

Leadership

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Leadership

Introducing theory and research on leadership is a challenging task. The difficulties derive from the immense amount of writing and research that is available, not all of which has been enthusiastically received. As stated by Bennis (1959) several decades ago “Of all the hazy and confounding areas in social psychology, leadership theory undoubtedly contends for top nomination. And, ironically, probably more has been written and less is known about leadership than about any other topic in the behavioral sciences” (pp. 259-260). However, in the more than 50 years that have passed since Bennis’s discouraging though accurate statement, the collective efforts of leadership scholars have yielded considerable clarity about what leadership is, why individuals emerge as leaders, and what makes them effective (e.g., see Bass & Bass, 2008; Day & Antonakis, 2012; Yukl, 2013). This chapter presents many of these impressive gains in knowledge.

The popularity of the concept of leadership in scholarly writing and social scientific research attests to the importance of leaders in society. Consistent with expert opinion (e.g., House, Spangler, & Woycke, 1991; Jones & Olken, 2005), leadership is highly consequential. Good leadership helps groups, organizations, and nations to reach their goals, and bad leadership can be disastrous (Kellerman, 2004). Hence, social scientists and humanists have devoted considerable attention to leadership, and social and personality psychologists are one grouping within this large college.

Considered in the broadest intellectual context, the study of leadership has been traced over the centuries in philosophical writing and historical analyses (Bass & Bass, 2008). Within the social sciences, leadership research has developed over many decades, bringing notable increases in the clarity and sophistication with which leadership is understood. Many of

scholars' insights about leadership have grown into more formal theories possessing explanatory power demonstrated through empirical hypothesis testing.

In this chapter, we review leadership research, with special attention to the questions that psychologists have addressed. Our presentation emphasizes that the phenomena of leadership can be predicted by a wide range of situational, social, and individual-difference factors.

Although not organized into a single, coherent theory, these bodies of knowledge are sufficiently related that we are able to piece together a moderately cohesive picture of leadership. This emergent understanding derives from research based on highly varied research methods, the most important of which we review and evaluate in this chapter.

Defining Leadership

Scholars of leadership have offered many definitions of the concept. This fact is more to be admired than deplored because it demonstrates the importance of the construct and its centrality in intellectual discourse, especially within the social sciences. Other concepts that are particularly important in the social sciences, such as attitude, also have also received many definitions (Eagly & Chaiken, 1993, 2007). Yet, such concepts generally have a central core of meaning that has emerged over the decades. This core pertains to the multiple processes through which an individual influences, motivates, organizes, and coordinates a group of people to attain collective goals. Scholars of leadership have thus recognized the dependence of leadership on social and psychological processes that are themselves embedded in the many group and organizational contexts in which leaders and followers interact.

Some experts on leadership have distinguished between leadership and management (Bennis & Nanus, 1985; Zaleznik, 1992). They define management in terms of organizing and controlling the flow of work in groups and organizations and reserve the concept of leadership

for activities that bring about change and successful adaptation to challenges. Thus, a manager enables work to be accomplished by successfully organizing, planning, and monitoring progress. A true leader, according to those who favor a leader-manager distinction, transforms a group in the face of challenges and inspires it to become more successful (Bass, 1985). Although this leader-manager distinction is useful in some contexts, we do not emphasize it in this chapter. Instead, along with most social scientists, we incorporate managerial behaviors into the study of leadership by, for example, including them within the concept of task-oriented leadership (cf. Hunt, 2004; Judge, Piccolo, & Ilies, 2004). Successful leaders undertake both task-oriented and interpersonally oriented activities to ensure that the “trains run on time” and to foster high commitment and coordinated action. In the face of challenges, good leaders are capable of redirecting and transforming groups, organizations, or nations to enable successful collective action.

Leaders’ Varying Roles and Social Contexts

Leadership is usually exerted by people who hold positions of formal authority, such as presidents of universities, middle managers of business organizations, and heads of state. Many studies of leadership focus on people employed as organizational managers or elected to political office. This focus, however, does not exclude examining more informal leadership. For example, within a group of friends, one or more individuals may initiate and coordinate activities such as having a party. As this example suggests, leadership is not necessarily concentrated in one person but can be shared in various ways across individuals (Pearce, Conger, & Locke, 2008). Leadership functions such as planning and coordinating activities, monitoring tasks, and fostering harmonious relationships are generally distributed across multiple individuals. In large organizations, a complex division of the work of leadership is generally in place. Supervisors,

managers, and executives are responsible for different types of work and are typically arrayed in a hierarchy with individuals at different levels have differing spans of authority and responsibility. Simultaneously, other individuals, often without formal authority, may fulfill other leadership functions, especially involving relational work that minimizes destructive conflict and facilitates the ability of individuals to work together effectively (Fletcher, 2001).

The interrelated processes that define leadership enable people to work together toward their shared goals in a wide range of social contexts. Achieving such goals generally requires that leaders induce members of a group to set aside narrow self-interest by taking into account how their own actions relate to other group members and to the group's goals (cf. Bass, 1985; Burns, 1978). These issues of fostering coordinated action toward group goals are important in small groups, including dyads, and in larger groups, organizations, and political units such as cities, states, and nations. The importance of leadership in all types of social entities has contributed to the spread of research on leadership across academic disciplines. It has been studied as strategic leadership focusing on collective processes occurring in macro units such as organizations and as interpersonal leadership focusing social and individual processes occurring in smaller units such as dyads and small groups (Hunt, 1991). In this chapter, we emphasize leadership as interpersonal influence within groups and organizations—the traditional focus of leadership research carried out by psychologists, although we give some attention to the psychological processes that transpire in larger collectives such as nations where leaders are distant from most of their followers.

Contemporary leadership researchers place major emphasis the social context of leadership. The type of leadership that is exercised and the kinds of relations that develop between leaders and followers depend on a host of factors linked to the milieu in which

leadership occurs (Liden & Antonakis, 2009). Contextual variables that have proven to be important include national culture (e.g., House, Hanges, Javidan, Dorfman, & Gupta, 2004), shocks such as crises (e.g., Merolla, Ramos, & Zechmeister, 2007), hierarchical leader level (e.g., Waldman & Yammarino, 1999), and leading from close up or from a distance (Antonakis & Atwater, 2002).

The contextual features of groups' larger size and greater complexity foster the indirect exercise of leadership without face-to-face interaction with most followers (Hooijberg, Hunt, Antonakis, Boal, & Lane, 2007). For example, a candidate for political office generally meets relatively few potential followers personally and endeavors to reach them through forms of communication that disseminate messages widely such as television, newspapers, and social media. The exercise of leadership by such indirect means relies on social cognitive processes by which people identify and evaluate leaders as well as the "stage-management" processes by which leaders convey their leadership qualities (Den Hartog & Verburg, 1997; Gardner & Avolio, 1998; Shamir, Arthur, & House, 1994).

Another important contextual influence consists of followers' expectations about how leaders should behave and be evaluated. Leaders' conformity to normative expectations increases the probability that people ascribe positive leadership qualities to them (Lord, Brown, Harvey, & Hall, 2001; Lord, Foti, & De Vader, 1984). Therefore, to enhance their effectiveness, leaders take others' expectations into account as they engage in the reciprocal, interactive processes of building relationships with followers. As this interaction occurs, not only do leaders influence followers but also followers influence and inspire their leaders to varying degrees (Burns, 1978).

Theories of Leadership

Multiple theories populate the territory of scholarship on leadership. This intellectual richness reflects the embedding of leadership in individual and social processes that are moderated by contextual factors. Individual processes, the usual domain of psychology, are divided between research specialties emphasizing, for example, cognitive, affective, or biological processes or more global personality traits. Social psychologists often link individual processes to attributes of the social environments where these processes exert their effects on leaders' emergence and effectiveness. Social scientists who adopt an organizational or social structural level of analysis bring important insights about the larger social systems within which leadership is embedded.

As shown by our discussion of theories of leadership in the subsections that follow, investigators generally regard leaders' emergence and effectiveness as the central outcomes of leadership and thus often concentrate on predicting these outcomes. Because the processes that produce these two outcomes are not isomorphic (Antonakis, 2011), it is usually important to distinguish between them. Given that not everyone becomes a leader, research has addressed the questions of how and why some people emerge as leaders while others remain followers. Once individuals occupy a formal or informal leader role, they may be more or less effective, and the qualities that have fostered their becoming a leader are not necessarily the most essential qualities for leading effectively. Therefore, we indicate whether theories address emergence or effectiveness or both.

Social-Cognitive Theories

Given that leaders often emerge by processes that involve other people identifying them as worthy of exercising leadership, theorists have studied the beliefs that people have about the

attributes of leaders. Social perceivers' cognitions about leaders and leadership became a major theme of late 20th century scholarship, consistent with the cognitive revolution in psychology (e.g., Proctor & Vu, 2006). The concepts that people form about leaders have received various names in leadership research, including schemas, prototypes, roles, and stereotypes. This general approach received its most thorough development in the contributions of Lord and his collaborators in an approach known as leader categorization theory or implicit leadership theory (e.g., Lord & Maher, 1991).

From the perspective of cognitive approaches, ideas about groups of people, including about leaders, derive from the experiences that people have with members of these groups, either directly through personal contact with them or indirectly through media or cultural traditions (Fiske, 2013; Macrae & Quadelieg, 2010). Based on diverse experiences with leaders, social perceivers form leader concepts that consist of expectations about the attributes of leaders. These concepts affect perceivers' information processing, generally without their awareness.

Although the concepts that people form about leaders' attributes are often studied primarily as aspects of individual cognition (e.g., Lord & Maher, 1991), social psychologists who study stereotyping, including leader stereotypes, emphasize the consensual quality of these ideas. When beliefs are widely shared in groups or in the culture more generally, they derive their power from individuals' knowledge that most people endorse them. Theorists have also emphasized that stereotypes often have prescriptive aspects as well as descriptive aspects (Eagly & Karau, 2002; Gill, 2004). Descriptively people share beliefs about what leaders are actually like, and prescriptively they hold beliefs about what leaders should be like. Both descriptive and prescriptive beliefs about leadership are shared within social groups and cultures. Individuals who are atypical of the descriptive aspects of leader stereotypes are less likely to emerge as

leaders. Individuals who become leaders but violate the prescriptive aspects of leader stereotypes generally suffer a decline in effectiveness because they have failed to live up to expectations about good leadership.

Research on the content of leader stereotypes has found that the highly consensual attributes ascribed to leaders connote action and forward progress. For example, traits such as goal-oriented, informed, charismatic, decisive, dedicated, responsible, intelligent, and determined are prototypical of leaders (Lord et al., 1984). Among activities typically ascribed to managers in business organizations are standing out from the group, telling other people what to do, imposing sanctions for noncompliance, and competing with peers (Miner, 1993).

