers to a "belief in one's capabilities to organize and execute the courses of action required to produce given attainments" (Bandura, 1997, p. 3). Simply put, it refers to how well an individual believes he or she can do on a task. One's self-efficacy judgment is generally determined through past performance or through the observation of others' performance (Bandura, 1997). Self-efficacy beliefs can be developed and strengthened through mastery experiences, modeling, social persuasion, and judgments about physiological states such as emotional arousal and tension as signs of vulnerability (Wood & Bandura, 1989). Meta-analytic evidence suggests a strong positive relationship between self-efficacy and job performance (Stajkovic & Luthans, 1998), which is most often explained through its effect on motivation and regulation.

Self-efficacy is addressed in several theories of motivation including goal setting (Locke & Latham, 2002), expectancy theory (Vroom, 1964), and motivation to learn (Colquitt, LePine, & Noe, 2000). Specifically, self-efficacy speaks to an individual's confidence in the ability to organize resources for goal attainment, and relates to task choice, task effort, and persistence in task achievement (Gist & Mitchell, 1992). In social cognitive theory (Bandura, 1986), self-efficacy plays a key role in self-regulation particularly through its role in goal setting and task persistence in goal achievement. The relationship between self-efficacy and performance has been described as a spiral. Enhancing performance is related to increases in self-efficacy, which in turn is related to increasing performance, and so on. The spiral can be positive or negative (Lindsley et al., 1995). Self-efficacy is a key component in forming attitudes toward development, which explains later participation in developmental activities (Maurer et al., 2003).

Self-efficacy beliefs are often domain-specific, but research has also addressed efficacy beliefs more generally. *Generalized self efficacy* refers to a global trait-like characteristic of one's estimate of his or her overall ability to achieve required performance in a variety of situations (Bandura, 1997). Generalized self-efficacy has been included in higher-order constructs addressing one's overall assessment of the self such as core self-evaluations (Judge, Erez, Bono, & Thoresen, 2002)

and positive self-concept (Judge, Thorensen, Pucik, & Welbourne, 1999). Generalized self-efficacy was found to be a strong predictor of motivation through the self-regulatory functions of goal-setting and goal commitment (Erez & Judge, 2001). Further, generalized self-efficacy was positively related to a manager's ability to deal with change (Judge et al., 1999). Generalized self-efficacy is particularly useful in predicting how individuals approach novel or complex situations. For example, high generalized self-efficacy was found by Judge et al. to be a precursor for positive attitudes toward critical career-oriented events, specifically those involving major job and organizational changes. Individuals with low self-efficacy may avoid or become defensive in situations in which they believe they cannot perform well, whereas individuals with a high generalized self-efficacy respond more adaptively.

Self-efficacy may be important to maintain self-regulation as it provides motivation for self-regulation. People who have a positive view of their ability to attain desired outcomes are better able to maintain regulation and motivation even when the situation is challenging (London, 2002). On the other hand, people who have low self-efficacy may give up much more easily because they are more threatened by challenge. They are also more likely to engage in self-protective behaviors such as discounting negative feedback or blaming others for their failures. Furthermore, individuals with greater efficacy are more likely to attain their goals because of the nature of the goals they set. Individuals with a positive core self-evaluation (one dimension being generalized self-efficacy) set more self-concordant goals. In other words, individuals with a more positive view of their self and abilities set goals that were more consistent with their values, ideals, and interests than individuals with less positive views of themselves (Judge, Bono, Erez, & Locke, 2005). As self-concordant goals are more self-relevant, the probability for goal attainment is higher because it motivates the individual to put effort toward these goals (Sheldon & Elliot, 1999). This suggests that the developmental goals that individuals with greater generalized self-efficacy are more likely to be consistent with their values and interests, and therefore more likely to be achieved. In sum, increased self-efficacy should facilitate development because it increases the motivation an individual has in facing challenging situations, setting goals, and maintaining self-regulation.

Proposition 7c: A leader's generalized self-efficacy will positively relate to leader development and learning.

Self-Awareness

Individuals also differ with respect to the quality and accuracy of self-beliefs as well as differing in their beliefs regarding their ability. One's self-awareness may have important implications for expert leader development, particularly through its link with identity. Self-awareness

may mean different things in different contexts, but usually refers to self-focused attention. One general theme in the self-awareness literature across multiple disciplines is a focus on consistency between aspects of self as well as consistency between self and actions (Carver, 2003). Highly self-aware individuals have a more integrated and internalized view of themselves and behave in ways that are consistent with this self-view. Similarly, in the leadership literature, Hall suggests "self-awareness refers to the extent to which people are conscious of various aspects of their identities and the extent to which their self-perceptions are internally integrated and congruent with the way others perceive them" (2004, p. 154). This definition draws attention to both the quality and accuracy of one's self-perceptions.

Self-awareness has also been conceptualized and measured similarly to private and public self-consciousness, which is often manipulated by placing a mirror in front of the participant to draw attention to the self. In this sense, self-awareness is conceptualized as a state that can be easily manipulated rather than as a more stable individual difference variable. Although these two conceptualizations are somewhat related, we do need to avoid potential confusion about our use of the term. We refer to self-awareness as an individual difference that has to do with one's conscious awareness of components of the self and the accuracy of those observations. Other researchers have used similar terms such as self-understanding or self-insight (London, 2002).

Self-awareness is critical for leader development and success. Research has empirically linked self-awareness and managerial performance across a variety of organizational contexts (Church, 1997). To lead effectively, leaders need to have insight into how others respond to their words and actions. Because self-aware leaders are better able to consider the impact of their behaviors on others, they are better able to monitor and adjust their behaviors to meet the needs of others. This should facilitate the adaptive transfer of skills and knowledge they acquire to working with others of various abilities and attitudes as well as to changing environmental situations.

In this sense, leader development can be viewed as the process of enhancing the fit between the expectations and requirements of the leader and the leader's personal identity (Hall, 2004). Self-awareness is the link that helps a leader to recognize a need to change aspects of his or her identity or to change aspects of the environment to become a better leader. Through being highly self-aware, a leader is able to reflect on his or her strengths and weaknesses and thereby facilitate growth and continuous learning (Hall, 2004). Individuals with greater awareness of their strengths and weakness are better able to manage feedback, which is an integral component in lifelong development (London, 2002). Additionally, they are more accepting of feedback from the environment, less likely to discount negative feedback, and better able to integrate feedback with their self.

Self-awareness is an important individual difference factor in understanding self-regulatory processes. VanVelsor et al. (2004) suggest that cognitive self-regulation (metacognition) is a critical element of self-awareness as it sets the stage for asking oneself deeper cognitive questions for reflection. Monitoring and reflecting on one's thinking and learning processes can enhance self-awareness and the ability of an individual to learn and develop. Self-awareness is likely related to goal setting as well as monitoring the progress toward goal achievement. Individuals with greater self-awareness may set more realistic goals as well as goals most pertinent to their needs. As self-awareness includes self-focused attention, then with greater self-awareness, leaders must pay close attention to progress toward their personal development goals. Leaders with the ability to assess their strengths and weaknesses are also more likely to be aware of their progress.

Proposition 7d: Self-awareness will facilitate the development of leader learning and expertise.

Implementation Intentions

Often people have intentions to perform various behaviors but fail to execute them for a number of reasons. Many people have difficulty beginning tasks or, after getting started, are easily distracted and lose focus on a task. One type of self-regulation strategy called implementation intentions can facilitate goal achievement through a number of psychological processes. Implementation intentions (Gollwitzer, 1999) serve to make the initiation of goal-directed behavior nearly automatic by designating where, when, and how behavior leads to goal attainment. In this sense, implementation intentions take goal intentions a step further.

A goal intention denotes an intention to reach a certain outcome or behavior, whereas an implementation intention denotes an intention to perform a particular goal-directed behavior when a specific situation is encountered. For example, a goal intention might be to improve interpersonal skills, whereas an implementation intention might be "when I meet with my direct reports, I will rephrase their statements before I express my opinion to ensure that I am listening and I understand their concerns." Generally, implementation intentions "facilitate attending to, detecting, and recalling viable opportunities to act toward goal attainment and, in addition, automate action initiation in the presence of such opportunities" (Gollwitzer, Fujita, & Oettingen, 2004, p. 214). In essence, implementation intentions pass the control of behavior from an internal, cognitive control to anticipated situational cues. Gollwitzer (1999) argued that as soon as the chosen situational cue is encountered, specified behavior is enacted automatically.

Individuals differ with respect to how often they furnish goals with implementation intentions and how strong such intentions might be. Gollwitzer (1999) suggests people generally form implementation intentions around their goals about two thirds of the time without being directed to do so. Meta-analytic results indicate that individuals who employ implementation intentions are better able to achieve goals than those who do not use this strategy ($d = .65$; Gollwitzer & Sheeran, 2006). The effectiveness of using implementation intentions has been demonstrated for goals as diverse as engaging in health-promotion behaviors to completing written reports to executive control in patients with schizophrenia (Gollwitzer, Fujita, & Oettingen, 2004). Meta-analytic evidence suggests that the use of implementation intentions has a substantial overall positive effect on goal progress (Koestner, Lekes, Powers, & Chicoine, 2002).

The effects of implementation intentions on goal attainment are impressive, particularly when action initiation is difficult, for goals that are easy to forget, or for individuals who have problems with behavioral control or are often preoccupied with cognitive distractions (Gollwitzer, 1999). Furthermore, using implementation intentions has a stronger effect on goal progress when goals are difficult rather than easy (Gollwitzer & Brandstatter, 1997), when the intention to engage in behaviors is strong, when the superordinate goal is activated, and when the link between the situation and desired behavior is clear (Gollwitzer, Fujita, & Oettingen, 2004).

It is likely that individuals who employ implementation intentions have an advantage in pursuing developmental goals compared with those who do not. Specifically, the use of implementation intentions is likely to facilitate developmental goal progress. This effect is particularly pronounced when paired with goals that reflected the interests and values of the individual, such as identity goals. Koestner et al. (2002) found that implementation intentions moderated the impact of self-concordant goals on goal progress, such that relationship between self-concordant goals and goal progress was stronger for individuals who used implementation intentions. One likely reason for this is that individuals often end up pursuing multiple goals at the same time, which presents distractions and obstacles that force them to consciously make commitments and adjustments to a particular goal. Implementation intentions may relieve such a burden by making the most important goals especially salient. This idea is consistent with theorizing on why people are resistant to change. Kegan and Lahey (2001) suggest that individuals are often pulled by conflicting commitments that they must work through before committing to a particular course of action. Forming implementation intentions may facilitate the salience of immediate goals.

Individuals who form implementation intentions regarding their development also may be better able to preserve their self-regulatory resources. Forming implementation intentions creates a mental representation of an anticipated event, much like a schema or a mnemonic

aid, which becomes highly activated and accessible when the situation is encountered. The demand on attention is reduced because the mental representation is easily accessible. Additionally, the behavioral response becomes automatic, thereby reducing behavioral as well as cognitive regulatory demands. Empirical support exists for the effect that forming implementation intentions has on reducing the negative effects of ego-depletion, or the depletion of self-regulatory resources (Webb & Sheeran, 2003).

Proposition 7e: Forming implementation intentions regarding initiating leadership practice and persisting through distractions will facilitate leader development.

INDIVIDUAL AND ENVIRONMENT INTERACTION: ACCELERATING LEADER DEVELOPMENT

Environmental factors of assessment, challenge, and support as well as personal factors relating to regulation all contribute to the outcomes of developmental experiences. Although personal and environmental factors may have direct effects on development outcomes, it is more likely that they have interactional effects. Psychologists have long suggested interactions between persons and the environment. It is likely that greater regulatory processes on the part of the individual may compensate for experiences that may be less developmental by nature.

There are any number of potential interactions between assessment, challenge, support, and the various individual differences related to self-regulation. We have highlighted a selection of possible interactions. First, individuals with a learning goal orientation are more likely to be proactive in seeking feedback than individuals with a performance goal orientation. A learning goal orientation has been found to relate to increased perceived value and decreased perceived costs of seeking feedback especially when the individual's leader is low on consideration (VandeWalle, Ganesan, Challagalla, & Brown, 2000). Additionally, individuals with learning goal orientations may be more likely to accept feedback given to them. Individuals may react defensively to feedback that is critical or discrepant with their self-view. Brett and Atwater (2001) found that over time, individuals with a learning goal orientation reacted more positively to discrepant 360-degree feedback than those with a performance goal orientation.

In sum, we have discussed how environmental factors (assessment, challenge, and support) and individual factors (self-regulatory strength, goal orientation, self-efficacy, self-awareness, and implementation intentions) each contribute to the leader development process. We suggest that factors of the person and the environment interact to accelerate development (see Figure 13.2). It is clear that self-regulatory processes are important, but self-regulatory factors may manifest themselves

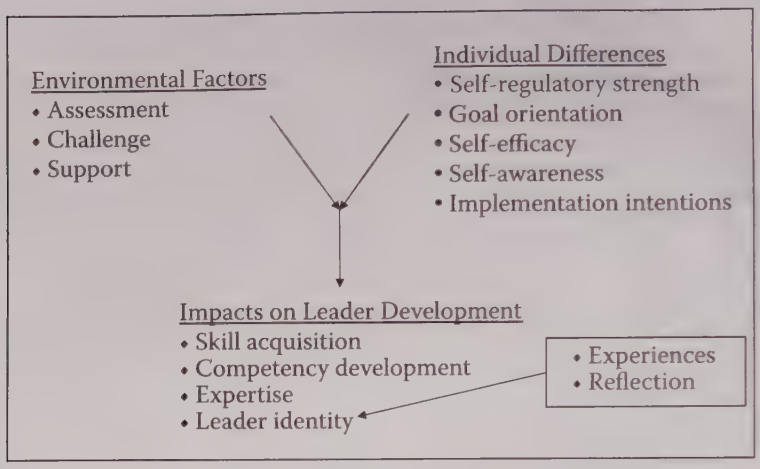


Figure 13.2 Environmental and individual effects on leader development.

differently throughout the process. In the next section, we further elaborate on the role of self-regulatory processes, as well as individual differences and tactics that influence the ability to self-regulate during skills acquisition, competency development, and expertise development.

SELF-REGULATION IN THE DEVELOPMENT OF SKILLS, COMPETENCIES, AND EXPERTISE

Skill Acquisition

Self-efficacy and self-regulation are both key elements in the skills acquisition process, but have differentially important roles throughout the process. Self-efficacy is thought to enhance learning through its motivational role by enhancing expectations of successful performance in a given domain. In a meta-analytic path analysis, self-efficacy was found to play a key role in predicting training motivation (Colquitt, LePine, & Noe, 2000). Self-efficacy was positively related to motivation to learn, which in turn predicted declarative knowledge and skill acquisition.

Kanfer and Ackerman (1989) suggest that the resources used during the skills acquisition process change over time. Individuals' estimates of their efficacy and the factors that play in to their efficacy judgment change throughout the skill acquisition process and motivate the use of different resources. Additionally, the resources that best predict performance also change. Early in the acquisition process, several factors play into one's efficacy judgment such as the task environment, current knowledge and abilities, and previous performance in a related acquisition process. But over time efficacy judgments are based on simpler and less effortful

processes. This shift represents a movement from controlled to automatic processes. As there is a freeing up of resources as a task is learned and becomes more easily performed, motivational factors and self-regulation may be more important during later stages. In early stages, individuals have few attentional resources to spare for self-regulation. As such, self-efficacy judgments are more predictive of early skills acquisition success, whereas self-regulatory mechanisms such as goal setting and self-monitoring are more predictive during later stages (Mitchell et al., 1994). Goal setting is more effective when the task is not completely novel.

Goal orientation is an important variable to consider as it influences the direction of resources invested in the skills acquisition process. In general, individuals with high learning goal orientations should be better equipped for skills acquisition as they may not view mistakes as threats and will be less likely to withdraw from obstacles, minimize effort, or focus attention on performance indicators rather than the task. A study conducted by Yeo and Neal (2004) found that rate of change in effort-performance relationships was strongest for individuals with a low performance goal orientation. These results suggest that over time the effort put forth by individuals with low performance goal orientations was more strongly and positively tied to performance than those with a high performance goal orientation. The authors suggest that individuals with low performance goal orientations may direct their efforts more toward ego management than on the task. In other words, they spend more effort trying to appear as though they are competent rather than investing energy on the task directly.

Research examining the roots of ego depletion has demonstrated that self-regulation efforts targeted at portraying a positive impression to others can reduce the resources available to self-regulate other facets of behavior (Vohs, Baumeister, & Ciarocco, 2005). This may predict the quality of the effort put forth, such that low performance goal oriented individuals work through difficulties early on and are more intentional in their development. At the end of the practice session an interaction was noted between learning and performance goal orientations. The benefits of a low performance goal orientation only emerged for those individuals with a high learning goal orientation. A high performance goal orientation may be particularly detrimental when individuals are trying to learn, as they are not willing to be vulnerable to appearing incompetent.

Goal orientation also may influence the skills acquisition process, particularly as it interacts with the complexity or demands of the task (Steele-Johnson, Beauregard, Hoover, & Schmidt, 2000). Following Kanfer and Ackerman's (1989) model of skills acquisition, Steele-Johnson and colleagues (2000) suggest that one's goal orientation may be more or less beneficial depending on the demands of the task. For example, performance goal orientation may be beneficial for routine tasks with low cognitive demand because it may cue rehearsal task strategies that accelerate automatization and in turn may free up cognitive resources.

Conversely, learning goal orientation cues individuals to develop task strategies and schemas that may help in the long term. Someone with a learning goal orientation is more likely to direct attention toward the task, which may be more beneficial in early stages of complex skill acquisition as it cues self-regulatory behaviors. The authors suggest that schema development may not be important for simple tasks, or alternatively, benefits of schema development may be time-lagged.

Even before one engages in the skills acquisition process, a choice is made for the need to learn a new skill. Heightened self-awareness may help an individual identify areas that need to be developed. Having an accurate understanding of one's strengths and weaknesses helps an individual know his or her needs. Highly self-aware leaders may be best able to identify new skills to be acquired, whereas individuals with low self-awareness may discount or ignore self-relevant feedback and have negative attitudes toward work (Ashford, 1989).

People who are better able to use implementation intention strategies are likely to acquire skills faster than those who do not. Implementation intentions have been consistently found to help initiate task-relevant behavior. An individual might have a goal to acquire new knowledge or skills at the declarative or procedural level, yet may be having a difficult time beginning such a process. Forming an implementation intention around learning a particular skill is likely to help an individual begin or persist in skills acquisition. Additionally, one main tenet of implementation intentions that appears to relate to skill acquisition pertains to the automaticity of behavior. Forming implementation intentions makes a behavioral response automatic when a situation is encountered (Gollwitzer, 1999). In this regard, implementation intentions may also speed up the process of attaining automaticity in a particular skill or task, thereby freeing cognitive resources.

Competency Development

As declarative and procedural knowledge become more complex and integrated, schemas or mental models are developed. Schemas are generally considered to be organized knowledge about a given concept, including attributes of a concept and the relationships among them. Schemas provide information on the storage of knowledge and a system to integrate new knowledge within a particular domain. Strategic and adaptive competencies are supported through the development of such cognitive representations. As mentioned earlier, strategic competencies involve having an understanding of contingencies that call for changes in attention and behavior in a situation (Bell & Kozlowski, 2002). Strategic competencies are created out of extensive and integrated schemas. Leaders with more developed strategic competencies are better able to respond to a variety of circumstances because they have a larger repertoire of possible responses and a better understanding of when a particular response is warranted. Adaptive competencies are more

complex than strategic competencies and involve generalizing knowledge and skills to new situations and situational awareness. A leader with greater adaptability is better prepared to manage unexpected or complex situations (Kozlowski et al., 2001).

In addition to its role in acquiring knowledge and skills, regulation is also a key component in the development of competencies, but the role may manifest itself slightly differently at this level. Because competencies are developed out of cognitive representations of events such as schemas and mental models, exploring the role of regulation in the development of these representations is a valuable first step. A more developed schema is one that contains more elements, more links among elements, and a more complex hierarchy of elements. Although more information is contained in an expert's schema relative to that of a novice, the component "chunks" are also larger and are more united. Because there are more links and stronger links among pieces of information, experts are more quickly able to find information contained in their schema than a novice (Fiske & Dyer, 1985).

According to the cognitive developmental approach, adaptation involves development through new forms of thinking that include greater use of reflection and integration of contextual, relativistic, and subjective knowledge. The term cognitive complexity has been used to describe individual differences in cognitive capacity. Cognitive complexity has been found to explain the effect of age and educational factors on the integration of cognitive and affective information and experience (Labouvie-Vief & Diehl, 2000). Cognitive-affective integration describes the extent to which individuals are able to integrate thinking and feeling. Greater integration is related to more proactive and healthy coping strategies that involve choice, purpose, and realism rather than defensive, hostile, or escapist types of defense strategies.

The importance of having a complex and integrated behavioral repertoire and understanding of when certain thoughts and behaviors are warranted is of utmost importance in leadership. Regulation of the self in terms of maintaining a balance between what is expected of the leader and one's behaviors has been investigated in the leadership literature. Specifically, adaptive self-regulation refers to a "social process in which leaders attempt to understand and adapt to the role and performance expectations of organizational constituents" (Sosik, Potosky, & Jung, 2002, p. 212). Adaptive self-regulation involves the detection of discrepancies between leaders current behaviors and the standards various constituents hold and resolving these discrepancies by managing others' expectations through regulation techniques of standard setting, enacting different behavior, and self-monitoring (Tsui & Ashford, 1994). Developmental feedback may help leaders to display a wider variety of behaviors and cue the use of strategic competencies that leaders develop.

Forming implementations intentions might accelerate the development of strategic competencies that would normally be built over

longer periods of time through encountering many different situations. One potential caveat is that there seems to be an implicit assumption that an intended behavior is something that the individual has some baseline ability to perform. Most studies have proposed implementation intentions as a solution to the failure to initiate task-directed behavior or persistence in a desired behavioral goal, rather than a component in the learning process. Theoretically, building an implementation intention might facilitate the development of a mental model of contingent behaviors as a tool to build competence. As implementation intentions have been described as a strong mental link between a goal and action (Gollwitzer, 1999), it seems feasible that a number of implementation intentions might facilitate the creation of a mental representation of competence in a particular domain. Through repeated enacting of intentions, desired behavior becomes automatic and becomes part of a strategic competency. In other words, an individual automatically behaves according to his/her schema of contingence-based responses.

In addition to influencing the skills acquisition process, goal orientation affects how existing knowledge/skills are used as well as the transfer of new skills. Individuals with learning goal orientations focus on ways to master tasks so as to develop their competence, acquire new skills, and learn from experience (Brett & VandeWalle, 1999; VandeWalle, Brown, Cron, & Slocum, 1999). As individuals with learning goal orientations focus on mastery and learning from experience, they will likely build strategic understandings of the contingencies and be better able to generalize competencies to novel situations.

A similar line of reasoning offers suggestions of the role self-efficacy plays in adaptive competency development. Adaptive competencies are built as individuals become better able to extrapolate competencies to new situation or transfer training to new circumstances. Meta-analytic findings suggest that post-training self-efficacy predicts the transfer of training (Colquitt et al., 2000). Further, self-efficacy may relate to an individual's adaptive competency through its role in dealing with change, uncertainty, and challenge. Individuals with high self-efficacy are more likely to exert extra effort to respond to a challenge (Wood & Bandura, 1989). The authors propose that personal efficacy suggests a resilient self-belief in one's capabilities to exercise control over events to accomplish a desired goal.

Similarly, Judge, Thorensen, Pucik, and Welbourne (1999) found that generalized self-efficacy, as part of a positive self-concept, was positively related to a manager's ability to deal with change. The authors suggest that in situations of change, novel and complex situations arise. As discussed above, self-efficacy is very useful in predicting how an individual responds to new situations. In particular, high self-efficacy may be an antecedent of positive attitudes toward critical career-oriented events, such as those involving major job and organizational changes.

Individuals with low self-efficacy may avoid or become defensive in situations in which they believe they cannot perform well.

Expertise

The importance of regulation in developing expertise in a particular domain is crucial. Regulation may serve three important functions: (a) setting increasingly more difficult goals, (b) motivating years of practice, and (c) being intentional throughout a practice session by monitoring progress. Research has shown that the amount of deliberate practice is strongly predictive of the attained level of performance of experts (Ericsson, Krampe, & Tesch-Römer, 1993). Regulation at this level facilitates the persistence of deliberate practice to build expertise. Having a stronger ability to regulate one's thoughts, emotions, and behaviors helps an individual to focus attention on the task even beyond reaching basic skills acquisition. After an acceptable standard of performance is reached, behavior becomes automatic and more difficult to intentionally modify.

Ericsson (2003) refers to this difficulty as the arrested development associated with automaticity: "The principal challenge for attaining expert performance is that further improvements require continuously increased challenges that raise the performance beyond its current level" (p. 116). What distinguishes expertise from acceptable performance is a push beyond an acceptable standard through years of deliberate practice, raising performance standards, and taking on greater developmental challenges. This may be especially relevant to leader development when events conspire to push other agendas instead of learning. Ego depletion or low self-regulatory strength might be associated with falling back on well-learned behaviors rather than attempting more challenging approaches. As noted by one prominent approach to leadership development (McCauley & Van Velsor, 2004), experiences that are highly developmental in nature contain a large dose of challenge (in addition to assessment and support).

Similar to its role in skills acquisition, goal orientation might relate to expertise development. It has been suggested that one's goal orientation provides a cognitive framework to respond to achievement situations and influence performance through the use of self-regulation techniques (VandeWalle et al. 1999). These regulation techniques play an important role in intentional practice, the key component of developing expertise. Individuals with a learning goal orientation may expend more effort as they believe that expending effort is viewed as a strategy for developing ability and is related to task achievement. Similarly, they set more difficult goals, intend to put forth more effort, and intend to engage in more planning. In addition, it has been proposed that those with a strong learning goal orientation are proactive in seeking feedback (VandeWalle, 2003), which should augment practice in facilitating the development of expert performance.

Implementation intentions can facilitate the initiation and execution of deliberate practice, the main determinant of expertise development. Leaders who regularly form strong implementation intentions may be able to form intentions to enact leadership practice when a situational cue is encountered. For example, a leader might practice "ensuring shared understanding" (Horey et al., 2004) by forming an implementation intention to tune into the content, emotion, and urgency of a message when receiving new information regarding a mission. Additionally, implementation intentions also influence the persistence through task distractions. As expertise is developed through deliberate practice, forming an implementation intention may help to practice a specified task despite distraction. Implementation intentions can also be formed about how to handle distraction aiding in the focusing on the task and avoiding task-irrelevant cues and distractions (Gollwitzer, Fujita, & Oettingen, 2004). Additionally, implementation intentions may also help to reduce the negative effects of ego-depletion, or the exhaustion of self-regulatory resources. Because implementation intentions serve as an automatic response, the drain on self-regulatory resources is reduced (Webb & Sheeran, 2003).

Expert performance is explained through increasingly complex control and self-regulation processes, which are critical for making practice deliberate and intentional and facilitate a push beyond a typical level of performance (Ericsson, 2003). As such, the greater the self-regulatory strength, the better equipped a leader is to deliberately practice furthering expertise development. Additionally, the greater efficacy that a leader has the more likely he or she will continue with practice. Leadership efficacy refers to belief in one's ability to lead change, set direction, gain commitment, and overcome obstacles to change, which has been found to positively relate to engaging in leadership. This suggests that those with higher leadership efficacy seek out more opportunities to practice leadership (Paglis & Green, 2002). Through these types of "practicing leadership" episodes, greater leadership expertise is developed. Similarly, individuals high in leadership efficacy may be more receptive to feedback, instruction, and challenges at work (Klein & Ziegert, 2004), all of which further leader development.

To attain expert performance, individuals must continually monitor their performance and design intentional practice sessions around their own specifically pertinent issues. Ericsson (2003) suggests that individuals address specific performance problems through problem solving and generating specific modifications that can be fully integrated through extended deliberate practice. Often an individual must recognize areas needing development without substantial guidance from others. Self-awareness may help an individual to perceive a particular area that needs practice as well as monitor progress to that goal within a practice session.

INTEGRATION WITH LEADER IDENTITY

Clearly, experiences are necessary for the development of leader skills, competencies, and expertise, but how do these experiences shape a leader identity? Leaders can take away any number of lessons from a given developmental experience. McCall et al. (1988) identified five overarching themes for lessons learned from experience: (1) setting and implementing agendas, (2) handling relationships, (3) basic values, (4) executive temperament, and (5) personal insight. The first two categories refer to basic skills learning such as technical knowledge, prioritization, accepting responsibility, communication, and emotional regulation, whereas the latter three categories are at a deeper level and could foster integration with individual leader identity. Basic values refer to the principles that guide appropriate behavior as outlined in our chapter on moral development (Chapter 6). Executive temperament refers to qualities an individual possess that allow for dealing with uncertainty or change, such as adaptability. Finally, personal insights involve enhanced self-awareness. These types of lessons are integrative with leader identity as they are all relevant to the self and identity development.

No single agreed-upon theory exists outlining the exact process by which individuals use experience to develop their identities. The process likely differs to some extent among individuals and across different types of experiences. Drawing from several developmental theories, a few important themes do emerge. First, the choice to integrate an experience with identity is outlined in Piaget's work with regard to the processes of accommodation and assimilation. Second, Kegan (1982) offers suggestions on what needs to occur in an experience in order for it to help develop leader identity. Finally, the practice of reflection is highlighted as an effective tool to produce the opportunity and need for changes in identity. In particular, *accommodative self-reflection* that occurs when goal attainment is disrupted can promote increasing levels of self-understanding (King & Hicks, 2007).

Piaget described identity development in terms of *assimilation and accommodation*. Individuals who assimilate their experiences do not change or elaborate self-schemas with the experience; rather, they integrate external elements like experience into evolving or completed indentity structures (Block, 1982). Identity assimilation is defined as processes whereby individuals change aspects of the situation or discount information to maintain the current self-view. Identity accommodation, on the other hand, describes a process in which individuals incorporate experiences and changes to their existing self-schemas. An ideal state of adaptation involves a dynamic equilibrium between assimilation and accommodation—what Piaget termed equilibration. He defined this not as a balance between competing forces but through processes of active self-regulation (Block, 1982). Some degree of identity stability is desirable (assimilation) as well as a degree of change (accommodation).

Individuals who are able to manage equilibration hold a stable sense of self, but are able to make changes to their identity when experiences call for such changes. From this perspective the notion of accommodative self-reflection is the practice of "thoughtful examination of lost goals and the reconstruction of and reinvestment in new goals, commensurate with what one has lost" (King & Hicks, 2007, p. 627).

According to Kegan (1982), development occurs as an individual encounters increasingly complex experiences and integrates these experiences with the self. This developmental framework focuses on growth in terms of building a more complex and integrated understanding of the leaders' world and the self in the world. Leaders develop as they move to *more complex ways of knowing*. Before leaders can move to a more complex knowledge principle, they must first come to realize that they hold such assumptions, principles, and world views. Often these knowledge principles are so embedded in the self that one is not even aware of a holding such a belief. For example, a leader might hold a guiding knowledge principle with respect to leadership. This leader may view leadership solely in terms of a formal leader role with the goal of giving orders. Before this leader can come to a more complex understanding of leadership, he or she much first become aware of this way of thinking about leadership (and its potential limitations) and hold it as "object" by separating the self from this view. Once the leader is able to explicitly see through this view rather than implicitly seeing with the view, he or she is free from it to move to a higher developmental level. In this sense, leaders can develop their leader identity through experiences that encourage them to explicitly examine the assumptions they hold and separate the self from them. Once these assumptions or knowledge principles are identified, separated, or differentiated, new principles are integrated into a broader and more complex perspective of how things are interrelated.

Schön (1983) suggests that *reflection* fits into two general kinds: reflection-*on*-action and reflection-*in*-action. We reflect *on* action, thinking back on what we have done. After-action reviews are an excellent example of this type of reflection. Most common approaches to study reflection include coached reflection, which refers to a situation in which another individual or group of individuals provide an individual with formal tools to help them work through a situation and learn from it. Coached reflection is often a key component of coaching and mentoring. Action learning refers to a continuous process of learning and reflection. Action learning focuses on an existing job challenge and leads to intentional development. A key emphasis of action learning is getting things done with support of colleagues (Day, 2000). Reflection in action learning settings has been empirically linked to leader behaviors. Hirst, Mann, Bain, Pirola-Merlo, and Richver (2004) found that leaders' learning through reflection in an action learning setting was related to later engagement in facilitative leadership. Facilitative leadership was in turn related to team reflexivity and performance. Facilitative leadership

was defined as behavior that promoted the trust, respect, conflict resolution, and open communication among team members.

In contrast to coached reflection, reflection-in-action refers to unstructured reflection that individuals engage in during the course of an experience rather than after the experience (Schön, 1983). In general, this type of reflection involves inquiry and interpretation either within a leader's mind or through discussion with others. Seibert (1999) notes that the best leaders are intentional and proactive about engaging in ongoing reflection, but environmental factors also contribute to the success of reflection-in-action. These conditions include autonomy, feedback, access, connection and stimulation by others, pressure, and momentary solitude.

The importance of reflection has also been noted at the team level of analysis. Edmondson (1999) investigated the effectiveness of teams that engage in learning behaviors. She observed that team learning was an iterative process of individual learning through experimentation and observing feedback effects. Further, learning is most effective when teammates engaged in reflection and discussion.

SUMMARY AND IMPLICATIONS OF LEADER IDENTITY PROCESSES

This chapter has elaborated on the integrative processes of self-regulation and identity in the lifelong leader development journey. These are especially important in the overall developmental process in that they link the deeper aspects of adult development with the most observable, surface-level components of skills acquisition, competency development, and expertise. Central to the developmental process at this mid-level, leaders develop through a cyclical process of developing a leader identity and engaging in developmental experiences. As individuals come to view themselves as leaders, they will likely seek out more experiences to develop requisite leadership skills and competencies, and engage in what we call "practicing leadership." Participation in these experiences also strengthens a leader identity.

Factors of the environment such as assessment, challenge, and support interact with individual differences in self-regulation denoted by goal orientation, self-efficacy, self-awareness, self-regulatory strength, and implementation intentions to influence the strength of the spiral. We suggest that these variables influence or moderate the process of development. Although each component might have unique contributions to expertise development, one important theme is the role of self-regulatory processes. A few of what we see as the more relevant and promising factors were discussed; however, other individual differences may also influence these developmental spirals. For instance, individual differences in the need for achievement or drive to self-evaluate may play a role in the amount of feedback seeking behaviors individuals partake (Ashford & Cummings, 1983).

Some individuals may also be more inclined than others to engage in developmental activities in general. A few individual difference factors have been developed to address these differences such as personal growth initiative (Hardin, Weigold, Robitschek, & Nixon, 2007) and growth need strength (Hackman & Oldham, 1976). Additionally, individual differences in motivation to lead (Chan & Drasgow, 2001) have implications for the leader development process. Leaders with high affective motivation to lead (i.e., they enjoy acting as a leader) may respond differently from individuals with high social-normative motivation to lead (i.e., they feel an obligation to lead). Finally, it was noted that individuals use processes of accommodation and reflection to integrate personal experiences with their identity. Doing so more intentionally might further accelerate the development of a leader identity and overall leader development.

CHAPTER

14

Adult Development Processes in Leader Development

Thus far, we have discussed leader development in terms of leadership competencies (viz., strategic and adaptive competencies) and how they are acquired over time, as well as the supporting processes associated with identity development and self-regulation. These processes and functions that are thought to be important for effective leader development occur within the deeper context of adult development. As noted in earlier sections of this book (see especially Chapters 1and 2) every day the Army trains soldiers and grows leaders; however, a more complete portrayal is that the Army is engaged in continuously developing adult leaders.

We believe that this is an approach that could benefit other types of organizations as well. Rather than tackling leader development in an episodic and program-based manner, most organizations could improve their initiatives in this regard by incorporating more of the "big picture." Specifically, it is important to recognize that leader development occurs in context. One context is that provided by the organization. A second context is embedded in the developmental experiences in the form of assessment, challenge, and support. A third context that will be elaborated on in this chapter is that of adult development. Organizational leaders develop in context of their development as adults. So a pertinent question is what are the unique or driving forces of adult development that might inform and help accelerate leader development?

We know from the adult development literature (see Chapter 3) that there are unique aspects of development in adults as compared with children and adolescents. In particular, adult development is driven much

more by experience than by biologically based maturational processes, yet there are physiological changes in adulthood that have important implications for leader development across the lifespan. Deficits in certain kinds of cognitive processing could present barriers to leader development in adulthood, so understanding how to compensate for such deficits would be extremely important for accelerating leader development. These kinds of issues are taken up in the present chapter, and the implications are summarized in a set of theoretical propositions. The propositions lay the foundation for more specific research hypotheses pertaining to the role of adult development in leadership that are presented in the final section.

A primary reason the adult development literature is of particular relevance to leader development is that it considers age-related changes as outcomes of maturation. This is a critically important issue for military organizations such as the Army, as many individuals join in their late teens or early twenties and can continue to develop as leaders well into their forties and fifties. But this is also relevant to any organization that values talent retention and anticipates the need to make or grow its own leaders rather than buying them from other organizations (i.e., through external hiring).

Leader development theory and research has largely ignored the well-documented finding that some components of intellectual development start to decline after a certain age (e.g., basic information processing and fluid intelligence) whereas other components continue to develop across the lifespan (e.g., crystallized intelligence and cultural knowledge; Baltes, Staudinger, & Lindenberger, 1999). Others have proposed that there are different growth curve functions for the various components of intellectual functioning, including intelligence-as-process (i.e., fluid intelligence), crystallized intelligence, personality, interests, and knowledge (Ackerman, 1996). In short, there are naturally occurring maturational effects that are likely to interact with the experiences typically used as part of formal leader development initiatives. As far as we know, there has been virtually no attention given to these types of possible age-related interactions.

> Proposition 8: Leader development is ongoing throughout the adult lifespan and is shaped by experience as well as through adult development and age-related maturation processes.

HEALTH THROUGHOUT THE LIFESPAN

One type of loss often discussed as part of adulthood and aging is the decline of physical and cognitive functioning as one gets older. Although researchers once considered some sorts of declines as universal and perhaps inevitable vestiges of biological decline, more recent research suggests a lifespan contextualized understanding of functioning as one

ages (Hess, 2005). Age-related changes in functioning are multidimensional and multidirectional with significant individual variability as a result of the context of individuals' life experiences and circumstances. Cognitive declines are often a function of illness or disease, which often co-occur with age. In fact, intellectual decline due to chronological aging itself may be merely a statistical artifact (Cooney, Schaie, & Willis, 1988). The association between poor health, particularly disease, and cognitive decline has long been established (Elias et al, 1990). Declines in cognitive functioning are most often associated with chronic diseases, particularly to the cardiovascular or central nervous systems rather than aging per se. Data from a large longitudinal study (Schaie, 2005) showed that the total number of chronic diseases an individual has will negatively affect verbal and math performance. Additionally, cardiovascular diseases, which decrease blood flow to the brain, were associated with an early onset of decline in intellectual functioning, but only for more serious diseases such as atherosclerosis and cerebrovascular diseases rather than slight hypertension.