As these lists of traits imply, one of the most striking features of the majority of the traits typically ascribed to leaders is that they are for the most part culturally masculine. Despite the inclusion of some expectations about culturally feminine considerate and supportive qualities, leader concepts are strongly infused with cultural masculinity, especially in the minds of men (e.g., Atwater, Brett, Waldman, DiMare, & Hayden, 2004; Koenig, Eagly, Mitchell, & Ristikari, 2011). Even though recent decades have brought some cultural shift toward greater androgyny, leader stereotypes are still situated on the masculine side of androgyny (Koenig et al., 2011). This phenomenon makes it usually more difficult for women than men to attain leadership roles, producing a double standard, and more challenging to enact the role, producing a double bind because of cross-pressures between the prescriptions of leader roles and the female gender role (Eagly & Karau, 2002).

Although certain traits and behaviors are prototypical of leaders in general, stereotypes about leaders do not constitute merely one overarching schema but take the context of leadership into account so that, for example, expectations about leaders are somewhat different for small

voluntary groups than for corporations and other organizations. The responsiveness of leadership concepts to the demands of leading in differing types of groups is a major theme of the social identity approach to understanding leadership (e.g., Hogg, 2008). This theory emphasizes the importance of the social identities that people form based on their group memberships and the self-esteem that comes from such identities. People take their group memberships into their psyches and derive personal identity from them, thereby viewing themselves in terms of, for example, their political parties, religious affiliations, families, and organizations that provide their employment. According to this approach, persons are more likely to become a leader of a group if they are prototypical of the attributes of the group members, and such leaders are more likely to be effective (Hogg, 2001). The characteristics of group members thus contribute to leader stereotypes that are tailored to the demands faced by specific groups. The resulting group-prototypicality of leaders enhances and affirms group members' identification with their group. These group-anchored processes are more powerful to the extent that particular group memberships are important to members' identities. In such identity-defining groups, leaders' similarity to a group's own leader concept enhances their ability to exert influence beyond the advantage that they may derive from their similarity to broader, culturally consensual leader stereotypes.

Stereotypes about leaders affect the categorization of people as leaders and therefore the likelihood that they emerge or are appointed as leaders. Social perceivers engage in a matching process whereby they attend to the similarity of individuals to the relevant concept of leaders. Consistent with the double-standard concept, greater match enhances an individual's chances of being categorized as a leader and subsequently having leader attributes ascribed to him or her. Men's advantage over women for being categorized as a leader follows from widely shared

gender stereotypes whereby men are perceived as more agentic (active, dominant, and competitive) and less communal (nice, sympathetic, kind) than women are (Wood & Eagly, 2010). Given that individuals are usually assimilated to their group stereotypes (von Hippel, Sekaquaptewa, & Vargas, 1995), social perceivers are biased to identify men as leaders or potential leaders and to ascribe leaderlike traits to them (Scott & Brown, 2006). Similar processes lessen the leadership opportunities of members of other social groups whose stereotypes are relatively low in agency (e.g., Asian American men; Sy et al., 2010). Moreover, consistent with role congruity theory (Eagly & Karau, 2002) and lack-of-fit theory (Heilman, 2001), prejudice is likely to be directed toward leaders whose sociodemographic attributes (e.g., gender, age, race, ethnicity) carry cultural stereotypes that are inconsistent with the attributes ascribed to good leaders (Eagly & Chin, 2010). Their performances as leaders tend to be devalued relative to objectively equivalent performances of leaders whose group membership (e.g., as men) conveys qualities well matched to leader stereotypes (Eagly, Makhijani, & Klonsky, 1992). Particularly well documented is backlash against women who display strongly agentic behavior in leader roles (e.g., Okimoto & Brescoll, 2010). Consistent with the double bind concept, such behavior on the part of women, although consistent with the leader role, violates cultural ideals about femininity.

Most social cognitive research on leadership, as we have shown, presumes that people form multiattribute concepts of leaders. These concepts then constitute complex standards against which potential leaders are assessed. For example, in thinking about who might be a good chair of an academic department in a university, faculty colleagues may consider attributes such as dedication to the department, knowledge about administrative matters, professional reputation in the academic field, political and social skills, and friendliness. Considering

someone to be a good chair thus would be a composite judgment across several attributes, most of which faculty colleagues could assess with some confidence on the basis of considerable knowledge about their colleagues.

In contrast to the operation of such multiattribute judgments, other research suggests that people at least sometimes engage in more efficient, effort-minimizing processing that gives priority to one or a very few attributes. These cognitive shortcuts can involve simple decision rules, or heuristics (Gilovich, Griffin, & Kahneman, 2002; Tversky & Kahneman, 1974). For example, voters might favor a candidate for political office solely on the attribute of his or her political ideology (e.g., “conservative”) or perhaps on the basis of perceived “toughness.” Even though such attributes are not necessarily valid indicators of leadership ability, they can influence leaders’ emergence. Consistent with the idea that such heuristics are important, research has indicated that people are impressed quite a lot by facial appearance when voting for their political leaders (Todorov, Mandisodza, Goren, & Hall, 2005), and this simple decision rule appears to work in the same way even in very young children (Antonakis & Dalgas, 2009). The heuristic seemingly underlying these judgments is that good facial appearance implies good leadership ability. However, facial appearance does not have much to do with how competent an individual is as a leader (Antonakis, 2011).

The use of facial appearance and other cues such as height (McCann, 2001) to infer leadership ability despite their limited validity no doubt is one reason why many elected or appointed leaders turn out to be ineffective (Antonakis & Jacquart, in press). Research has yet to identify the conditions under which people use such heuristic processes to infer leadership ability, compared to more complex multiattribute processing. Leadership at a distance probably favors heuristic processing, as in the example of evaluating political candidates, especially given

that average citizens ordinarily lacks extensive knowledge about the candidates' individual traits. Where face-to-face leadership occurs, as in groups and organizations, evaluators typically have considerable information at hand and likely use it in evaluating leadership ability.

Trait Theories

Leadership researchers have taken considerable interest in the question of whether certain kinds of people are likely to become leaders or to be effective in leadership roles. Understanding such questions requires exploration of how people differ in ways that are relevant to leadership. These issues of individual differences are in the domain of personality psychology, where researchers study broadly defined tendencies to act in certain ways, known as traits, which vary between individuals and exhibit relative temporal and situational stability. Researchers develop measures to assess traits and thereby use them to predict individual differences in attitudes, decisions, and behaviors, which in turn may affect leadership outcomes of emergence and effectiveness (Antonakis, 2011). Our focus is on individual differences in leaders' and potential leaders' personality traits and intelligence, although there are other consequential individual differences that may or may not be measurable (e.g., ethical tendencies, sexual orientation, and physical appearance).

One of the classic questions related to individual differences in traits relevant to leadership is whether leaders are born or made. To answer this question, psychologists have conducted studies on twins. The extent to which monozygotic twins, who have the identical genes, have characteristics that are more similar than are those of dizygotic twins, who do not have identical genes, yields an estimate of the contribution of genes to observed individual differences in these characteristics—that is, their heritability (Bouchard & Loehlin, 2001;

Bouchard & McGue, 2003). This heritability estimate is responsive to environmental variation by taking into account whether the twins have been reared together or apart.

Application of this twin research method to study general intelligence has found it to be strongly influenced by genetic heritage, with heritability estimates as high as 88%. For personality traits, these estimates are generally around 50% (Bouchard & McGue, 2003). In the limited amount of twin research available on the heritability of leadership qualities, occupying a position of leadership appears to be somewhat heritable—in the 30% range (Arvey, Rotundo, Johnson, Zhang, & McGue, 2006; Arvey, Zhang, Avolio, & Krueger, 2007). This heritability effect appears to be partially mediated by traits of personality and intelligence that are correlated with occupying leadership positions (Ilies, Gerhardt, & Le, 2004).

Despite this evidence of heritability, there is also very strong evidence that leadership can be developed. Specifically, many experiments and quasi-experiments have manipulated leadership interventions (e.g., trainings, role plays, scripts, role assignments) and related them to leadership outcomes (e.g., leader performance, follower satisfaction, organizational success). When the effects in these studies were averaged across 140 independent estimates, the average effect of interventions was substantial (in standard deviation units, $d = 0.59$; Avolio, Reichard, Hannah, Walumbwa, & Chan, 2009). Thus, although leadership is fostered to some extent by genetically influenced traits, formative learning experiences matter as does the context in which leadership is enacted (e.g., the leader concept that is salient in a group or organization).

As in social psychology, where the study of personality traits has had ups and downs (Kenrick & Funder, 1988; Mischel, 1977), individual differences research has a spotty record in the study of leadership. Although early researchers identified some individual differences (e.g., intelligence) as predicting leadership (see Gibb, 1947), subsequently discouraging reviews of

individual differences research by Stogdill (1948) and others (e.g., Mann, 1959) were widely read and misinterpreted to suggest that individual differences did not matter for leadership. Researchers then lost interest in identifying traits that distinguish leaders from nonleaders and focused instead on understanding the behaviors of leaders as a promising new approach that we describe in the next subsection (Fleishman, 1957; Katz, Maccoby, Gurin, & Floor, 1951).

The reviews that were influential in prodding leadership researchers to change course concerning personality traits used narrative, or qualitative, methods of integrating research. As we explain in the section of this chapter on research methods, this mode of reviewing, although well accepted at the time, is by contemporary standards poorly suited for examining whether research findings support hypotheses. Without guidance from the quantification of studies' results and careful attention to their methods, both of which are inherent in modern meta-analytic methods of reviewing findings, conclusions were quite subjective and very often wrong, including in relation to leadership findings.

It took quite a few years before the traits were taken seriously again as predictors of leadership. On the basis of Lord, DeVader, and Alliger's (1986) meta-analytic integration and extension of the findings reported in Mann's (1959) narrative review, it was apparent that intelligence is a good predictor of leader emergence. In addition, studies using rotation experimental designs, in which tasks and team members are rotated among leaders, established a trait component to leader emergence (Kenny & Zaccaro, 1983; Zaccaro, Foti, & Kenny, 1991), and thus were also instrumental in kick-starting interest in leader traits.

The importance of intelligence for leadership was later confirmed by Judge, Colbert, and Ilies's (2004) meta-analysis showing that objectively-measured intelligence and leader effectiveness correlate at $\rho = .33$. This finding makes sense. Effective leaders must understand

condition-action links, see patterns, and make decisions, sometimes quickly, while pondering alternatives. Thus, consistent with psychologists' understanding of intelligence (e.g., Gottfredson, 1997), leaders' knowledge, their capacity to process information efficiently and to think complexly, and their underlying ability to learn are critical to leading effectively.

Given that personality is largely orthogonal to intelligence (Goff & Ackerman, 1992), it adds unique variance in predicting leader outcomes (Antonakis, Bendahan, Jacquart, & Lalive, 2010). Thus, personality, which encompasses consistent tendencies in individuals' behavior, affect, and cognition (Ashton, 2007), should affect whether people become leaders and how they act in a leadership role. Most personality research addressing these questions has adopted the dominant approach in contemporary personality research, which treats personality variables as grouped into the five categories known as the *big five model of personality* (see Digman, 1989; Goldberg, 1990), which has been especially well developed in research by McCrae and Costa (Loehlin, McCrae, Costa, & John, 1998; McCrae & Costa, 1987, 1997). The big five consist of *neuroticism* (also labeled as its opposite emotional stability), *extraversion*, *openness to experience*, *agreeableness*, and *conscientiousness*. In addition, some recent research suggests the value of adding a sixth factor, *honesty-humility*, to the model (Lee & Ashton, 2004, 2008).

Research framed by the big five has shown that personality traits matter for leadership. In particular, Judge, Bono, Ilies, and Gerhardt's (2002) meta-analysis established that the big five have collective predictive power in a multivariate model both for both emergence and effectiveness (with multiple R 's of .53 and .39, respectively). The specific personality traits that predicted leadership, as assessed by the Judge et al. meta-analysis, were neuroticism ($\rho = -.22$ with effectiveness), extraversion ($\rho = .33$ with emergence and $\rho = .24$ with effectiveness),

openness ($\rho = .24$ with emergence and $\rho = .24$ with effectiveness), and conscientiousness ($\rho = .33$ with emergence).

Some researchers have tried to go beyond intelligence and the big-five personality model to introduce additional individual differences predictors of leadership. However, such efforts have had limited success because these new variables typically correlate with either intelligence or the big five personality traits or both, thus making it challenging to demonstrate that they account for variability in leadership beyond that accounted for by these classic individual differences variables.

Among the additional variables that have generated interest is emotional intelligence, the ability to use and manage emotion in oneself and others. One such approach has conceptualized emotional intelligence as an ability, assessed by performance-type tests akin to general intelligence (Mayer, Caruso, & Salovey, 2000). A second approach has assessed emotional intelligence using a self-rated inventory similar to those typically used to assess personality traits (Law, Wong, & Song, 2004; Petrides & Furnham, 2000). Intuitively, one would think that having the ability to manage emotions would matter for leadership outcomes. However, these efforts have been proven to be controversial (Antonakis, Ashkanasy, & Dasborough, 2009; Ashkanasy & Daus, 2005). A meta-analytic review of the relation between emotional intelligence and leadership did establish a small correlation between emotional intelligence and transformational leadership, an effective leadership style that we discuss in the next subsection (Harms & Credé, 2010a). This weak effect, however, vanished with the addition of controls for personality and intelligence (Harms & Credé, 2010b). It thus appears that, at this time, personality and intelligence are the traits that best predict leadership.

In summary, research on leader traits has come full circle. Given the current renaissance of interest, research in this area should continue unabated at least in the medium term, particularly as new conceptualizations and methodological advances allow the testing of more complete trait theories (Antonakis, Day, & Schyns, 2012; Zaccaro, 2012). Trait approaches likely will incorporate biological variables, especially hormones, whose organizational and activational effects on leader behavior invite further exploration (cf. Bos, Terburg, & van Honk, 2010; Zak et al., 2009).

Leadership Style Theories

Theories of leadership style generally address consistent behavioral tendencies of leaders that researchers assume are an important determinant of leaders' effectiveness. Although these behavioral tendencies express leaders' dispositional traits, interest has centered on the behaviors themselves, not on their origins in situational pressures or leaders' traits. As we indicated in the prior subsection, the heavy criticisms leveled against trait theories contributed to the subsequent popularity of behavioral theories focusing on styles of leading (Fleishman, 1957; Katz et al., 1951; Lewin & Lippitt, 1938; Schriesheim, House, & Kerr, 1976; Stogdill & Coons, 1957).

Prevalent among these behavioral approaches was a two-dimensional model for describing leadership behaviors: Initiating structure behaviors (also known as task or instrumentally focused leadership) and consideration behaviors (also known as interpersonally or relationally focused leadership). This distinction between task and interpersonal styles has a history in leadership research that extends back to the work of Bales (1950) on small task-oriented groups. Bales distinguished between task leaders oriented mainly to fostering task accomplishment and social-emotional leaders oriented mainly to the furthering interpersonal outcomes in the form of good morale and harmonious relationships among group members.

Although these two aspects of leader behavior are obviously critical to coordinating human and capital resources to attain organizational goals, researchers' interest in them waned over time. After some years of popularity, the behavioral approach, like the trait approach, faced the challenge of apparently inconsistent findings, inducing leadership researchers to broaden the behavioral approach to focus on interactions of leadership styles with situational factors (Fiedler, 1967, 1971; House, 1971). These so-called contingency theories took into account how features of situations moderate the effects of behavioral styles on leader effectiveness (Evans, 1970; Fiedler, 1967, 1971; House, 1971; House & Dessler, 1974; Kerr & Jermier, 1978).

In Fiedler's (1967, 1971) contingency approach, effective group performance depends on the proper match between the leader's task-oriented versus relationship-oriented style of interacting with subordinates and the degree to which the situation gives control and influence to the leader. Fiedler isolated three situational variables whose combinations determine how favorable the situation is to a leader: (a) leader-member relations (good or bad), (b) task structure (high or low), and (c) the power inherent in the leader's position (strong or weak). Findings indicated that task-orientated leaders performed better when situations were very favorable or very unfavorable and that relationship-orientated leaders performed better when situations were moderately favorable. In House's (1971) version of a contingency theory, leaders must compensate for the situational conditions (e.g., task ambiguity) that make it difficult for followers to achieve their goals. Leaders achieve this compensation by changing their degree of initiating structure (i.e., task-oriented) behavior and consideration (i.e., relationship-oriented) behavior. Appropriate behavioral shifts in turn enhance leaders' effects on followers.

Contingency models for understanding the effects of leaders' task- and relationship-oriented behaviors inspired considerable research and have remained of some interest as one of

many types of contextual approaches to understanding leadership (see Ayman & Adams, 2012).

Yet, the bidimensional understanding of leadership style declined in popularity, despite the introduction of situational contingencies, in part because the various theories often did not produce consistent findings. The research area eventually stagnated without new ideas.

Nevertheless, an important validation of the general approach emerged much later in a meta-analysis establishing that both initiating structure and consideration display substantial prediction of leaders' effectiveness and followers' satisfaction with leaders (Judge et al., 2004).

After the peak of interest in the contingency elaborations of the bidimensional model of leadership style, the second half of the 1970s brought something of an impasse in leadership research, fueled by critical articles about conflicting findings, lack of incremental contribution to predicting leaders' outcomes, weak correlations with outcomes, and the possibility that leadership might even not matter at all (Calder, 1977; Greene, 1977; Miner, 1975; Pfeffer, 1977; Salanick & Pfeffer, 1977; Schriesheim & Kerr, 1977). In an effort to introduce a new perspective that might circumvent these criticisms, some researchers focused on an approach called *leader-member exchange theory*, which emphasized the quality of the relations between leaders and followers and the importance of positive relationships for leaders' effectiveness (cf. Dansereau, Graen, & Haga, 1975; Graen & Uhl-bien, 1995). Research in this tradition examined how leaders can create groups with close and trusting relations versus more contractual and distant relations. Although research guided by leader-member exchange theory made very important contributions, the approach has been criticized for failing to model the antecedents of good relations or to specify the leader behaviors that yield high-quality leader-member relations (House & Aditya, 1997).

The next step in research on leadership style was the development of new distinctions about types of styles (Bryman, 1992). This shift was instigated by House (1977), who was the first to propose a psychological theory of *charismatic leadership*. In this approach, leading was not only about being considerate and supportive to followers or providing task guidance. House speculated that charisma mattered far more in engendering devotion in followers and inspiring to accomplish great feats. In this approach, studying the psychological ties that form between leaders and followers is the key to understanding charisma, which depends on the persuasiveness of the leader, leaders' and followers' characteristics, and the prevailing circumstances in the situations in which their social interactions occur. Studies have shown that charisma is a very potent form of leadership that strongly predicts outcomes, as several meta-analyses have shown (e.g., DeGroot, Kiker, & Cross, 2001).

House's (1977) work on charisma was extended by Bass (1985), who relied in addition on writings by Burns (1978) to propose a theory of *transformational and transactional leadership* (see also Downton, 1973). Transformational leadership, which encompasses charismatic leadership as one of its components, aims to transform followers to attain higher levels of motivation and commitment, with the result that the groups and organizations to which they belong become more successful and meet new challenges. Transformational leaders are characterized by their ability to serve as inspirational role models. Such leaders not only inspire followers but also build good human relationships, stimulate followers' intellectual abilities, and motivate them to go beyond the confines of their job descriptions.

Bass (1985) distinguished transformational leadership from the types of leadership featured in most other theories, which he called transactional leadership. These aspects of leader behavior, as the name connotes, pertain to identifying role requirements and providing positive

and negative reinforcement to followers, contingent on their meeting appropriate standards. The approach also takes into account that some leaders are relatively inactive in doing the work of leadership and thus engage in a type of nonleadership termed *laissez faire leadership*. To assess transformational, transactional, and laissez faire leadership, researchers developed appropriate multiple factor measuring instruments, the most popular of which is the Multifactor Leadership Questionnaire (Antonakis, Avolio, & Sivasubramaniam, 2003; Bass & Avolio, 1997, 2012).

This approach to understanding leadership behavior encompasses one aspect of the earlier two-dimensional theory that distinguished between task and relational behaviors. Specifically, “individualized consideration,” which pertains to leaders’ development and mentoring of followers and attending to their individual needs, is one of the subdimensions of transformational leadership. However, the approach allows for only one aspect of task-focused (instrumental) leadership (Antonakis & House, 2002; Hunt, 2004; Judge et al., 2004; Yukl, 1999). Specifically, two of the subdimensions of transactional leadership emphasize leaders’ reinforcement of task behavior—providing rewards for satisfactory performance and using negative sanctions to induce followers to meet task standards. By these means, transactional leaders shape task performance of subordinates. Yet, there are many other means of providing structure and direction beyond giving contingent positive and negative reinforcements (Antonakis, House, & Sandoz, 2012; Bowers & Seashore, 1966; Morgeson, 2010).

The Bass (1985) theory of transformational and transactional leadership has dominated the landscape of leadership research for about three decades (Gardner, Lowe, Moss, Mahoney, & Cogliser, 2010; Hunt, 1999; Lowe & Gardner, 2000). Several meta-analyses have substantiated the basic hypotheses of the theory by showing that transformational leadership (which includes charisma) is strongly related to the quality of followers’ motivation and performance, including

discretionary behavior that exceeds basic expectations. Transformational leadership also predicts the quality of group and organizational performance (Judge & Piccolo, 2004; Lowe, Kroeck, & Sivasubramaniam, 1996; Wang, Oh, Courtright, & Colbert, 2011). In addition, one aspect of transactional leadership, rewarding satisfactory task performance, is also positively correlated with these outcomes.