Although health problems and disease cannot be fully prevented, individuals can engage in risk-reducing behaviors to prevent or compensate for health declines. Behaviors such as maintaining proper nutrition, exercise, refraining from smoking, and moderation in alcohol consumption, as well as social support and regular medical care have been continually identified as preventative (Whitbourne, 2002). In addition to the benefits of maintaining a healthy lifestyle, meta-analytic evidence suggests that exercise interventions even later in life have positive effects on overall well-being, self-efficacy, and self-views (Netz, Wu, Becker, & Tenenbaum, 2005). Focusing on maintaining active and fit lifestyles are important components in ensuring cognitively sharp and psychologically healthy leaders well into adulthood.

Self-regulatory behaviors that play a key role in personal development (see Chapter 13) are also important in maintaining physical health and well-being throughout the lifespan. It has been suggested that self-regulation lies at the core of adaptation (Bandura, 1977) both psychologically and physically. Staudinger, Fleeson, and Baltes (1999) examined two indicators of self-regulatory processes in areas of work and health as predictors of self-rated physical health and psychological well-being within large national studies in the U.S. and Germany. Personal life investment—including the pursuit of developmental goals and commitment to those goals—as well as personal control were indicators of self-regulation throughout the lifespan. Self-regulatory indicators in work and health together accounted for 18% of the variance in subjective physical health (more than age, gender, socioeconomic status, or personality variables) and accounted for between 10% and 18% of global well-being. These findings support a contextual view of well-being, in which it is a function of subjective evaluations and adaptation to experiences and environment. The findings also highlight the importance of building self-regulatory resources throughout the lifespan. Building

self-regulatory strength throughout early- and mid-adulthood may be an especially important preventive measure, given that regulatory resources may decline with age, making individuals less resilient to stress (Sapolsky, 1993).

Proposition 9: Maintaining an active and healthy lifestyle and building self-regulatory resources may facilitate health and well-being into late adulthood and contribute to lifelong development.

ORCHESTRATING PROCESSES OF ADULT DEVELOPMENT

A primary reason to consider leader development through the lens of adult development stems from the ultimate meaning of lifespan development. As discussed in more detail in Chapter 3, Baltes et al. (1999) view lifespan development as essentially a process of selective adaptation and transformation. Throughout the lifespan, people encounter opportunities for development in the form of education and challenging experiences as well as limitations in resources through physical decline and illnesses that can be mastered adaptively by an orchestration of three specific components (Freund & Baltes, 1998). These orchestrating processes of development are conceptualized as (a) *selection* in terms of setting goals and identifying desired outcomes, (b) *optimization* by means of acquisition and investment of goal-relevant means/resources, and (c) *compensation* in the form of response to loss of means and the use of alternative means to maintain a given level of functioning when specific goal-relevant means are no longer available (Baltes & Baltes, 1990; Freund & Baltes, 1998, 2002; Wiese, Freund, & Baltes, 2000). The outcomes are framed in terms of the maximization of objective and subjective gains and the minimization of losses (Baltes, 1997). Successful development (i.e., growth) is couched in terms of maximizing the attainment of salient goals or states of functioning and the minimization or avoidance of undesired outcomes. The selection-optimization-compensation (SOC) model is a general approach to understanding "how people manage their lives in a way that fosters their personal development and well-being" (Freund & Baltes, 2002, p. 642). Thus, it can be seen how the adaptation and transformation processes of lifespan development also can be considered as fundamental to leader development.

The processes of selection in the SOC model have been further delineated into two kinds: *elective selection* and *loss-based selection*. The former has a focus on targeting desired states whereas the latter is implemented following a loss in goal-relevant means that threatens performance. In essence, loss-based selection involves reconstructing one's goal system (Freund & Baltes, 2002), and represents an important life mastery process. It facilitates the adaptive redirecting of resources

when means for compensation are unavailable. The key features of each of the SOC component processes are summarized in Table 14.1, along with examples of typical instances of each process. Figure 14.1 provides a figurative representation of these interrelated orchestrating processes of adult development that are at the deepest level of our theory of leader development.

An important consideration with implications for leader development is that the SOC processes are themselves subjects of development. It is assumed that adolescence and young adulthood is when SOC is mainly acquired, but that new levels and profiles of SOC emerge as adults face new tasks of life as well as the unpredictable risks and opportunities associated with aging (Freund & Baltes, 2002). In short, SOC should demonstrate a positive age trajectory during adulthood. Selection processes are thought to be central to adulthood in terms of choosing which particular life goals to pursue; however, knowledge and skills regarding optimization and compensation are also thought to increase as a function of successful aging.

A pressing developmental challenge, especially in later phases of adulthood, is effectively allocating resources to these different

TABLE 14.1 Selection, Optimization, Compensation (SOC) Component Processes with Typical Instances

Selection (goals/preferences)	Optimization (goal-relevant means)	Compensation (means for counteracting loss)
Elective Selection	• Attentional focus	• Substitution of means
• Specification of goals	• Seizing right moment	• Use of external aids/help
• Goal system (hierarchy)	• Persistence	• Activation of new skills/resources
• Contextualization of goals	• Acquiring new skills/resources	
• Goal commitment	• Practice of skills	• Change in resource allocation
• Resource allocation	• Modeling successful others	
Loss-based selection	• Modeling successful others who compensate	
• Focus on most important goals		
• Reconstructing a goal hierarchy		
• Adaptation of new standards		
• Search for new goals		

Note: Adapted from Freund and Baltes (2002).



Figure 14.1 Fundamental processes in adult development.

developmental processes that together orchestrate successful aging and promote development across the lifespan. Baltes et al. (1999) have argued that the mastery of life often involves conflicts and competition among the three orchestrating processes of adult development. This becomes a particular challenge for growth because the older the adult the more time and practice it takes to achieve the same learning gains. Furthermore, the older the adult the more they are in need of compensation tactics to generate and maintain high levels of functioning. And as a point of integration, self-regulatory strength (see Chapter 13) may play a key role in managing these competing goals, especially in later adulthood.

There is emerging research demonstrating that self-reported SOC predicts relevant behavioral outcomes. Wiese and Schmitz (as reported in Freund & Baltes, 2002) demonstrated that responses from a sample of 188 students to a 12-item short version of the SOC questionnaire were significantly related to the behavioral criterion of study success. Students with high scores on self-reported SOC spent more time studying, whereas low SOC scores were related to students' canceling exams. Specifically, students who had low selection and optimization scores were more likely to cancel exams than those with high scores on those specific components. Also, self-reported optimizing and compensation scores were associated with the use of specific learning strategies. These findings support the propositions forwarded by Baltes and colleagues that SOC processes are fundamental to adult self-regulation and also predict behavioral outcomes as well as subjective well-being.

By extension, SOC processes are likely to be critical for leader development. The choice of whether to pursue an identity as a leader is fundamental to elective selection. Also, loss-based selection can play a role in determining whether to reconstruct a goal system following difficulties experienced as part of taking on challenging developmental assignments as a leader. The use of optimization and compensation strategies are also thought to aid in long-term leader development, especially in terms of engaging in persistence, practice, resource allocation, and modeling (i.e., optimization tactics), in addition to substituting means, using external

help, activating unused skills and resources, and changing resource allocation strategies (compensation tactics). In essence, SOC is at the core of personal discipline and adaptability that contribute to goal-directed behavior, and ultimately, successful aging. SOC processes are trainable skills and leader development might be accelerated to the extent that an emphasis is made on helping individuals acquire these skills early in their careers, rather than focusing entirely on the end-result of the developmental process (i.e., building leadership competencies).

This emphasis on SOC processes suggests that overarching consideration should be given to the appropriate focus of leader development efforts. Too often, the emphasis is mainly on the end-product (competencies) with little attempt to understand the underlying processes. It is through a better understanding of the underlying developmental processes that leader development might be accelerated. In addition to training to standard, the development of complex competencies over the course of the adult lifespan might be helped through a similar focus on the orchestrating processes of selection, optimization, and compensation, as well as the role that identity and self-regulation play in developing expertise. Rather than trying to construct the perfect competency model as the sole input guiding the design of leader development experiences and interventions, widening the instructional lens to influence the foundational processes could lead to major advancements in the overarching goal of accelerating leader development. The good news is that many of the age-related declines associated with intellectual performance are not immutable. There are specific life management strategies that individuals can use to enhance successful aging (Wiese et al., 2000). The bad news up to now is that little if anything has been done in practice to incorporate what we know about developmental processes into leader development initiatives.

Proposition 10: Individuals engage in selection, optimization, and compensation (SOC) processes in maximizing developmental gains and minimizing losses associated with developing as a leader.

DYNAMIC AND NONLINEAR DEVELOPMENT

The notion that the developmental process involves an inherent dynamic of gains and losses (Baltes, 1987) is difficult to fathom if development is thought of as a ladder in which individuals progress upward through identical stages. Rather than a ladder, development may be more like a web, with different strands having varied developmental trajectories depending on specific contextual influences (Fischer & Kenny, 1986; Stevens-Long & Michaud, 2003). This potential *web of development* recognizes that more basic kinds of skills become intertwined in creating more macro and holistic competencies. Some of the basic skills may drop out of the developmental process (gain–loss dynamic) if they no

longer serve an important role in functioning (e.g., a specific technical skill becomes less important to leaders at higher organizational levels).

Web of Development

The traditional biological conceptions of growth or physical maturation tend to be based on linear, unidimensional, unidirectional, and unifunctional models (Baltes et al., 1999). A point that is often overlooked in the search for such simplicity is that development takes many forms and many components contribute to the development of a complex skill or activity (e.g., leader competencies). In contrast to the traditional biological conceptions of growth, the overall development of mind and behavior is more accurately portrayed in dynamic, nonlinear, multidimensional, and multifunctional terms. Multifunctionality is especially important from an intervention perspective because it includes the systems concept of equifinality, which states that the same outcome can be reached by different means and combinations of means (Gharajedaghi, 1999; Katz & Kahn, 1978). In terms of leader development, the goal of having a more highly developed leader can be accomplished through any number of functional routes.

Much of the focus in the literature has been on what is stable in development rather than what changes and the conditions under which changes occur (Stevens-Long & Michaud, 2003). Rather than a relatively static ladder metaphor, development might be better considered as a web with different strands that have varied development trajectories depending on the given contextual influences (Fischer & Bidell, 1998; Fischer & Pruyne, 2002; Stevens-Long & Michaud, 2003; also see Chapter 3 for a detailed explanation). These different strands could represent various skills or competency domains, with the connections between strands representing possible relationships among the competency domains. The different directions that the strands take could indicate possible variations in the developmental pathways and outcomes as competencies are developed over time as needed for different contexts. This web of development also can be conceptualized as an even more complex and multilayered system in three dimensions where the components mutually influence each other in dynamic ways (Thelin & Smith, 1998). The point of relevance is that more complex "web" conceptualizations of adult development are consistent with connectionist networks that Lord and Hall (2005) have argued are at the core of problem interpretation and observable leader responses. As an overarching theoretical perspective, complexity theory eschews completely linear and mechanistic views of the world. This approach is also consistent with a growing awareness of nonlinear change processes in a number of domains, often characterized as punctuated equilibrium (Gersick, 1991) or catastrophe models (e.g., Maas and Molenaar, 1992).

Several practical and theoretical implications are associated with conceptualizing leader development in terms of a web. In particular, the various components of leader development (e.g., knowledge, skills,

abilities, mental models) are recognized as interacting and influencing each other. Such a conceptualization also acknowledges that any experience is multifaceted in terms of what kinds of skill domains are potentially affected. From a systems perspective in which differentiation always precedes integration (Gharajedaghi, 1999), the development of different skills (differentiation) will result in processes that combine such skills into more holistic and higher-order bundles (integration) that could be labeled as competencies. Thus, the leader development process might be conceptualized as an ongoing system of differentiation and integration in which lower-order or more basic kinds of knowledge, skills, and abilities interact in developing more molar and holistic competencies (Day & Lance, 2004).

Some of these basic skills may drop from the model over time if they no longer are important for leader functioning. A good example of this might be a specific technical skill that is necessary for functional leader behavior at early points in development but become less important and perhaps irrelevant at higher levels of functioning. This line of thinking acknowledges an important point made by Baltes (1987) that development inherently includes both the processes of growth and decline (i.e., development as a gain–loss dynamic). Furthermore, the orchestrating processes of selection-optimization-compensation can be pivotal to accelerating the integration of skills into competency bundles, as well as in directing which particular skills are no longer important to leader functioning.

Proposition 11: The development of complex multifaceted leadership competencies is supported by a web of adult development that is dynamic and nonlinear in nature.

LEADERS OF CHARACTER AND COMPETENCE

> An ideal Army leader has strong intellect, physical presence, professional competence, high moral character, and serves as a role model. An Army leader is able and willing to act decisively, within the intent and purpose of his superior leaders, and in the best interest of the organization (FM 6-22, Department of the Army, 2006, p. viii).

Although character is defined in doctrine mainly in terms of living up to the Army values, there is also recognition of the need for sophisticated moral reasoning as well as a high level of critical thinking ability.

An informed ethical conscience consistent with the Army values strengthens leaders to make the right choices when faced with tough issues. Because Army leaders seek to do what is right and inspire others to do the same, they must embody these values. Reflective judgment (i.e., epistemic cognition) and morality, along with identity, are thought to be the three primary domains of adult development "in which development clearly continues long beyond childhood, at least in some individuals and social contexts" (Moshman, 2003, p. 49).

The previous chapter, as well as Chapter 5, examined the pivotal role of identity in shaping the development of leadership skills and competencies. Identity can be considered a bridge or linking pin between the core processes of adult development and more visible changes in leader competence. But changes to incorporate or internalize an identity as a leader should also include emphasis on developing higher levels of morality and judgment abilities. Becoming a leader of high moral standards requires one to go beyond mere compliance to a set of externally imposed values, to internalizing those values and understanding why they are important, and being able to reflect on how they guide behavior. Sophisticated moral reasoning also requires a higher level of reflective judgment, which is defined as a personal understanding of what is known and how it is known (Kitchener, 1983; King & Kitchener, 2002). Both a sophisticated level of moral reasoning and an advanced level of reflective judgment are thought to be critical for enhancing cultural awareness and sensitivity.

As someone ventures into learning to lead, we have proposed that adopting or selecting a leader identity as a subcomponent of a broader individual identity (i.e., a theory of oneself as a person) is important to development. Identity focuses attention and energy on minimizing any gap between the present self as leader and the ideal self as leader, as well as avoiding the nightmare self as leader such as putting followers recklessly in harm's way. As an aside, research suggests that with age individuals achieve a closer fit between their ideal self and their actual self-perception (Ryff, 1991). But the ideal self is not necessarily a fixed target. As in most domains, with more leadership experience there comes a realization of how much more there is to learn. As a result, an ideal leader identity becomes increasingly more complex and sophisticated. According to our proposed theory, this gap should motivate a developing leader to seek out additional experiences to enhance his or her leadership skills, which further entrenches a leader identity. This is what we have termed an identity-development spiral. Of course it is also possible to spiral downward if the challenges are too daunting and failure is experienced too often, resulting in the gradual shedding of a leader identity. Being a leader becomes less and less important to someone caught up in this type of unfortunate downward spiral.

Assuming the spiral is on an upward trajectory, how is it that morality and critical thinking develop as a function of the leader development process? As noted in Chapter 6, leadership almost always involves ethical dilemmas. That is, there are difficult value judgments to be made that are often between sets of competing positive values (e.g., loyalty vs. fairness; trust vs. honesty). Being an effective leader involves the sensemaking capacity to recognize an ethical dilemma when one is presented, plus the sophisticated reasoning skills associated with reflective judgment ability to be able to reason through an ill-structured problem. Thus, identity-development spirals involve the practice of both moral reasoning and reflective judgment skills. As the challenges selected by a leader

become increasingly complex as development evolves, moral reasoning and reflective judgment are stretched in ways that those domains must develop to support effective overall leader performance.

If it is not already apparent, we believe that it is impossible to have a highly developed leader who has a limited moral capacity (as defined in terms of limited morality and unsophisticated moral reasoning ability) and poor reflective judgment. Although it is possible to have people in leadership positions who lack sophisticated capacities in these domains of adult development, such people usually make for terrible (and terrifying) leaders. They fail to see and appreciate the ethical nuances of the leadership situations they face and struggle with making sense of such ambiguous and uncertain issues. They lack the capacity to recognize that a problem is a problem, cannot see the ethical implications of their actions or decisions, and may not even have the capacity to realize that they are "in over their heads" (Kegan, 1994). Army leaders with such serious developmental shortcomings risk putting themselves and others around them in serious peril involving life and death implications. The stakes may not be as high in other organizational contexts, but any leader with little sense of morality and the capacity for sophisticated moral reasoning and reflective judgment is a real problem. And a leader development system that fails to address how morality and reflective judgment need to develop as a function of becoming an expert leader is more of problem because it has essentially created the problem.

Proposition 12: Moral reasoning and reflective judgment (i.e., epistemic cognition) develop concomitant with positive identity-development spirals.

THE ROLE OF WISDOM IN LEADERSHIP

A topic that has received a good deal of attention in the developmental psychology literature is that of wisdom. Interestingly though, it has had relatively scant attention in the leadership or leader development literature. One exception to this lack of explicit integration of wisdom and leadership is the WICS model of leadership proposed by Sternberg (2003a). WICS is an acronym for wisdom, intelligence, creativity, synthesized. Originally, the WICS model was not tied explicitly to leadership, but rather offered as a more general model of adult intellectual development (Sternberg, 2003b). However, other explications of WICS have more intentionally positioned it as a model of leadership in organizations that articulates the core skills or competencies needed for effective leadership (Kroeck, Lowe, & Brown, 2004; Sternberg & Vroom, 2002).

From this approach, leaders are not born but rather are made (i.e., developed) in that wisdom, intelligence, and creativity are viewed as forms of expertise. Sternberg (2003a) claims that WICS-based leadership skills—like expertise in any domain—can be developed through

structured teaching. Because the elements of WICS are based mainly on decision-making, teaching WICS is therefore "in large part teaching students to make certain decisions rather than others" (pp. 396-397). Based on his balance theory of wisdom (Sternberg, 1998), there are three interrelated decisions to consider. The central decision is to use one's intelligence, creativity, and experience for a common good. A second decision is to balance one's own, others', and institutional interests over both long- and short-term perspectives. A third decision is to make a sincere effort to understand others' points of view and incorporate them in one's own thinking (i.e., "dialogical" thinking).

Another prominent approach to wisdom also conceptualizes it as an expert system, but primarily associated with the "fundamental pragmatics of life" (Baltes & Staudinger, 2000, p. 124). This perspective, which is formally termed the Berlin Wisdom Paradigm, suggests a number of conditions associated with how it develops. Specifically, there are four theoretical principles that guide this perspective. First, the acquisition of wisdom involves extensive learning, practice, and motivation toward excellence (just like all forms of expertise). Second, because it is a complex and multifaceted phenomenon there are a multitude of micro- and macro-processes that work together in developing wisdom. Third, because wisdom is thought to be integrative in linking knowledge with virtue, there are likely to be cognitive, motivational, social, interpersonal, and even spiritual characteristics that serve as development triggers. Fourth, experience is often guided by mentors or other kinds of forces in society in mastering critical life experiences. Some of the most important organizing processes that mediate between antecedent factors and the development of wisdom are thought to include macro-level factors such as life planning, life management, and life review. Table 14.2 summarizes some of the key tenets of the Berlin Wisdom Paradigm.

TABLE 14.2 The Berlin Wisdom Paradigm

- Wisdom addresses important and difficult questions and strategies about the conduct and meaning of life.
- Wisdom includes knowledge about the limits of knowledge and the uncertainties of the world.
- Wisdom represents a superior level of knowledge, judgment, and advice.
- Wisdom constitutes knowledge with extraordinary scope, depth, measure, and balance.
- Wisdom involves a perfect synergy of mind and character—i.e., an orchestration of knowledge and virtues.
- Wisdom represents knowledge used for the good or well-being of oneself and that of others.
- Wisdom is easily recognized when manifested, although difficult to achieve and to specify.

From the Berlin paradigm, in particular, there are several points of integration with the present perspective on leader development. One obvious point of integration is that both wisdom and leader development are conceptualized from an expert performance perspective. Specifically, we have conceptualized leader development in terms of building expertise around some set of multifaceted and multifunctional competencies. These competencies are thought to develop beginning with basic skill acquisition processes (e.g., declarative and procedural knowledge) that can develop into more macro strategic and adaptive competencies over the course of extensive practice and experience. What distinguishes the proposed leader development model from the Berlin Wisdom Paradigm is that the former also emphasizes the important role that identity and self-regulation processes play in leader development. However, both approaches integrate foundational research and theory from the adult development literature in addition to that of expert systems. Thus, it can be argued that both wisdom and leadership are forms of expert knowledge and performance, and follow similar developmental trajectories—although the core underlying competencies may differ.

In much the same way that leader development experiences relate to individuals' needs, readiness is also an important issue in the development of wisdom. Readiness for the development of wisdom may include such factors as crystallized intelligence, life experience, self-regulation, SOC, and openness to growth (Glück & Baltes, 2006). Learning from experience, mentoring others, reading philosophy, and reading about the wise decisions of others all help to develop wisdom, yet its development can also be accelerated for individuals high in readiness. Glück and Baltes (2006) found that providing explicit instructions to activate a focus on wisdom prior to engaging in such activities (e.g., instructed to try to give a wise response) can accelerate wisdom development for individuals who are ready. Specifically, individuals high in preparedness scored about half of a standard deviation higher on wisdom after given explicit instructions; however, the effect of instructions was detrimental to the same magnitude for individuals less prepared. These findings highlight the importance of the considering an aptitude-treatment-interaction perspective when designing interventions to enhance wisdom, as discussed in Chapter 2.

Another point of integration is that both the present approach to leader development and the Berlin Wisdom Paradigm emphasize the important role of morality, moral reasoning, and virtue (i.e., values and ethics). Baltes has advanced the perspective that wisdom is a cognitive and motivational-emotional heuristic (i.e., pragmatic) that orchestrates the linkage between mind and virtue (Baltes & Kunzmann, 2004; Baltes & Staudinger, 2000). A heuristic is defined as a "highly automatized and organized strategy for directing search processes or for organizing and using information in a certain class of situations" (Baltes & Staudinger, p. 131). Therefore, the focus of this type of wisdom

heuristic would be on the activation, organization, and application of knowledge that directs attention to the integration and optimization of mind and virtue.

From this perspective it can be seen that wisdom is and most likely always has been part of Army leadership in linking fundamental Army values with excellence in the conduct of life. In leadership competency models recently adopted by the Army (FM 6-22 Department of the army, 2006; Horey et al., 2004), certain aspects of values—and thus virtue—are explicitly considered. For example, under the leadership competency of "leads by example" there is a component involving seeking and being open to diverse ideas and points of view (FM 6-22, A-4). This is a specific aspect of wisdom as conceptualized in Sternberg's balance theory (Sternberg, 1998). Another component of this competency addresses the notion of modeling Army values consistently through actions, attitudes, and communications. This includes sample actions such as displaying high standards (i.e., excellence) and fostering an ethical (i.e., virtuous) climate. Looking across all eight competencies in the new doctrinal framework it is clear there is quite a bit of integration (albeit implicit in nature) with both Baltes' and Sternberg's conceptualizations of wisdom. It may be that wisdom—like self-awareness and adaptability—serves as a type of "meta-competency" or fundamental "meta-heuristic" (Baltes & Staudinger, 2000) that guides the development of Army leaders. In particular, wisdom may serve as an overarching meta-competency that orchestrates the integration of identity, morality, and reflective judgment, which collectively define the major developmental targets of adulthood.

In addition to successful aging, why might organizational leaders need wisdom? On one hand, it seems pretty clear that many organizations are faced with complex challenges that will require wisdom and sound leadership. These challenges are being confronted by more than those at the highest levels of formal leadership (i.e., senior executives). It has been noted that the Army continues to experience a form of task migration from higher- to lower-echelon leaders, which is probably not an issue just in the Army. Leaders in all kinds of organizations at all echelon levels are facing challenges that risk putting them in over their heads (Kegan, 1994).

The need for wisdom (and leadership) across all levels of the Army was put very eloquently by Lt. Gen. (Ret.) Frederic J. Brown who wrote:

> As soldier-leaders participate more frequently in complex interagency and multinational operations, they must possess firm grounding in the basic values of service. Strong shared values, comradeship, and doctrine, tactics, techniques, and procedures will be central to successful small-unit actions (Brown, 2003, p. 69).

Such values-based striving for excellence in all aspects of knowledge and behavior is surely the hallmark of both wisdom and leadership.

There is one contrarian note about wisdom and development. It might be expected that there would be consistent evidence for the development of wisdom in adulthood that reaches its peak sometime in late adulthood based on longstanding cultural beliefs about wisdom and aging. However, there is little research support for this expectation even from the studies conducted by the Berlin research group (Shedlock & Cornelius, 2003). Part of the issue no doubt is that wisdom, like leadership, is a complex multifaceted phenomenon, which makes it difficult to measure directly. From a conceptual standpoint, wisdom might also be considered in terms of the alignment or integration of morality (virtue), identity (self), and judgment (thinking).

Proposition 13: Wisdom involves the alignment of morality and moral reasoning (virtue), identity and self-regulation (self) and reflective judgment (knowledge and thinking).

SUMMARY AND IMPLICATIONS OF ADULT DEVELOPMENT PROCESSES

A primary message in this chapter is that there is value to be gained by conceptualizing leader development within the framework of adult development. The importance and relevance of this message goes to some basic issues around adult development, including the robust findings of biologically based age-related changes that affect functioning and developmental potential. The SOC theory advanced by Baltes and his colleagues argues that there is a systematic change across the lifespan in terms of how developmental resources are allocated among these three so-called orchestrating processes of human development. In addition to these important considerations, perhaps the most pressing reason to consider leader development as adult development is the perspective that lifelong development is essentially a process of selective adaptation and transformation (Baltes et al., 1999).

The central developmental process of adaptation and transformation can be seen in terms of how leaders change and grow as a function of environmental challenges. The transformation of leaders is one that transpires across the entire lifespan. Unfortunately much of the research and theory on leader development has conceptualized and studied its developmental process as relatively short-term (even cross-sectional) and static, as opposed to one that is longitudinal and dynamic. In addition, more traditional perspectives have conceptualized the developmental process as linear, unidirectional, unidimensional, and unifunctional. Rather than a developmental ladder in which change can only be up or down, conceptualizing growth as a web of development opens up a number of rich possibilities in terms of how specific components (e.g., knowledge, skills, and abilities) develop and combine to form more holistic attributes (e.g., competencies).

Using the SOC theoretical lens to understand the leader development process as adult development process might also provide leverage for accelerating leader development. The evidence from lifespan development psychology suggests the existence of between-person differences in within-person plasticity (i.e., malleability) regarding potentialities of development. Thus, there may well be upper and lower boundary conditions between individuals that are associated with accelerating development. Concepts such as developmental readiness, triggers for development, as well as methodological procedures such as "testing-the-limits" (Kliegl, Smith, & Baltes, 1989; Lindenberger & Baltes, 1995) all have relevance for advancing a more sophisticated (and practically useful) perspective on leader development as adult development.

This section opened with a quote on incompetence and its implications for leadership. Our main focus, however, has been on building competence, especially the development of leadership competence as grounded in leader competencies. We have advanced theoretical arguments that the process of leader development is analogous to how expert performance develops in other domains such as music and sports. From the skill acquisition literature we noted that basic kinds of knowledge and skills (e.g., declarative and procedural knowledge) develop with experience and practice into more complex and multifunctional strategic and adaptive competencies that support a foundation of leadership expertise. This process is grounded in the expertise literature, but is also supported by the literature from the field of adult development. In particular, lifespan development is portrayed as a dynamic, multifaceted, multifunctional, and nonlinear process in which lower-order or more basic kinds of knowledge and skills interact as a function of experience in developing into more molar and holistic competencies (i.e., a web of development).

The role of fundamental (and generally invisible) adult development processes associated with selection, optimization, and compensation in guiding the development of molar competencies that support expert performance are proposed to be mediated by identity formation and self-regulation, especially self-regulatory strength. We suggest that identity-development spirals are self-reinforcing in nature in that taking on a leader identity will be associated with greater motivation to develop further as a leader. Developing as an Army leader also inherently entails developing enhanced levels of moral reasoning and reflective judgment, which can be integrated and aligned as a function of wisdom. Individual differences in concepts such as self-regulatory strength, goal orientation, generalized self-efficacy, self-awareness, and implementation intentions offer insights into other kinds of resources that contribute to development through their effects on motivation and self-control.

How does this emerging theory contribute to better understanding leader development? We believe there are at least three important ways

that the present theory contributes to this goal. First, it recognizes that leader development is ongoing across most if not all of the entire adult lifespan. We integrate key principles and perspectives from the adult development and lifespan psychology literatures that help to highlight this inherently longitudinal process. Second, we approach leadership from an expert performance model that is grounded in the development of skills and competencies, rather than based solely on outcomes. This is the visible and observable component of leadership that is developed through experience and extensive, intentional practice. Third, development as a leader is facilitated through leader identity formation that is guided by self-regulation processes. Self-regulatory strength is thought to be a critical resource in this regard, with higher levels of self-regulatory strength being conceptually related to higher levels of self-discipline and self-control needed for effective leadership as well as long-term development.

In closing, there are potential limitations of the proposed theory that should be noted. The separate disciplines of expert performance, identity and self-regulation, and adult development are each voluminous (especially the latter two). In the area of adult development, there are recent efforts at further differentiating the developmental processes associated with emerging adulthood (Arnett, 2000) and midlife (Lachman, 2004, 2000). We have only scratched the surface in terms of integrating all of the relevant research and theory from those fields. Further elaboration and syntheses are needed.

Other questions might be raised about external generalizability. Given that this approach was conceptualized initially as a theory of Army leader development, there may be potential concerns about how relevant it would be in addressing issues of leader development in other contexts. As noted in Chapter 1, we are relatively unconcerned at this time about the content of the particular competencies that support expert leader performance and focus more on underlying process issues. The kinds of competency models that are adopted will likely vary considerably across leadership domains; however, we think the processes generalize.

We also acknowledge that the timeframe that the Army has to shape its top leaders is often considerably longer than in other types of organizations. Also, the Army does not select its officers from the outside. This is why it has been said that the lengthiest developmental trajectory in the Army is that of a senior officer (approximately 20+ years)—generally longer than it takes to develop a personal weapon, a tank, or a helicopter. We hope that the present theory can help to guide the considerable investments made in leader development by all types of organizations and to understand how that lifelong process might be accelerated. As noted by Lt. Gen. (Ret.) Brown (2003), "With such substantial task migration to younger leaders, the Army should rethink leader preparation, which should be continuous, as is characteristic of great learning and teaching organizations" (p. 75). Basing such ongoing and continuous development efforts on sound theory is a very practical place to start.

SECTION

6

Future Directions

The final section of this book will elaborate on two specific areas the proposed theory of leader development was designed to address. The first of these areas is research. A well-constructed theory should serve as a cogent guide for researchers. In that spirit, we set forth in Chapter 15 a series of testable hypotheses organized around the theoretical propositions identified in the previous section. One hallmark of a good theory is that it is falsifiable—that empirical refutation is possible (Bacharach, 1989). Another hallmark of good theory is its utility in terms of linking theory and research—it offers both prediction and explanation. To this aspect of utility we add that it offers suggestions for good practice as well, which is the second area we will address. Thus, the final chapter of this monograph will address the core issues of research and practice couched primarily in terms of falsifiability and utility, which brings the topic full-turn to what was discussed in Chapter 1.

CHAPTER

15

Research Needs and Practical Implications

The eminent social psychologist Kurt Lewin (1945) was the first to observe that there is nothing as practical as a good theory. Being practical implies being useful (i.e., theoretical utility; Bacharach, 1989) but what does that mean? From a scientific perspective, the minimum standard for a useful theory is whether it makes empirically falsifiable predictions. But predictions alone are an insufficient condition for theoretical utility. Good theory must also offer explanations of the underlying causes for the phenomena of interest. Much like the ancient astronomers who could make extremely accurate predictions but could not provide any compelling explanations for what they ppredicted, modern day theorists that offer predictions without suitable explanations also fall short in terms of utility.

An example from the leader development domain includes the maxim that experience is the most potent force for development. Its utility is limited without some connection to the theoretical and empirical literature to offer an explanation for this assertion. Predicting that the development of leadership competence requires extensive practice over many years is likely to be accurate; however, by itself, it does not make the connection to the expert performance literature, which would provide some underlying explanation for this prediction. Explanations facilitate understanding and understanding is needed to enhance control, which ultimately is what is needed for effective intervention design and implementation.

The specific research hypotheses offered in this chapter provide prediction. The theoretical propositions from which the hypotheses were derived are based on research and theory that help to provide the explanation. Extending future efforts to design practical applications and interventions based on empirically supported hypotheses and propositions will provide the control needed to reach the ultimate goal of

accelerating leader development. At this point, the best we can hope to do is formulate falsifiable hypotheses that make theoretically grounded predictions related to leader development. The theoretical grounding helps to bolster their explanatory power. But we are unable to look into a crystal ball and foresee which of the hypotheses will be supported empirically and which may not receive support.

Theory building and testing is an ongoing process that never completely ends. It is also a distinct possibility that we may never have a fully formed theory of leader development, as we do a theory of quantum mechanics, for example. For many reasons, including the inherent free will of people that renders perfect prediction impossible, the best we may be able to do is approximate theory. For these reasons, perhaps our objective should be more modest theorizing (Weick, 1995b) rather than attempting to construct strong theory.

Theorizing or theory building is a process of speculation, prediction, evaluation, and revision. We have begun the present theorizing process by engaging in "educated speculation" based on our reviews of the extant literature in varied and diverse fields relating to human development, leadership, and expert performance (to name a few). This review provided the foundation for predictions in the form of general theoretical propositions at the construct level and more specific research hypotheses that operate at the level of measurable variables. It is up to researchers in the future to empirically evaluate the hypotheses and to revise our theorizing accordingly.

DEVELOPING THE EXPERT LEADER

We have framed the ultimate objectives for leader development in terms of leadership competencies and expertise. This is consistent with the practices in many organizations that advocate a particular leadership competency model (e.g., Abbott Laboratories, Bose Corporation, BP Amoco, and Glaxo SmithKline to name just a few examples). Present Army doctrine (FM 6-22, Department of the Army, 2006) discusses the overarching objective of developing leaders who are competent, confident, and agile and presents the Army leader as a person of character, presence, and intellect. More specifically, this key leadership doctrine elaborates on what an Army leader must *be* (i.e., character), what a leader must *know* (i.e., competence), and what a leader must *do* (i.e., forms of influencing, operating, and improving). Our approach widens the lens on competence by going beyond knowledge to also include aspects of behavior, identity, and critical thinking, as well as ethics and morality. In short, leader competence is perhaps the broadest category in which the others can be subsumed. Competent leaders not only are knowledgeable about leadership, but they also can enact a well-established set of varied leadership competencies, demonstrate sophisticated levels of behavioral, cognitive, and emotional self-regulation, and engage in high-level moral reasoning and ethical conduct.

Competency modeling has become very popular in organizations as a way of articulating what all leaders need to be, know, and do. An appealing aspect of competency models is that they look for commonalities across organizational members regardless of position level rather than differentiating what people need to have in terms of knowledge, skills, and abilities by their respective jobs (Shippmann et al., 2000). But competency models have their critics. Some have argued that overly generic leadership competencies do little to help create a competitive advantage for an organization (Intagliatta, Ulrich, & Smallwood, 2000; Ulrich, Smallwood, & Zenger, 2000). Others have noted that leadership competencies tend to focus on what is needed now rather than what is needed for the future (and who can accurately predict the future?), that they can complicate rather than clarify what a leader needs to be effective, and may be too abstract or conceptual and not model "real-world" leadership (Conger & Ready, 2004; Hollenbeck, McCall, & Silzer, 2006; Reed, Bullis, Collins, & Paparone, 2004).

A related issue is that some competency models end up much too cumbersome in their attempt to be inclusive. For example, the Coast Guard espouses a competency model that comprises 28 individual competencies that can be grouped into four general dimensions of Leading Self, Leading Others, Leading Performance and Change, and Leading the Coast Guard (http://www.uscg.mil/leadership/lead/comp.htm). Communicating such a substantial model is potentially difficult; furthermore, designing training and development interventions to address such a large number of competencies becomes next to impossible.

All of these criticisms are legitimate concerns regarding leadership competency models; however, such concerns do not pertain directly to the present theory development project. Our objective was to provide a theoretical framework for better understanding how leaders develop, especially Army leaders. Although we have framed the overall developmental objective in terms of leader competencies, it was not our goal to provide any type of competency model for the Army. Other researchers have addressed that requirement. Because the content of the competencies is less of a theoretical concern, there is an extra advantage of enhancing the potential generalizability of the proposed theory. Our goal was to provide a framework as to how competence and expert leadership develops, which we have done by integrating aspects of the expert performance, identity and self-regulation, and adult development literature (research and theory).

Although our theorizing does not rely on any particular set of leadership competencies, we thought it might be useful to provide a brief overview of the Army's core leader competencies framed in terms of what an Army leader *does*. It is behavioral in focus as compared with what an Army leader *is*, which is defined in terms of individual attributes. Taken together, the core leader competencies and leader attributes compose the Leadership Requirements Model of the Army.

ARMY LEADER COMPETENCIES

Recently released doctrine (FM6-22, Department of the Army, 2006) codifies the Army's leader competency model. The empirically based model stemming from research conducted by Horey et al. (2004) consists of three overarching goals: *Lead Others*, *Develop the Organization*, and *Accomplish the Mission*. Specific competencies that further elaborate on what an Army leader does with regard to these various goals are: (a) Leads Others, (b) Extends Influence, (c) Leads by Example, (d) Communicates, (e) Creates a Positive Environment, (f) Prepares Self, (g) Develops Others, and (h) Gets Results. Definitions for each of these competencies plus a listing of the various sub-components for each competency are provided in Table 15.1.

The organizing framework for the proposed model includes *competencies* at the level below organizational goals, *components* below the level of competencies, and *sample actions* at the lowest level. For example, for the leadership competency of Leads Others a key component is to "establish and impart clear intent and purpose" (along with five other components). Sample actions for this component include: (a) Determines goals or objectives, (b) Determines the course of action necessary to reach objectives and fulfill mission requirements, (c) Restates the higher headquarters' mission in terms appropriate to the organization, (d) Communicates instructions, orders, and directives to subordinates, (e) Ensures subordinates understand and accept direction, and (f) Empowers and delegates responsibility and authority to subordinates, and (g) Focuses on the most important aspects of a situation.

This organizing framework is explicit in terms of delineating the important leader competencies for the Army as well as in identifying the kinds of components and actions that compose each competency. What has yet to be addressed in detail is how these competencies, components, and actions differ across the various levels of leadership. Although the competencies may be relevant at all levels of Army leadership, it seems highly unlikely that any particular leadership competency would manifest itself in exactly the same way in direct leadership (i.e., first-line leadership, ranging from a handful to as many as several hundred people) as it does with organizational leadership (influencing several hundred to several thousand people), or as part of strategic leadership (influencing several thousand to hundreds of thousands of people). Each of these competencies may be important to leadership at every level in the Army, but how they are conceptualized and enacted is likely to differ dramatically across leadership levels. Also likely to differ across levels is the relative mix or emphases given to the various competencies. The doctrine speaks to these distinctions, but there will be an ongoing need for greater clarification around this important issue. Further clarification is central to the development of a competency-based lifelong model of Army leader development, as well as to understand what needs letting go at various direct, organizational, and strategic levels in order to facilitate and accelerate development.

TABLE 15.1 Leaders' Competency Descriptions and Components

I. LEADS

A. Leads Others: Leaders motivate, inspire, and influence others to take initiative, work toward a common purpose, accomplish tasks, and achieve organizational objectives. Influence is focused on compelling others to go beyond their individual interests and to work for the common good.

- Establishes and imparts clear intent and purpose.
- Uses appropriate influence techniques to energize others.
- Conveys the significance of the work.
- Maintains and enforces high professional standards.
- Balances requirements of mission with welfare of followers.
- Creates and promulgates vision of the future.

B. Extends Influence Beyond the Chain of Command: Leaders need to influence beyond their direct lines of authority and beyond chains of command. This influence may extend to joint, interagency, intergovernmental, multinational, and other groups. In these situations, leaders use indirect means of influence: diplomacy, negotiation, mediation, arbitration, partnering, conflict resolution, consensus building, and coordination.

- Understands sphere of influence, means of influence, and limits of influence.
- Builds trust.
- Negotiates for understanding, builds consensus, and resolves conflict.
- Builds and maintains alliances.

C. Leads by Example: Leaders constantly serve as role models for others. Leaders will always be viewed as the example, so they must maintain standards and provide examples of effectiveness through all their actions. All Army leaders should model the Army Values. Modeling provides tangible evidence of desired behaviors and reinforces verbal guidance through demonstration of commitment and action.

- Displays character by modeling the Army Values consistently through actions, attitudes, and communications.
- Exemplifies the Warrior Ethos.

(*continued*)

TABLE 15.1 *(continued)*

- Demonstrates commitment to the nation, Army, unit, soldiers, community, and multinational partners.
- Leads with confidence in adverse situations.
- Demonstrates technical and tactical knowledge and skills.
- Understands the importance of conceptual skills and models them to others.
- Seeks and is open to diverse ideas and points of view.

D. Communicates: Leaders communicate effectively by clearly expressing ideas and actively listening to others. By understanding the nature and importance of communication and practicing effective communication techniques, leaders will relate better to others and be able to translate goals into action. Communication is essential to all other leadership competencies.

- Listens actively.
- Determines information-sharing strategies.
- Employs engaging communication techniques.
- Conveys thoughts and ideas to ensure understanding.
- Presents recommendations so others understand advantages.
- Is sensitive to cultural factors in communication.

II. DEVELOPS

E. Creates a Positive Environment: Leaders have the responsibility to establish and maintain positive expectations and attitudes that produce the setting for healthy relationships and effective work behaviors. Leaders are charged with improving the organization while accomplishing missions. They should leave the organization better than it was when they arrived.

- Fosters teamwork, cohesion, cooperation, and loyalty.
- Encourages subordinates to exercise initiative, accept responsibility, and take ownership.
- Creates a learning environment.
- Encourages open and candid communications.
- Encourages fairness and inclusiveness.

- Expresses and demonstrates care for people and their well-being.
- Anticipates people's on-the-job needs.
- Sets and maintains high expectations for individuals and teams.
- Accepts reasonable setbacks and failures.

F. Prepares Self: Leaders ensure they are prepared to execute their leadership responsibilities. They are aware of their limitations and strengths and seek to develop themselves. Only through continuous preparation for missions and other challenges, being aware of self and situations and predicting lifelong learning and development can an individual fulfill the responsibilities of leadership.

- Maintains mental and physical health and well-being.
- Maintains self-awareness; employs self-understanding, and recognize impact on others.
- Evaluates and incorporates feedback from others.
- Expands knowledge of technical, technological, and tactical areas.
- Expands conceptual and interpersonal capabilities.
- Analyzes and organizes information to create knowledge.
- Maintains relevant cultural awareness.
- Maintains relevant geopolitical awareness.

G. Develops Others: Leaders encourage and support others to grow as individuals and teams. They facilitate the achievement of organizational goals through assisting others to develop. They prepare other to assume new positions elsewhere in the organization, making the organization more versatile and productive.

- Assesses current developmental needs of others.
- Fosters job development, job challenge, and job enrichment.
- Counsels, coaches, and mentors.
- Facilitates ongoing development.

(*continued*)

TABLE 15.1 *(continued)*

- Supports institutional-based development.
- Builds team or group skills and processes.

III. ACHIEVES

Gets Results: A leader's ultimate purpose is to accomplish organizational results. A leader gets results by providing guidance and managing resources, as well as performing other leader competencies. This competency is focused on consistent and ethical task accomplishment through supervising, managing, monitoring, and controlling of the work.

- Prioritizes, organizes, and coordinates taskings for teams and other organizational structures/groups.
- Identifies and accounts for individual and group capabilities and commitment to task.
- Designates, clarifies, and deconflicts roles.
- Identifies, contends for, allocates, and manages resources.
- Removes work barriers.
- Recognizes and rewards good performance.
- Seeks, recognizes, and takes advantage of opportunities to improve performance.
- Makes feedback part of work processes.
- Executes plans to accomplish the mission.
- Identifies and adjusts to external influences on the mission or taskings and organization.

Note: Adopted from FM6-22 (Department of the Army, 2006) Appendix A.

LETTING GO TO DEVELOP

As those in the lifespan development field have proposed, successful aging consists of an ongoing tension between gains and losses. The eminent lifespan developmental psychologist Paul Baltes states it bluntly in these terms: "... *any* process of development entails an inherent dynamic between gains and losses ... no process of development consists only of growth or progression" (1987, p. 611). In the general area of management and leadership development, Freedman (1998) has made the point that those who make the successful career transition from the lowest to the highest levels of their respective organizations traverse at least five critical pathways and four crossroads, moving from individual contributor to supervising manager, manager of a single business, executive manager of several business units, and finally, becoming an institutional leader. Each of the crossroads consists of a 135-degree shift—almost like a switchback in terms of a road or trail. The path keeps moving upward but it is not a wholly vertical ascent. At each of these switchbacks to a new critical pathway, the upwardly mobile leader is often shocked to find that those behaviors, activities, and styles that were effective, valued, and appreciated at lower levels are often inadequate or dysfunctional at the next higher level. Conversely, valued activities at higher levels may not be recognized, understood, or appreciated by those at lower levels.

For example, a leader may be promoted to a higher level position for displaying exemplary technical performance. To excel at this new position that calls for greater administration or management skills, the leader may have to let go of certain day-to-day technical responsibilities and focus on new responsibilities. Certain technical skills may be lost or replaced with new leadership skills. Specifically, at each crossroad, leaders must (a) *let go* of those activities, habits, and tendencies that they are comfortable with but are no longer functional, (b) *preserve* certain familiar tasks, activities, and functions that will likely continue to be practical and useful, and (c) *add on* in terms of learning new ways and methods of leading. Most of the developmental programs focus on the third function of adding on. But the really tricky part is figuring out what to let go of and what to preserve. There is much less direction around those particular core activities.

This emerging theme of identifying what needs letting go, what needs preserving, as well as what to add on in terms leadership competencies, will be revisited in the final section of the chapter, which addresses practical implications. We now turn attention to research issues and how to translate the theoretical propositions outlined in the previous section into testable hypotheses.

FROM THEORETICAL PROPOSITIONS TO RESEARCH HYPOTHESES

As noted in Chapter 1, the two primary criteria for evaluating any theory are (1) falsifiability and (2) utility (Bacharach, 1989). Falsifiability goes to some of the core ideas of Popperism (Popper, 1959) that it must be possible to refute empirically any scientific theory or its components. To be falsifiable, theories must be posed in such a way that the underlying propositions and hypotheses are coherent, clear, and unambiguous. The supporting criterion of utility has been termed as the bridge that connects theory and research (Bierstedt, 1959, as cited in Bacharach). In essence, this connection involves the previously discussed subcriteria of prediction and explanation. A theory is useful if it can both predict and explain.

Another criterion by which to evaluate theory is that of parsimony, or the ratio of hypotheses to propositions (Bacharach, 1989). A theory that can accommodate a wide range of objects of analysis is generally preferred to one that can handle only a limited number of objects. The range of phenomena covered by a theory is reflected in the number of specific hypotheses that can be generated from a proposition. Those propositions that can be used to generate a relatively large number of hypotheses are generally preferable to those that can spawn only a small number of testable hypotheses. According to Bacharach, this is more than "merely an aesthetic criterion" (p. 509). The fundamental role of science is integration and simplification of experience. Toward that end, we have sought to develop an array of testable hypotheses for each of the 13 propositions offered by our proposed theory of leader development.

Guided mainly by the criteria of falsifiability and utility (and to a lesser extent parsimony), we have developed a set of hypotheses organized around each of the theoretical propositions that were presented in Section V of the book. These hypotheses are offered in hope of guiding future research around leader development in the Army as well as other organizations. The hypotheses are organized into three sections: (1) developing the expert leader, (2) identity processes in leader development (including self-regulation strategies), and (3) adult development processes that are thought to influence leader development.

We begin with the most exogenous or observable manifestations of leader development. We would likely know whether someone was an expert leader through thinking, decision-making, or behavior (including emotional displays). In short, we would know them through the demonstrated level of expert performance. In some domains, like chess, expert performance is relatively easy to determine. If one player can reliably beat another player who has been rated as an expert (e.g., grandmaster) then a level of expert performance has been proven. But in other domains such as music or art, the standards for expert performance are much more subjective. If another expert judges a performance at a high level of competence, then expertise is established.

Expert performance in leadership is thought to fall somewhere in between the completely objective measure of expertise found in chess and the nearly completely subjective standards found in music. Expert leader performance cannot always be judged by its outcomes as in chess because such outcomes are often multiply determined. Assuming that the good (or poor) performance of a team or organization is due to its effective (ineffective) leadership is perpetuating an attribution bias. Leadership is only one possible cause of individual, team, or organizational performance. But expert leader performance is not completely subjective either. It is more than another expert's opinion about the level of demonstrated performance. There are certain things that expert leaders are expected to do that are codified in the supporting competency model. Expert leaders can demonstrate high levels of competence in the various areas proposed as integral to effective leadership. Furthermore, competence in these areas can be measured using psychometrically sound instruments.

We first set forth the hypotheses that support the notion of leader development culminating in demonstrated expert performance and then build on that outside layer with hypotheses related to identity processes and then to adult development. This is pretty straightforward in that if the first set of hypotheses is not well supported then it makes little sense to test the others. If the research results ultimately suggest that leadership cannot be adequately conceptualized in expert performance terms then the deeper explanations that we propose for this conceptualization really do not matter. There is a logic associated with the proposed integrative theory that might be considered in the shape and form of an onion. Various layers can be peeled away, gradually revealing a central core. But it is not a full onion unless all or most of the layers are in place.

Research Hypotheses for Developing the Expert Leader

We outlined six theoretical propositions related to developing the expert leader (see Table 12.1 for a list of all propositions in the theory). For each of these propositions, we have generated at least five testable hypotheses. These are presented in Table 15.2, organized by proposition. The set of propositions for this part of the theory mainly pertain to aspects of skill acquisition, expertise development, and identity-development spirals. The hypotheses offer testable suggestions for future researchers to consider.

It should be noted that these hypotheses are preliminary suggestions. Others of equal or superior merit (i.e., clearer, more specific) might be proposed. In addition, not every hypothesis needs to be supported for the overall theory to be supported. Research rarely works this way. More commonly, some hypotheses are not supported for reasons associated with method, measurement, statistical power, and so forth. Unsupported hypotheses also offer the opportunity to revise theory if other problems can be reasonably ruled out.

TABLE 15.2 Propositions and Hypotheses for Developing the Expert Leader

	Proposition 1: Expert leadership can be differentiated from novice (less expert) leadership.
H1.1	Expert leaders demonstrate higher levels of functioning across the leadership competencies than novice (or less expert) leaders.
H1.2	Expert leaders demonstrate greater complexity of thinking about leadership and leadership related challenges, as compared with less expert leaders (i.e., more sophisticated mental models).
H1.3	Expert leaders possess a larger repertoire of available leadership responses than less expert leaders.
H1.4	Expert leaders are seen by their peers and subordinates as more effective than less expert leaders.
H1.5	Expert leaders (as compared with novice or junior leaders) are better able to identify patterns, analyze novel situations, and process leadership-relevant information.
	Proposition 2: The development of leadership expertise occurs as a result of identity changes that take place throughout the lifespan, but particularly in adulthood.
H2.1	The rate by which leadership expertise is developed is positively related to the extent that a leader integrates a leader identity with his/her personal identity.
H2.2	The extent to which a leader identity is part of individual identity is positively related to a leader's level of expert leadership performance.
H2.3	A leader with a more highly developed leader identity is perceived as more consistent and confident by followers than a leader with a less highly developed leader identity.
H2.4	Thinking of oneself as a leader is related to seeking out leadership development experiences.
H2.5	Thinking of oneself as a leader is positively related to how long someone will persevere in completing a challenging leadership experience.
	Proposition 3: Basic level skills combine to form complex and multifaceted leadership competencies.
H3.1	Leadership competencies require a foundation of declarative and procedural skills.
H3.2	Over time and with relevant practice, declarative and procedural knowledge develop into adaptive and strategic leadership competencies.

H3.3 Over time and as leadership challenges become more complex, some unneeded skills diminish or are lost completely (i.e., letting go).

H3.4 Some basic leadership skills are preserved as leaders develop into expert leaders.

H3.5 Once basic skills are mastered, leaders must integrate them with other basic skills to develop leadership competencies.

Proposition 4: The development of expert leadership follows a longitudinal trajectory that parallels the development of expertise in other domains.

H4.1 The development of expert leadership performance occurs over a relatively lengthy time period—perhaps ten years or more.

H4.2 The trajectory of development for leadership expertise is nonlinear.

H4.3 The development of leadership expertise consists of incremental developmental change that is punctuated by rapid discontinuous change.

H4.4 As leadership expertise develops, leaders are able to more quickly make sense of (i.e., interpret and respond to) novel leadership situations.

H4.5 As leadership expertise (i.e., competence) develops, moral reasoning becomes more complex and sophisticated.

Proposition 5: Intentional practice in leadership is needed to reach a level of expert leader performance.

H5.1 The extent to which deliberate, intentional practice is engaged in is negatively related to the length of time needed to reach a level of expert leader performance.

H5.2 Expert leaders engage in regular practice of their leadership competencies.

H5.3 Developmental experiences that provide for structured practice of leadership competencies are more developmental than those that do not allow for structured practice.

H5.4 Expert leaders engage in more practice around leadership competencies (e.g., seek out more challenging development assignments) than less expert leaders of the same rank or age.

H5.5 Experiences that include all aspects of the experiential learning cycle (i.e., experiencing, reflecting, thinking, and acting) are more effective at developing leadership competencies than those experiences that lack all aspects of the learning cycle.

As discussed in Chapter 1, one component ensuring falsifiability is ensuring that constructs are clearly defined and reliably measured. Constructs must have clear and coherent operational definitions, measure what they intend to measure, and display consistency across measurement. Theory testing using unstable or invalid measures is inappropriate and unscientific. The present theory cannot be fully evaluated regarding falsifiability because specific measurement instruments are not always specified. Future researchers who test this theory are free to choose reliable and valid instruments they find appropriate. Appendix B provides a selection of possible measurement tools that may be used in tests of the present theory.

Another potential concern with regard to certain hypotheses is that of time and timing (see Chapter 4 for a more detailed discussion of the underlying issues). Some of these hypotheses are longitudinal in nature in that they propose changes that occur over time (e.g., H2.1, H2.5, H3.2, H3.3, H4.1, H4.2, H4.5, and H5.1 among others). Given that what is being proposed at a broad macro level is an integrative theory of leader development, focusing on change over time makes sense. But longitudinal research is often difficult to conduct for many reasons, not the least of which is the attrition of participants from the study. Nonetheless, in testing a theory of development it is necessary to focus on both within- and between-individual changes over time. Thus, research that incorporates repeated measures, personal trajectories, or other forms of longitudinal growth modeling will be especially important in testing core aspects of the theory.

A couple of the hypotheses also deal with proposed nonlinear relationships. Specifically, H4.2 proposes that the trajectory for the development of leadership expertise is nonlinear. H4.3 proposes that development is a mix of incremental (i.e., linear) and discontinuous (nonlinear) change. Again, this requires more sophisticated modeling approaches than what is required to test other hypotheses that focus mainly on mean differences (e.g., H1.1–H1.5). It would also be desirable to hypothesize more specific forms of nonlinearity that are expected in the development of leadership expertise. H4.3 is more specific than H4.2 in this regard; however, there may be other possible forms of change that are even more specific than predicting a mix of linear and nonlinear development processes. Specificity in hypothesis statements is a desirable feature in that it enhances their potential falsifiability (Bacharach, 1989).

Research Hypotheses Relating to Identity Processes in Leader Development

Moving to the next most endogenous level or theoretical layer, we examine the identity processes that have been proposed as important in supporting the development of leadership expertise. As presented in Chapters 5 and 13 of the book, leader development is proposed to occur as a function of the adoption and integration of a leader identity. That

is, as a function of participating in leadership experiences and having a positive developmental experience, a budding leader begins to adopt a leader identity that, in turn, motivates a search for additional leadership experiences (see Proposition 6, Table 15.3). In this way the leader identity and expertise development spiral in a reciprocal manner in either positive or negative directions. Having a positive or successful leadership experience is thought to bolster the integration of a leader identity with an overall personal self-concept, whereas negative or unsuccessful experiences tend to detract from the integration of a leader identity. If a leader identity is let go either partly or completely then there is less chance of actively seeking future leadership experiences.

What makes identity such a pivotal construct in our theory has a lot to do with the self-regulation processes that support the development of a leader self-concept. These self-regulation processes serve as ways to link how we think of ourselves (i.e., identity) with our behavior and emotions. In short, they help to bridge cognition with action. At a very general level it was proposed that individual differences influence the rate and direction of these identity and leader development spirals (Proposition 7). Supporting propositions (7a to 7e) specify in greater detail the particular kinds of individual differences that are thought to moderate the spirals and how they are expected to moderate the relationships in the developmental spirals.

We propose five primary forms of individual difference variables that influence the leader development spirals: (1) self-regulatory strength, (2) learning goal orientation, (3) generalized self-efficacy, (4) self-awareness, and (5) implementation intentions. The proposed hypotheses offer possible explanations for why each individual difference variable is thought to be important for the spirals. Of course, they all await empirical tests. It may well be the case that certain individual differences receive stronger or more consistent support than others. Results of this kind would be useful in revising the theory to reflect which particular individual differences provide the best "levers" for accelerating leader development.

Although not hypothesized explicitly, this set of propositions suggests that leaders with higher levels or stronger orientations on all five of these individual difference variables are likely to develop as leaders more quickly than those who are lacking or relatively weak in all or most of these variables. In other words, there may be a cumulative effect of having multiple individual differences that support identity spirals and these differences work together synergistically. For example, a leader who develops and uses implementation intentions may free up self-regulatory resources that can be used to support other functions. Because of the degree of difficulty and complexity associated with trying to form specific hypotheses about such interactions, we decided to focus for the present on their respective main effects. Nonetheless, future researchers may find it useful to propose and test the interactions of two or more of these individual difference variables on the rate or level of leader development.

TABLE 15.3 Propositions and Hypotheses for Identity Processes in Leader Development

	Proposition 6: Leadership competence is formed through spirals of leader identity formation and change in the context of learning and development through leadership experience.
H6.1	As leadership competencies develop, leader identity begins to emerge, which further supports learning and development around leadership.
H6.2	If success is experienced in a leadership challenge, leader identity becomes a more central part of overall identity.
H6.3	Leadership failures will lead to rejecting a leader identity.
H6.4	Success in leadership experiences is related to greater leadership self-efficacy.
H6.5	Leadership self-efficacy is positively related to the likelihood that a challenging developmental experience will be taken on.
	Proposition 7: Individual differences between leaders influence the rate and direction of the spirals of identity development and leader development.
H7.1	Individual differences moderate identity-development spirals.
H7.2	Individual differences influence the ability of leaders to engage in self-regulation during the development process.
H7.3	Individual differences interact with environmental factors in influencing identity-development spirals.
	Proposition 7a: Self-regulatory strength accelerates the ongoing learning and development of leaders.
H7a.1	A leader's self-regulatory strength is positively related to their ability to engage in emotional, cognitive, and behavioral regulation.
H7a.2	A leader's self-regulatory strength is positively related to the ability to monitor progress toward developmental goals.
H7a.3	Leaders with greater self-regulatory strength set more ambitious developmental goals than leaders with lower self-regulatory strength.
H7a.4	The greater a leader's self-regulatory strength, the more likely he or she is to persist with leader development efforts despite obstacles and challenges.

Proposition 7b: Learning goal orientations facilitate development of leader expertise through the use of self-regulation strategies.

H7a.5 Self-regulatory strength will be positively related to the completion of self-development activities on the part of leaders.

H7b.1 Leaders with high learning goal orientations develop leadership strategies and schemas more quickly than those with low learning goal orientations.

H7b.2 Learning goal orientation is positively related to attention directed toward understanding the task.

H7b.3 Performance goal orientation is positively related to amount of attention directed toward impression management.

H7b.4 Learning goal orientation is positively related to the amount of practice that leaders engage in with regard to their leadership skills and competencies.

H7b.5 Learning goal orientation is positively related to the likelihood of engaging in self-development activities to enhance leadership competencies.

Proposition 7c: A leader's generalized self-efficacy will positively relate to leader development and learning.

H7c.1 Generalized self-efficacy will positively relate to motivation to learn.

H7c.2 Leaders with greater self-efficacy will respond more positively in the face of challenging or new situations than leaders with less self-efficacy.

H7c.3 Positive leadership experiences will enhance generalized self-efficacy and result in a stronger leader identity.

H7c.4 Generalized self-efficacy will be positively related to a leader's likelihood of self-development activities.

H7c.5 Generalized self-efficacy will positively relate to a leader's motivation to lead.

Proposition 7d: Self-awareness will facilitate the development of leader learning and expertise.

H7d.1 Self-awareness is positively related to identification new skills that leaders need to learn.

H7d.2 Leaders with greater self-awareness respond more positively to feedback than those with less self-awareness.

(*continued*)

TABLE 15.3 *(continued)*

H7d.3	A leader's level of self-awareness predicts the ability to identify relevant developmental challenges.
H7d.4	Leaders with high levels of self-awareness will demonstrate low levels of hubris.
H7d.5	Leaders who are self-aware will be less likely to take on developmental assignments that are "over their heads" in terms of the core challenges they pose.
	Proposition 7e: Forming implementation intentions regarding initiating leadership practice and persisting through distractions will facilitate leader development.
H7e.1	The use of implementation intentions is positively related to intentionality in leader development.
H7e.2	The repeated use of implementation intentions is likely to build leadership schemas and other types of related mental models.
H7e.3	The use of implementation intentions is negatively related to time to initiate progress toward new developmental goals.
H7e.4	Leaders who use implementation intentions are more likely to persist despite distractions and other obstacles than those who do not.
H7e.5	The use of implementation intentions increases persistence toward developmental goals by reducing demands on self-regulatory strength.

Taken together, the propositions and hypotheses from this section highlight the notion that leaders develop in different ways and at different rates. There are individual differences in developmental trajectories, which the present theory argues are a function of individual differences in self-regulation strategies. This also highlights the systems principle of equifinality. Leaders can and do develop in different ways, but the end result is an expert level of leadership competence.

Research Hypotheses on Adult Development Processes That Support Leader Development

Propositions and hypotheses related to the influences of adult development on leader development make up the deepest or innermost theoretical layer. The background literature on adult development is presented in detail in Chapters 3 and 14. Adult development is of great relevance and importance to leader development because of its lifespan orientation. If leader development is presumed to be ongoing throughout the adult lifespan, then understanding the factors that contribute to successful aging is also likely to inform the leader development process. Factors associated with successful aging might be used to either accelerate the leader development process in adulthood or to forestall any decline in developmental trajectories. The relevant propositions and their respective hypotheses are presented in Table 15.4.

The hypotheses associated with Proposition 8 elaborate on the ongoing nature of leader development throughout the adult lifespan. All of the hypotheses deal in one way or another with longitudinal processes. Given the focus of adult development, this is not surprising, but it does create the usual difficulties associated with longitudinal research. H8.1 is probably the least specific (and thus most difficult to test) of all of the supporting hypotheses for this proposition. Nonetheless, it is important to empirically document that leader development can occur regardless of a leader's age. Two of the hypotheses supporting Proposition 8 specify particular forms of curvilinear developmental trajectories (H8.2-H8.3). Two other hypotheses articulate aspects of development that could slow the developmental progress of leaders and what might be done to mitigate those effects (H8.4-H8.5).

Proposition 9 and its supporting hypotheses deal with the role of physical health and mental well-being in the developmental processes of leaders. The Army is an unusual organization in terms of expecting ongoing physical training and regular physical fitness testing. Such efforts are likely important in slowing many of the physical declines associated with aging. Furthermore, effective self-regulation strategies that contribute to the personal discipline needed for ongoing physical fitness may help to forestall cognitive declines and enhance well-being as well as leader development. Taken together, hypotheses 9.1 through 9.5 illustrate the importance of physical health and fitness to successful aging and ongoing leader development.

TABLE 15.4 Propositions and Hypotheses for Adult Development Processes in Leader Development

Proposition 8: Leader development is ongoing throughout the adult lifespan and is shaped by experience as well as through adult development and age-related maturation processes.

H8.1 Leader development occurs across the lifespan in any and every stage of adulthood.

H8.2 There will be a curvilinear relationship (inverted-U) between age and having interest or participating in leader development experiences.

H8.3 The rate of development of leadership competencies will asymptote around age 30 (associated with the onset of general cognitive and physical declines) and begin to decline thereafter.

H8.4 Developmental experiences can mitigate the effects of cognitive and physical decline in adulthood on leader development.

H8.5 Cognitive inactivity will slow the development of leadership expertise in later adulthood.

Proposition 9: Maintaining an active and healthy lifestyle and building self-regulatory resources may facilitate health and well-being into late adulthood and contribute to lifelong development.

H9.1 Physical decline in adulthood will slow the trajectory of leader development.

H9.2 Effective self-regulation processes enhance the experience of leader well-being.

H9.3 Experienced well-being is positively related to self-development intentions and activities.

H9.4 Physical fitness will be positively related to self-development intentions and activities.

H9.5 Well-developed self-regulatory strategies slows physical and cognitive decline in adulthood.

Proposition 10: Individuals engage in selection, optimization, and compensation (SOC) processes in maximizing developmental gains and minimizing losses associated with developing as a leader.

H10.1 SOC processes can accelerate the trajectory of leader development.

H10.2 Engagement in SOC processes is negatively related to the time to reach expertise, and positively related to maintaining expertise throughout the lifespan.

H10.3 Leaders can be trained in SOC processes.

H10.4 Self-regulatory strength is positively related to the benefits of SOC processes.

H10.5 Advanced levels of SOC processes accurately guide letting go, preserving, and adding on of appropriate leader skills and competencies.

Proposition 11: The development of complex, multifaceted leadership competencies is supported by a web of adult development that is dynamic and nonlinear in nature.

H11.1 Developmental reserve capacity is positively associated with leader developmental readiness.

H11.2 Developmental readiness will be associated with steeper developmental trajectories.

H11.3 Leaders demonstrating variable skill levels will be less developmentally ready than those demonstrating consistently strong skills levels.

H11.4 The gap between typical and optimal leader performance will be negatively related to developmental trajectories.

H11.5 Environmental conditions that support optimal leader performance levels will be associated with discontinuous jumps in leader development.

Proposition 12: Moral reasoning and reflective judgment (i.e., epistemic cognition) develop concomitant with positive identity-development spirals.

H12.1 Complexity of moral reasoning is positively related to the strength of a leader identity.

H12.2 Complexity of moral reasoning is positively related to the quantity and quality of leadership experiences.

H12.3 Reflective judgment is positively related to the strength of a leader identity.

H12.4 Reflective judgment is positively related to the quantity and quality of leadership experiences.

H12.5 There is a positive relationship between moral reasoning, reflective judgment, and leader expertise (i.e., holding leadership competencies).

(*continued*)

TABLE 15.4 (*continued*)

Proposition 13: Wisdom involves the alignment of morality and moral reasoning (virtue), identity and self-regulation (self) and reflective judgment (knowledge and thinking).

H13.1 Expert leaders demonstrate higher levels of wisdom than less expert leaders.

H13.2 Leaders who are perceived as having wisdom have higher levels of moral reasoning than leaders who are considered to possess less wisdom.

H13.3 Leaders who are considered to possess high levels of wisdom are also perceived as more virtuous than leaders with lower levels of wisdom.

H13.4 Wisdom is a time-varying covariate that develops concomitant with expertise, moral reasoning, and leader identity.

H13.5 Wisdom can develop in leaders regardless of age.

Proposition 10 is pivotal to our theory with regard to the practical utility of incorporating an adult development perspective in leader development. This proposition and all of the supporting hypotheses deal with the proposed SOC processes that are instrumental to successful aging. Although these processes become especially important in adulthood as cognitive, physical, and other personal resources begin to decline or are otherwise taxed, they are thought to be developed initially in emerging adulthood. If these hypotheses are supported empirically it will lend support for the idea of investing in helping leaders develop and hone SOC processes as part of their development as leaders. This potentially important point will be elaborated on in more detail in the section on practical implications later in this chapter.

On the surface, Proposition 11 appears very similar to Proposition 3 in terms of the development of complex, multifaceted leadership competencies. Where they differ, however, is in terms of the linkages to aspects of developmental theory that are highlighted in H11.1 through H11.5. Specifically, developmental reserve capacity (H11.1), developmental readiness (H11.2), and aspects of typical and optimal performance (H11.3-5) are considered important predictors of the developmental trajectories of leaders. Again, they denote the relevance of key aspects of developmental theory—especially those from the adult development literature—to predicting, understanding, and potentially controlling (i.e., accelerating) the leader development process. Propositions 12 and 13 further elaborate on the notion of developmental spirals (also see Proposition 7). As identity and leader expertise spiral upward in a mutually reinforcing way, moral reasoning and reflective judgment are also thought to develop. As noted in Chapters 6 and 14, leadership inherently involves ethical dilemmas, and as leaders develop, the kinds of dilemmas they are able to sense and interpret become increasingly more complex. In essence, their moral and ethical "radar" becomes more sophisticated, as does their understanding of knowledge (e.g., epistemic cognition or reflective judgment). As this moral capacity and sophisticated reflective judgment ability become aligned with emerging expertise (i.e., leadership competencies), wisdom begins to form. This is the essence of Proposition 13.

Taken together, these 13 propositions and 88 hypotheses offer a comprehensive research plan for testing the major areas of the proposed integrative theory of leader development. This list is not exhaustive nor is it static. Other scholars might be adept at forming more specific hypotheses that have the advantage of better falsifiability, or generate different hypotheses that complement the present set. As with any theory, especially one that is grounded primarily in the social sciences, it will continue to evolve and change as research results emerge to support or not support various hypotheses. Human behavior is fickle in that it does not always (or even usually) conform to a general set of laws. Although it is unrealistic to expect this or any theory to predict the specific behavior of any given individual, good theory and supporting empirical research

allow for the prediction and explanation of general trends in thinking, behavior, and development. Nonetheless, expecting strong theory in the area of leader development in which theory of any sort has been historically lacking (Day & O'Connor, 2003) is no doubt expecting too much. As noted by Weick (1995b), the products of theorizing rarely emerge as full-blown theory; rather, such products approximate strong theory. Instead of disparaging these "interim struggles" (p. 385) as less than whole or complete theory, there is a need to focus not on theory as product but theorizing as process. Much of validation research is a continuous process of hypothesizing, testing, evaluating, and refining the underlying predictions (Binning & Barrett, 1989); building theory is also a continuous process and not an end state.

PRACTICAL IMPLICATIONS

We discussed utility in terms of a bridge between theory and research (Bacharach, 1989). The practical utility of a theory is assessed by whether it can also bridge the gap between research and practice. That is, once there has been empirical support demonstrated for some set of research hypotheses, can we translate that scientific knowledge into sound practice? First, we need to assume that support has been found, which, unfortunately, we cannot guarantee for the present theory at the present time. Second, we need to assume that the results demonstrate practical significance in addition to statistical significance. Essentially, this means that the obtained effect sizes are sufficiently large to justify the implementation of programs or interventions that are designed around the obtained results. The threshold for practical significance is a subjective judgment call. Rather than trying to set strict standards for practical significance, it would likely be more reasonable to encourage a "never-ending fixation and continuing concern for evaluating the results of one's research according to *effect sizes*" (Dunnette, 1990, p. 20, italics in original). Practical significance matters if we hold out hope that our theory and research will influence leader development practices in organizations. Practical significant also matters when the outcome is evaluated in terms of the cost of failed leadership, not only in economic terms but also potentially in terms of human lives.

Of course, there first needs to be research conducted before we can evaluate its significance at any level. With regard to the present theory, such research has yet to be conducted. Nonetheless, much of what we have proposed is based on a solid empirical foundation from the expert performance, social identity and self-regulation, and adult development literatures. We have little reason to be concerned about the generalizability to the leader development field; however, a scientific orientation to such issues urges caution in these matters. Thus, additional research is needed before any firm conclusions can be drawn or practical recommendations made. But on the positive side, the present theory is a first

in terms of providing sound theoretical direction for leader development research. With those caveats, the remainder of this section will highlight certain practical implications assuming future support for the propositions set forth in the present theory.

At the most visible or exogenous level, leader development can be observed and measured in terms of competencies. We believe there is such thing as an expert leader. This is someone who over the course of perhaps a decade or more has devoted himself or herself, through study and practice, to master a set of leadership competencies set forth by the organization as denoting the high-level leadership skills that leaders require to be effective. Two aspects of this assumption are especially noteworthy. First, we do not expect leadership competencies to emerge fully formed in leaders. They develop only over considerable time and only with extensive deliberate practice. In short, adult development is an active process, unlike child development, which is guided mainly by biological and maturational factors. The required practice includes not only study (i.e., thinking, reflecting) but also acting. Second, competencies develop from initially more-basic skills. Indeed, competencies can be thought of as bundles of different skills that combine into more holistic, multifaceted, and multifunctional composites. Such leadership competencies provide the foundation for leaders of ability and character as identified in Army doctrine (FM, Department of the Army, 2006, 6-22).

Focusing only on improving the observable expert performance of leadership competencies would be shortsighted. Specifically, it would do little for leader development other than to "teach the test" so to speak. In other words, simply training to a particular set of competencies might result in some level of leader expertise, but it does relatively little for enhancing long-term development. And by focusing entirely on training a list of specific competencies there might ultimately be more harm than good that is done. For example, what if environmental circumstances dictated that the competency model be revised? Suddenly, expert leaders would no longer be experts—or as expert—as they were prior to the revision of the model. However, focusing on the development of more overarching concerns such as identity, moral reasoning, and reflective judgment would grow the kinds of self-aware and adaptive leaders that many organizations value. It would not matter so much what was on the "test" (i.e., competency model), because highly developed leaders would be able to adapt more quickly in generating new skills and competencies to meet whatever change has been presented.

The present theory also suggests that it would likely be very fruitful to invest in helping leaders develop specific kinds of self-regulation strategies such as building self-regulatory strength, developing a learning goal orientation, enhancing generalized self-efficacy, ensuring heightened self-awareness, and introducing sound implementation intentions. Rather than just teaching the test in terms of training to a set list of competencies, developmental interventions could be designed to help leaders learn about managing their selves. Effective self-management

strategies in the form of self-regulation skills can help to ensure lifelong learning and development of leaders.

It has been noted that people often need to learn how to learn. The same could be said for learning how to develop. In this regard, it might be said that all leader development is self-development. Leaders can be put into assignments, courses, or other kinds of experiences but it does not mean that development is inevitable. People develop at different rates and in different ways. Two leaders experiencing the identical situation or assignment would very likely learn very different things and develop in different ways as leaders. But having a sound foundation of self-regulation skills to help make learning and development more intentional would likely enhance the impact of developmental experiences and ultimately accelerate the leader development process.

At the deepest level of adult development, researchers have proposed a set of orchestrating processes that contribute to successful aging (e.g., Freund & Baltes, 1998). In some ways, these selection-optimization-compensation (SOC) processes are very similar to self-regulation strategies studied in the social psychology literature. Selection deals with goal choice and goal setting in terms of where to best allocate limited resources (e.g., time and energy). Optimization is concerned with the refinement of this resource allocation process toward achieving higher levels of functioning in selected domains (e.g., goals). Compensation refers to how substitutive processes are employed when faced with a loss of resources or the decline of goal-relevant means in a selected domain of functioning (e.g., leadership). Although similar to self-regulation strategies, the SOC processes serve a much more refined purpose, which is to keep people on course for pursuing their "meta-goals" that ultimately enhance meaning in their lives.

It is thought that early adulthood is the ideal time when SOC processes are formed, but it is especially in later adulthood that these processes take on greater importance for adaptive functioning. As people experience heath-related constraints and other losses in their developmental reserve capacity and plasticity, a greater emphasis is placed on compensatory strategies to deal with these resource limitations relative to what occurs at younger ages. Investing in helping younger leaders develop strong SOC processes would likely yield dividends across the entire trajectory of leader development, but might be especially beneficial for older leaders who still need to continuously develop. As with self-regulation strategies, SOC processes may not be seen as directly contributing to leader development in that they are not directed explicitly at fostering competency development. Nonetheless, we believe that such processes and strategies play an important role in regulating leader development throughout the lifespan. Trying to inculcate SOC processes in later adulthood when they are most needed may be trying to do too little too late. But building this into early developmental interventions might accelerate the leader development process and yield especially big rewards in those years in adulthood where continuous development becomes increasingly difficult.

Another practical implication stemming from the adult development literature is the recognition that development involves losses as well as gains. At the various crossroads of leader development, there must be recognition that certain skills and competencies that contributed to success at a lower level are no longer functional for effective leader performance at higher levels. Some researchers have termed this the "letting go" process of development (Freedman, 1998). Not only is this process desirable, it is also necessary for future effectiveness.

Of course, figuring out what needs to be let go is the difficult part. Some guidance from Army doctrine would be especially helpful in this regard, although the diversity of positions and career tracks within large organizations such as the Army would likely make this very difficult to do. But the acknowledgment that development does not mean an inevitable ongoing accretion process would be a useful beginning. Leaders must think about what needs to be given up in terms of skills and competencies, what should be preserved, and what should be added on and possibly transformed. As a first step, this would require that leaders understand how their duties and responsibilities as leaders will likely change at different career stages. A second step would be their active interpretation of what and how to change as leaders, including what they need to stop doing.