The transformational-transactional perspective has in addition attracted the attention of gender researchers, who have established that female leaders, despite their slower rates of promotion than male leaders in managerial hierarchies, manifest somewhat higher levels of those aspects of these styles that are correlated with effectiveness—that is, transformational leadership and contingent reward transactional leadership—as well as lower levels of the other, less effective aspect of transactional leadership (Eagly, Johannesen-Schmidt, & van Engen, 2003). Although these findings may be explained by a double standard whereby women have to be very competent to emerge as leaders, the female gender role may attract women to transformational leadership because it is less culturally masculine than more traditional styles. All in all, the transformational-transactional approach has proven to be successful and extremely popular, as demonstrated by the more than 7000 citations that Google Scholar credits to Bass's 1985 book that introduced transformational leadership.

Methods for Studying Leadership

To explain how contemporary researchers are achieving validated theories of leadership, we now discuss the methods that have facilitated effective theory-building. In the study of leadership, as in all scientific research, the ultimate aim of research is to develop useful theory (Kerlinger & Lee, 2000). Theories provide explanations of phenomena such as why certain

persons are successful leaders and others are not. These explanations are stated as hypotheses that can be confirmed or disconfirmed.

Effective theories provide detailed causal explanations for the relations between constructs—why and how they are related—and the conditions under which the relations hold (Antonakis et al., 2004; Bacharach, 1989; Dubin, 1976). The relations that are specified by theories are probabilistic (e.g., the personality trait of extraversion increases the likelihood of emerging as a leader), with predictions improving as theories become more developed and thus more precise.

Qualitative and Quantitative Data

A scientific theory must be grounded in observation and tested empirically, generally by means of statistical analyses of quantitative data. Most leadership data are quantitative (e.g., leaders' scores on the dimensions of transformational and transactional leadership), and are analyzed with quantitative methods. Nevertheless, qualitative data can provide rich, contextualized information about leadership (Maxwell, 1996). It is highly desirable for qualitative data to be quantified (cf. Maxwell, 2010; Simonton, 2003) using some kind of replicable and reliable coding method (cf. Patton, 2002). For example, researchers might code the actual behaviors of leaders or followers (Butler & Geis, 1990) or the content of leaders' speeches (Antonakis, Fenley, & Liechti, 2011). Variables such as leaders' need for power (House et al., 1991) and their intelligence (Simonton, 2006) can result from such codings, whether from historical or contemporary sources. This transforming of qualitative data into quantitative data through coding of their content allows for the testing of hypotheses.

Causal Relationships Between Variables

Although causal relations are the goal of science, understanding causality is not a simple matter in leadership research or, for that matter, in other fields. A recent review of leadership articles published in top applied psychology and management journals established that researchers often make unsubstantiated claims about the causal relationship between variables (Antonakis et al., 2010). Research that does not allow causal claims can be interesting at early stages of describing a phenomenon; however, it is difficult to build theory or to base policy on such research.

To know whether two variables, the independent variable x , and the dependent variable y , are causally related, three conditions must be met (Holland, 1986; Kenny, 1979): (a) y follows x temporally; (b) y changes as x changes (and this relationship is statistically reliable); and (c) the relation between x and y is not eliminated by other causes of y . It is simple to meet the first condition by assessing x before y . The second condition is straightforward because it requires merely an appropriate statistical test establishing that the relation between the two variables is significant and thus not due to chance. However, these two conditions are necessary but not sufficient to establish causality. Even though x is measured before y , x and y may share a common cause q , which is correlated with both x and y at the times they were measured (cf. Podsakoff, MacKenzie, & Podsakoff, 2012). In such instances, the correlation between x and y does not necessarily mean that x causes y . Rather, both x and y may be caused by q , which correlates with itself over time and with both x and y . For example, early experience as a leader in school and recreational contexts might be correlated with becoming a successful manager in adult life. However, if both of these variables were correlated with a genetic predisposition to leadership, early experience might not have a causal impact on later managerial success or may have a smaller causal effect than that estimated by the correlation between these two variables.

As this example illustrates, merely obtaining a significant correlation of x with y does not guarantee that x caused y . It is possible that y caused x , or that they both depended on a common omitted cause, thereby producing the condition that statisticians call *endogeneity*. This condition means that x does not vary randomly, as a modeled independent variable should--in other words, x is not exogenous but endogenous, thus violating the assumptions of the regression or ANOVA estimator. To circumvent the challenge posed by this third condition, researchers invoke appropriate experimental designs or statistical methods, as we illustrate below in relation to leadership research. We consider both experimental and nonexperimental methods and discuss meta-analysis, a powerful method for synthesizing the findings of independent studies that tested the same hypothesis.

Experimental Methods

In leadership research, experimental methods are not as common as they are in most areas of psychology. Yet, experiments provide the failsafe way to establish causal relationships between variables. Experiments allow researchers to correctly test whether an independent variable, x (e.g., operationalized by assignment to a treatment vs. control group) predicts a dependent variable y (e.g., charismatic leadership). The experimental method does so by establishing a counterfactual conditional, which is estimated at the group level (Morgan & Winship, 2007; Rubin, 1974). This counterfactual condition is created by randomly assigning participants to two or more treatments, one of which is the counterfactual, often a control group defined by the absence of a treatment. Random assignment ensures that the groups are equal prior to having received the treatment. Then the groups are tested for post-treatment differences on one or more dependent variables.

To illustrate experimental designs, suppose that participants are randomly assigned to either a treatment or a control group, thus insuring that the characteristics of the individuals assigned to the groups are, on the average, roughly equivalent. Given sufficiently large samples in the groups, there will be no characteristics of the participants (e.g., gender, intelligence) that correlate with the treatment received. If there were a correlation with a particular variable (e.g., smarter individuals in the treatment group), then the effect of the treatment would be confounded with that variable, and a clear causal claim could not be made. After the treatment is administered (e.g., participants received charismatic leadership training or not), the researchers compare the means on the dependent variable(s) for the two groups to determine if they differ significantly as a function of the treatment. If there is a difference, then the researcher can assume that only one thing can explain this difference: the treatment received.

Experiments do not provide a perfect method for testing hypotheses. They can be flawed if, for example, conceptual independent variables are not appropriately manipulated or experimenters unknowingly cue participants to give desired responses (Wilson, Aronson, & Carlsmith, 2010). Nevertheless, the method is powerful for establishing causality. Its critics generally focus on the idea that laboratory experiments are not realistic and therefore cannot be generalized to natural settings. However, various findings from laboratory experiments have been shown to closely mimic findings obtain in natural settings (Anderson, Lindsay, & Bushman, 1999; Mitchell, 2012). Coupled with the power of the experiment to make strong causal claims, we believe that leadership researchers should make even more use of experiments, whether conducted in the laboratory or the field (cf. Brown & Lord, 1999).

Nonexperimental Methods

Researchers often study leaders in natural settings using what can be termed observational methods, which do not involve the manipulation of one or more independent variables. These methods are especially popular in leadership research because many investigators prefer to study people who occupy leader roles in natural settings. In such settings, manipulation of an independent variable of interest is typically not possible, whether it be for practical or ethical reasons. Although such correlational research can produce informative descriptive findings, it can be risky to rely on them to build theory or inform policy without establishing that relationships are causal.

The problems of causality are exacerbated by the tendency for some leadership researchers, particularly those doing qualitative research, to study groups of leaders who are defined in specialized ways (e.g., only high performing leaders, only leaders who derailed). The difficulty created by this approach is that studying only a select sample does not shed any light on what characteristics set this group apart from other people. For instance, suppose that after studying high performing leaders in depth, the researcher discovers that these leaders share certain characteristics (e.g., they are generally resourceful and confident and have especially strong relationships with their fathers). However, such a study does not prove that these characteristics predict these leaders' success. What if low performing leaders share some or even all of the same characteristics? Thus, to answer a question about the personality traits and social background that make leaders effective, investigators must have variance in the dependent variable (effectiveness in this example) and in particular avoid studying only highly select samples (Denrell, 2003, 2005).

Serious difficulties can stand in the way of establishing causal relations in nonexperimental research even when select samples are not used. For example, a researcher

might be interested in comparing different types of leadership trainings that are currently used in companies. The purpose of the research would be to find out whether type of training predicts some outcome such as the effectiveness of the leaders' teams. Suppose the researcher gathers data on leaders from two companies: Company A has used one approach, and Company B has used a competing approach to train their leaders. Predicting effectiveness as a function of training approach could be problematic because of confounding factors—that is, endogeneity can stand in the way of causal claims. For example, Company A may have selected their leaders on the basis of their intelligence scores, and Company B did not. Thus, a finding that Company A leaders are significantly more effective could be due to the different training method used or to these leaders' higher intelligence. Instead of using random assignment to equalize intelligence and other individual differences between the training groups, researchers face a situation in which leaders had been selected by a specific mechanism that yielded inequality between the groups. This situation is not hopeless, however, because the ambiguity could be resolved by premeasuring known differences and including them as covariates or correctly modeling this selection mechanism and taking it into account in the statistical analysis of the data (Heckman, 1979).

There are many other types of situations that can engender endogeneity. Consider research on leader-member exchange theory, one of the theories that we introduced in the prior section. Researchers often use a measure of the quality of leader-member relations (as perceived by leaders or followers or both) to predict outcomes such as organizational success (e.g., profits for business organizations). The obvious problem is that leaders and their followers were not randomly assigned to good or bad leader-member relations. The quality of these relations depends on host of factors stemming from the leader (e.g., personality, ability), the follower

(e.g., personality, ability, previous performance), and the organizational context (e.g., company resources). Because these factors may also correlate with the predicted organizational outcomes, the correlation between leader-member relations and these outcomes cannot be considered causal.

There are several approaches to resolving problems of endogeneity in correlational data, which are reviewed in detail by Antonakis et al. (2010). These approaches include statistical methods such as the use of instrumental variable estimators, difference-in-differences models, and regression discontinuity models (see Shadish, Cook, & Campbell, 2002). As more investigators invoke such methods of addressing endogeneity biases, leadership research will advance in its ability to identify causal relationships in correlational data.