In the Introduction to this book we asked two rhetorical questions about the Army's doctrinal precept that leader development is a progressive and sequential process: Does this provide a meaningful framework for Army leader development? Is it consistent with what is known about adult development, skill acquisition, and other related bodies of research? What we have described throughout this book, both through the literature reviews and our theorizing about leader development, is a leader development process that is complex, multifaceted, nonlinear, and highly subject to differences among individuals and across environments. That is reflective of what is known from adult development, skill acquisition, and other related fields. But is it a "progressive and sequential" process? Yes and no. As discussed above, given what we know about the development of expertise in general, it is reasonable to describe leader development in part as a "progressive" accumulation of skills bundled into higher-order competencies. However, this conclusion includes the caveat that there is loss as well as gain in the process, as described by the SOC framework. The "sequential" notion is a bit more problematic. The multifaceted and nonlinear nature of leader development we have described does not seem consistent with an assumption that leader development can be managed as a sequential process.

GENERAL CONCLUSIONS AND RECOMMENDATIONS

Most scholarly books and papers conclude with a call for future research on the focal topic in question. This present one is no exception. Leader development is an area that is notoriously weak on empirical data and

even weaker when it comes to theoretically guided research. Even the research on leader development that has been conducted tends to focus entirely on whether a particular intervention is associated with subsequent improvements in leader, team, or organizational *performance*. There are at least two problems with this general approach. First is the outcome of interest. Although most research focuses on performance, a more appropriate outcome is development itself. What developmental theorists and researchers would be most concerned about is whether or not, as well as how and why, leaders develop and not whether their job performance improves. It is also entirely likely that there will be initial performance decrements associated with leader development as a leader lets go of some familiar routines and as new routines begin to be established. Timing of measurement becomes critically important in those cases in which changes in performance are relevant (see Chapter 4 for a more detailed discussion of issue related to time and measurement).

This leads to the second general issue of explanation. Without some theoretical connection to the underlying reasons that leaders change, the best we are left with is prediction. Although prediction is a necessary condition for good theory (or good theorizing as the present case may be), it is insufficient by itself. Good theory not only offers accurate predictions it also provides sound explanations (Bacharach, 1989).

We hope that the propositions and hypotheses offered here will help to serve as a guide for researchers interested in a scientifically grounded approach to leader development. We have posed a recommended sequence of how supporting research should proceed, beginning at the most exogenous or observable level (i.e., leadership competencies) and moving next to test increasingly deeper explanations of how expert performance unfolds and how it might be accelerated. Those phases of theory testing occur through examining the influences of leader identity development and self-regulation, and then progressing to the orchestrating processes of adult development (i.e., selection, optimization, and compensation). Through an iterative process of testing, evaluating, and theorizing, there should be noted improvements in the falsifiability, utility, and parsimony of the proposed leader development theory. It is a continuously evolving process and not anywhere near what could be considered a "done deal."

One area in which we would like to make a strong recommendation is in terms of investing more in *longitudinal research*. It is difficult to make appropriate inferences about leader development (or development of any kind) based solely on cross-sectional research findings. Development in any domain requires the study of personal trajectories (Raudenbush, 2001). We are interested not only in between-leader (i.e., inter-individual) differences in developmental trajectories but within-leader (i.e., intra-individual) changes as well. Fortunately, a whole category of analytic tools have been developed and honed in recent years to help accomplish this end. A general label of multilevel growth modeling is perhaps the best description of these tools. But it should be

remembered that leader growth and development are not necessarily solely processes of accretion. Development can occur through radical discontinuous jumps as well as through gradual linear change. The adult development literature also makes it clear that development involves losses as well as gains. For leaders to develop, they need to accurately identify what needs to be let go, as well as what to preserve and what to add on in terms of leadership skills and competencies.

Another area in which we would like to put forth recommendations is in terms of *measurement*. Having a competency model or an explicitly stated theory of leadership performance is a start in terms of fostering a widely shared and endorsed understanding of what is expected of leaders. But without psychometrically sound measures of these competencies and their supporting behaviors that are matched to the various leadership levels (e.g, direct, organizational, and strategic levels in the Army) then there is little more than a nice ideal that is represented by the model. If research is to proceed by first focusing on the most exogenous layer of the theory that deals with demonstrating leadership expertise then it is imperative that there are ways to assess this expertise. Criterion measurement would be a worthwhile investment in the early stages of research devoted to the present theory.

As with any theory, there are potential boundary conditions to consider. The Army is in somewhat of a unique position in that most of its senior leaders (and certainly those in uniform) are products of several decades of ongoing development beginning in late adolescence or early adulthood through mid-adulthood and possibly longer. Although leaders leave the Army at various career stages, there is very little selection from outside the organization (but as noted, there are other types of corporate organizations, like Pfizer, where this is also the case for certain positions). On one hand, this is an advantage from a research perspective because it allows for longitudinal study of intrapersonal and interpersonal leader processes and controls for a big potential confound (i.e., external influences). But it does make the Army different from typical organizations—not to mention its different mission. Thus, it is premature to speculate on whether results obtained from leader development research in the Army will generalize outside that organization. Nonetheless, many organizations espouse the need for continuous lifelong learning, which also means ongoing development. Learning and development are very closely aligned. The present theory and the results of research that it spawns could very well be valuable to nonmilitary organizations.

In the first chapter, we elaborated on why there is a need for a theory of leader development. Put simply, the bottom-line answer is that the need exists because there are no comprehensive scientific theories on this important topic, and definitely not one targeted at Army leader development. There are other recent efforts, however, that touch on some of the topics addressed in the present theory. Both London (2002) and Avolio (2005) elaborate on issues of leader identity; London also

elaborates on issues related to self-regulation and wisdom. But neither of these recent additions to the leader development literature is aimed mainly at a research-oriented audience. They are geared mainly for a practitioner or popular press readership. There is nothing wrong with that, but they do not help much in filling the theoretical void in the literature for scientifically oriented, testable theory. In addition, neither Avolio nor London delves into issues of adult development and how they might inform the leader development process. Clearly, adult development is a key component of the present theory and serves to anchor our propositions and hypotheses at the deepest level.

We hope that our theory offers an initial guide for beginning a systematic, theoretically grounded and comprehensive evaluation of what we see as the primary drivers of the leader development process. As noted, the next step is research, especially longitudinal research in areas of leadership expertise, leader identity processes, self-regulation, moral reasoning, reflective judgment, and the orchestrating processes of selection-optimization-compensation that shape adult development. Many of these topics have received little, if any, theoretical or empirical research attention in the leadership or leader development literature. We also call for more research that focuses on development as the criterion of interest rather than leader performance. Research of this nature is needed to test and evaluate empirically the hypotheses and propositions set forth in the book, but perhaps more importantly, to continue the ongoing process of theorizing about leader development.

References

Abelson, R. P. (1981). Psychological status of the script concept. *American Psychologist, 36,* 715–729.

Abma, T. A. (1998). Storytelling as inquiry in mental hospital. *Qualitative Health Research, 8,* 821–838.

Ackerman, P. L. (1987). Individual differences in skill learning: An integration of psychometric and information processing perspectives. *Psychological Bulletin, 102,* 3–27.

Ackerman, P. L. (1988). Determinants of individual differences during skill acquisition: Cognitive abilities and information processing. *Journal of Experimental Psychology: General, 117,* 288–318.

Ackerman, P. L. (1996). A theory of adult intellectual development: Process, personality, interests, and knowledge. *Intelligence, 22,* 227–257.

Ackerman, P. L., Kanfer, R. & Goff, M. (1995). Cognitive and noncognitive determinants and consequences of complex skill acquisition. *Journal of Experimental Psychology, Applied, 1,* 270–304.

Alberts, D.S., Garstka, J.J., and Stein, F.P. (1999). *Network centric warfare: Developing and leveraging information superiority.* (2nd Ed). Washington, DC: Command and Control Research Program Publication Series.

Alberts, D.S., & Hayes, R.E. (2003). *Power to the edge: Command and control in the information age.* Washington, DC: CCRP Publication Series.

Allen, T. D., Eby, L. T., Poteet, M. L., Lentz, E. & Lima, L. (2004). Career benefits associated with mentoring for protégés: A meta-analysis. *Journal of Applied Psychology, 89,* 127–136.

Alliger, G. M. & Janak, E. A. (1989). Kirkpatrick's levels of training criteria: Thirty years later. *Personnel Psychology, 42,* 331–342.

Anderson, C. A. (1983). Imagination and expectation: The effect of imagining behavioral scripts on personal influences. *Journal of Personality and Social Psychology, 45,* 293–305.

Anderson, C. A. & Godfrey, S. S. (1987). Thoughts about actions: The effects of specificity and availability about oneself and others. *Social Cognition, 5,* 238–258.

Anderson, J. R. (1982). The acquisition of cognitive skill. *Psychological Review, 89,* 369–406.

Anderson, J. R. (1985). *Cognitive psychology and its implications* (2nd ed.). New York: Freeman.

Anderson, S. L. & Betz, N. E. (2001). Sources of self-efficacy expectations: Their measurement and relation to career development. *Journal of Vocational Behavior, 58,* 98–117.

Andrews, F. M. & Farris, G. F. (1967). Supervisory practices and innovation in scientific teams. *Personnel Psychology,* 20, 497–515.

Aquino, K. F. & Reed, A., II (2002). The self-importance of moral identity. *Journal of Personality and Social Psychology,* 83, 1423–1440.

Aquino, K., Reed, A., II., Thau, S., & Freeman, D. (2007). A grotesque and dark beauty: How moral identity and mechanisms of moral disengagement influence cognitive and emotional reactions to war. *Journal of Experimental Social Psychology, 43,* 385–392.

Armon, C. & Dawson, T. L. (1997). Development trajectories in moral reasoning across the life span. *Journal of Moral Education, 26,* 433–453.

Army Research Institute. (1996). Leader Azimuth check assessment inventory. Fort Leavenworth, KS: Forth Leavenworth Research Unit, U.S. Army Research Institute.

Arnett, J. J. (2000). Emerging adulthood: A theory of development from the late teens through the twenties. *American Psychologist,* 55, 469–480.

Arogte, L. & Kane, A. A. (2003). Learning from direct and indirect experience in organizations: The effects of experience content, timing, and distribution. In P. B. Palus (Ed.), *Group creativity: Innovation through collaboration* (pp. 277–303). London: Oxford University.

Arthur, W., Jr., Bennett, W., Jr., Edens, P. S., & Bell, S. T. (2003). Effectiveness of training in organizations: A meta-analysis of design and evaluation features. *Journal of Applied Psychology, 88,* 234–245.

Ashford, S. I. (1989). Self-assessments in organizations: A literature review and integrative model. *Research in Organizational Behavior, 11,* 133–174.

Ashford, S. J. & Cummings, L. L. (1983). Feedback as an individual resource: Personal strategies of creating information. *Organizational Behavior and Human Performance, 32,* 370–398.

Ashforth, B. E. & Anand, V. (2003). The normalization of corruption in organizations. *Research in Organizational Behavior, 25,* 1–52.

Ashforth, B. E. & Mael, F. (1989). Social identity theory and the organization. *Academy of Management Review, 14,* 20–39.

Atwater, L. E., Dionne, S. D., Avolio, B., Camobreco, J. F., & Lau, A. W. (1999). A longitudinal study of the leadership development process: Individual differences predicting leader effectiveness. *Human Relations,* 5, 1543–1562.

Atwater, L. E. & Waldman, D. A. (1998, May). Accountability in 360 degree feedback. *HR Magazine, 43(5),* 96–102.

Atwater, L.A., Waldman, D., & Brett, J. F. (2002). Understanding and optimizing multi-source feedback. *Human Resource Management Journal, 41,* 193–208.

Avolio, B. J. (1999). *Full leadership development: Building the vital forces in organizations.* Thousand Oaks, CA: Sage.

Avolio, B. J. (2004). Examining the Full Range Model of leadership: Looking back to transform forward. In D. V. Day, S. J. Zaccaro & S. M. Halpin (Eds.), *Leader development for transforming organizations: Growing leaders for tomorrow* (pp. 71–98). Mahwah, NJ: Erlbaum.

Avolio, B. J. (2005). *Leadership development in balance: Made/born.* Mahwah, NJ: Erlbaum.

Avolio, B. J. (2007). Promoting more integrative strategies for leadership theory-building. *American Psychologist, 62,* 25–33.

Avolio, B. J. & Gardner, W. L. (Eds.). (2005). Authentic leadership development: Getting to the root of positive forms of leadership [Special issue]. *Leadership Quarterly, 16,* 315–338.

Bacharach, S. B. (1989). Organizational theories: Some criteria for evaluation. *Academy of Management Review, 14,* 496–515.

Baer, M. & Frese, M. (2003). Innovation is not enough: Climates for innovation and psychological safety, process innovation, and firm performance. *Journal of Organizational Behavior, 24,* 45–66.

Baker, P. J. & Anderson, L. E. (1987). *Social Problems: A critical thinking approach.* Belmont, CA: Wadsworth.

Baltes, M. M. & Carstensen, L. L. (1991). Commentary. *Human Development, 34,* 256–260.

Baltes, P. B. (1987). Theoretical propositions of life-span developmental psychology: On the dynamics between growth and decline. *Developmental Psychology, 23,* 611–626.

Baltes, P. B. (1997). On the incomplete architecture of human ontogeny: Selection, optimization, and compensation as foundation of developmental theory. *American Psychologist, 52,* 366–380.

Baltes, P. B. & Baltes, M. M. (1990). Psychological perspectives on successful aging: The model of selective optimization with compensation. In P. B. Baltes, & M. M. Baltes (Eds.), *Successful aging: Perspectives from the behavioral sciences* (pp. 1–34). New York: Cambridge University Press.

Baltes, P. B. & Goulet, L. R. (1970). Status and issues of a life-span developmental psychology. In L. R. Goulet, & P. B. Baltes (Eds.), *Life-span developmental psychology: Research and theory* (pp. 4–21). New York: Academic.

Baltes, P. B. & Kunzmann, U. (2004). The two faces of wisdom: Wisdom as a general theory of knowledge and judgment about excellence in mind and virtue vs. wisdom as everyday realization in people and products. *Human Development, 47,* 290–299.

Baltes, P. B. & Staudinger, U. M. (2000). Wisdom: A metaheuristic (pragmatic) to orchestrate mind and virtue toward excellence. *American Psychologist, 55,* 122–136.

Baltes, P. B., Staudinger, U. M., & Lindenberger, U. (1999). Lifespan psychology: Theory and applications to intellectual functioning. *Annual Review of Psychology, 50,* 471–507.

Bandura, A. (1969). *Principles of behavior modification.* New York: Holt, Rinehart & Winston.

Bandura, A. (1977). *Social learning theory.* Englewood Cliffs, NJ: Holt, Rinehart, & Winston.

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory.* Englewood Cliffs, NJ: Prentice Hall.

Bandura, A. (1997). *Self-efficacy: The exercise of control.* New York: W. H. Freeman.

Barnard, C. I. (1938). *The functions of the executive.* Cambridge, MA: Harvard University.

Barnowe, J. T. (1975). Leadership and performance outcomes in research organizations. *Organizational Behavior and Human Performance,* 14, 264–280.

Barry D. & Elmes M. (1997). Strategy retold: Toward a narrative view of strategic discourse. *The Academy of Management Review 22,* 429–481.

Bartone, P. T., Snook, S. A., Forsythe, G. B., Lewis, P., & Bullis, R. C. (2007). Psychosocial development and leader performance of military officer cadets. *Leadership Quarterly, 18,* 490–504.

Bass, B. M. & Steidlemeier, P. (1999). Ethics, character, and authentic transformational leadership behavior. *Leadership Quarterly, 10*, 181–217.

Bauer, T. N., Morrison, E. W., & Callister, R. R. (1998). Organizational socialization: A review and directions for future research. *Research in Personnel and Human Resources Management, 16*, 149–214.

Baumeister, R. F. (1995). Self and identity: An introduction. In A. Tesser (Ed.), *Advanced social psychology* (pp. 51–98). Boston: McGraw-Hill.

Baumeister, R. F. (1998). The self. In D. T. Gilbert, S. T. Fiske, & G. Lindzey (Eds.), *The handbook of social psychology* (4th ed., Vol. 1, pp. 680–740). Boston, MA: McGraw-Hill.

Baumeister, R. F., Bratslavsky, E., Muraven, M., & Tice, D. M. (1998). Ego depletion: Is the active self a limited resource? *Journal of Personality and Social Psychology, 74*, 1252–1265.

Baumeister, R. F., DeWall, C. N., Ciarocco, N. J., & Twenge, J. M. (2005). Social exclusion impairs self-regulation. *Journal of Personality and Social Psychology, 88*, 589–604.

Baumeister, R. F., Heatherton, T. F. & Tice, D. M. (1994). *Losing control: How and why people fail at self-regulation*. San Diego, CA: Academic Press.

Baumeister, R. F., Mauraven, M. & Tice, D. M. (2000). Ego depletion: A resource model of volition, self-regulation, and controlled processing. *Social Cognition, 18*, 130–150.

Baumrind, D. (1978). A dialectical materialist's perspective on knowing social reality. In W. Damon (Ed.), *Moral development* (pp. 61–82). San Francisco: Jossey-Bass.

Bebeau, M. J. (1994). Influencing the moral dimensions of dental practices. In J. R. Rest & D. Narvaez (Eds.), *Moral development in the professions: Psychology and applied ethics* (pp. 121–146). Hillsdale: NJ: Erlbaum.

Bell, B. S. & Kozlowski, S. W. J. (2002). Adaptive guidance: Enhancing self-regulation, knowledge, and performance in technology-based training. *Personnel Psychology, 55*, 267–306.

Bergman, R. (2004). Identity as motivation: Toward a theory of the moral self. In D. K. Lapsley & D. Narvaez (Eds.), *Moral development, self, and identity* (pp. 21–46). Mahwah, NJ: Erlbaum.

Beyer, B.K. (1995). *Critical thinking*. Bloomington, Indiana: Phi Delta Kappa Educational Foundation.

Bieri, J., Atkins, A. L., Briar, S., Leaman, R. L., Miller, H., & Tripodi, T. (1966). Clinical and social judgment: The discrimination of behavioral information. New York: Wiley.

Binning, J. F. & Barrett, G. V. (1989). Validity of personnel decisions: A conceptual analysis of the inferential and evidential bases. *Journal of Applied Psychology, 74*, 478–494.

Binning, J. F., Zaba, A. J., & Whattam, J. C. (1986). Explaining the biasing effects of performance cues in terms of cognitive categorization. *Academy of Management Journal, 29*, 521–535.

Birdi, K., Allan, C., & Warr, P. (1997). Correlates and perceived outcomes of four types of employee development activity. *Journal of Applied Psychology, 82*, 845–857.

Blasi, A. (1980). Bridging moral cognition and moral action: A critical review of the literature. *Psychological Bulletin, 88*, 1–45.

Blasi, A. (1995). Moral understanding and the moral personality: The process of moral integration. In W.M. Kurtines, & J. L. Gewirtz (Eds.), *Moral development: An introduction* (pp. 229–253). Boston: Allyn and Bacon.

Blickensderfer, E., Cannon-Bowers, J. A., & Salas, E. (1998). Cross–training and team performance. In J. A. Cannon-Bowers & E. Salas (Eds.), *Making decisions under stress: Implications for individual and team training* (pp. 299–312). Washington, DC: American Psychological Association.

Block, J. (1982). Assimilation, accommodation, and the dynamics of personality development. *Child Development, 53,* 281–295.

Bloom, K., Delmore-Ko, P., Masataka, N., & Carli, L. (1999). Possible self as parent in Canadian, Italian, and Japanese young adults. *Canadian Journal of Behavioral Science, 31,* 198–207.

Bluck, S. & Glück, J. (2004). Making things better and learning a lesson: Experiencing wisdom across the lifespan. *Journal of Personality, 72,* 543–572.

Boje, D. M. (1991). The storytelling organization: A study of story performance in an office-supply firm. *Administrative Science Quarterly, 36,* 106–126.

Boland, R. J., Jr. & Tonkasi, R. V. (1995). Perspective making and perspective taking in communities of knowing. *Organization Science, 6,* 350–372.

Boldizar, J. P., Wilson, K. L., & Deemer, D. K. (1989). Gender, life experiences, and moral judgment development: A process-oriented approach. *Journal of Personality and Social Psychology, 57,* 229–238.

Bosma, H. A. & Kunnen, E. S. (2001). Determinants and mechanisms in ego identity development: A review and synthesis. *Developmental Review, 21,* 39–66.

Bower, G. H. & Clark, M. C. (1969). Narrative stories as mediators for serial learning. *Psychonomic Science, 14,* 181–182.

Boyatzis, R. E. (1982). *The competent manager: A model for effective performance.* New York: Wiley & Sons.

Brandtstadter, J. & Lerner, R. M. (1999). Introduction: Development, action, and intentionality. In J. Brandtstadter & R. M. Lerner (Eds.), *Action and self-development: Theory and research through the life span* (pp. ix–xx). Thousand Oaks, CA: Sage.

Bray, D. W., Campbell, R. S., & Grant, D.L. (1974). *Formative years in business.* New York: Wiley.

Brett, J. F. & Atwater, L. E. (2001). 360-degree feedback: Accuracy, reactions, and perceptions of usefulness. *Journal of Applied Psychology, 86,* 930–942.

Brett, J. F. & VandeWalle, D. (1999). Goal orientation and specific goal content as predictors of performance outcomes in a training program. *Journal of Applied Psychology, 84,* 863–873.

Bridgman, P. W. (1945). Some general principles of operational analysis. *Psychological Review, 52,* 246–249.

Bronfenbrenner, U. (1979). Contexts of child rearing: Problems and prospects. *American Psychologist, 34,* 844–850.

Brookfield, S. D. (2000). The concept of critically reflective practice. In A. L. Wilson & E. R. Hayes (Eds.), *Handbook of adult and continuing education* (rev. ed., pp. 33–49). San Francisco: Jossey-Bass.

Brown, D. J. & Lord, R. G. (2001). Leadership and perceiver cognition: Moving beyond first order constructs. In M. London (Ed.), *How people evaluate others in organizations* (pp. 181–202). Mahwah, NJ: Erlbaum.

Brown, D. J., Scott, K. A., & Lewis, H. (2004). Information processing and leadership. In J. Antonakis, A. T. Cianciolo, & R. J. Sternberg (Eds.), *The nature of leadership* (pp. 125–147). Thousand Oaks: Sage.

Brown, F. J. (2002, May/June). Transformation under attack. *Military Review, 82,* 8–15.

Brown, F. J. (2003, May/June). Leaders for America's Army. *Military Review, 83*, 68–78.

Brown, M. E. & Treviño, L. K. (2006). Ethical leadership: A review and future directions. *The Leadership Quarterly, 17*, 595–616.

Brown, M. E., Treviño, L. K., & Harrison, D. A. (2005). Ethical leadership: A social learning perspective for construct development and testing. *Organizational Behavior and Human Decision Processes, 97*, 117–134.

Brown, M. H. (1985). That reminds me of a story: Speech action in organizational socialization. *Western Journal of Speech Communication, 49*, 27–42.

Buckingham, M., & Clifton, D. O. (2001). *Now, discover your strengths*. New York: Free Press.

Burns, J. M. (1978). *Leadership*. New York: Harper & Row.

Burt, R. S. (1992). *Structural holes: The social structure of competition*. Cambridge, MA: Harvard University.

Calder, B. J. (1977). An attribution theory of leadership. In B. M. Staw & G. R. Salancik (Eds.), *New directions in organizational behavior* (pp. 179–204). Chicago: St. Clair Press.

Cameron, J. E. (1999). Social identity and the pursuit of possible selves: Implications for the psychological well-being of university students. *Group dynamics: Theory, research, and practice, 3*, 179–189.

Cameron, K. S., Dutton, J. E., & Quinn, R. E. (Eds.). (2003). *Positive organizational scholarship: Foundations of a new discipline*. San Francisco: Berrett-Koehler.

Cannon-Bowers, J. A., Salas, E., & Converse, S. A. (1993). Shared mental models in expert team decision making. In N. J. Castellan (Ed.), *Individual and group decision making* (pp. 221–246). Hillsdale, NJ: Erlbaum.

Carlston, D. E. (1994). Associated systems theory: A systematic approach to cognitive representations of persons. *Advances in Social Cognition, 7*, 1–78.

Caruso, D. R., Mayer, J. D., & Salovey, P. (2002). Emotional intelligence and emotional leadership. In R. E. Riggio & S. E. Murphy (Eds.), *Multiple intelligences and leadership* (pp. 55–74). Mahwah, NJ: Erlbaum.

Caruso, D. R. & Wolfe, C. J. (2004). Emotional intelligence and leadership development. In D.V. Day, S. J. Zaccaro, & S. M. Halpin (Eds.), *Leadership development for transforming organizations: Growing leaders for tomorrow* (pp. 237–266). Mahwah, NJ: Erlbaum.

Carver, C. S. (2003). Self-awareness. In J. P. Tangney & M. R. Leary (Eds.), *Handbook of self and identity* (pp. 179–196). NY: Guilford Press.

Cavanaugh, J. C. & Whitbourne, S. K. (2002). Research methods in adult development. In J. Demick & C. Andreoletti (Eds.), *Handbook of adult development* (pp. 85–100). New York: Plenum Press.

Chaiken, S. (1980). Heuristic versus systematic information processing and the use of source versus message cues in persuasion. *Journal of Personality and Social Psychology, 39*, 752–766.

Chan, K. Y. & Drasgow, F. (2001). Toward a theory of individual differences and leadership: Understanding motivation to lead. *Journal of Applied Psychology, 86*, 481–498.

Chandler, M. J., Hallett, D., & Sokol, B. W. (2002). Competing claims about competing knowledge claims. In B. K. Hofer & P. R. Pintrich (Eds.) *Personal epistemology: The psychology of beliefs about knowledge and knowing* (pp. 145–168). Mahwah, NJ: Erlbaum.

Chao, G. T. & Moon, H. (2005). The cultural mosaic: A metatheory for understanding the complexity of culture. *Journal of Applied Psychology, 90,* 1128–1140.

Chao, G. T., O'Leary-Kelly, A. M., Wolf, S., Klein, H. J., & Gardner, P. (1994). Organizational socialization: Its content and consequences. *Journal of Applied Psychology, 79,* 730–743.

Chemers, M. M. (1997). *An integrative theory of leadership.* Mahwah, N.J.: Erlbaum.

Chemers, M. M. (2000). Leadership research and theory: A functional integration. *Group Dynamics: Theory, Research, and Practice, 4,* 27–43.

Chen, G., Gully, S. M., & Eden, D. (2001). Validation of a new general self-efficacy scale. *Organizational Research Methods, 4,* 62–83.

Chen, G., Thomas, B., & Wallace, J. C. (2005). A multilevel examination of the relationships among training outcomes, mediating regulatory processes, and adaptive performance. *Journal of Applied Psychology, 90,* 827–841.

Chi, M. T. H., Bassok, M., Lewis, M. W., & Reimann, P., & Glaser, R. (1989). Self-explanations: How students study and use examples in learning to solve problems. *Cognitive Science, 13,* 145–182.

Chi, M. T. H., Glaser, R, & Farr, M. J. (1988). *The nature of expertise.* Hillsdale, NJ: Erlbaum.

Church, A. H. (1997). Managerial self-awareness in high-performing individuals and organizations. *Journal of Applied Psychology, 82,* 281–292.

Cohen, J. (1994). The earth is round (p 5). *American Psychologist, 49,* 997–1003.

Cohen, M. S., Thompson, B. B., Adelman, L., Bresnick, T. A., & Riedel, S. L. (1999, October). Training battlefield critical thinking and initiative (No. ARI Research Note 2000-01). Ft. Leavenworth, KS: U.S. Army Research Institute for the Behavioral and Social Sciences.

Cohen, L. D. & Westenberg, P. M. (2004). Intelligence and maturity: Meta-analysis evidence for the incremental and discriminant validity of Loevinger's measure of ego development. *Journal of Personality and Social Psychology, 53,* 760–772.

Cohen, M. S., Freeman, J. T., Fallesen, J. J., Marvin, F. M., & Bresnick, T. A. (1996, October). *Training critical thinking skills for battlefield situation assessment: An Experimental test* (Technical Report 1050). Fort Leavenworth, KS: Army Research Institute.

Colby, A. & Damon, W. (1992). *Some do care: Contemporary lives of moral commitment.* New York: Praeger Press.

Colby, A. & Kohlberg, L. (1987). *The measurement of moral judgment. Standard issue scoring manual.* Cambridge, U.K.: Cambridge University Press.

Coleman, J. S. (1988). Social capital in the creation of human capital. *American Journal of Sociology, 94(Supplement),* S95–S120.

Collins, L. M., Hyatt, S. L., & Graham, J. W. (2000). Latent transition analysis as a way of testing models of stage-sequential change in longitudinal data. In T. D. Little, K. U. Schnabel & J. Baumert (Eds.), *Modeling longitudinal and multilevel data: Practical issues, applied approaches, and specific examples* (pp. 147–161). Mahwah, NJ: Erlbaum.

Colquitt, J. A., LePine, J. A., & Noe, R. A. (2000). Toward an integrative theory of training motivation: A meta-analytic path analysis of 20 years of research. *Journal of Applied Psychology, 85,* 678–707.

Commons, M. L. & Richards, F. A. (2003). Four postformal stages. In J. Demick & C. Andreoletti (Eds.), *Handbook of adult development* (pp. 199–219). New York: Plenum.

Conger, J. A. & Ready, D. A. (2004, Spring). Rethinking leadership competencies. *Leader to Leader, 32*, 41–47.

Connelly, M. S., Gilbert, J. A., Zaccaro, S. J., Threlfall, K. V., Marks, M. A., & Mumford, M. D. (2000). Exploring the relationship of leadership skills and knowledge to leader performance. *Leadership Quarterly, 11*, 65–86.

Cook, T. D. & Campbell, D. T. (1979). *Quasi-experimentation: Design and analysis for field settings*. Boston, MA: Houghton Mifflin.

Cook-Greuter, S. R. (1990). Maps for living: Ego-development stages from symbiosis to conscious universal embeddedness. In M. L. Commons, C. Armon, L. Kohlberg, F. A. Richards, T. A. Grotzer, & J. D. Sinnott (Eds.), *Adult development: Models and methods in the study of adolescent and adult thought* (Vol. 2, pp. 79–103). New York: Praeger.

Cooney, T. M., Schaie, K. W., & Willis, S. L. (1988). The relationship between prior functioning on cognitive and personality variables and subject attrition in longitudinal research. *Journal of Gerontology: Psychological Sciences, 43*, P12–P17.

Corley, K. G. & Gioia, D. A. (2004). Identity ambiguity in the wake of a corporate spin-off. *Administrative Science Quarterly, 49*, 173–208.

Crocker, J., Luhtanen, R., Blaine, B. L., & Broadnax, S. (1994). Collective self-esteem and psychological well–being among White, Black, and Asian college students. *Personality and Social Psychological Bulletin, 20*, 503-513.

Cronbach, L. J. & Snow, R. E. (1977). *Aptitudes and instructional methods: A handbook for research on interactions*. New York: Irvington.

Cronbach, L. J. & Furby, L. (1971). How should we measure "change" — Or should we? *Psychological Bulletin, 74*, 68–80.

Cross, S. E., Gore, J. S., & Morris, M. L. (2003). The relational-interdependent self-construal, self-concept consistency, and well being. *Journal of Personality and Social Psychology, 85*, 933–944.

Cross, S. E. & Markus, H. (1991). Possible selves across the life span. *Human Development, 34*, 230–255.

Cross, S. E., & Markus, H. (1994). Self-schemas, possible selves, and competent performance. *Journal of Educational Psychology, 86*, 423–438.

Csikszentmihalyi, M. (1990). *Flow, the psychology of optimal experience*. New York: Harper.

Cytrynbaum, S. & Crites, J. O. (1989). The utility of adult development theory in understanding career adjustment process. In M. B. Arthur, D. T. Hall, & B. S. Lawrence (Eds.), *Handbook of career theory* (pp. 66–88). New York: Cambridge University.

Czarniawska, B. (1998). A narrative approach to organization studies. *Qualitative research methods (Series Vol. 43)*. Thousand Oaks: Sage Publications.

Czarniawksa, B. (2004). *Narratives in social science research: Introducing qualitative methods*. London: Sage Publications.

D'Angelo, E. (1971). *The teaching of critical thinking*. N. V. Amsterdam: B. R. Grüner.

Davidson, P. & Youniss, J. (1995) Moral development and social construction. In W. M. Kurtines & J. L. Gewirtz (Eds.) *Moral development: An introduction* (pp. 289–310). Needham Heights, MA: Allyn & Bacon.

Davies, M., Stankov, L., & Roberts, R. D. (1998). Emotional Intelligence: In search of an elusive construct. *Journal of Personality and Social Psychology, 75*, 989–1015.

Day, D. V. (2000). Leadership development: A review in context. *Leadership Quarterly, 11*, 581–613.

Day, D. V., Gronn, P., & Salas, E. (2004). Leadership capacity in teams. *Leadership Quarterly, 15,* 857–880.

Day, D. V. & Halpin, S. M. (2001, April). *Leadership development: A review of industry best practices* (Technical Rep. 1111). Fort Leavenworth, KS: Army Research Institute.

Day, D. V. & Halpin, S. M. (2004). Growing leaders for tomorrow: An introduction. In D. V. Day, S. J. Zaccaro & S. M. Halpin (Eds.), *Leader development for transforming organizations: Growing leaders for tomorrow* (pp. 3–22). Mahwah, NJ: Erlbaum.

Day, D. V. & Harrison, M. M. (2007). A multilevel, identity-based approach to leadership development. *Human Resource Management Review, 17,* 360–373.

Day, D. V. & Lance, C. E. (2004). Understanding the development of leadership complexity through latent growth modeling. In D. V. Day, S. J. Zaccaro & S. M. Halpin (Eds.), *Leader development for transforming organizations: Growing leaders for tomorrow* (pp. 41–69). Mahwah, NJ: Erlbaum.

Day, D. V. & O'Connor, P. M. G. (2003). Leadership development: Understanding the process. In S. Murphy & R. Riggio (Eds.), *The future of leadership development* (pp. 11–28). Mahwah, NJ: Erlbaum.

Day, D. V., Sin, H.-P., & Chen, T. T. (2004). Assessing the burdens of leadership: Effects of formal leadership roles on individual performance over time. *Personnel Psychology, 57,* 573–605.

Day, D. V. & Zaccaro, S. J. (2004). Toward a science of leader development. In D. V. Day, S. J. Zaccaro & S. M. Halpin (Eds.), *Leader development for transforming organizations: Growing leaders for tomorrow* (pp. 383–399). Mahwah, NJ: Erlbaum.

Day, D. V., Zaccaro, S. J., & Halpin, S. M. (Eds.). (2004). *Leader development for transforming organizations: Growing leaders for tomorrow.* Mahwah, NJ: Erlbaum.

Day, E. A., Arthur, W., Jr., & Gettman, D. (2001). Knowledge structures and the acquisition of a complex skill. *Journal of Applied Psychology, 86,* 1022–1033.

Deal, J. J., Peterson, K., & Gailor–Loflin, H. (2001). *Emerging leaders: An annotated bibliography.* Greensboro, NC: Center for Creative Leadership.

Denckla, M. B. (1996). A theory and model of executive functioning: A neuropsychological perspective. In G. R. Lyon & N. A. Krasnegor (Eds.), *Attention, memory, and executive function* (pp. 263–277). Baltimore, MD: Brookes.

DeWaele, M., Morval, J., & Sheitoyan, R. (1993). *Self-management in organizations: The dynamics of interaction.* Toronto: Hogrefe & Huber.

Department of Army. (1978). Review of education and training for officers 5 vols. Washington, D.C.: Headquarters, Department of the Army, Office of the Chief of Staff.

Department of the Army. (1985). Professional Development of Officers Study, 5 Vols. Lieutenant General Charles W. Bagnal, director. Washington, D.C.: Headquarters, Department of the Army, Office of the Chief of Staff, 1985. Discussed in Jordan, K.C. The Yin and Yang of junior officer learning: the historical development of the Army's institutional education program for captains. October 2004 The Land Warfare Papers #49. The Institute of Land Warfare, Association of the United States Army, Arlington Virginia.

Department of the Army. (2005, June). *The Army* (FM 1). Washington, D.C.

Department of the Army. (2006, October). *Army leadership: Competent, confident, and agile* (FM 6–22). Washington D.C. http://usacac.army.mil/CACZ/repository/materials/FM6_22.pdf

Dewey, J. (1938). *Education and experience.* New York: Simon and Schuster.

Dixon, N. (1976). *One the psychology of military incompetence.* New York: Basic Books.

Dixon, N. M. (1993). Developing managers for the learning organization. *Human Resource Management Review, 3,* 243–254.

Doh, J. P. (2003). Can leadership be taught? Perspectives from management educators. *Academy of Management Learning and Education, 2,* 54–67.

Drath, W. (2001). *The deep blue sea: Rethinking the source of leadership.* San Francisco: Jossey-Bass.

Driskell, J. E. & Johnston, J. H. (1998). Stress exposure training. In J. A. Cannon-Bowers & E. Salas (Eds.), *Making decisions under stress: Implications for individual and team training* (pp. 191–217). Washington, D.C.: American Psychological Association.

Dunnette, M. D. (1990). Blending the science and practice of industrial and organizational psychology: Where are we and where are we going? In M. D. Dunnette & L. M. Hough (Eds.), *Handbook of industrial and organizational psychology* (2nd ed., Vol. 1, pp. 1–27). Palo Alto, CA: Consulting Psychologists.

Dvir, T., Eden, D., Avolio, B. J., & Shamir, B. (2002). Impact of transformational leadership on follower development and performance: A field experiment. *Academy of Management Journal, 45,* 735–744.

Dweck, C. S. (1996). Implicit theories as organizers of goals and behavior. In P. M. Gollwitzer & J. A. Barg (Eds.), *The psychology of action: Linking cognition and motivation to behavior* (pp. 69–90). New York: Guilford Press.

Dymek, C.F., III. (1999, May). *The strike force leader: Jack of all trades, master of all trades* (Monograph). Fort Leavenworth, KS: Army Command and General Staff College.

Eden, D. (1992). Leadership and expectations: Pygmalion effects and other self-fulfilling prophesies in organizations. *Leadership Quarterly, 3,* 271–305.

Edmondson, A. (1999). Psychological safety and learning behavior in work teams. *Administrative Science Quarterly, 44,* 350–383.

Edmondson, A., Bohmer, R., & Pisano, G. (2001, October). Speeding up team learning. *Harvard Business Review, 79*(10), 125–132.

Eichhorn, R. (no date). *Developing thinking skills: Critical thinking at the Army Management Staff College.* Fort Belvoir, VA: Army Management Staff College.

Elias, M. F., Elias, J. W., & Elias, P. K. (1990). Biological and health influence on behavior. In J. E. Birren & K. Warner Schaie (Eds.), *Handbook of the psychology of aging* (pp. 70–102). New York: Academic Press.

Ellemers, N., de Gilder, D., & Haslam, S. A. (2004). Motivating individuals and groups at work: A social identity perspective on leadership and group performance. *Academy of Management Review, 29,* 459–478.

Ellis, S. & Davidi, I. (2005). After-event reviews: Drawing lessons from successful and failed experience. *Journal of Applied Psychology, 90,* 857–871.

Ellis, S., Mendel, R. & Nir, M. (2006). Learning from successful and failed experience: The moderating role of kind of after-event review. *Journal of Applied Psychology, 91,* 669–680.

Endicott, L., Bock, T., & Navaez, D. (2003). Moral reasoning, intercultural development, and multicultural experiences: Relations and cognitive underpinnings. *International Journal of Cultural Relations, 27,* 403–419.

Engle, E. M. & Lord, R. G. (1997). Implicit theories, self-schemas, and leader–member exchange. *Academy of Management Journal, 40,* 988–1010.

Ennis, R.H. (1987). A taxonomy of critical thinking dispositions and abilities. In J. B. Baron & R. J. Sternberg (Eds.), *Teaching thinking skills: Theory and practice.* New York: W. H. Freeman.

Epitropaki, O. & Martin, R. (2004). Implicit leadership theories in applied settings: Factor structure, generalizability, and stability over time. *Journal of Applied Psychology, 89,* 293–310.

Epitropaki, O. & Martin, R. (2005). From ideal to real: A longitudinal study of the role of implicit leadership theories on leader–member exchanges and employee outcomes. *Journal of Applied Psychology, 90,* 659–676.

Erez, A. & Judge, T. A. (2001). Relationship of core self-evaluations to goal setting, motivation, and performance. *Journal of Applied Psychology, 86,* 1270–1279.

Ericsson, K. A. (1996). The acquisition of expert performance: An introduction to some of the issues. In K. A. Ericsson (Ed.), *The road to excellence: The acquisition of expert performance in the arts and sciences, sports and games* (pp. 1–50). Mahwah, NJ: Erlbaum.

Ericsson, K. A. (2003). The search for general abilities and basic capacities: Theoretical implications from the modifiability and complexity of mechanism. In R. J. Sternberg & E. L. Grigorenko (Eds.), *The psychology of abilities, competencies, and expertise* (pp. 93–125). Cambridge, MA: Cambridge University.

Ericsson, K. A. & Charness, N. (1994). Expert performance: Its structure and acquisition. *American Psychologist, 49,* 725–747.

Ericsson, K. A., Krampe, R. T., & Tesch-Römer, C. (1993). The role of deliberate practice in the acquisition of expert performance. *Psychological Review, 100,* 363–406.

Ericsson, K. A. & Lehmann, A. C. (1996). Expert and exceptional performance: Evidence of maximal adaptation to task constraints. *Annual Review of Psychology, 47,* 273–305.

Ericsson, K. A., Prietula, M. J., & Cokely, E. T. (2007). The making of an expert. *Harvard Business Review, 85*(7/8), 114–121.

Erikson, E. H. (1950). *Childhood and society.* New York: Norton.

Erikson, E. H. (1959). *Identity and the life cycle.* New York: International Universities.

Everett, S. E. (1992). *Oral history techniques and procedures.* Washington, DC: United States Army Center of Military History.

Facione, P. A. (2004). *Critical thinking: What it is and why it counts.* Millbrae, CA: The California Academic Press.

Facione, P. A. & Associates. (1990). *Critical thinking: A statement of expert consensus for purposes of educational assessment and instruction* (No. ERIC ED 315 423). Millbrae, CA: The California Academic Press.

Farley, M. A. (1986). *Personal commitments: Beginning, keeping, changing.* San Francisco: Harper & Row Publishers.

Fallesen, J. J. (2000, December). *Conceptual skills and adaptable leaders.* Paper presented in the 22nd Army Science Conference. Baltimore, MD.

Fallesen, J. J. (2004, May). *Elements of purpose-driven leader development.* Paper presented at the 40th International Applied Military Psychology Symposium, Oslo, Norway.

Fallesen, J.J. & Halpin, S.M. (2004). Representing cognition as an intent-driven process. In J. W. Ness, V. Tepe, & D. Ritzer (Eds.), *The science and simulation of human performance.* New York: Elsevier, Inc.

Feldman, J. (1986). On the difficulty of learning from experience. In H. P. Sims, Jr. & D. A. Gioia (Eds.), *The thinking organization: Dynamics of organizational social cognition* (pp. 263–292). San Francisco: Jossey-Bass.

Fiore, S. M, Cuevas, H. M., & Oser, R. L. (2003). A picture is worth a thousand connections: The facilitative effects of diagrams on mental model development and task performance. *Computers in Human Behavior, 19,* 185–199.

Fischer, K. W. (1980). A theory of cognitive development: The control and construction of hierarchies of skills. *Psychological Review, 87,* 477–531.

Fischer, K. W. & Bidell, T. R. (1998). Dynamic development of psychological structures in action and thought. In R. Damon & R. M. Lerner (Eds.), *Handbook of child psychology* (Vol. 1, pp. 467–561). New York: John Wiley & Sons.

Fischer, K. W. & Pruyne, E. (2002). Reflective thinking in adulthood: Emergence, development, and variation. In J. Demick & C. Andreoletti (Eds.), *Handbook of adult development* (pp. 169–198). New York: Plenum.

Fischer, K. W. & Kenny, S. L. (1986). Environmental conditions for discontinuities in the development of abstractions. In R. A. Mines & K. S. Kitchener (Eds.), *Adult cognitive development: Methods and models* (pp. 57–75). New York: Praeger.

Fischer, S. C, Spiker, V. A., Harris, D. H., McPeters, E. R., & Riedel, S. L. (2008). *Computerized training in criticial thinking (CT)²: A skill-based program for Army personnel* (Research Report 1880). Arlington, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.

Fischer, S. C., Spiker, V. A. & Riedel, S. L. (2008a). *Critical thinking training for Army officers (Vol. I: Overview of research program)* (Research Report 1881). Arlington, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.

Fischer, S. C., Spiker, V. A. & Riedel, S. L. (2008b). *Critical thinking training for Army officers (Vol. II: A model of critical thinking)* (Research Report1882). Arlington, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.

Fischer, S. C., Spiker, V. A. & Riedel, S. L. (2008c). *Critical thinking training for Army officers (Vol. III: A web based training program to develop the critical thinking skills of Army officers)* (Research Report 1883). Arlington, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.

Fishkin, J., Keniston, K., & MacKinnon, C. (1973). Moral reasoning and political ideology. *Journal of Personality and Social Psychology, 27,* 109–119.

Fiske, S. T. (1992). Thinking is for doing: Portraits of social cognition from daguerreotype to laserphoto. *Journal of Personality and Social Psychology, 63,* 877–889.

Fiske, S. T., & Dyer, L. M. (1985). Structure and development of social schemata: Evidence from positive and negative transfer effects. *Journal of Personality and Social Psychology, 48,* 839–852.

Frame, A. & Lussier, J. W. (Eds.). (2000). *66 stories of battle command.* Ft. Leavenworth, KS: U.S. Army Command and General Staff College.

Frayne, C. A. & Lathamn, G. P. (1987). Application of social learning theory to employee self-management of attendance. *Journal of Applied Psychology, 72,* 387–392.

Freedman, A. M. (1998). Pathways and crossroads to institutional leadership. *Consulting Psychology Journal: Practice and Research, 50,* 131–151.

Freund, A. M. & Baltes, P. B. (1998). Selection, optimization, and compensation as strategies of life management: Correlations with subjective indicators of successful aging. *Psychology and Aging, 13,* 531–543.

Freund, A. M. & Baltes, P. B. (2002). Life-management strategies of selection, optimization, and compensation: Measurement by self-report and construct validity. *Journal of Personality and Social Psychology, 82,* 642–662.

Funder, D. C. (1987). Errors and mistakes: Evaluating the accuracy of social judgment. *Psychological Bulletin, 101,* 75–90.

Gadzella, B. & Masten, W. G. (1998). Critical thinking and learning processes for students in two major fields. *Journal of Instructional Psychology, 25,* 256–261.

Gander, M. J. & Gardiner, H.W. (1981). *Child and adolescent development.* Boston: Little, Brown.

Gardner, W. L., Avolio, B. J., Luthans, F., May, D. R., & Walumba, F. (2005). Can you see the real me? A self-based model of authentic leader and follower development. *Leadership Quarterly, 16,* 343–372.

George, J. M. (2000). Emotions and leadership: The role of emotional intelligence. *Human Relations, 53,* 1027–1055.

George, J. M. & Jones, G. R. (2000). The role of time in theory and theory building. *Journal of Management, 26,* 657–684.

Gerrig, R. J. (1993). *Experiencing narrative worlds.* New Haven, CT: Yale University Press.

Gersick, C. J. G. (1991). Revolutionary change theories: A multilevel exploration of the punctuated equilibrium paradigm. *Academy of Management Review, 16,* 10–36.

Gewirtz, J. L. & Pelaez-Nogueras, M. (1991). Proximal mechanisms underlying the acquisition of moral behavior patterns. In W. M. Kurtines & J. L. Gewirtz (Eds.) *Handbook of moral behavior and development.* (Vol 1., pp. 153–182). Hillsdale, NJ: Erlbaum.

Gharajedaghi, J. (1999). *Systems thinking: Managing chaos and complexity.* Boston: Butterworth Heinemann.

Ghoshal, S. (2005). Bad management theories are destroying good management practices. *Academy of Management Learning and Education, 4,* 75–91.

Gibbons, M. (1990). A working model of the learning-how-to-learn process. In R. M. Smith & Associates (Eds.), *Learning to learn across the lifespan* (pp. 64–97). San Francisco, CA: Jossey-Bass.

Gibbs, J. J., Giever, D., & Martin, J. S. (1998). Parental management and self-control: An empirical test of Gottfredson and Hirschi's general theory. *Journal of Research in Crime and Delinquency, 35,* 40–70.

Gilligan, C. (1982). *In a different voice.* Cambridge, MA: Harvard University Press.

Gioia, D. A. (1986). Symbols, scripts, and sensemaking: Creating meaning in the organizational experience. In H. P. Sims, Jr., D. A. Gioia & Associates (Eds.), *The thinking organization: Dynamics of organizational social cognition* (pp. 49–74). San Francisco: Jossey-Bass.

Gioia, D. A. & Manz, C. C. (1985). Linking cognition and behavior: A script processing interpretation of vicarious learning. *Academy of Management Review, 10*, 527–539.

Gist, M. E. & Mitchell, T. R. (1992). Self-efficacy: A theoretical analysis of its determinants and malleability. Academy of Management Review, 17, 183–211.

Glaser, E.M. (1941). *An experiment in the development of critical thinking.* New York, NY: Teachers College Columbia University.

Glück, J. & Baltes, P. B. (2006). Using the concept of wisdom to enhance the expression of wisdom knowledge: Not the philosopher's dream but differential effects of developmental preparedness. *Psychology and Aging, 21*, 679–690.

Goldstein, N. J. & Cialdini, R. B. (2007). The spyglass self: A model of vicarious self-perception. *Journal of Personality and Social Psychology, 92*, 402–417.

Gollwitzer, P. M. (1999). Implementation intentions: Strong effects of simple plans. *American Psychologist, 54*, 493–503.

Gollwitzer, P., & Brandstadter, V. (1997). Implementation intentions and effective goal pursuit. *Journal of Personality and Social Psychology. 73*,186–199.

Gollwitzer, P. M., Fujita, K. & Oettingen, G. (2004). Planning and the implementation of goals. In K. D. Vohs, & Baumeister, R. F. (Eds.), *Handbook of self-regulation: Research, theory, and applications* (pp. 211–228). New York: Guilford.

Gollwitzer, P. M. & Kirchhof, O. (2003). The willful pursuit of identity. In J. P. Tangey & M .R. Leary (Eds.), *Handbook of self and identity* (pp. 389–423). New York: Guilford.

Gollwitzer, P. M. & Sheeran, P. (2006). Implementation intentions and goal achievement: A meta-analysis of effects and processes. *Advances in Experimental Social Psychology, 38*, 69–119.

Goodman, J. S. & Wood, R. E. (2004). Feedback specificity, learning opportunities and learning. *Journal of Applied Psychology, 89*, 809–821.

Goodwin, G. F. & Halpin, S. M. (2004, April). *Interactional leader development processes in the U.S. Army.* Paper presented at the 19th Annual Conference of the Society for Industrial and Organizational Psychology, Inc., Chicago, IL.

Goodwin, V. L., Wofford, J. C., & Boyd, N. G. (2000). A laboratory experiment testing the antecedents of leader cognitions. *Journal of Organizational Behavior, 21*, 769–788.

Graham, J. (1991). Servant-leadership in organizations: Inspirational and moral. *Leadership Quarterly, 2*, 105–119.

Green, M. C. (2005). Transportation into narrative worlds: Implications for the self. In A. Tesser, J. V. Wood, & D. A. Stapel (Eds.), *On building, defending and regulating the self* (pp. 53–75). New York: Psychology Press.

Green, M. C. & Brock, T. C. (2000). The role of transportation in the persuasiveness of public narratives. *Journal of Personality and Social Psychology, 5*, 701–721.

Greenleaf, R. K., Frick, D. M., & Spears, L. (1996). *On becoming a servant-leader* (1st ed.). San Francisco: Jossey-Bass Publishers.

Hackman J. R. & Oldham, G. R. (1976). Motivation through the design of work: Test of a theory. *Organizational Behavior and Human Performance, 16*, 250–279.

Hall, D. T. (2004). Self-awareness, identity, and leader development. In D. V. Day, S. J. Zaccaro & S. M. Halpin (Eds.), *Leader development for transforming organizations: Growing leaders for tomorrow* (pp. 153–176). Mahwah, NJ: Erlbaum.

Halpern, D. F. (1997). *Critical thinking across the curriculum: A brief edition of thought and knowledge*. Mahwah, NJ: Lawrence Erlbaum.

Hammer, D. & Elby, A. (2002). On the form of a personal epistemology. In B. K. Hofer & P. R. Pintrich (Eds.) *Personal epistemology: The psychology of beliefs about knowledge and knowing* (pp.169–190). Mahwah, NJ: Erlbaum.

Hamlyn, D. W. (1967). History of epistemology. *Encyclopedia of philosophy, 3*, 8–38.

Hardin, E. E., Weigold, I. K., Robitschek, C., Nixon, A. E. (2007). Self-discrepancy and distress: The role of personal growth initiative. *Journal of Counseling Psychology, 54*, 86–92.

Heifetz, R. (1994). *Leadership without easy answers*. Cambridge, MA: Harvard University.

Hess, T. M. (2005). Memory and aging in context. *Psychological Bulletin, 131*, 383–406.

Hirst, G., Mann, L., Bain, P., Pirola-Merlo, A., & Richver, A. (2004). Learning to lead: The development and testing of a model of leadership learning. *Leadership Quarterly, 15*, 311–327.

Hofer, B. (2002). Personal epistemology as a psychological and educational construct: An introduction. In B. K. Hofer & P. R. Pintrich (Eds.) *Personal epistemology: The psychology of beliefs about knowledge and knowing* (pp. 3–14). Mahwah, NJ: Erlbaum.

Hofer, B. K. (2004). Epistemological understanding as a metacognitive process: Thinking aloud during online searching. *Educational Psychologist, 39*, 43–55.

Hogan, R. & Dickstein, E. (1972). A measure of moral values. *Journal of Consulting and Clinical Psychology, 39*, 210–214.

Hogg, M. A., & Ridgeway, C. L. (2003). Social identity: Sociological and social psychological perspectives. *Social Psychology Quarterly, 66*, 97–100.

Hollenbeck, G. P., McCall, M. W., Jr., & Silzer, R. F. (2006). Leadership competency models. *Leadership Quarterly, 17*, 398–413.

Hooijberg, R., Hunt, J. G., & Dodge, G. E. (1997). Leadership complexity and development of the Leaderplex model. *Journal of Management, 23*, 375–408.

Hooijberg, R. & Schneider, M. (2001). Behavioral complexity and social intelligence: How executive leaders use stakeholders to form a systems perspective. In S. J. Zaccaro & R. J. Klimoski (Eds.), *The nature of organizational leadership: Understanding the performance imperatives confronting today's leaders* (pp.104–131). San Francisco: Jossey-Bass.

Horey, J. & Fallesen, J. J. (2003, November). *Leadership competencies: Are we saying the same thing?* Paper presented at the 45th Annual Conference of the International Military Testing Association Conference, Pensacola Beach, Florida.

Horey, J. & Fallesen, J. J. (2004, October). *Leadership competencies for contemporary operations: Development, review and validation*. Paper presented at the 46th Annual Conference of the International Military Testing Association Conference, Brussels, BE.

Horey, J., Fallesen, J. J., Morath, R., Cronin, B., Cassella, R., Franks, W. J., et al. (2004, April). *Competency based future leadership requirements.* Arlington, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.

Howell, J. M. & Avolio, B. J. (1992). The ethics of charismatic leadership: Submission or liberation? *Academy of Management Executive, 6,* 43–54.

IBM Global Business Services. (2008). *Unlocking the DNA of the adaptable workforce: The global human capital study 2008.* Armonk, NY: IBM.

Ibarra, H. (1999). Provisional selves: Experimenting with image and identity in professional adaptation. *Administrative Science Quarterly, 44,* 764–791.

Ilgen, D. R., Hollenbeck, J. R., Johnson, M., & Jundt, J. (2005). Teams in organizations: From I-P-O models to IMOI models. *Annual Review of Psychology.* 56, 517–544.

Intagliatta, J., Ulrich, D., & Smallwood, N. (2000). Leveraging leadership competencies to produce leadership brand: Creating distinctiveness by focusing on strategy and results. *Human Resource Planning, 23*(3), 12–23.

Jacobs, T. O. & Jaques, E. (1987). Leadership in complex systems. In J. Zeidner (Ed.), *Human productivity enhancement* (Vol. 2, pp. 7–65). New York: Praeger.

Jaffee, S. & Shibley Hyde, J. (2000). Gender differences in moral orientation: A meta-analysis. *Psychological Bulletin, 126,* 703–726.

Jason, L. A., Reichler, A., King, C., Madsen, D., Camacho, J., & Marchese, W. (2001). The measure of wisdom: A preliminary effort. *Journal of Community Psychology, 29,* 585–598.

Johnson, M. D., Morgeson, F. P., Ilgen, D. R., Meyer, C. J., & Lloyd, J. W. (2006). Multiple professional identities: Examining differences across work-related targets. *Journal of Applied Psychology, 91,* 498–506.

Johnson, P., Daniels, K., & Huff, A. (2001). Sense making, leadership, and mental models. In S. J. Zaccaro & R. J. Klimoski (Eds.), *The nature of organizational leadership: Understanding the performance imperatives confronting today's leaders* (pp. 79–103). San Francisco: Jossey-Bass.

Judge, T. A., Bono, J. E., Erez, A. & Locke, E. A. (2005). Core self-evaluations and job and life satisfaction: The role of self-concordance and goal attainment. *Journal of Applied Psychology, 90,* 257–268.

Judge, T. A., Erez, A., & Bono, J. E., & Thoresen, C. J. (2002). Are measures of self-esteem, neuroticism, locus of control, and generalized self-efficacy indicators of a common core construct? *Journal of Personality and Social Psychology, 83,* 693–710.

Judge, T. A., Locke, E. A., Durham, C. C., & Kluger, A. N. (1998). Dispositional effects on job and life satisfaction: The role of core evaluations. *Journal of Applied Psychology, 83,* 17–34.

Judge, T. A., Piccolo, R. F., & Ilies, R. (2004). The forgotten ones? The validity of consideration and initiating structure in leadership research. *Journal of Applied Psychology, 89,* 36–51.

Judge, T. A., Thoresen, C. J., Pucik, V., & Welbourne, T. M. (1999). Managerial coping with organizational change: A dispositional perspective. *Journal of Applied Psychology, 84,* 107–122.

Kahneman, D. (2003). A perspective on judgment and choice: Mapping bounded rationality. *American Psychologist,* 58, 697–720

Kahneman, D., Slovic, P., & Tversky, A. (Eds.). (1982). *Judgment under uncertainty: Heuristics and biases.* New York: Cambridge University Press.

Kanfer, R. & Ackerman, P. L. (1989). Motivation and cognitive abilities: An integrative/ aptitude–treatment interaction approach to skill acquisition. *Journal of Applied Psychology, 74,* 657–690.

Kark, R., Shamir, B., & Chen, G. (2003). The two faces of transformational leadership: Empowerment and dependency. *Journal of Applied Psychology, 88,* 246–255.

Kark, R. & Van Dijk, D. (2007). Motivation to lead, motivation to follow: The role of self-regulatory focus in leadership processes. *Academy of Management Review, 32,* 500–528.

Katz, D. & Kahn, R. L. (1978). *The social psychology of organizations* (2nd ed.). New York: Wiley.

Katz, R. L. (1955, January–February). Skills of an effective administrator. *Harvard Business Review,* 33–42.

Kegan, R. (1982). *The evolving self: Problem and process in human development.* Cambridge, MA: Harvard University.

Kegan, R. (1994). *In over our heads: The mental demands of modern life.* Cambridge, MA: Harvard University.

Kegan, R. & Lahey, L. L. (1984). Adult leadership and adult development: A constructivist view. In B. Kellerman (Ed.), *Leadership: Multidisciplinary perspectives* (pp. 199–230). Englewood Cliffs, NJ: Prentice-Hall.

Kegan, R. & Lahey, L. (2001, November). The real reason people won't change. Harvard Business Review, *79,* 85–92.

Keith, N. & Frese, M. (2005). Self-regulation in error management training: Emotion control and metacognition as mediators for performance effects. *Journal of Applied Psychology, 90,* 677–691.

Keller, T. (1999). Images of the familiar: Individual differences and implicit leadership theories. *Leadership Quarterly, 10,* 589–607.

Kelly, G. (1955). The psychology of personal constructs. New York: Norton.

King, L. A. & Hicks, J. A. (2007). Whatever happened to "what might have been"? Regrets, happiness, and maturity. *American Psychologist, 62,* 625–636.

King, P. M. & Kitchener, K. S. (1994). *Developing Reflective Judgment: Understanding and promoting intellectual growth and critical thinking in adolescents and adults.* San Francisco, CA: Jossey-Bass.

King, P. M. and Kitchener, K. S. (2002). The reflective judgment model: Twenty years of research on epistemic cognition. In B. K. Hofer and P. R. Pintrich (Eds.), *Personal epistemology: The psychology of beliefs about knowledge and knowing,* (pp. 37–61). Mahwah, NJ: Erlbaum.

Kitchell, A., Hannan, E., & Kempton, W. (2000). Identity through stories: Story structure and function in two environmental groups. *Human Organization, 59,* 96–105.

Kitchener, K. S. (1983). Cognition, meta-cognition, and epistemic cognition: A three-level model of cognitive processing. *Human Development, 26,* 222–232.

Kitchener, K. S. & King, P. M. (1990). The Reflective Judgment model: Ten years of research. In M. L. Commons, C. Armon, L. Kohlberg, F. A. Richards, T. A. Grotzer, & J. D. Sinnott (Eds.), *Adult development: Models and methods in the study of adolescent and adult thought* (Vol. 2, pp. 63–78). New York: Praeger.

Kitchener, K. S., Lynch, C. L., Fischer, K. W., & Wood, P. K. (1993). Developmental range of Reflective Judgment: The effect of contextual support and practice on developmental stage. *Developmental Psychology, 29,* 893–906.

Klein, C., Stagl, K. C., Salas, E., Burke, C. S., DiazGranados, D., Goodwin, G. F., & Halpin, S. M. (2007). *A meta-analytic examination of team development interventions.* Paper presented at the 22st Annual Conference of the Society for Industrial and Organizational Psychology, New York, NY.

Klein, G.A. (1998). *Sources of power: how people make decisions.* Cambridge, MA: MIT Press.

Klein, K. J. & Ziegert, J. C. (2004). Leader development and change over time. In D. Day & S. J. Zaccaro, & S. M. Halpin (Eds.), *Leader development for transforming organizations: Growing leaders for tomorrow* (pp. 359–382). Mahwah, NJ: Erlbaum:

Kliegl, R., Smith, J., & Baltes, P. B. (1989). Testing-the-limits and the study of age differences in cognitive plasticity of a mnemonic skill. *Developmental Psychology, 25,* 247–256.

Klimoski, R., & Mohammed, S. (1994). Team mental model: Construct or metaphor? *Journal of Management, 20,* 403–437.

Kluger, A. N., & DeNisi, A. (1996). The effects of feedback on performance: A historical review, a meta-analysis, and a preliminary feedback intervention. *Psychological Bulletin, 119,* 254–284.

Knowles, M. S., Holton, E. F., III, & Swanson, R. A. (1998). *The adult learner: The definitive classic in adult education and human resource development* (5th ed.). Houston, TX: Gulf.

Kohlberg, L. (1981). *The meaning and measurement of moral development.* Worcester, MA: Clark University.

Kolb, A. Y. & Kolb, D. A. (2005). Learning styles and learning spaces: Enhancing experiential learning in higher education. *Academy of Management Learning & Education, 4,* 193–212.

Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development.* Englewood Cliffs, NJ: Prentice Hall.

Kolb, D. A., Boyatzis, R. E., & Mainemelis, C. (2001). Experiential learning theory: Previous research and new directions. In R. J. Sternberg & L. Zhang (Eds.), *Perspectives on cognitive learning and thinking styles* (pp. 228–247). Mahwah, NJ: Erlbaum.

Koestner, R., Lekes, N., Powers, T. A., & Chicoine, E. (2002). Attaining personal goals: Self-concordance plus implementation intentions equals success. *Journal of Personality and Social Psychology, 83,* 231–244.

Kohlberg, L. (1976). Moral stages and moralization: the cognitive developmental approach. In T. Lickona (Ed.), *Moral development and behavior* (pp. 31–53). New York: Holt, Rinehart, & Winston.

Kohlberg, L. (1981). *Essays on moral development: The philosophy of moral development* (Vol. 1). New York, NY: Harper & Row.

Komives, S. R., Owen, J. E., Longerbeam, S. D., Mainella, F. C., & Osteen, L. (2005). Developing a leadership identity: A grounded theory. *Journal of College Student Development, 46,* 593–611.

Kozlowski, S. W. J., Toney, R. J., Mullins, M. E., Weissbein, D. A., Brown, K. J., & Bell, B. S. (2001). Developing adaptability: A theory for the design of integrated-embedded training systems. *Advances in Human Performance and Cognitive Engineering Research, 1,* 59–123.

Kraiger, K. (2003). Perspectives on training and development. In W. C. Borman, D. R. Ilgen, & R. J. Klimoski (Eds.), *Handbook of psychology: Industrial and organizational psychology* (Vol. 12, pp. 171–192). New York: John Wiley & Sons.

Kram, K. (1985). Improving the mentoring process. *Training and Development Journal, 39*(4), 40–43.

Kroeck, K. G., Lowe, K. B., & Brown, K. W. (2004). The assessment of leadership. In J. Antonakis, A. T. Cianciolo & R. J. Sternberg (Eds.), *The nature of leadership* (pp. 71–97). Thousand Oaks, CA: Sage.

Kruglanski, A. W. (1989). The psychology of being "right": The problem of accuracy in social perception and cognition. *Psychological Bulletin, 106,* 395–409.

Kruglanski, A. W. & Webster, D. M. (1996). Motivated closing of the mind: "Seizing" and "freezing." *Psychological Review, 103,* 263–283.

Kuhn, D. (2000). Meta-cognitive development. *Current Directions in Psychological Science, 9,* 178–181.

Kuhn, D. & Weinstock, M. (2002). What is epistemological thinking and why does it matter? In B. K. Hofer & P. R. Pintrich (Eds.) *Personal Epistemology: The psychology of beliefs about knowledge and knowing* (pp. 121–144). Mahwah, NJ: Erlbaum.

Kuhn, D., Weinstock M., & Flaton, R. (1994). How well do jurors reason? Competence dimensions of individual variation in a juror reasoning task. *Psychological Science, 5,* 289–296.

Kuhnert, K. W. & Lewis, P. (1987). Transactional and transformational leadership: A constructive/developmental analysis. *Academy of Management Review, 12,* 648–657.

Kurfiss, J. G. (1988). *Critical thinking: theory, research, practice, and possibilities.* Washington, D.C.: Association for the Study of Higher Education.

Kurtines, W. M., Alvarez, M., & Azmitia, M. (1990). Science and morality: The role of values in science and the scientific study of moral phenomena. *Psychological Bulletin, 107,* 283–295.

Labouvie-Vief, G. & Diehl, M. (2000). Cognitive complexity and cognitive-affective integration: Related or separate domains of adult development. *Psychology and Aging, 15,* 490–504.

Lachman, M. E. (Ed.). (2000). *Handbook of midlife development.* New York: John Wiley & Sons.

Lachman, M. E. (2004). Development in midlife. *Annual Review of Psychology, 55,* 305–331.

Lahey, L., Souvaine, E., Kegan, R., Goodman, R., & Felix, S. (1988). *A guide to the subject–object interview: Its administration and interpretation.* Cambridge, MA: Harvard University School of Education.

Lant, T. K. & Shapira, Z. (2001). *Organizational cognition.* Mahwah, NJ: Erlbaum.

Laske, O. E. (2002). Executive development as adult development. In J. Demick & C. Andreoletti (Eds.), *Handbook of adult development* (pp. 565–584). New York: Plenum.

Leary, M. R. & Tangney, J. P. (Eds.). (2003). *Handbook of self and identity.* New York: Guilford.

Lent, R. W., Lopez, F. G., Brown, S. D., & Gore, P. A., Jr. (1996). Latent structure of the sources of mathematics self-efficacy. *Journal of Vocational Behavior, 49,* 292–308.

Lepak, D. P. & Snell, S. A. (1999). The human resource architecture: Toward a theory of human capital allocation and development. *Academy of Management Review, 24,* 31–48.

Lerner, R. M., Freund, A. M., De Stefanis, I., & Habermas, T. (2001). Understanding developmental regulation in adolescence: The use of selection, optimization, and compensation model. *Human Development, 44,* 29–50.

Lesgold, A., Rubinson, H., Feltovich, P., Glaser, R., Klopfer, D., & Wang, Y. (1988). Expertise in a complex skill: Diagnosing X-ray pictures. In M. T. Chi, R. Glaser, & M. J. Farr (Eds.), *The nature of expertise* (pp. 311–342). Hillsdale, NJ: Erlbaum.

Levinson, D. J. (1986). A conception of adult development. *American Psychologist, 41,* 3–13.

Lewin, K. (1945). The research centre for group dynamics at Massachusetts Institute of Technology. *Sociometry, 8,* 126–135.

Lindeman, E. C. (1926). *The meaning of adult education.* New York: New Republic.

Lindenberger, U. & Baltes, P. B. (1995). Testing-the-limits and experimental simulation: Two methods to explicate the role of learning in development. *Human Development, 38,* 349–360.

Lindsley, D. H., Brass, D. J., & Thomas, J. B. (1995). Efficacy–performance spirals: A multilevel perspective. *Academy of Management Review, 20,* 645–378.

Link, H. C. (1950). Social effectiveness and leadership. In D. H. Fryer & E. Henry, R. (Eds.), *Handbook of applied psychology* (Vol. 1, pp. 3–10). New York: Rinehart.

Locke, E. A. & Latham, G. P. (2002). Building a practically useful theory of goal setting and task motivation: A 35-year odyssey. *American Psychologist, 57,* 705–717.

Loevinger, J. (1976). *Ego development: Conceptions and theories.* San Francisco: Jossey-Bass.

Loevinger, J., Cohn, L. D., Bonneville, L. P., Redmore, C. D., Streich, D. D., & Sargent, M. (1985). Ego development in college. *Journal of Personality and Social Psychology, 48,* 947–962.

London, M. (2002). *Leadership development: Paths to self-insight and professional growth.* Mahwah, NJ: Erlbaum.

London, M. & Wohlers, A. J. (1991). Agreement between subordinate and self ratings in upward feedback. *Personnel Psychology, 44,* 375–390.

Lonky, E., Kaus, C. R., & Roodin, P. A. (1984). Life experience and mode of coping: Relation to moral judgment in adulthood. *Developmental Psychology, 20,* 1159–1167.

Lord, R. G. & Brown, D. J. (2004). *Leadership processes and follower self-identity.* Mahwah, NJ: Erlbaum.

Lord, R. G., Brown, D. J., & Freiberg, S. J. (1999). Understanding the dynamics of leadership: The role of follower self-concepts in the leader/follower relationship. *Organizational Behavior and Human Decision Processes, 78,* 167–203.

Lord, R. G. & Foti, R. J. (1986). Schema theories, information processing, and organizational behavior. In H. P. Sims, Jr., D. A. Gioia (Eds.), *The thinking organization* (pp. 20–48). San Francisco: Jossey-Bass.

Lord, R. G. & Hall, R. J. (2005). Identity, deep structure and the development of leadership skill. *Leadership Quarterly, 16,* 591–615.

Lord, R. G. & Hall, R. J. (2007). The influence of cognitive and identity factors on the development of leadership skill. In K. A. Quinkert, J. E. Morrison, J. D. Fletcher, F. L. Moses, & E. J. Roberts (Eds.), *The Army Science of Learning Workshop, Research Note 2007–02*. Arlington, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.

Lord, R. G. & Maher, K. J. (1991). *Leadership and information processing: Linking perceptions and performance*. Boston, MA: Unwin Hyman.

Luthans, F. & Avolio, B. (2003). Authentic leadership development. In K. S. Cameron, J. E. Dutton, & R. E. Quinn (Eds.), *Positive organizational scholarship: Foundations of a new discipline* (pp. 241–258). San Francisco, CA: Berrett-Koehler.

MacLean, N. (1992). *Young men and fire*. Chicago: University of Chicago.

Mann, F. C. (1965). Toward an understanding of the leadership role in formal organizations. In R. Dubin, G. Homans, & D. Miller (Eds.), *Leadership and productivity*. San Francisco: Chandler.

Manners, J., Durkin, K., & Nesdale, A. (2004). Promoting advanced ego development among adults. *Journal of Adult Development, 11*, 19–27.

Manz, C. C. & Sims, H. P. (1981). Vicarious learning: The influence of modeling on organizational behavior. *Academy of Management Review, 6*, 105–113.

March, J. G., & Simon, H. A. (1958). *Organizations*. Oxford: John Wiley.

Marcia, J. E. (1966). Development and validation of ego-identity status. *Journal of Personality and Social Psychology, 35*, 118–133.

Marks, M. A., Mathieu, J. E., & Zaccaro, S. J. (2001). A temporally based framework and taxonomy of team processes. *Academy of Management Review, 26*, 356–376.

Marks, M. A., Sabella, M. J., Burke, C. S., & Zaccaro, S. J. (2002). The impact of cross-training on team effectiveness. *Journal of Applied Psychology, 87*, 3–13.

Markus, H. & Kityama, S. (1991). Culture and the self: Implications for cognition, emotion, and motivation. *Psychological Review, 98*, 224–253.

Markus, H. & Kunda, Z. (1986). Stability and malleability of the self-concept. *Journal of Personality and Social Psychology, 51*, 858–866.

Markus, H. & Wurf, E. (1987). The dynamic self-concept: A social psychological perspective. *Annual Review of Psychology, 38*, 299–337.

Marx, M. & Hillix, W. A. (1979). *Systems and theories in psychology (3rd ed.)*. New York: McGraw-Hill.

Mathieu, J. E., Heffner, T. S., Goodwin, G. F., Salas, E., & Cannon-Bowers, J. A. (2000). The influence of shared mental models on team process and performance. *Journal of Applied Psychology, 85*, 273–283.

Maurer, T. J., Weiss, E. M., & Barbeite, F. G. (2003). A model of involvement in work-related learning and development activity: The effects of individual, situational, motivational, and age variables. *Journal of Applied Psychology, 88*, 707–724.

May, D. R., Chan, A. Y. L., Hodges, T. D., & Avolio, B. J. (2003). Developing the moral component of authentic leadership. *Organizational Dynamics, 32*, 247–260.

May, G. L. & Kahnweiler, W. M. (2000). The effect of a mastery practice design on learning and transfer in behavior modeling training. *Personnel Psychology, 53*, 353–373.

Mayer, J. D. & Salovey, P. (1995). Emotional intelligence and the construction and regulation of feelings. Applied and Preventive Psychology, 4, 197–208.

McCall, M. W., Lombardo, M. M., & Morrison, A. M. (1988). *The lessons of experience: How successful executives develop on the job.* Lexington, MA: Lexington Books.

McCauley, C. D. & Brutus, S. (1998). *Management development through job experiences: An annotated bibliography.* Greensboro, NC: Center for Creative Leadership.

McCauley, C. D., Drath, W. H., Palus, C. J., O'Connor, P. M. G., & Baker, B. A. (2006). The use of constructive-developmental theory to advance the understanding of leadership. *Leadership Quarterly, 17,* 634–653.

McCauley, C. D., Ruderman, M. N., Ohlott, P. J., & Morrow, J. E. (1994). Assessing the developmental components of managerial jobs. *Journal of Applied Psychology, 79,* 544–560.

McCauley, C. D. & Van Velsor, E. (Eds.). (2004). *The Center for Creative Leadership handbook of leadership development* (2nd ed.). San Francisco: Jossey-Bass.

McPeck, J. (1981). *Critical thinking in education.* Oxford: Martin Robertson.

Meindl, J. R. & Ehrlich, S. B. (1987). The romance of leadership and the evaluation of organizational performance. *Academy of Management Journal, 30,* 90–109.

Merton, R. K. (1967). *On theoretical sociology.* New York: Free Press.

Milliken, F. J. & Vollrath, D. A. (1991). Strategic decision-making tasks and group effectiveness: Insights from theory and research on small group performance. *Human Relations, 44,* 1229–1253.

Minionis, D. P., Zaccaro, S. J., & Perez, R. (1995, April). *Shared mental models, team coordination, and team performance.* Paper presented at the 10th annual meeting of the Society for Industrial and Organizational Psychology, Orlando, FL.

Mitchell, T. R., Hopper, H., Daniels, D., George-Falvy, J., & James, L. R. (1994). Predicting self-efficacy and performance during skill acquisition. *Journal of Applied Psychology, 79,* 506–517.

Mitchell, T. R. & James, L. R. (2001). Building better theory: Time and the specification of when things happen. *Academy of Management Review, 26,* 530–547.

Moore, B. N. & Parker, R. (1989). *Critical thinking: Evaluating claims and arguments in everyday life.* Mountain View, CA: Mayfield.

Moore, W. G., McCann, H., & McCann, J. (1985). *Creative and critical thinking* (2nd ed.). Boston, MA: Houghton Mifflin.

Moore, W. S. (2002). Understanding learning in a postmodern world: Reconsidering the Perry scheme of intellectual and ethical development. In B. K. Hofer & P. R. Pintrich (Eds.), *Personal epistemology: The psychology of beliefs about knowledge and knowing* (pp. 17–36). Mahwah, NJ: Erlbaum.

Morrison, R. F. & Hock, R. R. (1986). Career building: Learning from cumulative work experience. In D. T. Hall & Associates (Eds.), *Career development in organizations* (pp. 236–273). San Francisco: Jossey-Bass.

Moshman, D. (2003). Developmental change in adulthood. In J. Demick & C. Andreoletti (Eds.), *Handbook of adult development* (pp. 43–61). New York: Plenum.

Moss, P. A., & Koziol, S. M. (1991). Investigating the validity of a locally developed critical thinking test. *Educational Measurement: Issues and Practice, 10,* 17–22.

Mumford, M. D. & Manley, G. R. (2003). Putting the development in leadership development: Implications for theory and practice. In S. E. Murphy & R. E. Riggio (Eds.), *The future of leadership development* (pp. 237–261). Mahwah, NJ: Erlbaum.