Meta-analysis

In leadership research, as in other domains of scientific research, a given hypothesis is often tested in numerous studies. For example, as we have already indicated in this chapter, many studies have related leadership styles to outcomes such as leader effectiveness or related individual traits to leader emergence. Often the various studies examining a relationship have implemented somewhat different methods, and they may have used different participant populations and been conducted by different researchers. When many studies have accumulated, it is important to take stock of what they mean. Have the studies confirmed one or more theories? Are the relations of interest small or large? Are these relations stable or unstable across the studies? If they are not stable, why are they unstable? Traditionally researchers addressed such questions by a process known as narrative reviewing. In this mode, reviewers gathered together the relevant studies, read through them, summarized them, and drew conclusions about the phenomenon of interest.

Narrative reviewing suffered from many flaws that compromised the value of leadership research in earlier years, as we explained in relation to trait theories and leadership style theories. Generally reviewers did not use systematic methods for locating the studies. Obviously a convenience sample of studies yields a biased representation of the domain of all research on a phenomenon. If, for example, only significant findings are published, the published literature would yield an inaccurate estimate of whether research has supported a hypothesis. In addition, generally reviewers did not systematically take account of studies' differing methods nor have consistent criteria for evaluating study quality. Moreover, narrative reviewers relied on statistical significance to judge studies' findings, rather than the magnitude of the findings as assessed by indices that are not based on statistical significance. Because effects of identical magnitude can differ in statistical significance, depending on their sample size, statistical significance is a wholly inadequate basis for comparing or aggregating studies. As a result of these problems, narrative reviewers often reached incorrect conclusions.

These narrative methods of reviewing have been replaced by techniques that summarize scientific literatures by methods that are themselves consistent with scientific norms. These methods, known as quantitative research synthesis or more commonly as meta-analysis, statistically cumulate the quantitative results of independent empirical tests of a particular relation between variables (see Cooper, 2010; Johnson & Eagly, in press). These relatively sophisticated techniques are based on standardized indexes of effects, known as *effect sizes*, such as the correlation coefficient, r , or the standardized difference between means, d .

In conducting meta-analyses, researchers take close account of studies' methods and often correct for biases inherent in these methods. For example, studies may have unreliable measures to a lesser or greater extent. Corrections for measurement unreliability and sometimes

other forms of error or bias (e.g., restriction of range) allow estimation of the strength of a relation absent such artifacts and thus produce estimates of effects that are more homogeneous across studies (Hunter & Schmidt, 2004). Such corrections are widely implemented in leadership meta-analyses (e.g., Judge et al., 2004).

Despite correction for biases in studies' methods, estimates of effects are very often not stable across the studies. Therefore, analysts search for moderators, which are attributes of studies (e.g., social context, participant population, year of publication) that researchers have coded and that serve as predictors of the effect sizes. These predictors are entered into meta-analytic models that are statistically evaluated to determine if they account for variability in the effect sizes. For example, Eagly and Johnson (1990) found that sex differences in task and relationally oriented leadership styles were more pronounced among student than managerial research participants.

In leadership research, researchers have applied meta-analytic techniques to a wide range of phenomena, as is apparent in this chapter's many citations of meta-analyses. As in some other domains of research, meta-analyses have overturned prior narrative reviewers' conclusions—for example, on the ability of personality traits to predict leader effectiveness (e.g., Judge et al., 2002). Because meta-analysis has become the accepted method for evaluating research findings testing particular hypotheses, leadership research will no longer be derailed by seriously inadequate understanding of its research literatures.

Conclusion

As we have explained in this chapter, the progress of leadership research has been uneven over the decades. Certain classes of variables deemed important as explanations for leaders' effectiveness and emergence faded from popularity for a period and subsequently arose again as

promising approaches. Although these ups and downs in the history of personality variables and leadership styles as predictors of leadership can seem puzzling from the perspective of those who are not familiar with leadership research, a close look reveals the reasons for these cycles. The cause does not lie in mere faddishness. Rather, the weak methods that were available to leadership researchers, as in other areas of psychology and management science, led to misunderstandings about the replicability and cumulativeness of research. With more sophisticated meta-analytic techniques of interpreting research traditions having revealed the value of classic trait and leadership style variables, they once again inspired interest. Also contributing to the maturation of leadership research was better understanding of psychometric issues pertaining to measures' reliability and validity and, as our chapter has explained, more reliance on strong research designs that enable researchers to identify causal relations.

Stronger methods enable better empirical descriptions of phenomena, which in turn favor better theory. Adequate theories foster new empirical explorations of phenomena. Given these improvements, leadership is now thriving as a research area. Leadership textbooks and handbooks are proliferating (Bass & Bass, 2008; Bass & Riggio, 2006; Bryman, Collinson, Grint, Jackson, & Uhl-Bien, 2011; Day & Antonakis, 2012, in press; Yukl, 2013). Also, a specialized journal, *The Leadership Quarterly*, has expanded the outlets for research beyond traditional journals in management, industrial-organizational psychology, and social psychology.

As many phenomena of leadership become better understood, one challenge for researchers is to construct more general theories that link variables and relationships into broader causal networks. This wealth of empirical findings that are available challenges researchers to create comprehensive, multivariate theories. The difficulties of this integrative task derive in part from the organization of the relevant scientific knowledge into specialized areas, each of which

illuminates only some aspects of leadership. Nevertheless, to make progress toward the goal of integrative theory, we suggest that it is helpful to view leadership in terms of basic process models (cf. Antonakis, 2011; DeRue, Nahrgang, Wellman, & Humphrey, 2011; Judge & Long, 2012; Lim & Ployhart, 2004; Zaccaro, Kemp, & Bader, 2004). Such models can provide a general framework or meta-theory that highlights the major stages involved in predicting leaders' outcomes of emergence and effectiveness. As shown in our simplified version of such a model (Figure 1), the main causal flow is from individuals' traits to their behaviors, which in turn predict whether they become leaders, and, if they become leaders, also predict their effectiveness.

As we discussed in relation to social-cognitive theories, because leadership is a interaction between leaders and followers, any such description must take into account potential followers' social cognitive processes. Although leaders' behaviors follow from their individual traits, these behaviors are in turn the main information available to observers, who infer from these behaviors the attributes relevant to leaders' emergence and effectiveness. These inferences can differ from the traits identified by research psychologists (e.g., the big five personality traits). Moreover, observers have beliefs and heuristics by which they infer leaders' likely effectiveness from the traits that they ascribe to them. Therefore, social cognition is an integral aspect of the processes that produce leaders' outcomes. Contextual factors such as what leader traits and styles are prototypical influence observers' ideas about leadership and also affect what leadership style is actually effective. Figure 1 sketches the main causal flow of these processes and thereby incorporates key aspects of the personality, behavioral, and social cognitive theories that we described in this chapter.

We expect that process frameworks such as ours will be elaborated as knowledge of leadership expands beyond what is now known. The importance of making progress in understanding leadership cannot be underestimated. The work of the world takes place in the context of groups, organizations, cities, nations, and international organizations. Individuals rise into leadership roles in all types of social contexts, where some leaders prove to be effective, and some do not. Ineffective leadership can contribute to unfortunate outcomes—for example, organizations may cease to exist, cities and nations may face political and financial crises, and nations may engage in destructive conflict.

Because ineffective leadership is one of the causes for such problems, scientific knowledge of leadership should help find solutions. If scientific knowledge could influence the selection of leaders, or at least provide useful insights about the potential pitfalls of traditional processes of leaders' emergence and selection, the quality of leadership should improve. In addition, for people who occupy leadership roles, research could provide guidance about how to be effective. If principles of leader effectiveness could be imported into training programs, leaders might come to function better for the benefit of the groups and organizations whose goals they are attempting to facilitate. However, influencing training and policy can be counterproductive if implemented on the basis of erroneous or partial insights, even if these emerged from scientific research. Instead, good, developed science is required. Adequate science is in turn facilitated by productive interaction between theory, well designed individual studies, and meta-analyses of groups of studies to determine the stability of relationships across contexts.

References

- Anderson, C. A., Lindsay, J. J., & Bushman, B. J. (1999). Research in psychological laboratory: Truth or triviality? *Current Directions in Psychological Science*, *8*, 3-9.
doi:10.1111/1467-8721.00002
- Antonakis, J. (2011). Predictors of leadership: The usual suspects and the suspect traits. In A. Bryman, D. Collinson, K. Grint, B. Jackson, & M. Uhl-Bien (Eds.), *The SAGE handbook of leadership* (pp. 269-285). Thousand Oaks, CA: SAGE Publications.
- Antonakis, J., Ashkanasy, N. M., & Dasborough, M. T. (2009). Does leadership need emotional intelligence? *The Leadership Quarterly*, *20*, 247-261. doi:10.1016/j.leaqua.2009.01.006
- Antonakis, J., & Atwater, L. E. (2002). Leader distance: A review and a proposed theory. *The Leadership Quarterly*, *13*, 673-704. doi:10.1016/S1048-9843(02)00155-8
- Antonakis, J., Avolio, B. J., & Sivasubramaniam, N. (2003). Context and leadership: An examination of the nine-factor full-range leadership theory using the Multifactor Leadership Questionnaire. *The Leadership Quarterly*, *14*, 261-295. doi:10.1016/S1048-9843(03)00030-4
- Antonakis, J., Bendahan, S., Jacquart, P., & Lalive, R. (2010). On making causal claims: A review and recommendations. *The Leadership Quarterly*, *21*, 1086-1120.
doi:10.1016/j.leaqua.2010.10.010
- Antonakis, J., & Dalgas, O. (2009). Predicting elections: Child's play! *Science*, *323*, 1183.
doi:10.1126/science.1167748
- Antonakis, J., Day, D. V., & Schyns, B. (2012). Leadership and individual differences: At the cusp of a renaissance. *The Leadership Quarterly*, *23*, 643-650.
doi:10.1016/j.leaqua.2012.05.002

- Antonakis, J., Fenley, M., & Liechti, S. (2011). Can charisma can be taught? Tests of two interventions. *Academy of Management Learning & Education, 10*, 374-396.
doi:10.5465/amle.2010.0012
- Antonakis, J., & House, R. J. (2002). An analysis of the full-range leadership theory: The way forward. In B. J. Avolio & F. J. Yammarino (Eds.), *Transformational and charismatic leadership: The road ahead* (pp. 3-34). Amsterdam, The Netherlands: JAI Press.
- Antonakis, J., House, R. J., & Sandoz, R. (2012). *Instrumental leadership: Measurement and extension of the transformational-transactional leadership theory*. Manuscript submitted for publication.
- Antonakis, J., & Jacquart, P. (in press). The far side of leadership. In M. C. Bligh & R. E. Riggio (Eds.), *When near is far and far is near: Distance in leader-follower relationships*. New York, NY: Routledge.
- Antonakis, J., Schriesheim, C. A., Donovan, J. A., Gopalakrishna-Pillai, K., Pellegrini, E., & Rossomme, J. L. (2004). Methods for studying leadership. In J. Antonakis, A. T. Cianciolo, & R. J. Sternberg (Eds.), *The nature of leadership* (pp. 48-70). Thousand Oaks, CA: SAGE Publications.
- Arvey, R. D., Rotundo, M., Johnson, W., Zhang, Z., & McGue, M. (2006). The determinants of leadership role occupancy: Genetic and personality factors. *The Leadership Quarterly, 17*, 1-20. doi:10.1016/j.leaqua.2005.10.009
- Arvey, R. D., Zhang, Z., Avolio, B. J., & Krueger, R. F. (2007). Developmental and genetic determinants of leadership role occupancy among women. *Journal of Applied Psychology, 92*, 693-706. doi:10.1037/0021-9010.92.3.693