Mumford, M. D., Marks, M. A., Connelly, M. S., Zaccaro, S. J., & Reiter-Palmon, R. (2000). Development of leadership skills: Experience and timing. *Leadership Quarterly, 11*, 87–114.

Mumford, M. D., Mobley, M. I., Ulhman, C. E., & Reiter, P. R. (1991). Process analytic models of creative capacities. *Creativity Research Journal, 4*, 91–122.

Mumford, M. D., Zaccaro, S. J., Connelly, M. S., & Marks, M. A. (2000a). Leadership skills: Conclusions and future directions. *Leadership Quarterly, 11*, 155–170.

Mumford, M. D., Zaccaro, S. J., Harding, F. D., Jacobs, T. O., & Fleishman, E. A. (2000b). Leadership skills for a changing world: Solving complex social problems. *Leadership Quarterly, 11*, 11–35.

Mumford, M. D., Zaccaro, S. J., Johnson, J. F., Diana, M., Gilbert, J. A., & Threlfall, K. V. (2000c). Patterns of leader characteristics: Implications for performance and development. *Leadership Quarterly, 11*, 115–134.

Mumford, T. V., Campion, M. A., & Morgeson, F. P. (2007). The leadership skills strataplex: Leadership skill requirements across organizational levels. *The Leadership Quarterly, 18*, 154–166.

Muraven, M., Baumeister, R. F., & Tice, D. M. (1999). Longitudinal improvement of self-regulation through practice: Building self-control strength through repeated exercise. *Journal of Social Psychology, 139*, 446–457.

Muraven, M., Collins, R. L., Shiffman, S., & Paty, J. A. (2005). Daily fluctuations in self-control demands and alcohol intake. *Psychology of Addictive Behaviors, 19*, 140–147.

Nadler, J., Thompson, L., & Van Boven, L. (2003). Learning negotiation skills: Four models of knowledge creation and transfer. *Management Science, 49*, 529–540.

Netz, Y., Wu, M. J., Becker, B. J., & Tenebaum, G. (2005). Physical activity and psychological well being in advanced age: A meta-analysis of intervention studies. *Psychology and Aging, 20*, 272–284.

Nisan, M. (1991). The moral balance model: Theory and research extending our understanding of moral choice and deviation. In W. M. Kurtines & J. L. Gewirtz (Eds.), *Handbook of moral behavior and development* (Vol. 3, pp. 213–247). Hillsdale, NJ: Erlbaum.

Nisan, M. & Kohlberg, L. (1982). Universality and variation in moral judgment: A longitudinal and cross-sectional study in Turkey. *Child Development, 53*, 865–876.

Norris, S.P. (1985). Synthesis of research on critical thinking. *Educational Leadership, 42*, 40–45.

O'Connor, P. M. G. & Quinn, L. (2004). Organizational capacity for leadership. In C. D. McCauley & E. Van Velsor (Eds.), *The Center for Creative Leadership handbook of leadership development* (2nd ed., pp. 417–437). San Francisco: Jossey-Bass.

Olsen, H. A. & Davis, J. (1999). *Special report 56: Training US army officers for peace operations—lessons from Bosnia*. Retrieved July, 2004 from the World Wide Web: http://www.usip.org/pubs//specialreports/sr991029.html.

O'Mahony, S. & Bechky, B. A. (2006). Stretchwork: Managing the career progression paradox in external labor markets. *Academy of Management Journal, 49,* 918–941.

Paglis, L. L. & Green, S. G. (2002). Leadership self-efficacy and manager's motivation for leading change. *Journal of Organizational Behavior, 23,* 215–235.

Paul, R.W. (1995). *Critical thinking.* Santa Rosa, CA: Foundation for Critical Thinking.

Paul, R., Binker, A., Jensen, K., & Kreklau, H. (1990). *Critical thinking handbook. A guide for remodelling lesson plans in language arts, social studies & science.* (2nd ed.). Santa Rosa, CA: Foundation for Critical Thinking.

Perkins, R. M. (1993). Personality variables and implications for critical thinking. *College Student Journal, 27,* 106–111.

Perry, W. G. (1970). *Forms of intellectual and ethical development in the college years: A scheme.* New York: Holt, Rinehart and Winston.

Pettigrew, A. M. (1982). The character and significance of strategy process research. *Strategic Management Journal, 13,* 5–16.

Phillips, N. (1995). Telling organizational tales: On the role of narrative fiction in the study of organizations. *Organizational Studies, 16,* 625–649.

Pfeffer, J. (1977). The ambiguity of leadership. *Academy of Management Review, 2,* 104–112.

Pfeffer, J. & Sutton, R.I. (2006). *Hard facts, dangerous half–truths, and total nonsense: Profiting from evidence based management.* Harvard Business School Publishing: Boston, MA.

Piaget, J. (1985). *The equilibrium of cognitive structures: The central problem of intellectual development* (T. Brown & K. J. Thampy, Trans.). Chicago: University of Chicago.

Pintrich, P. R. (2002). Future challenges and directions for theory and research on personal epistemology. In B. K. Hofer & P. R. Pintrich (Eds.), *Personal epistemology: The psychology of beliefs about knowledge and knowing* (pp. 389–414). Mahwah, NJ: Erlbaum.

Popper, K. (1959). *The logic of scientific discovery.* New York: Harper & Row.

Popper, M. (2005). Main principles and practices in leader development. *Leadership & Organization Development Journal, 26,* 662–675.

Pratt, M. G., Rockmann, K. W., & Kaufmann, J. B. (2006). Constructing professional identity: The role of work and identity learning cycles in the customization of identity among medical residents. *Academy of Management Journal, 49,* 235–262.

Quindlen, A. (2005, May 30). Life of the closed mind. *Newsweek, 145,* 82.

Quinn, R. E. (1996). *Deep change: Discovering the leader within.* San Francisco: Jossey-Bass.

Quiñones, M. A. (2004). Work experience: A review and research agenda. *International Review of Industrial and Organizational Psychology, 19,* 119–138.

Quiñones, M. A., Ford, J. K., & Teachout, M. S. (1995). The relationship between work experience and job performance: A conceptual and meta–analytic review. *Personnel Psychology, 48,* 887–910.

Ragins, B. R. & Cotton, J. L. (1999). Mentor functions and outcomes: A comparison of men and women in formal and informal mentoring relationships. *Journal of Applied Psychology, 84,* 529–550.

Raudenbush, S. W. (2001). Comparing personal trajectories and drawing causal inferences from longitudinal data. *Annual Review of Psychology, 52,* 501–525.

Reed, G., Bullis, C., Collins, R., & Paparone, C. (2004, August). Mapping the route of leadership education: Caution ahead. *Parameters,* 46–60.

Resnick; L.B. (1987). *Education and learning to think.* Washington, D.C.: National Academy Press.

Rest, J. R. (1986a). *Moral development: Advances in research and theory.* New York: Praeger.

Rest, J. R. (1986b). Moral development in young adults. In R. A. Mines & K. S. Kitchener (Eds.), *Adult cognitive development: Methods and models* (pp. 92–111). New York: Praeger.

Rest, J. R., (1990). *DIT manual.* Minneapolis, MN: University of Minneapolis Press.

Rest, J. R. (1994). Background: Theory and research. In J. R. Rest & D. Navarez (Eds.), *Moral development in the professions: Psychology and applied ethics* (pp. 1–25). Hillsdale, NJ: Erlbaum.

Rest, J. R. & Narvaez, D. (1991). The college experience and moral development. In W. M. Kurtines & J. L. Gewirtz (Eds.), *Handbook of moral behavior and development: Theory* (Vol. 1, pp. 229–245). Hillsdale, NJ: Erlbaum.

Rest, J. R., Narvaez, D., Bebeau, M., & Thoma, S. (1999a). A Neo-Kohlbergian approach: The DIT and schema theory. *Educational Psychology Review, 11,* 291–324.

Rest, J. R., Narvaez, D., Bebeau, M., & Thoma, S. (1999b). DIT2: Devising and testing a new instrument of moral judgment. *Journal of Educational Psychology, 91,* 644–659.

Rogosa, D. (1991). A longitudinal approach to ATI research: Models for individual growth and models for individual differences in response to intervention. In R. E. Snow & D. E. Wiley (Eds.), *Improving inquiry in social science: A volume in honor of Lee J. Cronbach* (pp. 221–248). Hillsdale, NJ: Erlbaum.

Rosch, E. H. (1978). Principles of categorization. In E. Rosch & B. Lloyd, (Eds.), *Cognition and categorization* (pp. 27–48). Hillsdale, N.J.: Erlbaum.

Rosenberg, M. (1979). *Conceiving the self.* New York: Basic Books.

Rouse, W. B. & Morris, N. M. (1986). On looking into the black box: Prospects and limits in the search for mental models. Psychological Bulletin, 100, 349–363.

Runco, M. A. & Chand, I. (1994). Problem finding, evaluative thinking, and creativity. In M. A. Runco (Ed.), *Problem finding, problem solving, and creativity* (pp. 40–76). Westport, CT: Ablex.

Russell, C. J. & Kuhnert, K. W. (1992). Integrating skill acquisition and perspective taking capacity in the development of leaders. *Leadership Quarterly, 3,* 335–353.

Ryff, C. D. (1991). Possible selves in adulthood and old age: A tale of shifting horizons. *Psychology and Aging, 6,* 286–295.

Sa, W. C., West, R. F., & Stanovich, K. E. (1999). The domain specificity and generality of belief bias: Searching for a generalizable critical thinking skill. *Journal of Educational Psychology, 91,* 497–510.

Sackett, P. R., Zedeck, S., & Fogli, L. (1988). Relations between measures of typical and maximum job performance. *Journal of Applied Psychology, 73,* 482–486.

Salancik, G. R., Calder, B. J., Rowland, K. M., Leblebici, H., & Conway, M. (1975). Leadership as an outcome of social structure and process: A multidimensional analysis. In J. G. Hunt & L. L. Larson (Eds.), *Leadership frontiers* (pp. 81–101). Kent, OH: Kent State University.

Salas, E., Burke, S. C., Bowers, C. A., & Wilson, K. A. (2001). Team training in the skies: Does crew resource management (CRM) training work? *Human Factors, 43*, 641–674.

Salas, E., Burke, C. S., Wilson-Donnelly, K. A., & Fowlkes, J. E. (2004). Promoting effective leadership within multicultural teams: An event-based approach. In D. V. Day, S. J. Zaccaro & S. M. Halpin (Eds.), *Leader development for transforming organizations: Growing leaders for tomorrow* (pp. 293–323). Mahwah, NJ: Erlbaum.

Salonen, P., Vauras, M., & Efklides, A. (2005). Social interaction—What can it tell us about metacognition and corelugation in learning? *European Psychologist, 10*, 199–208.

Sapolsky, R. M. (1993). Stress and neuroendocrine changes during aging. In R. L. Sprott, R. W. Huber, & T. F. Williams (Eds.), *The biology of aging* (pp. 63–72). New York: Springer.

Schaie, K. W. (2005). *Developmental influences on adult intelligence: The Seattle longitudinal study*. Oxford, U.K.: Oxford University.

Schlenker, B. R. (1985). Identity and self-identification. In B. R. Schlenker (Ed.), *The self and social life* (pp. 65–99). New York: McGraw-Hill.

Schmeichel, B. J. & Baumeister, R. F. (2004). Self-regulatory strength. In K. D. Vohs & Baumeister, R. F. (Eds.) *Handbook of self-regulation: Research, theory, and applications* (pp. 84–98). New York: Guilford.

Schmidt, A. M., & Ford, J. K. (2003). Learning within a learner control training environment: The interactive effects of goal orientation and metacognitive instruction on learning outcomes. *Personnel Psychology, 56*, 405–429.

Schminke, M., Ambrose, M. L., & Neubaum, D. O. (2005). The effect of leader moral development on ethical climate and employee attitudes. *Organizational Behavior and Human Decision Processes, 97*, 135–151.

Schneider, B. (Ed.). (1990). *Organizational climate and culture*. San Francisco: Jossey-Bass.

Schommer, M. (1990). Effects of beliefs about the nature of knowledge on comprehension. *Journal of Educational Psychology, 82*, 498–504.

Schommer, M. (1993). Epistemological development and academic performance among secondary students. *Journal of Educational Psychology, 85*, 406–411.

Schön, D. A. (1983). *The reflective practitioner: How professionals think in action*. New York: Basic Books.

Schooler, C., Mulatu, M. S., & Oates, G. (1999). Continuing effects of substantively complex work on the intellectual functioning of older workers. *Psychology and Aging, 14*, 483–506.

Schroder, H. M., Driver, M. J., & Streufert, S. (1967). *Human information processing*. New York: Holt, Rinehart, & Winston.

Schulman, M. (2002). How we become moral: The sources of moral motivation. In C. R. Snyder & S. J. Lopez (Eds.), *Handbook of positive psychology* (pp. 499–512). New York: Oxford University.

Schwab, D. P. (1980). Construct validity in organizational behavior. *Research in Organizational Behavior, 2*, 3–43.

Schwandt, D. R. (2005). When managers become philosophers: Integrating learning with sensemaking. *Academy of Management Learning & Education, 4,* 176–192.

Seibert, K. W. (1999). Reflection-in-action: Tools for cultivating on-the-job learning conditions. *Organizational Dynamics, 27,* 64–65.

Senge, P. M. (1990). *The fifth discipline: The art and practice of the learning organization.* New York: Doubleday.

Shamir, B. (1995). Social distance and charisma: Theoretical notes and an exploratory study. *Leadership Quarterly, 6,* 19–47.

Shamir, B., & Eilam, G. (2005). "What's your story?" A life-stories approach to authentic leadership development. *The Leadership Quarterly, 16,* 395–417.

Shedlock, D. J. & Cornelius, S. W. (2003). Psychological approaches to wisdom and its development. In J. Demick & C. Andreoletti (Eds.), *Handbook of adult development* (pp. 153–167). New York: Springer.

Sheldon, K. M. & Elliot, A. J. (1999). Goal striving, need satisfaction, and longitudinal well-being: The self-concordance model. *Journal of Personality and Social Psychology, 76,* 482–497.

Sherer, M., Maddux, J. E., Mercandante, B., Prentice-Dunn, S., Jacobs, B., & Rogers, R. W. (1982). The self-efficacy scale: Construction and validation. *Psychological Reports, 51,* 663–671.

Shipper, F. & Davy, J. (2002). A model and investigation of managerial skills, employees' attitudes and managerial performance. *Leadership Quarterly, 13,* 95–120.

Shippmann, J. S., Ash, R. A., Battista, M., Carr, L., Eyde, L. D., Hesketh, B., Kehoe, J. Pearlman, K. Prien, E. P. & Sanchez, J. I. (2000). The practice of competency modeling. *Personnel Psychology, 53,* 703–740.

Siegel, H. (1988). *Educating reason.* London: Routledge, Inc.

Simonton, D. K. (1988). Age and outstanding achievement: What do we know after a century of research? *Psychological Bulletin, 104,* 251–267.

Singer, J. D., & Willett, J. B. (2003). *Applied longitudinal analysis: Modeling change and event occurrence.* Oxford, UK: Oxford University

Sitkin, S. B. (1992). Learning through failure: The strategy of small losses. *Research in Organizational Behavior, 14,* 231–266.

Sluss, D. M. & Ashforth, B. E. (2007). Relational identity and identification: Defining ourselves through work relationships. *Academy of Management Review, 32,* 9–32.

Snarey, J. R., Reimer, J., & Kohlberg, L. (1985). Development of social-moral reasoning among Kibbutz adolescents: A longitudinal cross-cultural study. *Developmental Psychology, 21,* 3–17.

Snow, R. E. (1991). The concept of aptitude. In R. E. Snow & D. E. Wiley (Eds.), *Improving inquiry in social science: A volume in honor of Lee J. Cronbach* (pp. 249–284). Hillsdale, NJ: Erlbaum.

Snyder, C. R. & Lopez, S. J. (Eds.). (2002). *Handbook of positive psychology.* New York: Oxford University.

Sosik, J. J., Potosky, D. & Jung, D. I. (2002). Adaptive self-regulation: Meeting others' expectations of leadership and performance. *Journal of Social Psychology, 142,* 211–232.

Speicher, B. (1994). Family patterns of moral judgment during adolescence and early adulthood. *Developmental Psychology, 30,* 624–632.

Spencer, L. M., Jr. & Spencer, S. M. (1993). *Competence at work: Models for superior performance.* New York: Wiley & Sons.

Stajkovic, A. D. & Luthans, F. (1998). Self-efficacy and work–related performance: A meta-analysis. Psychological Bulletin, 124, 240–261.

Staudinger, U. M., Fleeson, W., & Baltes, P. (1999). Predictors of subjective physical health and global well–being: Similarities and differences between the United States and Germany. *Journal of Personality and Social Psychology, 76*, 305–319.

Staw, B. M. (1975). Attribution of the "causes" of performance: A general alternative interpretation of non-sectional research on organizations. *Organizational Behavior and Human Performance, 13*, 414–432.

Steele-Johnson, D., Beauregard, R. S., Hoover, P. B., & Schmidt, A. M. (2000). Goal orientation and task demand effects on motivation, affect, and performance. *Journal of Applied Psychology, 85*, 724–738.

Steere, W. C., Jr. (1997). Pfizer, Inc. In R. M. Kanter, J. Kao & F. Wiersema (Eds.), *Innovation: Breakthrough ideas at 3M, DuPont, GE, Pfizer, and Rubbermaid*. New York: HarperBusiness.

Sternberg, R. J. (1998). A balance theory of wisdom. *Review of General Psychology, 2*, 347–365.

Sternberg, R. J. (2003a). WICS: A model of leadership in organizations. *Academy of Management Learning and Education, 2*, 386–401.

Sternberg, R. J. (2003b). *Wisdom, intelligence, and creativity synthesized*. New York: Cambridge University.

Sternberg, R. J. & Vroom, V. (2002). The person versus the situation in leadership. *Leadership Quarterly, 13*, 301–323.

Stevens-Long, J. & Michaud, G. (2003). Theory in adult development: The new paradigm and the problem of direction. In J. Demick & C. Andreoletti (Eds.), *Handbook of adult development* (pp. 3–22). New York: Kluwer Academic/Plenum.

Stogdill, R. M. & Coons, A. E. (Eds.). (1957). *Leader behavior: Its description and measurement*. Columbus, OH: Bureau of Business Research, Ohio State University.

Strange, J. M. & Mumford, M. D. (2002). The origins of vision: Charismatic versus ideological leadership. *Leadership Quarterly, 13*, 343–377.

Streufert, S. & Streufert, S. C. (1978). *Behavior in the complex environment*. New York: Wiley.

Sullivan, G. (1999). Foreword: From theory to practice. In J. G. Hunt, G. E. Dodge & L. Wong (Eds.), *Out-of the box leadership: Transforming the twenty-first-century Army and other top performing organizations* (pp. xv–xxiii). Stamford, CT: JAI.

Sulsky, L. M. & Day, D. V. (1992). Frame-of-reference training and cognitive categorization: An empirical investigation of rater memory issues. *Journal of Applied Psychology, 77*, 501–510.

Sutton, R. I. & Staw, B. M. (1995). What theory is *not*. *Administrative Science Quarterly, 40*, 371–384.

Tajfel, H. (1981). *Human groups and social categories*. Cambridge, U.K.: Cambridge University Press.

Tesluk, P. E. & Jacobs, R. R. (1998). Toward an integrated model of work experience. *Personnel Psychology, 51*, 321–355.

Thelin, E. & Smith, L. B. (1998). Dynamic systems theory. In R. Damon & R. M. Lerner (Eds.), *Handbook of child psychology* (Vol. 1, pp. 807–863). New York: John Wiley & Sons.

Thorndike, E. L., Bregman, E. O., Tilton, J. W., & Woodyard, E. (1928). *Adult learning.* New York: Macmillan.

Tracey, J. B., Tannenbaum, S. I., & Kavanagh, M. J. (1995). Applying trained skills on the job: The importance of the work environment. *Journal of Applied Psychology, 80,* 239–252.

Treviño, L. K., Brown, M., & Hartman, P. (2003). A qualitative investigation of perceived executive ethical leadership: Perceptions from inside and outside the executive suite. *Human Relations, 56,* 5–37.

Torbert, B. & Associates. (2004). *Action inquiry: The secret of timely and transforming leadership.* San Francisco: Berrett-Koehler.

Tsai, W. & Ghoshal, S. (1998). Social capital and value creation: The role of intrafirm networks. *Academy of Management Journal, 41,* 464–476.

Tsui, A. S. & Ashford, S. J. (1994). Adaptive self-regulation: A process view of managerial effectiveness. *Journal of Management, 20,* 93–121.

Turiel, E. (1983). *The development of social knowledge: Morality and convention.* Cambridge, U.K: Cambridge University.

Turner, N., Barling, J., Epitropaki, O., Butcher, V., & Milner, C. (2002). Transformational leadership and moral reasoning. *Journal of Applied Psychology, 87,* 304–311.

Tversky, A. & Kahneman, D. (1974). Judgment under uncertainty: Heuristics and biases. *Science, 185,* 1124–1131.

Uhl-Bien, M., Marion, R., & McKelvey, B. (2007). Complexity Leadership Theory: Shifting leadership from the industrial age to the knowledge era. *Leadership Quarterly, 18,* 298–318.

Ulrich, D., Smallwood, N., & Zenger, J. (2000, Winter). Building your leadership brand. *Leader to Leader, 15,* 40–46.

van der Maas, H. L. J., & Molenaar, P. C. M. (1992). Stagewise cognitive development: an application of catastrophe theory. *Psychological Review, 99,* 395–417.

VandeWalle, D. (1997). Development and validation of a work domain goal orientation instrument. *Educational and Psychological Measurement, 8,* 995–1015.

VandeWalle, D. (2003). A goal orientation model of feedback-seeking behavior. *Human Resource Management Review, 13,* 581–604.

VandeWalle, D., Brown, S. P., Cron, W. L., & Slocum, J. W., Jr. (1999). The influence of goal orientation and self-regulation tactics on sales performance: A longitudinal field test. *Journal of Applied Psychology, 84,* 249–259.

VandeWalle, D., Ganesan, S., Challagalla, G. N., Brown, S. P. (2000). An integrated model of feedback-seeking behavior: Disposition, context, and cognition. *Journal of Applied Psychology, 85,* 996–1003.

Van Hoof, A. (1999). The identity status field re-reviewed: An update of unresolved and neglected issues with a view on some alternative approaches. *Developmental Review, 19,* 497–565.

van Knippenberg, D., van Knippenberg, B., De Cremer, D. & Hogg, M. A. (2004). Leadership, self, and identity: A review and research agenda. *Leadership Quarterly, 15,* 825–856.

Van Velsor, E., & McCauley, C. D. (2004). Our view of leadership development. In C. D. McCauley & E.Van Velsor (Eds.), *The Center for Creative Leadership handbook of leadership development* (2nd ed., pp. 1-22). San Francisco: Jossey-Bass.

Van Velsor, E., Moxley, R. S., & Bunker, K. A. (2004). The leader development process. In C. D. McCauley & E. Van Velsor (Eds.), *The Center for Creative Leadership handbook of leadership development* (2nd ed., pp. 204–233). San Francisco: Jossey-Bass.

Veldhuyzen, W., & Stassen, H. G. (1977). The internal model concept: An application to modeling human control of large ships. Human Factors, 19, 367–380.

Vicere, A. A., & Fulmer, R. M. (1998). *Leadership by design*. Boston, MA: Harvard Business School.

Victor, B., & Cullen, J. B. (1988). The organizational bases of ethical work climates. *Administrative Science Quarterly, 33*, 101–125.

Vohs, K. D., Baumeister, R. F., & Ciarocco, N. J. (2005). Self-regulation and self-presentation: Regulatory resource depletion impairs impression management and effortful self-presentation depletes regulatory resources. *Journal of Personality and Social Psychology, 4*, 632–657.

Vroom, V. H. (1964). *Work and motivation*. New York: Wiley.

Vroom, V. H., & Yetton, P. W. (1973). *Leadership and decision making*. Pittsburgh, PA, University of Pittsburgh.

Vygotsky, L. (1986/1934). *Thought and language* (A. Kozulin, Trans.). Cambridge, MA: MIT.

Walker, A. G. & Smither, J. W. (1999). A five-year study of upward feedback: What managers do with their results matters. *Personnel Psychology, 52*, 393–423.

Waterman, A. S. (1999). Identity, the identity statuses, and identity status development: A contemporary statement. *Developmental Review, 19*, 591–621.

Webb, T. L. & Sheeran, P. (2003). Can implementation intentions help to overcome ego-depletion? *Journal of Experimental Social Psychology, 39*, 279–286.

Wegner, D. M. (1986). Transactive memory: A contemporary analysis of the group mind. In B. Mullen & G. R. Goethals (Eds.), Theories of group behavior (pp. 185–205). New York: Springer–Verlag.

Weick, K. E. (1993). The collapse of sensemaking in organizations: The Mann Gulch disaster. *Administrative Science Quarterly, 38*, 628–652.

Weick, K. E. (1995a). *Sensemaking and organizations*. Thousand Oaks, CA: Sage.

Weick, K. E. (1995b). What theory is *not*, theorizing *is*. *Administrative Science Quarterly, 40*, 385–390.

Weinstock, M. & Cronin, M. A. (2003). The everyday production of knowledge: Individual differences in epistemological understanding and juror–reasoning skill. *Applied Cognitive Psychology, 17*, 161–181.

Whitbourne, S. K. (2002). *The aging individual: Physical and psychological perspectives* (2nd ed.). New York: Springer.

Wicklund, R. A. & Gollwitzer, P. M. (1982). *Symbolic self-completion*. Hillsdale, NJ: Erlbaum.

Wiese, B. S., Freund, A. M., & Baltes, P. B. (2000). Selection, optimization, and compensation: An action–related approach to work and partnership. *Journal of Vocational Behavior, 57*, 273–300.

Wofford, J. C. & Goodwin, V. L. (1994). A cognitive interpretation of transactional and transformational leadership theories. *Leadership Quarterly, 5*, 161–186.

Wofford, J. C., Goodwin, V. L., & Whittington, J. L. (1998). A field study of a cognitive approach to understanding transformational and transactional leadership. *Leadership Quarterly, 9,* 55–84.

Wong, L. (2000). *Generations apart: Xers and boomers in the officer corps.* Carlisle, PA: Strategic Studies Institute.

Wood, R., & Bandura, A. (1989). Social cognitive theory of organizational management. *Academy of Management Review, 14,* 361–384.

Wren, T. (1991). *Caring about morality: Philosophical perspectives in moral psychology.* Cambridge, MA: MIT Press.

Wren, T., & Mendoza, C. (2004). Cultural identity and personal identity: Philosophical reflections on the identity discourse in social psychology. In D.K. Lapsley & D. Narvaez (Eds.), *Moral development, self, and identity.* Mahwah, NJ: Erlbaum.

Yammarino, F. & Atwater, L. E. (1997). Do managers see themselves as others see them? Implications of self-other rating agreement for human resource management. *Organizational Dynamics, 25,* 35–44.

Yeo, G. B. & Neal, A. (2004). A multilevel analysis of effort, practice, and performance: Effects of ability, conscientiousness, and goal orientation. *Journal of Applied Psychology, 89,* 231–247.

Yukl, G. A., (2006). *Leadership in organizations* (6th ed.). Upper Saddle River, NJ: Pearson Prentice-Hall.

Zaccaro, S. J. (1999). Social complexity and the competencies required for effective military leadership. In J. G. Hunt, G. E. Dodge, & L. Wong (Eds.), *Out-of-the-box leadership: Transforming the twenty-first-century Army and other top-performing organizations* (pp. 131–151). Stamford, CT: JAI.

Zaccaro, S. C. (2001) *The nature of executive leadership: A conceptual and empirical analysis of success.* Washington, D.C.: American Psychological Association.

Zaccaro, S. J., Mumford, M. D., Connelly, M. S., Marks, M. A., & Gilbert, J. A. (2000). Assessment of leader problem solving capabilities. *Leadership Quarterly, 11,* 37–64.

Zaccaro, S. J., White, L., Kilcullen, R., Parker, C., & O'Connor–Boes, J., (1997). *Cognitive and temperament predictors of Army civilian leadership* (Tech. Rep. 97–1). Bethesda, MD: Management Research Institute, Inc.

Zimmerman, B. J. (1989). A social cognitive view of self-regulated academic learning. *Journal of Educational Psychology, 81,* 329–339.

Appendix A

GLOSSARY OF TERMS

360 Degree Feedback: (also known as multisource feedback): A system of providing anonymous feedback based on ratings made by at least one supervisor, peer, or subordinate; sometimes includes self-ratings (Atwater, Waldman, & Brett, 2002).

Accommodation: The process into which individuals incorporate experiences and changes to their self-schemas, thereby changing the schema (Piaget, 1968).

Accommodative self-reflection: Thoughtful examination of lost goals and the reconstruction of and reinvestment in new goals, commensurate with what one has lost (King & Hicks, 2007).

Adaptive competency: The most advanced or complex competency level that involves extrapolating proficiency to novel situations, understanding the situation as it unfolds, and generalizing one's knowledge and skills to cope with unexpected developments and complex challenges (Kozlowski et al., 2001).

Andragogy: The art and science of teaching adults. The fundamental principles of androgogy are: (a) place the learner at the focus of the learning process, (b) one who learns to satisfy needs or internal motives, & thereby (c) shifts the responsibility of learning to the individual from the formal instructional curricula (Knowles et al., 1998).

Aptitude-Treatment-Interaction (ATI): The basic principle of ATI is that instructional strategies (treatments) are more or less effective for given individuals depending upon their specific abilities. Optimal learning occurs when the instruction is matched to the aptitude of the learner (Cronbach & Snow, 1977).

Assessment: One component of well-designed developmental experiences that refers to data from the self, other people, or the environment that provides information for comparing performance against some standard (Van Velsor & McCauley, 2004).

Assimilation: One of Piaget's components of adaptation. It refers to processes whereby individuals change aspects of the situation or discount information to maintain the current self-view. Novel information is processed using existing schemas without changing them (Piaget, 1968).

Authentic leadership: Leadership that focuses on the development of leaders who are authentic persons as well as having authentic relationships with followers and associates. Authentic leaders and their relations with others are characterized by (a) transparency, openness, and trust; (b) guidance toward "worthy" objectives; and (c) an emphasis on follower development (Gardner, Avolio, Luthans, May & Walumba, 2005).

Baseline performance: Refers to what individuals can do on a given task under standardized conditions of assessment (Baltes, 1987; Kliegl, Smith, & Baltes, 1989).

Baseline reserve capacity: An individual's performance capability if the conditions of assessment are optimized without any additional efforts targeted at enhancing the cognitive and motivational resources available to a person (Baltes, 1987; Kliegl, Smith, & Baltes, 1989).

Behavioral scripts: A type of schema that involves a sequence of behaviors toward the accomplishment of goals (Lord & Foti, 1986).

Challenge: One component of well-designed developmental experiences that refers to a stretch or push beyond an individual's comfort zone (Van Velsor & McCauley, 2004).

Climate: "Shared perceptions of the events, practices, and procedures and the kinds of behaviors that are rewarded, supported, and expected in a setting" (Schneider, 1990).

Cognitive complexity: An individual difference variable that indicates how an individual structures his or her social world; "the capacity to construe social behavior in a multidimensional way" (Bieri et al., 1966, p. 185). Individuals higher in cognitive complexity are able to perceive stimuli in more ways than those lower in cognitive complexity.

Cognitive elaboration: The level of processing or effortful thought an individual gives to a message. In conditions of high elaboration, individuals engage in deep and effortful processing of information and the individual is more likely to be persuaded by the message (Chaiken, 1980).

Cognitive Script: See "scripts."

Competence: Demonstrated expertise in a given domain of interest (e.g., leadership).

Competency: "An underlying characteristic of a person which results in effective and/or superior performance in a job" (Boyatzis, 1982, p. 21).

Competency modeling: The process of systematic discovery of the underlying forms of competence needed for success in a given domain or organization (Spencer & Spencer, 1993).

Construct: Hypothetical configuration of a given phenomenon (Schwab, 1980).

Critical thinking skills: The ability to think about a problem in depth; the process of purposeful, self-regulated judgment (Facione & Associates, 1990).

Crystallized intelligence: The store of knowledge or information that a given society has accumulated over time and the extent to which an individual has absorbed that knowledge store.

Declarative knowledge: The first stage of skills acquisition in which an individual learns the facts about task requirements. The cognitive resource demands are greatest in this stage (Anderson, 1985; Kanfer & Ackerman, 1989).

Development: Long-term endeavor (cf. training) in which the purpose is to enhance individuals' capacity for being able to quickly make sense of the environment and adapt effectively by learning their way out of problems (D. V. Day & Halpin, 2004).

Developmental potential: The degree to which an individual is capable of being shaped by the environment or experience (Baltes, Staudinger, & Lindenberger, 1999).

Developmental readiness: The degree to which an individual is equipped to benefit developmentally from a higher-level challenge and is prepared to move to a higher developmental stage (Avolio, 2004; Fischer & Kenny, 1986).

Developmental reserve capacity: The assessment of performance following interventions or experiences that are targeted at optimizing an individual's cognitive and motivational potential or reserves (Kliegl et al., 1989).

Developmental plasticity: Malleability in development; capability of being shaped by the environment or experience.

Discriminant validity: A construct or variable can be differentiated empirically from other dissimilar constructs or variables.

Doctrine: Body of teachings or instruction; a principle or body of principles presented for acceptance or belief.

Ego: Term used by Loevinger to describe an individual's frame of reference. Ego development can be measured by the Washington University Sentence Completion Test (WUSCT; Loevinger et al., 1985).

Empirical adequacy: The extent that theoretical propositions and hypotheses are operationalized appropriately (Bacharach, 1989).

Endogenous factors: Those constructs in a structural model that are predicted by antecedent constructs.

Epistemology: The philosophical discipline focused on "the origin, limits, methods and justification of human knowledge" (Hofer, 2002, p. 4).

Epistemic cognition: Individual understanding of knowledge itself; the process an individual invokes to monitor the epistemic nature of problems and the truth value of alternative solutions (Kitchener, 1983).

Equilibration: Piaget's concept for constructing identity structures through the active self-regulation of accommodation and assimilation (Block, 1982).

Ethical dilemma: An apparent conflict between moral imperatives in which obeying one would result in transgressing another.

Exogenous factors: Those constructs in a structural model that are antecedents or predictors of other model constructs.

Experiential Learning Theory: Suggests the crucial role of experience in learning and includes a learning cycle of experiencing, reflecting, thinking, and acting (Kolb & Kolb, 2005).

Explanatory potential: An aspect of theoretical utility that rests on the specificity of assumptions regarding objects of analysis and the relations among objects; how well a theory explains its core constructs and the relationships among them (Bacharach, 1989).

Falsifiability: A criterion to evaluate theory; it involves whether a theory can be refuted empirically (Popper, 1959).

Fluid intelligence: On-the-spot reasoning ability, a skill not basically dependent on experience.

Framework: A set of assumptions or concepts that represent a way of viewing reality, often taking the form of taxonomic lists of variables or constructs in research.

Goal orientation: An individual difference variable that reflects the internal motivational processes that affect an individual's task choice, self-set goals, and effort mechanisms in learning and performance contexts (Dweck, 1996; VandeWalle, 1997).

Generalized self-efficacy: A global trait-like characteristic of one's estimate of his or her overall ability to achieve required performance in a variety of situations (Bandura, 1997).

Heuristic: A cognitive shortcut that allows for efficient information processing without complete consideration of all relevant information (Kahneman, Slovic, & Tversky, 1982).

Human capital: Individual knowledge, skills, and abilities.

Identity The culmination of an individual's personal attributes, values, knowledge, experiences, and self-perceptions. Identity is dynamic and multifaceted (Baltes & Carstensen, 1991; Erikson, 1959).

Identity development: The process of growth, integration, and crystallization of an individual's sense of self (Erikson, 1959).

Implementation intention: Type of self-regulation strategy that makes the initiation of goal-directed behavior nearly automatic by

designating where, when, and how behavior leads to goal attainment (Gollwitzer, 1999).

Implicit Leadership Theories (ILT): A schema individuals hold about leadership. Describes a structure of relationships of relevant leadership traits and characteristics believed to be related that guides and organizes an individual's perceptions, thoughts, and memories about leadership (Keller, 1999).

Institutionalization: The process by which an initial corrupt decision or action becomes embedded in the structure and processes of an organization, leading to the routinization of corruption (Ashforth & Anand, 2003).

Intentionality: Deliberate practice in a particular domain with the goal of developing expertise (Fallesen, 2004).

Interpersonal influence: Drath's (2001) second knowledge principle in which leadership is conceptualized as occurring through the interpersonal process by which an individual arises as the most influential person.

Interindividual effects: Change or development in proficiency over time *between individuals.*

Intraindividual effects: Change or development in proficiency over time *within an individual.*

Knowledge compilation: The second stage of the skills acquisition process whereby an individual integrates various components required to complete a task (Anderson, 1985; Kanfer & Ackerman, 1989).

Leader development: Enhancing the capacity of individuals to engage successfully in the leadership tasks and roles in an organization, focusing on developing individual knowledge, skills, and abilities related to leadership (Day, 2000).

Leader identity: How one thinks of oneself as a leader; the subcomponent of one's identity or self-concept related to being a leader.

Leadership capacity: The outcome of developmental efforts to enhance leadership (Day, Gronn, & Salas, 2004).

Leadership development: Enhancing the capacity of teams and organizations to engage successfully in leadership tasks, focusing on building the networked connections among members that develop leadership capacity (Day, 2000).

Learning goal orientation: Individual motivation toward developing competence through acquiring and mastering new skills, seeking challenges to perfect competencies, and treating errors as instructive in the process (Dweck, 1996; VandeWalle, 1997).

Learning organization: An organization that actively seeks to monitor environmental changes and adapt and learn from them (Senge, 1990).

Logical adequacy: An aspect of theory evaluation that demonstrates that the relationships in the theory are not redundant or circular

in terms of logic and that the nature of the relationship between antecedent and consequent are specified (Bacharach, 1989).

Maximal performance: Performance under conditions when there is explicit awareness on the part of an individual that he or she is being evaluated and where there is intentional effort to maximize performance (Sackett, Zedeck, & Fogli, 1988).

Mental model: "Mechanism whereby humans are able to generate descriptions of system purpose and form, explanations of system functioning and observed system states, and predictions of future system states" (Rouse & Morris, 1986, p. 351). They are cognitive frameworks in a particular domain of interest.

Mentoring: Formal or informal relationship between a teacher or trusted counselor and a protégé; can be described as either psychosocial or career-related (Kram, 1985).

Meta-cognition: Monitoring or awareness of an individual's learning and thinking process (Kitchener, 1983).

Moral development: Enhancing an individual's moral reasoning capacity and behavior. Kohlberg's (1981) Theory of Moral Development is the most influential. The theory suggests that individuals develop through six stages captured by three broad periods of development: (a) Preconventional morality: individual's thoughts and behaviors are organized around maximizing personal reward and avoid punishment; (b) Conventional morality: moral understanding is based on social rules and obligations; and (c) Postconventional morality: Internalization of universalistic moral principles such as respect for others and justice.

Moral capacity: The ability of leaders to view "their role as including an ethical responsibility to their stakeholders, having the level of moral perspective to recognize and evaluate ethical issues, and having learned from past experiences how they might best deal with moral dilemmas at work" (May et al., 2003, p. 247).