- Ashkanasy, N. M., & Daus, C. S. (2005). Rumors of the death of emotional intelligence in organizational behavior are vastly exaggerated. *Journal of Organizational Behavior, 26*, 441-452. doi:10.1002/job.320
- Ashton, M. C. (2007). *Individual differences and personality*. Boston, MA: Elsevier Academic Press.
- Atwater, L. E., Brett, J. F., Waldman, D., DiMare, L., & Hayden, M. V. (2004). Men's and women's perceptions of the gender typing of management subroles. *Sex Roles, 50*, 191-199. doi:10.1023/B:SERS.0000015551.78544.35
- Avolio, B. J., Reichard, R. J., Hannah, S. T., Walumbwa, F. O., & Chan, A. (2009). A meta-analytic review of leadership impact research: Experimental and quasi-experimental studies. *The Leadership Quarterly, 20*, 764-784. doi:10.1016/j.leaqua.2009.06.006
- Ayman, R., & Adams, S. (2012). Contingencies, context, situation, and leadership. In D. V. Day & J. Antonakis (Eds.), *The nature of leadership* (2nd ed., pp. 218-255). Thousand Oaks, CA: SAGE Publications.
- Bacharach, S. B. (1989). Organizational theories: Some criteria for evaluation. *Academy of Management Review, 14*, 496-515. doi:10.5465/AMR.1989.4308374
- Bales, R. E. (1950). *Interaction process analysis: A method for the study of small groups*. Reading, MA: Addison-Wesley.
- Bass, B. M. (1985). *Leadership and performance beyond expectations*. New York, NY: The Free Press.
- Bass, B. M., & Avolio, B. J. (1997). *Full range leadership development: Manual for the multifactor leadership questionnaire*. Palo Alto, CA: Mindgarden.

- Bass, B. M., & Avolio, B. J. (2012). *MLQ for leadership assessment & development*. Retrieved from <http://www.mindgarden.com/products/mlqc.htm>
- Bass, B. M., & Bass, R. (2008). *The Bass handbook of leadership: Theory, research, and managerial applications* (4th ed.). New York, NY: Free Press.
- Bass, B. M., & Riggio, R. E. (2006). *Transformational leadership* (2nd ed.). Mahwah, NJ: L. Erlbaum Associates.
- Bennis, W. G. (1959). Leadership theory and administrative behavior: The problem of authority. *Administrative Science Quarterly*, *4*, 259-301. doi:10.2307/2390911
- Bennis, W. G., & Nanus, B. (1985). *Leaders: The strategies for taking charge* (1st ed.). New York, NY: Harper & Row.
- Bos, P. A., Terburg, D., & van Honk, J. (2010). Testosterone decreases trust in socially naive humans. *Proceedings of the National Academy of Sciences of the United States of America*, *107*, 9991-9995. doi:10.1073/pnas.0911700107
- Bouchard, T. J., & Loehlin, J. C. (2001). Genes, evolution, and personality. *Behavior Genetics*, *31*, 243-273. doi:10.1023/A:1012294324713
- Bouchard, T. J., & McGue, M. (2003). Genetic and environmental influences on human psychological differences. *Journal of Neurobiology*, *54*, 4-45. doi:10.1002/neu.10160
- Bowers, D. G., & Seashore, S. E. (1966). Predicting organizational effectiveness with a four-factor theory of leadership. *Administrative Science Quarterly*, *11*, 238-263. doi:10.2307/2391247
- Brown, D. J., & Lord, R. G. (1999). The utility of experimental research in the study of transformational/charismatic leadership. *The Leadership Quarterly*, *10*, 531-539. doi:10.1016/S1048-9843(99)00029-6

- Bryman, A. (1992). *Charisma and leadership in organizations*. London, England: SAGE Publications.
- Bryman, A., Collinson, D., Grint, K., Jackson, B., & Uhl-Bien, M. (Eds.). (2011). *The SAGE handbook of leadership*. Thousand Oaks, CA: SAGE Publications.
- Burns, J. M. (1978). *Leadership*. New York, NY: Harper & Row.
- Butler, D., & Geis, F. L. (1990). Nonverbal affect responses to male and female leaders: Implications for leader evaluations. *Journal of Personality and Social Psychology*, *58*, 48-59. doi:10.1037//0022-3514.58.1.48
- Calder, B. J. (1977). An attribution theory of leadership. In B. M. Straw & G. R. Salancik (Eds.), *New directions in organizational behavior* (pp. 179-204). Chicago, IL: St Clair Press.
- Cooper, H. (2010). *Research synthesis and meta-analysis: A step-by-step approach* (4th ed.). Thousand Oaks, CA: SAGE Publications.
- Dansereau, F., Graen, G. B., & Haga, W. J. (1975). A vertical dyad linkage approach to leadership within formal organizations: A longitudinal investigation of the role making process. *Organizational Behavior and Human Performance*, *13*, 46-78.
doi:10.1016/0030-5073(75)90005-7
- Day, D. V., & Antonakis, J. (Eds.). (2012). *The nature of leadership* (2nd ed.). Thousand Oaks, CA: SAGE Publications.
- Day, D. V., & Antonakis, J. (in press). The future of leadership. In H. S. Leonard, R. Lewis, A. M. Freedman, & J. Passmore (Eds.), *The Wiley-Blackwell handbook of the psychology of leadership, change and organizational development*. London, England: Wiley Blackwell.

- DeGroot, T., Kiker, D. S., & Cross, T. C. (2000). A meta-analysis to review organizational outcomes related to charismatic leadership. *Canadian Journal of Administrative Sciences, 17*, 356-371. doi:10.1111/j.1936-4490.2000.tb00234.x
- Den Hartog, D. N., & Verburg, R. M. (1997). Charisma and rhetoric: Communicative techniques of international business leaders. *The Leadership Quarterly, 8*, 355-391. doi:10.1016/S1048-9843(97)90020-5
- Denrell, J. (2003). Vicarious learning, undersampling of failure, and the myths of management. *Organization Science, 14*, 227-243. doi:10.1287/orsc.14.2.227.15164
- Denrell, J. (2005). Selection bias and the perils of benchmarking. *Harvard Business Review, 83*(4), 114-119.
- DeRue, D. S., Nahrgang, J. D., Wellman, N., & Humphrey, S. E. (2011). Trait and behavioral theories of leadership: An intergration and meta-analytic test of their relative validity. *Personnel Psychology, 64*, 7-52. doi:10.1111/j.1744-6570.2010.01201.x
- Digman, J. M. (1989). 5 robust trait dimensions--Development, stability, and utility. *Journal of Personality, 57*, 195-214. doi:10.1111/j.1467-6494.1989.tb00480.x
- Downton, J. V. (1973). *Rebel leadership: Commitment and charisma in the revolutionary process*. New York, NY: The Free Press.
- Dubin, R. (1976). Theory building in applied areas. In M. D. Dunnette (Ed.), *Handbook of industrial and organizational psychology* (pp. 17-40). Chicago, IL: Rand McNally.
- Eagly, A. H., & Chaiken, S. (1993). *The psychology of attitudes*. Fort Worth, TX: Harcourt Brace Jovanovich.
- Eagly, A. H., & Chaiken, S. (2007). The advantages of an inclusive definition of attitude. *Social Cognition, 25*, 582-602. doi:10.1521/soco.2007.25.5.582

- Eagly, A. H., & Chin, J. L. (2010). Diversity and leadership in a changing world. *American Psychologist, 65*, 216-224. doi:10.1037/a0018957
- Eagly, A. H., Johannesen-Schmidt, M. C., & van Engen, M. L. (2003). Transformational, transactional, and laissez-faire leadership styles: A meta-analysis comparing women and men. *Psychological Bulletin, 129*, 569–591. doi:10.1037/0033-2909.129.4.569
- Eagly, A. H., & Johnson, B. T. (1990). Gender and leadership style: A meta-analysis. *Psychological Bulletin, 108*, 233-256. doi:10.1037/0033-2909.108.2.233
- Eagly, A. H., & Karau, S. J. (2002). Role congruity theory of prejudice toward female leaders. *Psychological Review, 109*, 573-598. doi:10.1037//0033-295X.109.3.573
- Eagly, A. H., Makhijani, M. G., & Klonsky, B. G. (1992). Gender and the evaluation of leaders: A meta-analysis. *Psychological Bulletin, 111*, 3-22. doi:10.1037//0033-2909.111.1.3
- Evans, M. G. (1970). The effects of supervisory behavior on the path-goal relationship. *Organizational Behavior and Human Performance, 5*, 277-298. doi:10.1016/0030-5073(70)90021-8
- Fiedler, F. E. (1967). *A theory of leadership effectiveness*. New York, NY: McGraw-Hill.
- Fiedler, F. E. (1971). *Leadership*. New York, NY: General Learning Press.
- Fiske, S. T. (2013). *Social cognition : From brains to culture* (2nd ed.). Thousand Oaks, CA: SAGE Publications.
- Fleishman, E. A. (1957). A leader behavior description for industry. In R. M. Stogdill & A. E. Coons (Eds.), *Leader behavior: Its description and measurement* (Research Monograph No. 88, pp. 103-119). Columbus, OH: Ohio State University Bureau of Business Research.

Fletcher, J. K. (2001). *Disappearing acts: Gender, power, and relational practice at work*.

Boston, MA: MIT Press.

Gardner, W. L., & Avolio, B. J. (1998). The charismatic relationship: A dramaturgical perspective. *Academy of Management Review*, *23*, 32-58.

doi:10.5465/AMR.1998.192958

Gardner, W. L., Lowe, K. B., Moss, T. W., Mahoney, K. T., & Cogliser, C. C. (2010). Scholarly leadership of the study of leadership: A review of The Leadership Quarterly's second decade, 2000-2009. *The Leadership Quarterly*, *12*, 922-958.

doi:10.1016/j.leaqua.2010.10.003

Gibb, C. A. (1947). The principles and traits of leadership. *Journal of Abnormal and Social Psychology*, *42*, 267-284. doi:10.1037/h0056420

Gill, M. J. (2004). When information does not deter stereotyping: Prescriptive stereotyping can foster bias under conditions that deter descriptive stereotyping. *Journal of Experimental Social Psychology*, *40*, 619-632. doi:10.1016/j.jesp.2003.12.001

Gilovich, T., Griffin, D. W., & Kahneman, D. (2002). *Heuristics and biases: The psychology of intuitive judgment*. New York, NY: Cambridge University Press.

Goff, M., & Ackerman, P. L. (1992). Personality-intelligence relations: Assessment of typical intellectual engagement. *Journal of Educational Psychology*, *84*, 537-552.

doi:10.1037//0022-0663.84.4.537

Goldberg, L. R. (1990). An alternative description of personality - The Big-5 factor structure. *Journal of Personality and Social Psychology*, *59*, 1216-1229. doi:10.1037//0022-

3514.59.6.1216

- Gottfredson, L. S. (1997). Mainstream science on intelligence: An editorial with 52 signatories, history and bibliography. *Intelligence*, 24, 13-23. doi:10.1016/S0160-2896(97)90011-8
- Graen, G. B., & Uhl-bien, M. (1995). Relationship-based approach to leadership: Development of leader-member exchange (LMX) theory of leadership over 25 years: Applying a multi-level multi-domain perspective. *The Leadership Quarterly*, 6, 219-247. doi:10.1016/1048-9843(95)90036-5
- Greene, C. N. (1977). Disenchantment with leadership research: Some causes, recommendations, and alternative directions. In J. G. Hunt & L. L. Larson (Eds.), *Leadership: The cutting edge: A symposium held at Southern Illinois University, Carbondale, October 27-28, 1976* (pp. 57-67). Carbondale, IL: Southern Illinois University Press.
- Harms, P. D., & Credé, M. (2010a). Emotional intelligence and transformational and transactional leadership: A meta-analysis. *Journal of Leadership & Organizational Studies*, 17, 5-17. doi:10.1177/1548051809350894
- Harms, P. D., & Credé, M. (2010b). Remaining issues in emotional intelligence research: Construct overlap, method artifacts, and lack of incremental validity. *Industrial and Organizational Psychology*, 3, 154-158. doi:10.1111/j.1754-9434.2010.01217.x
- Heckman, J. J. (1979). Sample selection bias as a specification error. *Econometrica*, 47, 153-161. doi:10.2307/1912352
- Heilman, M. E. (2001). Description and prescription: How gender stereotypes prevent women's ascent up the organizational ladder. *Journal of Social Issues*, 57, 657-674. doi:10.1111/0022-4537.00234
- Hogg, M. A. (2001). A social Identity theory of leadership. *Personality and Social Psychology Review*, 5, 184-200. doi:10.1207/S15327957PSPR0503

- Hogg, M. A. (2008). Social identity theory of leadership. In C. L. Hoyt, G. R. Goethals, & D. R. Forsyth (Eds.), *Leadership at the crossroads* (Vol. 1, pp. 62–77). Westport, CT: Praeger.
- Holland, P. W. (1986). Statistics and causal inference. *Journal of the American Statistical Association*, 8, 945-960. doi:10.2307/2289064
- Hooijberg, R., Hunt, J. G., Antonakis, J., Boal, K. B., & Lane, N. (Eds.). (2007). *Being there even when you are not: Leading through strategy, structures, and systems*. Amsterdam, The Netherlands: Elsevier Science.
- House, R. J. (1971). Path-goal theory of leadership effectiveness. *Administrative Science Quarterly*, 16, 321-339. doi:10.2307/2391905
- House, R. J. (1977). A 1976 theory of charismatic leadership. In J. G. Hunt & L. L. Larson (Eds.), *Leadership: The cutting edge: A symposium held at Southern Illinois University, Carbondale, October 27-28, 1976* (pp. 68-81). Carbondale, IL: Southern Illinois University Press.
- House, R. J., & Aditya, R. N. (1997). The social scientific study of leadership: Quo vadis? *Journal of Management*, 23, 409-473. doi:10.1177/014920639702300306
- House, R. J., & Dessler, G. (1974). The path-goal theory of leadership: Some post hoc and a priori tests. In J. G. Hunt & L. L. Larson (Eds.), *Contingency approaches to leadership* (pp. 29-55). Carbondale, IL: Southern Illinois University Press.
- House, R. J., Hanges, P. J., Javidan, M., Dorfman, P. W., & Gupta, V. (2004). *Culture, leadership, and organizations: The GLOBE study of 62 societies*. Thousand Oaks, CA: SAGE Publications.

- House, R. J., Spangler, W. D., & Woycke, J. (1991). Personality and charisma and the U.S. presidency: A psychological theory of leader effectiveness. *Administrative Science Quarterly*, 36, 364-396. doi:10.2307/2393201
- Hunt, J. G. (1991). *Leadership: A new synthesis*. Newbury Park, CA: SAGE Publications.
- Hunt, J. G. (1999). Transformational/charismatic leadership's transformation of the field: An historical essay. *The Leadership Quarterly*, 10, 129-144. doi:10.1016/S1048-9843(99)00015-6
- Hunt, J. G. (2004). Task leadership. In G. R. Goethels, G. J. Sorensen, & J. M. Burns (Eds.), *Encyclopedia of leadership*. (Vol. 4, pp. 1524-1529). Thousand Oaks, CA: SAGE Publications.
- Hunter, J. E., & Schmidt, F. L. (2004). *Methods of meta-analysis: Correcting error and bias in research findings* (2nd ed.). Newbury Park, CA: SAGE Publications.
- Ilies, R., Gerhardt, M. W., & Le, H. (2004). Individual differences in leadership emergence: Integrating meta-analytic findings and behavioral genetics estimates. *International Journal of Selection and Assessment*, 12, 207-219. doi:10.1111/j.0965-075X.2004.00275.x
- Johnson, B. T., & Eagly, A. H. (in press). Meta-analysis of research in social and personality psychology. In C. M. Judd & H. T. Reis (Eds.), *Handbook of research methods in social and personality psychology*. New York, NY: Cambridge University Press.
- Jones, B. F., & Olken, B. A. (2005). Do leaders matter? National leadership and growth since World War II. *The Quarterly Journal of Economics*, 120, 835-864. doi:10.1093/qje/120.3.835

- Judge, T. A., Bono, J. E., Ilies, R., & Gerhardt, M. W. (2002). Personality and leadership: A qualitative and quantitative review. *Journal of Applied Psychology, 87*, 765-780.
doi:10.1037//0021-9010.87.4.765
- Judge, T. A., Colbert, A. E., & Ilies, R. (2004). Intelligence and leadership: A quantitative review and test of theoretical propositions. *Journal of Applied Psychology, 89*, 542-552.
doi:10.1037/0021-9010.89.3.542
- Judge, T. A., & Long, D. M. (2012). Individual differences in leadership. In D. V. Day & J. Antonakis (Eds.), *The nature of leadership* (pp. 179-217). Thousand Oaks, CA: SAGE Publications.
- Judge, T. A., & Piccolo, R. F. (2004). Transformational and transactional leadership: A meta-analytic test of their relative validity. *Journal of Applied Psychology, 89*, 755-768.
doi:10.1037/0021-9010.89.5.755
- 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.
doi:10.1037/0021-9010.89.1.36
- Katz, D., Maccoby, N., Gurin, G., & Floor, L. G. (1951). *Productivity, supervision and morale among railroad workers*. Ann Arbor, MI: Survey Research Center, Institute for Social Research (University of Michigan).
- Kellerman, B. (2004). *Bad leadership: What it is, how it happens, why it matters*. Boston, MA: Harvard Business School Press.
- Kenny, D. A. (1979). *Correlation and causality*. New York, NY: Wiley-Interscience.
- Kenny, D. A., & Zaccaro, S. J. (1983). An estimate of variance due to traits in leadership. *Journal of Applied Psychology, 68*, 678-685. doi:10.1037//0021-9010.68.4.678

- Kenrick, D. T., & Funder, D. C. (1988). Profiting from controversy: Lessons from the person-situation debate. *American Psychologist*, *43*, 23-34. doi:10.1037//0003-066X.43.1.23
- Kerlinger, F., & Lee, H. B. (2000). *Foundations of behavioral research* (4th ed.). Fort Worth, TX: Harcourt Publishers.
- Kerr, S., & Jermier, J. M. (1978). Substitutes for leadership: Their meaning and measurement. *Organizational Behavior and Human Performance*, *22*, 375-403. doi:10.1016/0030-5073(78)90023-5
- Koenig, A. M., Eagly, A. H., Mitchell, A. A., & Ristikari, T. (2011). Are leader stereotypes masculine? A meta-analysis of three research paradigms. *Psychological Bulletin*, *137*, 616-642. doi:10.1037/a0023557
- Law, K. S., Wong, C. S., & Song, L. J. (2004). The construct and criterion validity of emotional intelligence and its potential utility for management studies. *Journal of Applied Psychology*, *89*, 483-496. doi:10.1037/0021-9010.89.3.483
- Lee, K., & Ashton, M. C. (2004). Psychometric properties of the HEXACO Personality Inventory. *Multivariate Behavioral Research*, *39*, 329-358. doi:10.1207/s15327906mbr3902_8
- Lee, K., & Ashton, M. C. (2008). The HEXACO personality factors in the indigenous personality lexicons of English and 11 other languages. *Journal of Personality*, *76*, 1001-1053. doi:10.1111/j.1467-6494.2008.00512.x
- Lewin, K., & Lippitt, R. (1938). An experimental approach to the study of autocracy and democracy: A preliminary note. *Sociometry*, *1*, 292-300. doi:10.2307/2785585
- Liden, R. C., & Antonakis, J. (2009). Considering context in psychological leadership research. *Human Relations*, *62*, 1587-1605. doi:10.1177/0018726709346374

- Lim, B. C., & Ployhart, R. E. (2004). Transformational leadership: Relations to the five-factor model and team performance in typical and maximum contexts. *Journal of Applied Psychology, 89*, 610-621. doi:10.1037/0021-9010.89.4.610
- Loehlin, J. C., McCrae, R. R., Costa, P. T., & John, O. P. (1998). Heritabilities of common and measure-specific components of the big five personality factors. *Journal of Research in Personality, 32*, 431-453. doi:10.1006/jrpe.1998.2225
- Lord, R. G., Brown, D. J., Harvey, J. L., & Hall, R. J. (2001). Contextual constraints on prototype generation and their multilevel consequences for leadership perceptions. *The Leadership Quarterly, 12*, 311-338. doi:10.1016/S1048-9843(01)00081-9
- Lord, R. G., de Vader, C. L., & Alliger, G. M. (1986). A meta-analysis of the relation between personality traits and leadership perceptions: An application of validity generalization procedures. *Journal of Applied Psychology, 71*, 402-410. doi:10.1037/0021-9010.71.3.402
- Lord, R. G., Foti, R. J., & De Vader, C. L. (1984). A test of leadership categorization theory: Internal structure, information processing, and leadership perceptions. *Organizational Behavior and Human Performance, 34*, 343-378. doi:10.1016/0030-5073(84)90043-6
- Lord, R. G., & Maher, K. J. (1991). *Leadership and information processing: Linking perceptions and performance*. Boston, MA: Unwin Hyman.
- Lowe, K. B., & Gardner, W. L. (2000). Ten years of The Leadership Quarterly: Contributions and challenges for the future. *The Leadership Quarterly, 11*, 459-514. doi:10.1016/S1048-9843(00)00059-X