Moral courage: "Leader's fortitude to convert moral intentions into actions despite pressures from either inside or outside of the organization to do otherwise" (May et al., 2003, p. 255).

Moral identity: Integration of moral understanding and concerns with one's sense of identity (Blasi, 1995).

Moral reasoning: The cognitive process by which individuals make and justify decisions about moral issues (Kohlberg, 1981).

Moral resiliency: The ability to adapt in a positive way in the face of significant adversity or risk in terms of acting authentically (May et al., 2003).

Multirater feedback: Provides a rich source of assessment data from multiple perspectives (e.g., self, subordinate, peer, supervisor); also known as 360-degree feedback.

Ontogeny: The development or course of development especially of an individual organism.

Operational definition: An exact description of how to derive a value for a characteristic you are measuring. It includes a precise

definition of the characteristic and how, specifically, data collectors are to measure the characteristic. Used to remove ambiguity and ensure all data collectors have the same understanding. Also used as *operationalized*.

Orchestrating processes of human development: See selection-optimization-compensation.

Organizational socialization: The process by which employees learn about new jobs, roles, and the culture of the workplace and adapt to them (Bauer, Morrison, & Callister, 1998).

Pedagogy: The art and science of teaching children (Knowles et al., 1998).

Performance goal orientation: Individual's motivation focused on demonstrating competence in safe environments, a preference for tasks that minimize errors, and a view of high effort as indicative of low ability (Dweck, 1996; VandeWalle, 1997).

Personal dominance: Least complex and most widely held knowledge principle around leadership whereby leadership is described as something an individual possesses, such as a trait or attribute and that followers receive (Drath, 2001).

Plasticity: See "*developmental plasticity.*"

Possible selves: An individual's representation of a future desired self and avoidance of an undesirable self (Cross and Markus, 1991).

Procedural knowledge: The final stage of skills acquisition in which an individual reaches automatization of task completion; minimal resources are needed to complete the task (Anderson, 1985; Kanfer & Ackerman, 1989).

Provisional selves: The temporary and incomplete professional identities individuals try out during work transitions (Ibarra, 1999).

Predictive accuracy: An aspect of theoretical utility that refers to the ability of a theoretical system to make sound predictions within a bounded framework of space and time (Bacharach, 1989).

Psychological safety: Shared perceptions team members hold that their team environment is a safe place in which one can take interpersonal risks (Edmondson, 1999).

Rationalization: The process by which corrupt individuals deny the implications of their action to distance themselves from the deviant moral implications of their behaviors (Ashforth Anand, 2003).**Readiness:** See *"developmental readiness."*

Reflection-in-action: Unstructured reflection in which individuals engage during the course of an experience, rather than after the experience (Schön, 1983).

Reflection-on-action: Thinking back on experiences, reflecting on what happened, why it happened, and what could have been different (Schön, 1983). Examples include after-action reviews and coached reflection.

Reflective judgment: A type of epistemic cognition that involves interpretive judgments about ill-structured or uncertain problems.

It involves the continual evaluation of assumptions and interpretations about data (King & Kitchener, 1994; 2002).

Relational dialogue: The most complex leadership knowledge principle whereby leadership is understood as a dynamic process that happens when people participate in collaborative forms of thought, dialogue, and behavior (Drath, 2001).

Schema: Cognitive structures that represent organized knowledge about a given stimulus as well as rules that direct information processing (Lord & Foti, 1986, p. 22).

Script: Specialized type of cognitive schema for action that guide behavior in familiar situations such that actions can be determined and undertaken almost in a "mindless" (i.e., automatic) manner (Gioia, 1986).

Selection-optimization-compensation processes: The orchestrating processes of adult development, used to regulate the maximization of developmental gains and the minimization of losses (Baltes, 1987).

Self-awareness: Extent to which someone is conscious of various aspects of identity and the extent to which self-perceptions are integrated internally and congruent with the way others perceive the individual (Hall, 2004).

Self-completion theory: Individuals strive to attain a chosen identity by seeking out symbols that are consistent with a desired identity (Wicklund & Gollwitzer, 1982).

Self-concept: An individual's perception of the entirety of oneself in relation to the environment including relationships with others and assimilation into societal norms, beliefs, and standards (Bronfenbrenner, 1970).

Self-regulation: The process of monitoring and adjusting thoughts, behaviors, and emotions. Self-regulation involves establishing a goal or desired state, engaging in appropriate behaviors to obtain one's goal, and monitoring progress toward the goal (Baumeister, Muraven, & Tice, 2000).

Self-regulatory strength: An individual-difference variable that describes the capacity or ability needed to inhibit, override, or alter responses. Current theories conceptualize self-regulatory strength as similar to a muscle (Baumeister, Heatherton, & Tice, 1994).

Self-schema: An individual's representations of structures of the self (Lord & Foti, 1986).

Self-efficacy: Beliefs about one's capabilities to produce designated levels of performance that exercise influence over events that affect one's life (Bandura, 1986).

Social capital: Networked relationships among individuals that enhance cooperation and resource exchange (Tsai & Ghoshal, 1998).

Social identity: Part of an individual's self-concept that is based on social group membership (Tajfel, 1981).

Social learning: See vicarious learning.

Strategic competency: Highly integrated and complex bundles of declarative and proceduralized knowledge that support an individual's understanding of the contingencies that drive changes in priorities and the allocation of attention and effort (Bell & Kozlowski, 2002).

Support: One component of well-designed developmental experiences that refers to helping an individual by providing adequate resources and encouragement (Van Velsor & McCauley, 2004).

Tacit knowledge: "What one needs to know in order to work effectively in an environment that one has not explicitly [been] taught and that often is not even verbalized" (Sternberg, 2003b, p.56).

Team mental model: Team members' shared schemas or mental representations of the knowledge of the task and team environment (Klimoski & Mohammed, 1994).

Testing-the-limits: A research protocol that compresses time and provides a high-density developmental experience that can be used to estimate an individual's reserve capacity or developmental readiness (Kliegl et al., 1989; Lindenberger & Baltes, 1995).

Theory: A statement of the relations among concepts within a set of boundary assumptions and constraints (Bacharach, 1989).

Transactive memory: Collection of individual knowledge and a group awareness of who knows what (Wegner, 1986).

Transfer: "The degree to which trainees apply the knowledge, skills, behaviors, and attitudes gained in training to their jobs" (Tracey, Tannenbaum, & Kavanagh, 1995, p. 239).

Transportation: An experience an individual has in which he or she is completely immersed in narrative. Through this process an individual's thoughts and emotions are closely tied with the narrative; the experience can change an individual in some ways (Green, 2005).

Typical performance: The usual level of functioning or output with regard to a particular job or task (Sackett, Zedeck, & Fogli, 1988).

Utility: A criterion to evaluate theory; refers to the usefulness of theoretical systems such that they provide both explanation and prediction (Bacharach, 1989).

Variable: Any observable entity capable of assuming two or more values (Schwab, 1980).

Vicarious learning: (also termed social learning or observational learning): Learning that occurs through the observation and modeling of others (Bandura, 1997).

Web of development: A conceptualization of development that views it more as a set of interconnected strands that as a linear unidirectional process (Fischer & Pruyne, 2002).

Wisdom: Expertise in the conduct and meaning of life (Baltes & Staudinger, 2000).

Working self-concept: The highly activated and contextually sensitive portion of the general self-concept (Lord & Brown, 2004).

Zone of proximal development: The hypothetical region representing a task that is within someone's developmental reach such that with effort and minimal support by others, an individual can move to a higher level of functioning (Vygotsky, 1986/1934).

Appendix B

MEASUREMENT TOOLS

Declarative Knowledge
- Multiple choice test specific to relevant material (e.g., Schmidt & Ford, 2003)

Procedural Knowledge
- Role plays to demonstrate learned behavior (May and Kahnweiler, 2000)

Leader Competency
- Army Leader Competencies (Horey et al., 2004)
- Develop competency measure for particular desired leadership behaviors.

Strategic Competencies
- Kozlowski et al. (2001) suggest that strategic performance includes situational awareness, prioritization of actions, and the implementation of task strategies.

Adaptive Competencies
- Adaptive Performance (Pulakos et al., 2000)

Leadership Mental Models
- Content analysis of open-ended questions designed to elicit leadership schema and script content (as used in Wofford, Goodwin, & Whittington, 1998)
- *Leadership self-schemas* (Engle & Lord, 1997).
- *Implicit Leadership Theories* (Epitropaki & Martin, 2004, 2005)

Developmental Potential of Experience/Job:
- Developmental Challenge Profile (DCP) (McCauley, Ruderman, Ohlott, & Morrow, 1994).
- Quantitative, qualitative, and an interaction of quantitative and qualitative components (Tesluk & Jacobs, 1998).

Developmental readiness:
- Developmental reserve capacity (see Kliegl et al., 1989)

Adult Development Processes
- Selection-Optimization-Compensation
- *The Selection-Optimization-Compensation Questionnaire* (Freund & Baltes, 2002)
- *Short Version of the SOC Questionnaire* (Freund & Baltes, 1998)

Identity Development
- *Washington University Sentence Completion Test* (Loevinger, 1976)
- *Ego Identity Incomplete Sentence Blank* (EI-ISB; Marcia, 1966)
- *Sentence Completion Test* (Loevinger & Wessler, 1970)
- *Subject-object interview* (Lahey et al., 1988)
- *Scale of Possible Selves* (Bloom, Delmore-Ko, Masataka, & Carli, 1999)
- *Direct inquiry* of possible selves. Include directions similar to Cross and Markus (1994) "You will be seeing a series of phrases on the screen. Simply decide if each is possible or not possible for you to BE, to HAVE, or to DO in the future" (p. 427)
- Provisional selves—Ibarra (1999)

Leader Identity
- Adapt a specific identity scale (i.e. ethnic identity) to leadership
- Leadership Self-identity Scale (Hiller, 2005)

Moral Development
- *Moral Judgment Interview* (Colby & Kohlberg, 1987)
- *Standard Issue System* (Colby & Kohlberg, 1987)
- *Defining Issues Test* (Rest, 1990; Rest et al., 1999b)
- *Ethical Identity Scale* (Navarez, under review)
- *Ethical Leadership Scale* (Brown et al., 2005)
- *Moral Identity Measure (*Aquino & Reed, 2002)
- *Measure of Moral Values* (Hogan &Dickstein, 1972)

Epistemic Cognition:
- *Epistemological Beliefs Questionnaire* (Schommer, 1990)
- *Reflective Judgment Interview* (King & Kitchener, 1994)
- Think-aloud protocols and post-interviewing (See Hofer, 2004 for a review)

Critical Thinking:
- *Watson-Glaser Critical Thinking Appraisal* (Watson & Glaser, 1980)
- *Wagner Assessment Test* (Wagner & Harvey, 2006)

Self-regulatory strength
- *Self-regulation* – used emotional (emotional display in reaction to an upsetting film), physical regulation (hand-grip task) (Muraven, Tice, & Baumeister, 1998) drinking vinegar drink (Baumeister, DeWall, Ciarocco, & Twenge, 2005), eating radishes over freshly baked chocolate chip cookies (Baumeister, Bratslavsky, Muraven, & Tice, 1998).
- *Trait Self-control* created by Gibbs, Giever, and Martin (1998) cited in Muraven, Collins, Shiffman, and Paty (2005)
- *Emotional regulation* (Grandey, Dickter, & Sin, 2004)
- Self-regulation has also been measured by examining three components of goal setting, planning, and monitoring goal progress. (e.g. VandeWalle et al., 1999, Frayne & Latham, 1987)

Goal orientation
- *Work Domain Goal Orientation* (VandeWalle, 1997) distinguishes learning, prove, and avoid goal orientation factors.
- *Goal Orientation Scale* developed by Sujan et al. (1994) used in VandeWalle, Brown, Cron, & Slocum (1999)

Generalized self-efficacy
- *General Self-efficacy Scale* (Sherer, Maddux, Mercandante, Prentice-Dunn, Jacobs, & Rogers, 1982)
- *New General Self-efficacy Scale* (Chen, Gully, & Eden, 2001)
- *Generalized Self-efficacy* (Judge, Locke, Durham, & Kluger, 1998)

Self-awareness
- Collective congruence between self-ratings and averaged others' ratings of behaviors measured as a difference score (Church, 1997)
- Congruence between self and other ratings using polynomial regression or within and between analysis techniques (Yammarino & Atwater, 1997)
- "Relative" self-awareness – agreement on least and most effective behaviors rather than overall competence (London & Wohlers, 1991)

Implementation Intention
- *Induced* rather than measured by asking participants to specify a time and place to realize three goals as well as specifying three if/then counterbehaviors for dealing with distraction (e.g. Koestner et al., 2002)

Wisdom

- Berlin Wisdom Paradigm (Baltes& Staudinger, 2004)
- Event-based interview coded according to "wisdom-of-experience" procedure (see Bluck & Glück, 2004)
- Foundational Value Scale (Jason et al., 2001)

Subject Index

A

Accelerating leader development, 19–29
  antidote to structural disorganization, 20
  aptitude, definition of, 24
  aptitude–treatment interactions, 29
  average leadership style, 21
  baseline performance, 26
  baseline reserve capacity, 26
  cognitive scripts, 23
  condensed initiatives, 21
  developmental potential, 25–27
  developmental readiness, 23, 24–25
  developmental reserve capacity, 26
  differences in cognitive plasticity, 27
  distinction between typical and maximal performance, 21
  environmental obstacles, 26
  foundational capabilities, 25
  Gestalt psychology, 19
  growth modeling, 19
  implications for integrative theory of leader development, 29
  interrelated components of adult development, 24
  intervention strategies, 27
  intra-individual plasticity, 26
  investing sufficient resources needed for mastery, 23
  moral reasoning, 24
  motivational issues, 22
  motivation to learn, 26
  optimizing development, 21–24
  overview, 19–21
  potentialities of development, 26
  recipe for disorganization, 20
  reducing bureaucracy, 20
  risky developmental strategy, 29
  scaffolding, 25
  self-efficacy, 23
  sensemaking, 23
  "sink or swim" approach, 29
  standards-based training, 22
  task migration, 28
  task performance, 22
  terrorism, 20
  testing-the-limits techniques, 27, 28
  web of development, 24
  zone of proximal development, 25–27
Accommodation, 295
Accommodative self-reflection, 295
Action learning, identity and, 210
Adaptive competency, 295, 305
Adult development, leader development as, 31–41
  age-related changes, 32
  biological conceptions of growth, 37
  compensation, 33
  complex adaptive systems, 38
  components of individual development, 32

components of leader development, 39
definition of development, 35
development forms, 37
epistemic cognition, 35
executive development, 31
experiential interventions, 32
function-centered perspective, 33
fundamental aspects, 55
goals of development, 33
identity formation, 36
implications for integrative theory of leader development, 40–41
interrelated components of, 24
leadership meta-competency, 36
lifespan development psychology, 33, 40
mastery of life, 33
maturation processes, 40
moral development, 36
myelination, 37
neural-like networks, 38
neurological evidence of age-related change, 37
nonlinear aspects of development, 38
optimization, 33, 40
orchestrating processes of human development, 39
Piagetian theory, 36
postformal operations, 36–37
primary components, 41
question of whether adults develop, 35–36
relevance, 32–35
selection, 33
sequential stages of development theories, 37
SOC, self-regulation and, 41
social-constructivist development theory, 31
static metaphors, 38
web of development, 37–39
work-related learning, 34
Adult development processes, 213–229
association between poor health and cognitive decline, 215
basic skill acquisition processes, 225
Berlin Wisdom Paradigm, 224, 225
biological conceptions of growth, 220
chronic diseases, 215
compensation, 216
competencies, 219
context, 213
decline of intellectual development components, 214
deficits in cognitive processing, 214
dialogical thinking, 224
dynamic and nonlinear development, 219–221
elective selection, 216
ethical conscience, 221
fundamental processes, 218
health throughout lifespan, 214–216
heuristic, definition of, 225
identity-development spiral, 222
implications, 227–229
indicators of self-regulatory processes, 215
leaders of character and competence, 221–223
loss-based selection, 216
measurement tools, 306
meta-competency, 226
multifunctionality, 220
optimization, 216
orchestrating processes of adult development, 216–219
orchestrating processes of human development, 227
outcomes of maturation, 214
role of wisdom in leadership, 223–227
selection, 216
self-regulatory strength, 229
SOC model, 216
web conceptualizations, 220
web of development, 219
WICS model of leadership, 223
wisdom
Berlin Wisdom Paradigm and, 224
measurement of, 227
within-person plasticity, 228
Adult learning, 140–146
andragogy as integrative concept, 142–143

assumptions, 144
beyond andragogy, 145–146
implications, 144
pedagogy versus andragogy, 141–142
traditions in adult learning, 143–145
Aging process, biological models of, 45
Analysis paralysis, 91
Andragogy, 295
fundamental principle of, 140
integrative concept of, 142
pedagogy versus, 141, 142
Applied psychology, modeling of real-world data, 51
Aptitude
definition of, 24
experience and, 25
Aptitude-treatment-interaction (ATI), 29, 295
models, 24, 25
perspective, wisdom and, 225
Army, *see* U.S. Army
Assessment, 295
Assimilation, 296
ATI, *see* Aptitude-treatment-interaction
Authentic decision-making, 81
Authentic leadership, 296

B

Balance theory, wisdom and, 224, 226
Base behavior, 75
Baseline performance, 296
Baseline reserve capacity, 296
Behavioral scripts, 296
BE, KNOW, DO framework, 9, 57
Berlin Wisdom Paradigm, 224, 225, 308
Boundaryless careers, 189

C

CCL, *see* Center for Creative Leadership
Center for Creative Leadership (CCL), 133
Handbook of Leadership Development, 172
model, 136, 151
multirater feedback instruments, 135
Cognitive complexity, 296
Cognitive elaboration, 296
Cognitive plasticity, differences in, 27
Cognitive processing, deficits in, 214
Collective identity, 62
Competency modeling, 297
Construct, 297
Corruption
normalization of, 77
rationalization of, 77
routinization of, 77, 299
Crew resource management, 166
Critical thinking (CT), 93, 94, *see also* Epistemic cognition, reflective judgment, and critical thinking
conceptualization, 94
definition of, 93, 94
effortful nature of, 98
measurement tools, 307
process model, 98
skills, 98, 101, 297
Cross training, 165
Crystallized intelligence, 297
CT, *see* Critical thinking

D

DCP, *see* Developmental Challenge Profile
Declarative knowledge, 297, 305
Defining Issues Test, moral reasoning, 83
Development, 297
biological models, 45
definition of, 35
dynamics, 38
forms, 37
goals of, 33
longitudinal phenomenon of, 47
multidimensional, 47
nonlinear aspects of, 38
theories of, sequential stages of, 37
timeframe for measuring, 49
web of, 303
Developmental Challenge Profile (DCP), 134, 137

Developmental plasticity, 297
Developmental potential, 297
Developmental readiness, 297, 306
Developmental reserve capacity, 297
Dialogical thinking, 224
Discriminant validity, 297
Doctrine, 297

E

Ego, 297
  depletion, 201, 207, 208
  development
    stages, 60
    theory, 59
  growth, 60
Emotional intelligence, 122
Empathy, 75
Empirical adequacy, 297
Endogenous factors, 297
Enron, 71
Epistemic cognition, 298
  adult development and, 35
  domains, 88
  knowledge and, 89
  measurement tools, 306
  predictors, 87, 89
  problem solving and, 102
  reasoning in everyday life, 88
Epistemic cognition, reflective judgment, and critical thinking, 85–102
  adaptive complexity, 87
  analysis paralysis, 91
  biblical allegory, 87
  college students, 87
  critical thinking
    definitions, 95–97
    process model, 98
    skills, 93–100
    themes, 95–97
  epistemic cognition, 86–90
  epistemic motivation, 89
  goal-directed behavior, 93
  goal-oriented task performance, 101
  implications for integrative theory of leader development, 102
  knowledge derived from information, 85
  levels of thinking, 86
  meta-cognition, 86
  metacognitive knowing, 101
  metatask, 98
  need for cognitive closure, 89
  personal epistemology, 86
  pre-reflective reasoning, 90, 92
  problem solving, 100, 102
  quasi-reflective reasoning, 90, 92
  Reflective Judgment Interview, 91
  reflective judgment model, 90–93
  reflective thinking, 91
  relationship, 100–102
  sequence of development, 89
  stages of reflective judgment, 92
  "to each his own" adage, 87
  tripartite model of thinking, 100
  truth value of information, 101
  understanding of environment, 85
Epistemology, 298
Equilibration, 298
Ethical behavior, 71, 77–79, *see also* Moral development
Ethical dilemma, 298
Executive temperament, identity processes and, 209
Exogenous factors, 298
Experience
  developmental potential of, measurement tools, 306
  mismatching aptitude with, 25
  as potent force for development, 233
Experience, learning from, 133–158
  action-event reviews, 137, 158
  activity-oriented learner, 142
  adult education, 142
  adult learning, 140–146
    andragogy as integrative concept, 142–143
    beyond andragogy, 145–146
    pedagogy versus andragogy, 141–142
    traditions in adult learning, 143–145
  anti-science sentiment, 145
  behavioral change, 153
  Center for Creative Leadership, 133
  challenge, 135, 138
  cognitive elaboration, 154
  complexity, 138

core components of work experiences, 138
density, 139
Developmental Challenge Profile, 134, 137
developmental experiences, 133–137
developmental punch, 158
difficulties, 150–151
elemental model of learning, 143
executive learning functions, 149
executive learning operations, 148
experiential learning, 146–148
experiential learning cycle, 144, 147, 158
feedback accuracy, 152
flow experience, 154
gender variables, 135
goal-oriented learner, 142
illusory correlations, 151
interaction component, 139
interactive learning, 148
job assignments, 135
job transitions, 134
learning disabilities, 150
learning from other's experience, 151–157
  implications for integrative theory of leader development, 158
  learning from narratives, 154–157
  vicarious learning, 152–154
learning organizations, 148–150
learning taxonomy, 148
lifelong learning, 142
managerial wisdom, 154
measuring experience, 137–140
Meyers-Briggs Type Indicator, 145
motivation, 151
motor reproduction, 152
observational learning, 153
obstacles, 134
on-the-job development, 135
oral histories, 157
personality differences, 145
propounders, 143
qualitative component, 138
qualitative nature of experience, 139
recognition of significance, 144
risk-taking, 150
self-initiated learning, 148
sensemaking, 147, 155, 156
social learning theory, 152
spyglass self, 152
stories from the field, 154
storytelling, 155, 156, 157
support, 136
task-related characteristics, 134
taxonomies of developmental experiences, 139
teachable moments, 146
transportation, 154
value of sharing experiences, 157
vicarious learning, 152, 153, 157
Experiential Learning Theory, 298
Expertise, 119–132
  AT&T Management Progress Study, 120
  behavioral factors, 119
  benefits of skills-based conceptualization of leadership, 130
  characteristics of experts, 125
  classroom programs, 129
  consideration, 119
  declarative knowledge, 123
  deliberate practice, 126, 131
  development of expertise, 124–126
  emotional intelligence, 122
  expert performance, 124
  hands-on problem solving, 121
  idea generation, 121
  implications for integrative theory of leader development, 131–132
  initiating structure, 119
  knowledge compilation, 123
  leadership-challenges taxonomy, 126
  levels, 126
  metacompetencies, 131
  procedural knowledge, 123
  research-based recommendation, 126
  self-awareness, 131
  skills
    acquisition, 123–124
    administrative, 121
    -based approaches, 119
    development traditions, 130
    individual, 120
    interpersonal, 120, 122

leader, 119–121
managerial, 121
problem-solving, 123
technical
ways of training, 129
social intelligence, 122
time emphasis, 121
training, development, and transfer, 126–129
Expert leadership, development of, 171–182
acquired cognitive mechanisms, 179
adaptive competencies, 178, 180
competence, 172
declarative knowledge, 177, 179
deliberate practice, 181
development of expert leader, 173–179
development of leadership expertise, 179–181
differentiated knowledge, 179
identity-development spirals, 182
implications of leadership as expertise, 182
intellectual stimulation, 182
leadership, practicing, 181–182
leadership effectiveness, 172
leadership failure, 171
lifespan developmental psychology, 173
managerial competence, 173
music analogy, 181
overview, 171–173
positive spirals, 182
procedural knowledge, 177, 179
sight playing, 180
skill acquisition, 173
societal change, 180
strategic competencies, 178, 180
theoretical propositions, 174–175
Explanatory potential, 298

F

Feedback
identity development and, 67
multi-source, 187
seeking behaviors, identity processes and, 211
Flow experience, 154
Fluid intelligence, 298
Framework, 298
FSAER, *see* Success-focused after-event reviews

G

Gender
bias, moral development and, 73
variables, developmental assignments and, 135
Generalized self-efficacy, 298
adult development processes and, 228
identity processes and, 196–197
measurement tools, 307
research, 257
self-regulation and, 196–197
Gestalt psychology, 19
Glossary, 295–304
Goal
attainment
implementation intentions and, 200
self-confidence in, 124
-directed behavior
critical thinking and, 93
implementation intentions and, 199
orientation, 298
identity processes and, 207
learning and, 194
measurement tools, 307
self-regulation and, 195
skills acquisition process and, 203
-oriented learner, 142
-oriented task performance, 101

H

Heuristic, 298
Human capital, 164, 298

I

Idea generation, 121
Identity, 298
ambiguity, 63

definition of, 110
ego, 58, 59
formation, adult development and, 36
moral, 75, 300
social, 162, 302
status paradigm, 59
Identity development, 57–69, 298
adult development processes and, 222
BE, KNOW, DO framework, 57
child's awareness of others, 57
collective identity, 62
collective self-esteem, 63
confederation of selves, 65
conformity, 60
cultural identity, 63
delinquency, 60
ego development stages, 60
ego growth, 60
ego identity, 58, 59
events driving identity change, 63
feedback, 67
gang membership, 58
identity ambiguity, 63
identity change, 58
identity diffusion, 58
identity status paradigm, 59
implications for integrative theory of leader development, 68–69
implications for leader development, 64–68
independent self-construal, 61
in-groups, 62, 65
integrity violations, 63
interdependent self-construal, 61
Leadership Identity Model, 67
measurement of ego development, 60
measurement tools, 306
nightmare self, 61, 64
Normative Decision Model of leadership, 64
out-groups, 62
personal identity, 62, 65
possible selves and provisional selves, 60
provisional selves, 61
psychological need, 66
repudiation, 58
role of social cognition, 59
self-aware ego stage, 64
self-awareness, 64, 65
self-concept development, 66
self-esteem, 64
self-schema, 60
shared in-group identity, 65
social acceptance, 66
social identities, 63
social identity theory, 62–64
spirals, 182, 222
student leadership, 67, 68
sub-identities, 57, 60
subject–object relations, 60
theory, 57–60
unsuccessful resolution, 58
well-defined identity, 64, 68
working self-concept, 58, 65
Identity processes, 183–212
accommodation, 209, 212
accommodative self-reflection, 209
action learning, 210
adaptive competency development, 206
adaptive self-regulation, 205
assessment, common form of, 187
assimilation, 209
boundaryless careers, 189
building of leader identity, 183–186
career-related support, 189
challenge, 188
chronic promotion focus, 192
cognitive-affective integration, 205
creativity, 188
developmental spirals, 211
efficacy-performance spirals, 185
ego depletion, 201, 207, 208
emotional regulation, 192, 193
entity theorist, 194
environmental factors, 211
equilibration, 209
executive temperament, 209
facilitative leadership, 210
factors influencing outcomes of leadership experiences, 186–190
feedback intervention effects, 188
feedback seeking behaviors, 211
goal orientation, 207
ideal self, 192
identity-development spirals, 186

implementation intentions, 199, 208
implications, 211–212
implicit assumption, 206
incremental theorist, 194
individual differences in self-regulatory processes, 190–201
  generalized self-efficacy, 196–197
  goal orientation, 194–196
  implementation intentions, 199–201
  self-awareness, 197–199
  self-regulatory strength, 193–194
individual and environment interaction, 201–202
integration with leader identity, 209–211
intentional practice, 207
knowledge principles, 210
leader competencies, 184
Leader Identity Development model, 184
learning goal orientations, 194
learning smarter, 195
master leader, 186
multi-source feedback, 187
ought self, 192
performance goal orientations, 194
personal growth initiative, 212
practical intelligence, 191
practicing leadership episodes, 208
psychological safety, 190
reflection, 210, 212
reflection-in-action, 211
regulatory focus theory, 192
research hypotheses relating to, 246–251
self-awareness, 198, 208
self-completion theory, 185
self-concordant goals, 197
self-efficacy, 206, 207
self-regulation, 191, 192, 193, 202–208
  competency development, 204–207
  expertise, 207–208
  skill acquisition, 202–204
shared understanding, 208
skills acquisition, competency, and expertise, 186
  skills acquisition process, 202
  social psychological theory, 184
  sub-identities, 183
  upward feedback program, 187
ILT, *see* Implicit leadership theories
Implementation intention(s), 199, 298
  identity processes and, 199, 204
  measurement tools, 307
Implicit leadership theories (ILT), 110, 111, 299
Independent self-construal, 61
Information
  inconsistent, 109
  knowledge derived from, 85
  processing, centrality of, 116
  truth value of, 101
In-groups, 62, 65
Input-process-output (I-P-O) model, 161
Institutionalization, 299
Integrative theory of leader development, 169–170
  accelerating leader development, 29
  adult development, 40–41
  critical thinking, 102
  epistemic cognition, 102
  expertise, 131–132
  identity development, 68–69
  learning from experience, 158
  mental models, 117
  moral development, 83
  personal trajectories of development, 53
  reflective judgment, 102
  teams, 168
Integrity, 75
Integrity violations, 63
Intentionality, 299
Interdependent self-construal, 61
Interindividual effects, 299
Interpersonal influence, 299
Intraindividual effects, 299
I-P-O model, *see* Input-process-output model

K

Knowledge
  compilation, 123, 299
  declarative, 123, 177, 297, 305
  epistemic cognition and, 89

gap, 4
personal dominance, 114
principles, identity processes and, 210
prior, 145
procedural, 123, 177, 179, 305
structure, leadership as, 114–115
tacit, 111, 117, 303

L

Latent transition analysis, 52
Leader(s)
authentic, 81
competency, measurement tools, 305
identity, 299, 306, *see also* Identity processes
–member exchange (LMX), 105, 111
moral capacity of, 82
primary responsibility of, 83
types, differences among, 47
Leader development, 3–15, 299, *see also* Accelerating leader development
aging and, 40
Army leader development system, 3
Army leadership doctrine, 9
BE, KNOW, DO framework, 9
business schools, 13
change over time, 5
climate for, 190
companies in the Asia Pacific region, 4
components of, 39
computer-based networked information systems, 6
connections among phenomena, 10
construct, 10
criteria for evaluation theories, 10, 11, 12
criteria for theory evaluation, 11–13
cultural values, 14
cumulative effect of theory-based research findings, 7
definition of theory, 9, 10–13
differentiation, 14
empowered individuals emerging as leaders, 6
environmental and individual effects on, 202
falsifiability of relationships, 11
father of quality movement, 7
how bad theories destroy good practices, 13–14
identity development and, 64–68
integrative theory, 5, 169–170
accelerating leader development, 29
adult development, 40–41
critical thinking, 102
epistemic cognition, 102
expertise, 131–132
identity development, 68–69
learning from experience, 158
mental models, 117
moral development, 83
personal trajectories of development, 53
reflective judgment, 102
teams, 168
knowledge gap, 4
levers, 6
longitudinal issues, 43–52, 53
levels of analysis in development, 45–47
methodological issues, 50–52
time and development, 47–50
management theories, 13
moral development and, 79–81
multilevel, 53
plan of book, 14–15
process influences in, 46
reason for need for theory, 7
recognition of time, 5
task migration, 5, 6
taxonomic lists of variables, 8
theory
-building process, 3
explanatory potential, 12
parsimony, 12
predictive accuracy, 13
reason for, 261
relationships, 11
testing, 9
theory versus doctrine, 8–10
time dimensions, 50
top workforce challenge, 4
ultimate objectives, 234

Leadership, *see also* Expert leadership, development of
authentic, 296
capacity, 162, 299
challenges, 171
cognition and, 108–113
cognitive complexity, 112–113
heuristics, 108–109
schemas, 109–112
cognitive frame conceptualization of, benefits and drawbacks, 115–116
cognitive processes and, 113–114
crisis, 20
development, 299
authentic, moral development and, 81–83
distinction between leader development and, 159, 160
effectiveness, 172
expert performance in, 243
expert vs. novice, 176
facilitative, identity processes and, 210
failure, 171
knowledge principles, 114
learning-based approaches, 103
mental models, measurement tools, 305
meta-competency, 36
Normative Decision Model, 64
proficiency
decline in, 48
growth curve of, 48
intra-individual effects, 44
student, 67, 68
teachability of, 119
Leadership Identity Model, 67
Learning, *see also* Experience, learning from
action, identity and, 210
adult, 140–146
andragogy as integrative concept, 142–143
assumptions, 144
beyond andragogy, 145–146
implications, 144
pedagogy versus andragogy, 141–142
traditions, 143–145
-based approaches, leadership, 103
categories of job features that promote, 134
disabilities, 150
elemental model of, 143
experiential, 146–148, *see also* Experience, learning from
goal orientation, 194, 195, 299
identity processes and, 69
interactive, 148
motivation, 26
observational, 153
organizations, 148–150, 299
relationship between behavior and, 129
self-initiated, 148
styles, differences across generations, 43
vicarious, 152–154, 157, 303
work-related, 34
Lifespan development psychology, 33, 40, 173
LMX, *see* Leader–member exchange
Logical adequacy, 299

M

Maximal performance, 300
Measurement tools, 305–308
adaptive competencies, 305
adult development processes, 306
critical thinking, 307
declarative knowledge, 305
developmental potential of experience/job, 306
developmental readiness, 306
epistemic cognition, 306
experience, developmental potential of, 306
generalized self-efficacy, 307
goal orientation, 307
identity development, 306
implementation intention, 307
leader competency, 305
leader identity, 306
leadership mental models, 305
mental models, 305
moral development, tools, 306
procedural knowledge, 305
self-awareness, 307
self-regulatory strength, 307
strategic competencies, 305
wisdom, 308

Mental models, 105–117
after-event reviews, 107
aschematics, 110
automatic processing, 108
behavioral complexity, 113
behavioral decision theory, 108
behavioral script, 111
benefits and drawbacks of cognitive frame conceptualization of leadership, 115–116
cognitive complexity, 112
cognitive processes and leadership, 113–114
computational perspective, 106
definition of, 106, 300
discrimination, 112
follower cognitive processes, 113
heuristics, 109
how cognition guides leadership, 108–113
cognitive complexity, 112–113
heuristics, 108–109
schemas, 109–112
implications for integrative theory of leader development, 117
inconsistent information, 109
information processing, 116
information systems of meaning, 105
integration, 112
interpersonal influence, 114
interpretive perspective, 106
knowledge principles, 114
leader cognition research and theory, 105–108
leader–member exchange, 105, 111
leadership as knowledge structure, 114–115
leadership style, 106
measurement tools, 305
meta-scripts, 111
normative models, 107
open-ended questionnaire, 106
performance cue effect, 110
personal dominance, 114
practical intelligence, 111
relational dialogue, 115
schematics, 110
schema types, 109
self-fulfilling prophesy, 110
self-schemas, 109
social complexity, 112
systematic errors, 109
tacit knowledge, 111, 117
team, 107, 108, 303
tenet of social psychology, 115
transactive memory, 108
Mentoring, 300
Meta-cognition, 300
Metacognitive knowing, 101
Metacognitive training, 165
Meyers-Briggs Type Indicator, 145
Model(s), *see also* Mental models
aptitude–treatment interaction, 24, 25
biological, aging process, 45
CCL, 136, 151
critical thinking, 98
hierarchical linear, 51
I-P-O, 161
Leader Identity Development, 184
Leadership Identity Model, 67
Leadership Requirements Model, 235
lifelong, competency-based, 236
moral identity, 74
Normative Decision Model, 64
personal epistemic development, 86
reflective judgment, 90–93
selection-optimization-compensation, 34
skill-based, 121
SOC, adult development processes and, 216
team performance, 161
WICS, 223
Moral capacity, 300
Moral courage, 300
Moral development, 71–83
adult development and, 36
advanced moral reasoning, 76
appeal to higher loyalties, 78
assumptions, 72
authentic behavior, 82
authentic decision-making, 81
authentic leadership development, 81–83
base behavior, 75
children's moral development, 76
Christian principles, 72
conventional level, 72

creation of innovative solutions, 80
cross-cultural differences, 72
dealing with loss, 80
Defining Issues Test, 83
definition of, 300
denial of injury, 78
denial of responsibility, 78
denial of victim, 78
dynamics of socialization, 78
education and, 73
empathy, 75
Enron, 71
environmental influences on moral and ethical behavior, 77–79
ethical behavior, 71, 78
gender bias, 73
implementation, 74
implication for leader development, 79–81
implications for integrative theory of leader development, 83
importance of, 80
institutionalization, 77
integrity, 75
legality, 78
maintaining norms, 73
measurement tools, 306
moral capacity, 82
moral courage, 71, 82
moral disengagement strategies, 79
moral identity, 75, 300
moral judgment, 74
moral motivation, 74, 75
moral reasoning, 79, 80, 300
  accelerating leader development and, 24
  advanced, 76
  Defining Issues Test, 83
  expert leadership and, 176
  research, 255
moral resiliency, 82, 300
moral self, 74–75
moral sensitivity, 74
neo-Kohlbergian approach, 73
normalization of corruption, 77
permissive climate, 77
personal interest, 73
personal responsibility for moral action, 75
postconventional level, 72, 74
preconventional level, 72
  rationalization of corruption, 77
  reasons for concern, 79
  reflective thinking, 81
  routinization of corruption, 77, 299
  schoolhouse, 79
  self-consistency, 75
  self-sealing system of beliefs, 78
  sex role socialization, 73
  social-constructivist theories, 76
  step-ladder progression, 73
  theory, 71–77
  transformational leadership theory, 82
  values-based transformational leadership, 80
Motivation
  epistemic, 89
  moral, 74, 75
  self-efficacy and, 196
Multirater feedback, 300

N

Narratives, learning from, 154–157
Neural-like networks, 38
Nightmare self, 61, 64

O

OLS regression procedures, *see* Ordinary least squares regression procedures
Ontogeny, 300
Operational definition, 300
Orchestrating processes of human development, 39, 301, *see also* Selection-optimization-compensation
Ordinary least squares (OLS) regression procedures, 44
Organizational socialization, 301
Out-groups, 62
Outside processes, 169

P

Pedagogy, definition of, 301
Performance cue effect, 110

Performance goal orientation, 301
Personal dominance, 114, 115, 301
Personal identity, 62
Personal trajectories of development, 43–53
  biological models of aging process, 45
  cross sectional data, 43, 44
  duration of steady states, 50
  gain–loss dynamic, 46
  incremental versus discontinuous change, 50
  intellectual development, 46
  inter-individual difference, 47
  intra-individual effects, 44
  latent growth modeling, 51
  latent transition analysis, 52
  leadership proficiency, 44, 48
  leader types, 47
  learning styles across generations, 43
  longitudinal issues, 43–52
    implications for integrative theory of leader development, 53
    levels of analysis in development, 45–47
    methodological issues, 50–52
    time and development, 47–50
  modeling of real-world data, 50
  multilevel development process, 45
  multilevel growth modeling, 51
  personal regression lines, 44
  potential confounds, 43
  random coefficients modeling, 51
  stage approach, 48
  successful development, 46
  timeframe for measuring development, 49
  time-related issues, 50
  time-varying treatments, 52
  timing and causality configuration, 49
  trajectories of change, 44
Plasticity, 297
Popperism, 242
Possible selves, 60–62, 301
Predictive accuracy, 301
Pre-reflective reasoning, 90, 92
Procedural knowledge, 301, 305
Provisional selves, 60–62, 301
Psychological safety, 301

Q

Quality movement, father of, 7
Quasi-reflective reasoning, 90, 92

R

Rationalization, 301
Readiness, 297, 306
Reflection-in-action, 301
Reflection-on-action, 301
Reflective judgment, 301, *see also* Epistemic cognition, reflective judgment, and critical thinking
  model, 90, 91
  research, 255
Reflective Judgment Interview, 91
Relational dialogue, 302
Research needs and practical implications, 233–262
  adult development, 262
  Army leader competencies, 236–240
  competencies, 236, 237–240
  curvilinear developmental trajectories, 251
  developmental reserve capacity, 255
  development of expert leader, 234–235
  educated speculation, 234
  environmental circumstances, 257
  ethical radar, 255
  falsifiability, 242, 246, 260
  from theoretical propositions to research hypotheses, 242–256
    adult development processes supporting leader development, 251–256
    developing expert leader, 243–246
    identity processes in leader development, 246–251
  fundamental role of science, 242
  generalized self-efficacy, 257
  health and fitness, 251
  hypotheses, 244–245, 248–250, 252–254

identifying what needs letting go, 241
identity-development spirals, 243
interim struggles, 256
letting do to develop, 241, 259
longitudinal research, 260
moral reasoning, 255
nonlinear relationships, 246
Popperism, 242
practical implications, 256–259
predictions, 233
recommendations, 259–262
reflective judgment, 255
replaced technical skills, 241
sample actions, 236
self-regulation, 247, 251
SOC processes, 258
successful aging, 241
timing of measurement, 260
unsupported hypotheses, 243
validation research, 256
wisdom formation, 255

S

Scaffolding, 25
Schema, definition of, 302
Schoolhouse, moral development and, 79
Script, 296, 302
behavioral, 296
cognitive, 23
Selection-optimization-compensation (SOC), 170
age trajectory, 217
leader development process and, 39
metamodel, 34
model
adult development processes and, 216
components, 34
processes
definition of, 302
micro self-regulatory, 40
research, 258
self-regulation and, 41
self-reported, 218
Self-awareness
definition of, 302
expertise and, 131
identity development and, 64
identity processes and, 198, 208
measurement tools, 307
Self-completion theory, 302
Self-concept, definition of, 302
Self-efficacy, 302
Self-regulation
adaptive, 205
adult development processes and, 215, 229
cognition monitoring and, 191
definition of, 302
processes, individual differences in, 190–201
generalized self-efficacy, 196–197
goal orientation, 194–196
implementation intentions, 199–201
self-awareness, 197–199
self-regulatory strength, 193–194
SOC and, 41
strength, 302, 307
Self-schema, 302
Sensemaking, experience and, 147, 156
September 11 (2001), 164
Skill(s), *see also* Expertise
acquisition
goal orientation and, 203
identity and, 186, 202
implementation intentions and, 204
self-efficacy in, 124
development, self-regulation in, 202–208
domains, 126
interpersonal, 120
levels, knowledge content emphasis, 127–128
progressive accumulation of, 259
taxonomies, 120
SOC, *see* Selection-optimization-compensation
Social acceptance, identity development and, 66
Social capital, 163–164, 302
Social capital, intervention strategies for building, 165–167
cross training, 165
metacognitive training, 165–166

scenario-based team training, 167
self-guided correction training, 166
stress exposure training, 167
team coordination training, 166
Social cognition, identity development and, 59
Social identity, 302
Social intelligence, 122
Socialization
dynamics of, 78
identity transition and, 62
organizational, 301
sensemaking and, 155
sex role, 73
Social learning, 302
Spyglass self, 152
Storytelling, 155, 156
Strategic competency, 303, 305
Success-focused after-event reviews (FSAER), 136
Support, definition of, 303
System 1 thinking, 98, 99

T

Tacit knowledge, 303
Task migration, 5, 6, 28
Teams, 159–168
between-ness centrality, 163
cognitive dimension, 163
creation of collective social identity, 162
crew resource management, 166
implications for integrative theory of leader development, 168
input-process-output model, 161
intervention strategies for building social capital, 165–167
cross training, 165
metacognitive training, 165–166
scenario-based team training, 167
self-guided correction training, 166
stress exposure training, 167
team coordination training, 166
leader development vs. leadership development, 160
leadership capacity, 162
leadership as output, 161–163
mental model, 303
networked relationships, 163
positional clarification, 165
positional modeling, 165
positional rotation, 165
relational dimension, 163
self-correction, 166
September 11 (2001), 164
social capital, 163–164
structural dimension, 163
team performance model, 161
Terrorism, 20
Testing-the-limits
accelerating leader development and, 27
adult development processes and, 228
definition of, 303
techniques, accelerating leader development and, 27, 28
Theory(ies)
balance, wisdom and, 224, 226
behavioral decision, 108
connections among phenomena, 10
criteria for evaluating, 10, 11, 12
definition of, 9, 10, 303
developmental experiences, 135
difference between doctrine and, 8
ego development, 59
experiential learning, 146, 298
explanatory potential, 12
identity development, 57–60
implicit leadership, 110, 111, 299
leader cognition, 105–108
lifespan developmental, 33
management, 13
moral development, 71–77
parsimony, 12
Piagetian, 36
practical utility of, 256
predictive accuracy, 13
regulatory focus, 192
relationships, 11
self-completion, 185, 302
social-constructivist development, 31
social identity, 62–64
testing, 9

timing configuration, 49
transformational leadership, 82
utility, 11
well-constructed, 231
360-degree feedback, 187, 295
Training, *see* Learning; Teams
Transactive memory, 303
Transfer, 303
Transportation, 303
Typical performance, 303

U

U.S. Army
Army Battle Command, 99
core mission, 172
ethical conscience, 221
issue of paramount importance, 83
leader(s)
competencies, 236–240
development, competency-based lifelong model, 236
developmental shortcomings, 223
leadership
doctrine, 9
framework, 57
Leadership Requirements Model, 235
size of, 3
timeframe to shape leaders, 229
top workforce challenge, 4
uniqueness of, 4
unique position of, 261
value of sharing experiences, 157
web-based training, 99
Utility, 303

V

Variable, definition of, 303
Vicarious learning, 152–154, 303

W

Web of development, 219, 303
WICS model, 223
Wisdom
aptitude-treatment-interaction perspective, 225
balance theory and, 226
Berlin Wisdom Paradigm and, 224
definition of, 303
-of-experience procedure, 308
formation, 255
managerial, 154
measurement, 227, 308
moral reasoning and, 228
role of in leadership, 223–227
Working self-concept, 58, 303
Work-related learning, 34

Z

Zone of proximal development, 25, 26, 304

Author Index

A

Abelson, R. P., 111
Abma, T. A., 154
Ackerman, P. L., 32, 123, 124, 177, 192, 202, 203, 214, 297, 299, 301
Adelman, L., 97, 99
Alberts, D. S., 6
Allan, C., 64, 195
Allen, T. D., 153, 189
Alliger, G. M., 129
Alvarez, M., 72
Ambrose, M. L., 78
American Philosophical Association, 94, 95
Anand, V., 77, 78, 79, 299, 301
Anderson, C. A., 111
Anderson, J. R., 123, 177, 297, 299, 301
Anderson, L. E., 96
Anderson, S. L., 154
Andrews, F. M., 121
Aquino, K., 79
Aquino, K. F., 306
Argote, L., 157
Armon, C., 72
Army Research Institute, 135
Arnett, J. J., 229
Arthur, W., Jr., 129
Ash, R. A., 235
Ashford, S. I., 204
Ashford, S. J., 205, 211
Ashforth, B. E., 62, 77, 78, 79, 299, 301
Atkins, A. L., 112, 296
Atwater, L. A., 187, 295
Atwater, L. E., 80, 187, 201, 307
Avolio, B., 80, 81
Avolio, B. J., 5, 9, 24, 45, 47, 71, 81, 82, 261, 296, 297, 300
Azmitia, M., 72

B

Bacharach, S. B., 10, 11, 12, 231, 242, 246, 256, 260, 297, 298, 300, 301, 303
Baer, M., 190
Bain, P., 210
Baker, B. A., 31, 65
Baker, P. J., 96
Baltes, M. M., 34, 58, 61, 176, 183, 216, 298
Baltes, P., 215
Baltes, P. B., 26, 27, 32–34, 37, 39, 45–47, 176, 214, 216–219, 221, 224–228, 241, 258, 296, 297, 302, 303, 306, 308, 330
Bandura, A., 152, 196, 206, 215, 298, 302, 303
Barbeite, F. G., 34, 195, 196
Barling, J., 80, 83
Barnard, C. I., 120
Barnowe, J. T., 121
Barrett, G. V., 256
Barry, D., 154
Bartone, P. T., 5, 80

Bass, B. M., 13, 82
Bassok, M., 124
Battista, M., 235
Bauer, T. N., 154, 301
Baumeister, R. F., 57, 64, 66, 82, 184, 191, 193, 195, 203, 302, 307
Baumrind, D., 76
Beauregard, R. S., 195, 203
Bebeau, M., 72, 73, 74, 306
Bebeau, M. J., 74
Bechky, B. A., 189
Becker, B. J., 215
Bell, B. S., 178, 191, 204, 205, 295, 303, 305
Bell, S. T., 129
Bennett, W., Jr., 129
Bergman, R., 75
Betz, N. E., 154
Bidell, T. R., 38, 46
Bieri, J., 112, 296
Binker, A., 95
Binning, J. F., 110, 256
Birdi, K., 64, 195
Blaine, B. L., 63
Blasi, A., 74, 300
Blickensderfer, E., 165
Block, J., 209, 298
Bloom, K., 306
Bluck, S., 308
Bock, T., 76, 79
Bohmer, R., 163
Boje, D. M., 156
Boland, R. J., Jr., 156–157
Boldizar, J. P., 73
Bonneville, L. P., 65, 297
Bono, J. E., 196, 197
Bosma, H. A., 59, 185
Bower, G. H., 154
Bowers, C. A., 166
Boyatzis, R. E., 14, 121, 147, 173, 296
Boyd, N. G., 110
Brandstadter, V., 200
Brandtstadter, J., 185
Brass, D. J., 185, 196
Bratslavsky, E., 307
Bray, D. W., 120
Bregman, E. O., 143
Bresnick, T. A., 97, 99
Brett, J. F., 187, 194, 195, 201, 206, 295
Briar, S., 112, 296
Bridgman, P. W., 11
Broadnax, S., 63
Brock, T. C., 154, 156
Bronfenbrenner, U., 57, 302
Brookfield, S. D., 145
Brown, D. J., 58, 66, 109, 113, 114, 116, 303
Brown, F. J., 3, 5, 6, 172, 226, 229
Brown, K. J., 178, 191, 205, 295, 305
Brown, K. W., 223
Brown, M., 80
Brown, M. E., 75, 78, 81, 306
Brown, M. H., 154
Brown, S. D., 153
Brown, S. P., 201, 206, 207, 307
Brutus, S., 135
Buckingham, M., 126
Bullis, C., 235
Bullis, R. C., 5, 80
Bunker, K. A., 191, 199
Burke, C. S., 108, 165, 167
Burke, S. C., 166
Burns, J. M., 81
Burt, R. S., 163
Butcher, V., 80, 83

C

Calder, B. J., 163, 171
Callister, R. R., 154, 301
Camacho, J., 308
Cameron, J. E., 63
Cameron, K. S., 13
Camobreco, J. F., 80
Campbell, D. T., 43, 44
Campbell, R. S., 120
Campion, M. A., 120
Cannon-Bowers, J. A., 107, 108, 165
Carli, L., 306
Carlston, D. E., 80
Carr, L., 235
Carstensen, L. L., 58, 61, 183, 298
Caruso, D. R., 122
Carver, C. S., 198
Cassella, R., 208, 226, 236, 305
Cavanaugh, J. C., 44
Chaiken, S., 154, 296
Challagalla, G. N., 201
Chan, A. Y. L., 71, 81, 82, 300

Chan, K. Y., 9, 212
Chand, I., 123
Chandler, M. J., 88
Chao, G. T., 62, 63
Charness, N., 124, 179
Chemers, M. M., 5
Chen, G., 65, 307
Chen, T. T., 51
Chi, M. T. H., 124, 125, 179
Chicoine, E., 200, 307
Church, A. H., 65, 198, 307
Cialdini, R. B., 152
Ciarocco, N. J., 66, 195, 203, 307
Clark, M. C., 154
Clifton, D. O., 126
Cohen, J., 13
Cohen, L. D., 60
Cohen, M. S., 97, 99
Cohn, L. D., 65, 297
Cokely, E. T., 119, 126
Colby, A., 80, 306
Coleman, J. S., 164
Collins, L. M., 52
Collins, R., 235
Collins, R. L., 307
Colquitt, J. A., 196, 202, 206
Commons, M. L., 36, 81
Conger, J. A., 235
Connelly, M. S., 40, 43, 121, 123, 130
Converse, S. A., 107
Conway, M., 163
Cook, T. D., 43, 44
Cook-Greuter, S. R., 81
Cooney, T. M., 215
Coons, A. E., 119
Corley, K. G., 63
Cornelius, S. W., 227
Cotton, J. L., 189
Crites, J. O., 31
Crocker, J., 63
Cron, W. L., 206, 207, 307
Cronbach, L. J., 5, 51, 295
Cronin, B., 208, 226, 236, 305
Cronin, M. A., 88
Cross, S. E., 61, 109, 183, 184, 301, 306
Csikszentmihalyi, M., 154
Cuevas, H. M., 106
Cullen, J. B., 78
Cummings, L. L., 211
Cytrynbaum, S., 31
Czarniawksa, B., 154, 156

D

Damon, W., 80
D'Angelo, E., 95
Daniels, D., 124, 203
Daniels, K., 106, 113, 116
Davidi, I., 107, 136, 137, 150
Davidson, P., 76
Davies, M., 122
Davis, J., 157
Davy, J., 121
Dawson, T. L., 72
Day, D. V., 5, 9, 19, 21, 26, 39, 51, 52, 64, 109, 113, 129, 159, 160, 165, 172, 185, 210, 221, 256, 297, 299
Day, E. A., 130
Deal, J. J., 43
De Cremer, D., 183
Deemer, D. K., 73
de Gilder, D., 162
Delmore-Ko, P., 306
Denckla, M. B., 191
DeNisi, A., 67, 188
Department of the Army, 9, 93, 138, 171, 172, 221, 226, 234, 236, 240, 257
De Stefanis, I., 34, 40
DeWaele, M., 193
DeWall, C. N., 66, 307
Dewey, J., 146
Diana, M., 47
DiazGranados, D., 165
Dickstein, E., 306
Diehl, M., 205
Dionne, S. D., 80
Dixon, N., 171
Dixon, N. M., 90
Dodge, G. E., 112, 114
Doh, J. P., 119
Drasgow, F., 9, 212
Drath, W., 114, 126, 171, 299, 301, 302
Drath, W. H., 31, 65
Driskell, J. E. 167
Driver, M. J., 112
Dunnette, M. D., 256
Durham, C. C., 307
Durkin, K., 60
Dutton, J. E., 13
Dvir, T., 9
Dweck, C. S., 194, 298, 299, 301

Dyer, L. M., 205
Dymek, C. F., III., 97

E

Eby, L. T., 153, 189
Eden, D., 9, 110, 307
Edens, P. S., 129
Edmondson, A., 163, 190, 211, 301
Ehrlich, S. B., 171
Eilam, G., 183, 184
Elby, A., 88
Elias, J. W., 215
Elias, M. F., 215
Elias, P. K., 215
Ellemers, N., 162
Elliot, A. J., 197
Ellis, S. 107, 136, 137, 150
Elmes M., 154
Endicott, L., 76, 79
Engle, E. M. 110, 305
Ennis, R. H., 95
Epitropaki, O., 80, 83, 111, 305
Erez, A., 196, 197
Ericsson, K. A., 119, 124, 125, 126, 179, 181, 207, 208
Erikson, E. H., 33, 36, 57, 58, 298
Everett, S. E., 157
Eyde, L. D., 235

F

Facione, P. A., 101
Facione, P. A. & Associates, 94, 100, 297
Fallesen, J. J., 85, 88, 99, 102, 125, 137, 172, 208, 226, 236, 299, 305
Farley, M. A., 31
Farr, M. J., 124, 125, 179
Farris, G. F., 121
Feldman, J., 151
Felix, S., 306
Feltovich, P., 124, 130
Fiore, S. M., 106
Fischer, K. W., 22, 37, 38, 46, 81, 87, 88, 89, 91, 92, 219, 297, 303
Fischer, S. C., 93, 94, 97–100
Fishkin, J., 73
Fiske, S. T., 80, 115, 205
Flaton, R., 88
Fleeson, W., 215
Fleishman, E. A., 119, 121, 176
Fogli, L., 21, 300, 303
Ford, J. K., 47, 139, 195, 305
Forsythe, G. B., 5, 80
Foti, R. J., 108, 109, 296, 302
Fowlkes, J. E., 167
Frame, A., 157
Franks, W. J., 208, 226, 236, 305
Frayne, C. A., 307
Freedman, A. M., 241, 259
Freeman, D., 79
Freiberg, S. J., 66
Frese, M., 190, 192
Freund, A. M., 34, 40, 216, 217, 218, 219, 258, 306
Frick, D. M., 82
Fujita, K., 199, 200, 208
Fulmer, R. M., 139
Funder, D. C., 109
Furby, L., 5, 51

G

Gadzella, B., 97
Gailor-Loflin, H., 43
Gander, M. J., 62
Ganesan, S., 201
Gardiner, H. W., 62
Gardner, P., 62
Gardner, W. L., 81, 296
Garstka, J. J., 6
George, J. M., 49, 50, 122
George-Falvy, J., 124, 203
Gerrig, R. J., 156
Gersick, C. J. G., 220
Gettman, D., 130
Gewirtz, J. L., 76
Gharajedaghi, J., 19, 39, 221
Ghoshal, S., 13, 163, 302
Gibbons, M., 148
Gibbs, J. J., 307
Giever, D., 307
Gilbert, J. A., 47, 121, 123
Gilligan, C., 73
Gioia, D. A., 23, 63, 153, 302
Gist, M. E., 196
Glaser, E. M., 96

Glaser, R., 124, 125, 130, 179
Glück, J., 308
Glük, J., 225
Godfrey, S. S., 111
Goff, M., 124, 177
Goldstein, N. J., 152
Gollwitzer, P., 200
Gollwitzer, P. M., 185, 186, 199, 200, 204, 206, 208, 299, 302
Goodman, J. S., 188
Goodman, R., 306
Goodwin, G. F., 45, 48, 108, 165
Goodwin, V. L., 106, 110, 153, 305
Gore, J. S., 61
Gore, P. A., Jr., 153
Goulet, L. R., 33
Graham, J., 80, 82
Graham, J. W., 52
Grant, D. L., 120
Green, M. C., 154, 156, 303
Green, S. G., 208
Greenleaf, R. K., 82
Gronn, P., 165, 299
Gully, S. M., 307

H

Habermas, T., 34, 40
Hackman, J. R. 212
Hall, D. T., 36, 65, 66, 183, 198, 302
Hall, R. J., 65, 67, 126, 128, 173, 184
Hallett, D., 88
Halpern, D. F., 97
Halpin, S. M., 21, 45, 48, 85, 99, 102, 129, 165, 172, 297
Hamlyn, D. W., 101
Hammer, D., 88
Hannan, E., 156
Hardin, E. E., 212
Harding, F. D., 119, 121, 176
Harris, D. H., 97, 98, 99
Harrison, D. A., 75, 78, 306
Hartman, P., 80
Haslam, S. A., 162
Hayes, R. E., 6
Heatherton, T. F., 82, 193, 302
Heffner, T. S., 108
Heifetz, R., 20, 171
Hesketh, B., 235
Hess, T. M., 215
Hicks, J. A., 209, 210, 295
Hirst, G., 210
Hock, R. R., 139
Hodges, T. D., 71, 81, 82, 300
Hofer, B., 86, 89, 298
Hofer, B. K., 306
Hogan, R., 306
Hogg, M. A., 62, 183
Hollenbeck, G. P., 235
Hollenbeck, J. R., 161
Holton, E. F., III, 140, 141, 142, 143, 145, 295, 301
Hooijberg, R., 112, 114, 120
Hoover, P. B., 195, 203
Hopper, H., , 124, 203
Horey, J., 172, 208, 226, 236, 305
Howell, J. M. 81
Huff, A., 106, 113, 116
Hunt, J. G., 112, 114
Hyatt, S. L., 52

I

Ibarra, H., 58, 61, 67, 109, 180, 306
IBM Global Business Services, 4, 5
Ilgen, D. R., 63, 161
Ilies, R., 120
Intagliatta, J., 235

J

Jacobs, B., 307
Jacobs, R. R., 47, 138, 139, 306
Jacobs, T. O., 119, 120, 121, 176
Jaffee, S., 73
James, L. R., 49, 124, 139, 203
Janak, E. A., 129
Jaques, E., 120
Jason, L. A., 308
Jensen, K., 95
Johnson, J. F., 47
Johnson, M., 161
Johnson, M. D., 63
Johnson, P., 106, 113, 116
Johnston, J. H., 167
Jones, G. R., 49, 50
Judge, T. A., 120, 196, 197, 206, 307
Jundt, J., 161
Jung, D. I., 205

K

Kahn, R. L., 120, 121
Kahneman, D., 94, 108, 109, 298
Kahnweiler, W. M., 305
Kane, A. A., 157
Kanfer, R., 123, 124, 177, 192, 202, 203, 297, 299, 301
Kark, R., 65, 192
Katz, D. 120, 121
Katz, R. L., 120
Kaufmann, J. B., 63
Kaus, C. R., 80
Kavanagh, M. J., 129, 303
Kegan, R., 26, 31, 60, 65, 67, 81, 89, 114, 116, 141, 200, 209, 210, 223, 226, 306
Kehoe, J., 235
Keith, N., 192
Keller, T., 110, 299
Kelly, G., 112
Kempton, W., 156
Keniston, K., 73
Kenny, S. L., 22, 46, 219, 297
Kilcullen, R., 121
King, C., 308
King, L. A., 209, 210, 295
King, P. M., 81, 87, 90, 91, 92, 100, 222, 302, 306
Kirchhof, O., 186
Kitchell, A., 156
Kitchener, K. S., 22, 81, 86, 87, 90, 91, 92, 100, 147, 222, 298, 300, 302, 306
Kityama, S., 61
Klein, C., 165
Klein, G. A., 94
Klein, H. J., 62
Klein, K. J., 188, 190, 208
Kliegl, R., 26, 27, 228, 296, 297, 303, 306
Klimoski, R., 107, 303
Klopfer, D., 124, 130
Kluger, A. N., 67, 188, 307
Knowles, M. S., 140, 141, 142, 143, 145, 295, 301
Koestner, R., 200, 307
Kohlberg, L., 36, 72, 154, 300, 306
Kolb, A. Y., 133, 146, 147, 298
Kolb, D. A., 133, 144, 146, 147, 298
Komives, S. R., 67, 68, 184
Koziol, S. M., 95
Kozlowski, S. W. J., 178, 191, 204, 205, 295, 303, 305
Kraiger, K., 129
Kram, K., 189, 300
Krampe, R. T., 181, 207
Kreklau, H., 95
Kroeck, K. G., 223
Kruglanski, A. W., 89
Kuhn, D., 88, 101
Kuhnert, K. W., 13, 82, 173
Kunda, Z., 58
Kunnen, E. S., 59, 185
Kunzmann, U., 225
Kurfiss, J. G., 96
Kurtines, W. M., 72

L

Labouvie-Vief, G., 205
Lachman, M. E., 229
Lahey, L., 200, 306
Lahey, L. L., 31
Lance, C. E., 5, 39, 51, 52, 64, 113, 221
Lant, T. K., 106
Laske, O. E., 31
Latham, G. P., 189, 196, 307
Lau, A. W., 80
Leaman, R. L., 112, 296
Leary, M. R., 183
Leblebici, H., 163
Lehmann, A. C., 125, 179
Lekes, N., , 307
Lent, R. W., 153
Lentz, E., 153, 189
Lepak, D. P., 164
LePine, J. A., 196, 202, 206
Lerner, R. M., 34, 40, 185
Lesgold, A., 124, 130
Levinson, D. J., 62
Lewin, K., 6, 233
Lewis, H., 114
Lewis, M. W., 124
Lewis, P., 5, 13, 80, 82
Lima, L., 153, 189
Lindeman, E. C., 144
Lindenberger, U., 26, 27, 32, 33, 37, 39, 45, 47, 214, 216, 218, 227, 228, 297, 330
Lindsley, D. H., 185, 196
Link, H. C., 64, 122

Lloyd, J. W., 63
Locke, E. A., 189, 196, 197, 307
Loevinger, J., 59, 65, 297, 306
Lombardo, M. M., 133, 209
London, M., 194, 197, 198, 261, 307
Longerbeam, S. D., 67, 68, 184
Lonky, E., 80
Lopez, F. G., 153
Lopez, S. J., 13
Lord, R. G., 58, 65, 66, 67, 108, 109, 110, 113, 116, 126, 128, 171, 173, 184, 193, 296, 302, 303, 305
Lowe, K. B., 223
Luhtanen, R., 63
Lussier, J. W., 157
Luthans, F., 81, 196, 296
Lynch, C. L., 22, 91, 92

M

MacKinnon, C., 73
MacLean, N., 57
Maddux, J. E., 307
Madsen, D., 308
Mael, F., 62
Maher, K. J., 171, 193
Mainella, F. C., 67, 68, 184
Mainemelis, C., 147
Manley, G. R., 31, 39
Mann, F. C., 120
Mann, L., 210
Manners, J., 60
Manz, C. C. 152, 153
March, J. G., 105
Marchese, W., 308
Marcia, J. E., 306
Marion, R., 38
Marks, M. A., 40, 43, 108, 121, 123, 130, 161
Markus, H., 58, 61, 109, 183, 184, 301, 306
Martin, J. S., 307
Martin, R., 111, 305
Masataka, N., 306
Masten, W. G., 97
Mathieu, J. E., 108, 161
Mauraven, M., 191, 302
Maurer, T. J., 34, 195, 196
May, D. R., 71, 81, 82, 296, 300
May, G. L., 305
Mayer, J. D., 122
McCall, M. W., 133, 209
McCall, M. W., Jr., 235
McCann, H., 95
McCann, J., 95
McCauley, C. D., 31, 65, 120, 134, 135, 138, 162, 172, 187–189, 194, 207, 295, 296, 303, 306
McKelvey, B., 38
McPeck, J., 96
McPeters, E. R., 97, 98, 99
Meindl, J. R., 171
Mendel, R. 137
Mendoza, C., 62
Mercandante, B., 307
Merton, R. K., 10
Meyer, C. J., 63
Michaud, G., 38, 219
Miller, H., 112, 296
Milliken, F. J., 113
Milner, C., 80, 83
Minionis, D. P., 107
Mitchell, T. R., 49, 124, 139, 196, 203
Mobley, M. I., 123
Mohammed, S., 107, 303
Molenaar, P. C. M., 220
Moon, H., 63
Moore, B. N., 95
Moore, W. G., 95
Moore, W. S., 87
Morath, R., 208, 226, 236, 305
Morgeson, F. P., 63, 120
Morris, M. L. 61
Morris, N. M., 106, 300
Morrison, A. M., 133, 209
Morrison, E. W., 154, 301
Morrison, R. F., 139
Morrow, J. E., 120, 134, 138, 188, 306
Morval, J., 193
Moshman, D., 35, 36, 45, 79, 85, 221
Moss, P. A., 95
Moxley, R. S., 191, 199
Mulatu, M. S., 32
Mullins, M. E., 178, 191, 205, 295, 305
Mumford, M. D., 31, 39, 40, 43, 47, 107, 119, 121, 123, 130, 176
Mumford, T. V., 120
Muraven, M., 193, 307

N

Nadler, J., 153
Narvaez, D., 72, 73, 74, 76, 306
Navaez, D., 76, 79
Neal, A., 194, 203
Nesdale, A., 60
Netz, Y., 215
Neubaum, D. O., 78
Nir, M., 137
Nisan, M., 72, 76
Nixon, A. E., 212
Noe, R. A., 196, 202, 206
Norris, S. P., 96

O

Oates, G., 32
O'Connor, P. M. G., 31, 65, 9, 162, 256
O'Connor–Boes, J., 121
Oettingen, G., 199, 200, 208
Ohlott, P. J., 120, 134, 138, 188, 306
Oldham, G. R., 212
O'Leary-Kelly, A. M., 62
Olsen, H. A., 157
O'Mahony, S., 189
Oser, R. L., 106
Osteen, L., 67, 68, 184
Owen, J. E., 67, 68, 184

P

Paglis, L. L., 208
Palus, C. J., 31, 65
Paparone, C., 235
Parker, C., 121
Parker, R., 95
Paty, J. A., 307
Paul, R., 95
Pearlman, K., 235
Pelaez-Nogueras, M., 76
Perez, R., 107
Perkins, R. M., 96
Perry, W. G., 86, 87
Peterson, K., 43
Pettigrew, A. M., 161
Pfeffer, J., 8, 171
Phillips, N., 154
Piaget, J., 36
Piccolo, R. F., 120
Pintrich, P. R., 86, 88
Pirola-Merlo, A., 210
Pisano, G., 163
Popper, K., 11, 298
Popper, M., 133
Poteet, M. L., 153, 189
Potosky, D., 205
Powers, T. A., 200, 307
Pratt, M. G., 63
Prentice-Dunn, S., 307
Prien, E. P., 235
Prietula, M. J., 119, 126
Pruyne, E., 37, 38, 81, 87, 88, 303
Pucik, V., 197, 206

Q

Quindlen, A., 88
Quinn, L., 162
Quinn, R. E., 13, 43
Quiñones, M. A., 47, 139

R

Ragins, B. R., 189
Raudenbush, S. W., 51, 52, 260
Ready, D. A., 235
Redmore, C. D., 65, 297
Reed, A., II, 79, 306
Reed, G., 235
Reichler, A., 308
Reimann, P., 124
Reimer, J., 72
Reiter, P. R., 123
Reiter-Palmon, R., 40, 43
Resnick, L. B., 97
Rest, J. R., 36, 72–74, 76, 79, 80, 87, 306
Richards, F. A., 36, 81
Richver, A., 210
Ridgeway, C. L., 62
Riedel, S. L., 93, 94, 97–100
Roberts, R. D., 122
Robitschek, C., 212
Rockmann, K. W., 63
Rogers, R. W., 307
Rogosa, D., 25
Roodin, P. A., 80

Rosch, E. H., 109
Rosenberg, M., 184
Rouse, W. B., 106, 300
Rowland, K. M., 163
Rubinson, H., 124, 130
Ruderman, M. N., 120, 134, 138, 188, 306
Runco, M. A., 123
Russell, C. J., 173
Ryff, C. D., 222

S

Sa, W. C., 96
Sabella, M. J., 108
Sackett, P. R., 21, 300, 303
Salancik, G. R., 163
Salas, E., 107, 108, 165–167, 299
Salovey, P., 122
Sanchez, J. I., 235
Sapolsky, R. M., 216
Sargent, M., 65, 297
Schaie, K. W., 215
Schlenker, B. R., 110
Schmeichel, B. J., 193
Schmidt, A. M., 195, 203, 305
Schminke, M., 78
Schneider, B., 190, 296
Schneider, M., 120
Schommer, M., 88, 306
Schön, D. A., 210, 211, 301
Schooler, C., 32
Schroder, H. M., 112
Schulman, M., 75
Schwab, D. P., 10, 297, 303
Schwandt, D. R., 140, 147
Scott, K. A., 114
Seibert, K. W., 211
Senge, P. M., 148, 150, 299
Shamir, B., 9, 65, 120, 183, 184
Shapira, Z., 106
Shedlock, D. J., 227
Sheeran, P., 200, 201, 208
Sheitoyan, R., 193
Sheldon, K. M., 197
Sherer, M., 307
Shibley Hyde, J., 73
Shiffman, S., 307
Shipper, F., 121
Shippmann, J. S., 235
Siegel, H., 95
Silzer, R. F., 235
Simon, H. A., 105
Simonton, D. K., 32
Sims, H. P., 152, 153
Sin, H.-P., 51
Singer, J. D., 44
Sitkin, S. B., 150
Slocum, J. W., Jr., 206, 207, 307
Slovic, P., 108, 298
Smallwood, N., 235
Smith, J., 26, 27, 228, 296, 297, 303, 306
Smith, L. B., 38
Smither, J. W., 187
Snarey, J. R., 72
Snell, S. A., 164
Snook, S. A., 5, 80
Snow, R. E., 24, 295
Snyder, C. R., 13
Sokol, B. W., 88
Sosik, J. J., 205
Souvaine, E., 306
Spears, L., 82
Speicher, B., 76
Spencer, L. M., Jr., 173, 176, 297
Spencer, S. M., 173, 176, 297
Spiker, V. A., 93, 94, 97, 98, 99, 100
Stagl, K. C., 165
Stajkovic, A. D., 196
Stankov, L., 122
Stanovich, K. E., 96
Stassen, H. G., 106
Staudinger, U. M., 26, 27, 32, 33, 37, 39, 45, 47, 214–216, 218, 224–227, 297, 303, 308
Staw, B. M., 10, 171
Steele-Johnson, D., 195, 203
Steere, W. C., Jr., 4
Steidlemeier, P., 13, 82
Stein, F. P., 6
Sternberg, R. J., 111, 223, 224, 226, 303
Stevens-Long, J., 38, 219
Stogdill, R. M., 119
Strange, J. M., 107
Streich, D. D., 65, 297
Streufert, S., 112
Sullivan, G., 8–9
Sulsky, L. M., 109
Sutton, R. I., 8, 10
Swanson, R. A., 140–143, 145, 295, 301

T

Tajfel, H., 62, 302
Tangney, J. P., 183
Tannenbaum, S. I., 129, 303
Teachout, M. S., 47, 139
Tenebaum, G., 215
Tenkasi, R. V., 156–157
Tesch-Römer, C., 181, 207
Tesluk, P. E., 47, 138, 139, 306
Thau, S., 79
Thelin, E., 38
Thoma, S., 72, 73, 74, 306
Thomas, J. B., 185, 196
Thompson, B. B., 97, 99
Thompson, L., 153
Thorensen, C. J., 196, 107, 206
Thorndike, E. L., 143
Threlfall, K. V., 47, 121
Tice, D. M., 82, 191, 193, 302, 307
Tilton, J. W., 143
Toney, R. J., 178, 191, 205, 295, 305
Torbert, B. & Associates, 31, 65, 89
Tracey, J. B., 129, 303
Treviño, L. K., 75, 78, 80, 81, 306
Tripodi, T., 112, 296
Tsai, W., 163, 302
Tsui, A. S., 205
Turiel, E., 76
Turner, N., 80, 83
Tversky, A., 108, 109, 298
Twenge, J. M., 66, 307

U

Uhl-Bien, M., 38
Ulhman, C. E., 123
Ulrich, D., 235

V

Van Boven, L., 153
van der Maas, H. L. J., 220
VandeWalle, D., 194–196, 201, 206, 207, 298, 299, 301, 307
Van Dijk, D., 192
Van Hoof, A., 59
van Knippenberg, B., 183
van Knippenberg, D., 183
Van Velsor, E., 135, 162, 172, 187–189, 191, 194, 199, 207, 295, 296, 303
Veldhuyzen, W., 106
Vicere, A. A., 139
Victor, B., 78
Vohs, K. D., 195, 203
Vollrath, D. A., 113
Vroom, V., 223
Vroom, V. H., 64, 196
Vygotsky, L., 25, 304

W

Waldman, D., 187, 295
Waldman, D. A., 187
Walker, A. G., 187
Walumba, F., 81, 296
Wang, Y., 124, 130
Warr, P., 64, 195
Waterman, A. S., 59
Webb, T. L., 201, 208
Webster, D. M., 89
Wegner, D. M., 108, 303
Weick, K. E., 8, 10, 20, 155, 165, 234, 256
Weigold, I. K., 212
Weinstock, M., 88, 102
Weiss, E. M., 34, 195, 196
Weissbein, D. A., 178, 191, 205, 295, 305
Welbourne, T. M., 197, 206
West, R. F., 96
Westenberg, P. M., 60
Whattam, J. C., 110
Whitbourne, S. K., 44, 215
White, L., 121
Whittington, J. L., 106, 305
Wicklund, R. A., 185, 302
Wiese, B. S., 216, 219
Willett, J. B., 44
Willis, S. L., 215
Wilson, K. A., 166
Wilson, K. L., 73
Wilson-Donnelly, K. A., 167
Wofford, J. C., 106, 110, 153, 305
Wohlers, A. J., 307
Wolf, S., 62
Wolfe, C. J., 122

Wong, L., 43
Wood, P. K., 22, 91, 92
Wood, R., 196, 206
Wood, R. E., 188
Woodyard, E., 143
Wren, T., 62, 75
Wu, M. J., 215
Wurf, E., 58

Y

Yammarino, F., 307
Yeo, G. B., 194, 203
Yetton, P. W., 64
Youniss, J., 76
Yukl, G. A., 120

Z

Zaba, A. J., 110
Zaccaro, S. C., 112
Zaccaro, S. J., 40, 43, 47, 19, 107, 108, 119–123, 130, 161, 172, 176
Zedeck, S., 21, 300, 303
Zenger, J., 235
Ziegert, J. C., 188, 190, 208
Zimmerman, B. J., 191

"The topic of leadership development is both timely and important, and the theoretical directions the authors provide are a new contribution to the field. I really appreciate the new areas the authors brought together from different fields: literature on adult development with literature on morality and ethics with literature on epistemic cognition—a fascinating and informative integration."

Mary Uhl-Bien, University of Nebraska, Lincoln

"Many books on leadership have one or two chapters that reflect state-of-the-art thinking applied to a practical aspect of leadership. However, in this book, every chapter reflects the very highest levels of scholarship."

Robert G. Lord, University of Akron

This book is a beginning, a first step, in taking leader development in organizations beyond conventional wisdom toward a scientifically sound research-based set of principles and practices. The authors looked beyond their own academic disciplines to bring to bear accumulated wisdom from researchers who have developed well-established and accepted theoretical perspectives on adult development processes in general, then wove in the ideas that have emerged in more targeted research on adult education, development of cognitive skills, identity development, self-regulation, moral and ethical development, and related topics. The authors present an integrative theory that provides a coherent framework for describing and understanding how leader development takes place.

Cover Design: Kevin Craig

Psychology Press
Taylor & Francis Group
www.psypress.com

ISBN: 978-0-415-96463-0
90000
9 780415 964630

an **Informa** business