- Lowe, K. B., Kroeck, K. G., & Sivasubramaniam, N. (1996). Effectiveness correlates of transformational and transactional leadership: A meta-analytic review of the MLQ literature. *The Leadership Quarterly*, 7, 385-425. doi:10.1016/S1048-9843(96)90027-2
- Macrae, C. N., & Quadelieg, S. (2010). Perceiving people. In S. T. Fiske, D. T. Gilbert, & G. Lindzey (Eds.), *Handbook of social psychology* (5th ed., pp. 428-462). New York, NY: Wiley.
- Mann, R. D. (1959). A review of the relationship between personality and performance in small groups. *Psychological Bulletin*, 56, 241-270. doi:10.1037/h0044587
- Maxwell, J. A. (1996). *Qualitative research design: An integrative approach*. Thousand Oaks, CA: SAGE Publications.
- Maxwell, J. A. (2010). Using numbers in qualitative research. *Qualitative Inquiry*, 16, 475-482. doi:10.1177/1077800410364740
- Mayer, J. D., Caruso, D. R., & Salovey, P. (1999). Emotional intelligence meets traditional standards for an intelligence. *Intelligence*, 27, 267-298. doi:10.1016/S0160-2896(99)00016-1
- McCann, S. J. H. (2001). Height, societal threat, and the victory margin in presidential elections (1824-1992). *Psychological Reports*, 88, 741-742. doi:10.2466/PR0.88.3.741-742
- McCrae, R. R., & Costa, P. T. (1987). Validation of the 5-factor model of personality across instruments and observers. *Journal of Personality and Social Psychology*, 52, 81-90. doi:10.1037//0022-3514.52.1.81
- McCrae, R. R., & Costa, P. T. (1997). Personality trait structure as a human universal. *American Psychologist*, 52, 509-516. doi:10.1037//0003-066X.52.5.509

- Merolla, J. L., Ramos, J. M., & Zechmeister, E. J. (2007). Crisis, charisma, and consequences: Evidence from the 2004 U.S. presidential election. *Journal of Politics*, *69*, 30-42.
doi:10.1111/j.1468-2508.2007.00492.x
- Miner, J. B. (1975). The uncertain future of the leadership concept. An overview. In J. G. Hunt & L. L. Larson (Eds.), *Leadership frontiers* (pp. 197-208). Kent, OH: Kent State University.
- Miner, J. B. (1993). *Role motivation theories*. New York, NY: Routledge.
- Mischel, W. (1977). The interaction of person and situation. In D. Magnusson & D. Endler (Eds.), *Personality at the crossroads: Current issues in interactional psychology* (pp. 333-352). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Mitchell, G. (2012). Revisiting truth or triviality. *Perspectives on Psychological Science*, *7*, 109-117. doi:10.1177/1745691611432343
- Morgan, S. L., & Winship, C. (2007). *Counterfactuals and causal inference: Methods and principles for social research*. New York, NY: Cambridge University Press.
- Morgeson, F. P., DeRue, D. S., & Karam, E. P. (2010). Leadership in teams: A functional approach to understanding leadership structures and processes. *Journal of Management*, *36*, 5-39. doi: 10.1177/0149206309347376
- Okimoto, T. G., & Brescoll, V. L. (2010). The price of power: Power seeking and backlash against female politicians. *Personality and Social Psychology Bulletin*, *36*, 923-936.
doi:10.1177/0146167210371949
- Patton, M. Q. (2002). *Qualitative research and evaluation methods* (3rd ed.). Thousand Oaks, CA: SAGE Publications.

- Pearce, C. L., Conger, J. A., & Locke, E. A. (2008). Shared leadership theory. *The Leadership Quarterly, 19*, 622-628. doi:10.1016/j.leaqua.2008.07.005
- Petrides, K. V., & Furnham, A. (2000). On the dimensional structure of emotional intelligence. *Personality and Individual Differences, 29*, 313-320. doi:10.1016/S0191-8869(99)00195-6
- Pfeffer, J. (1977). The ambiguity of leadership. *Academy of Management Review, 1*, 104-112. doi:10.5465/AMR.1977.4409175
- Podsakoff, P. M., MacKenzie, S. B., & Podsakoff, N. P. (2012). Sources of method bias in social science research and recommendations on how to control it. *Annual Review of Psychology, 63*, 539-569. doi:10.1146/annurev-psych-120710-100452
- Proctor, R. W., & Vu, K. P. (2006). The cognitive revolution at age 50: Has the promise of the human information-processing approach been fulfilled? *International Journal of Human-Computer Interaction, 21*, 253-284. doi:10.1207/s15327590ijhc2103_1
- Rubin, D. B. (1974). Estimating causal effects of treatments in randomized and nonrandomized studies. *Journal of Educational Psychology, 66*, 688-701. doi:10.1037/h0037350
- Salanick, G. R., & Pfeffer, J. (1977). Constraints on administrator discretion: The limited influence of mayors on city budgets. *Urban Affairs Quarterly, 12*, 475-498. doi:10.1177/107808747701200405
- Schriesheim, C. A., House, R. J., & Kerr, S. (1976). Leader initiating structure: A reconciliation of discrepant research results and some empirical tests. *Organizational Behavior and Human Performance, 15*, 297-321. doi:10.1016/0030-5073(76)90043-X
- Schriesheim, C. A., & Kerr, S. (1977). Theories and measures of leadership: A critical appraisal of current and future directions. In J. G. Hunt & L. L. Larson (Eds.), *Leadership: The*

- cutting edge: A symposium held at Southern Illinois University, Carbondale, October 27-28, 1976* (pp. 9-45). Carbondale, IL: Southern Illinois University Press.
- Scott, K. A., & Brown, D. J. (2006). Female first, leader second? Gender bias in the encoding of leadership behavior. *Organizational Behavior and Human Decision Processes*, *101*, 230–242. doi:10.1016/j.obhdp.2006.06.002
- Shadish, W. R., Cook, T. D., & Campbell, D. T. (2002). *Experimental and quasi-experimental designs for generalized causal inference*. Boston, MA: Houghton Mifflin.
- Shamir, B., Arthur, M. B., & House, R. J. (1994). The rhetoric of charismatic leadership: A theoretical extension, a case study, and implications for research. *The Leadership Quarterly*, *5*, 25-42. doi:10.1016/1048-9843(94)90004-3
- Simonton, D. K. (2003). Qualitative and quantitative analyses of historical data. *Annual Review of Psychology*, *54*, 617-640. doi:10.1146/annurev.psych.54.101601.145034
- Simonton, D. K. (2006). Presidential IQ, openness, intellectual brilliance, and leadership: Estimates and correlations for 42 U.S. chief executives. *Political Psychology*, *27*, 511-526. doi:10.1111/j.1467-9221.2006.00524.x
- Stogdill, R. M. (1948). Personal factors associated with leadership: A survey of the literature. *Journal of Psychology*, *25*, 35-71. doi:10.1080/00223980.1948.9917362
- Stogdill, R. M., & Coons, A. E. (1957). *Leader behavior: Its description and measurement* (Research Monograph No. 88). Columbus, OH: Ohio State University Bureau of Business Research.
- Sy, T., Shore, L. M., Strauss, J., Shore, T. H., Tram, S., Whiteley, P., et al. (2010). Leadership perceptions as a function of race–occupation fit: The case of Asian Americans. *Journal of Applied Psychology*, *95*, 902-919. doi:10.1037/a0019501

- Todorov, A., Mandisodza, A. N., Goren, A., & Hall, C. C. (2005). Inferences of competence from faces predict election outcomes. *Science*, *308*, 1623-1626.
doi:10.1126/science.1110589
- Tversky, A., & Kahneman, D. (1974). Judgment under uncertainty: Heuristics and biases. *Science*, *185*, 1124-1131. doi:10.1126/science.185.4157.1124
- von Hippel, W., Sekaquaptewa, D., & Vargas, P. (1995). On the role of encoding processes in stereotype maintenance. In M. Zanna (Ed.), *Advances in experimental social psychology* (pp. 177-254). San Diego, CA: Academic Press.
- Waldman, D. A., & Yammarino, F. J. (1999). CEO charismatic leadership: Levels-of-management and levels-of-analysis effects. *Academy of Management Review*, *24*, 266-285. doi:10.5465/AMR.1999.1893936
- Wang, G., Oh, I. S., Courtright, S. H., & Colbert, A. E. (2011). Transformational leadership and performance across criteria and levels: A meta-analytic review of 25 years of research. *Group & Organization Management*, *36*, 223-270. doi:10.1177/1059601111401017
- Wilson, T. D., Aronson, E., & Carlsmith, K. (2010). The art of laboratory experimentation. In S. T. Fiske, D. T. Gilbert, & G. Lindzey (Eds.), *Handbook of social psychology* (5th ed., Vol. 1, pp. 51-81). Hoboken, NJ: John Wiley.
- Wood, W., & Eagly, A. H. (2010). Gender. In S. T. Fiske, D. T. Gilbert, & G. Lindzey (Eds.), *Handbook of social psychology* (5th ed., pp. 629-667). New York, NY: Wiley.
- Yukl, G. A. (1999). An evaluation of conceptual weaknesses in transformational and charismatic leadership theories. *The Leadership Quarterly*, *10*, 285-305. doi:10.1016/S1048-9843(99)00013-2
- Yukl, G. A. (2013). *Leadership in organizations* (8th ed.). Boston, MA: Pearson.

- Zaccaro, S. J. (2012). Individual differences and leadership: Contributions to a third tipping point. *The Leadership Quarterly*, 23, 718-728. doi:10.1016/j.leaqua.2012.05.001
- Zaccaro, S. J., Foti, R. J., & Kenny, D. A. (1991). Self-monitoring and trait-based variance in leadership: An investigation of leader flexibility across multiple group situations. *Journal of Applied Psychology*, 76, 308-315. doi:10.1037//0021-9010.76.2.308
- Zaccaro, S. J., Kemp, C., & Bader, P. (2004). Leader traits and attributes. In J. Antonakis, A. T. Cianciolo, & R. J. Sternberg (Eds.), *The nature of leadership* (pp. 101-124). Thousand Oaks, CA: SAGE Publications.
- Zak, P. J., Kurzban, R., Ahmadi, S., Swerdloff, R. S., Park, J., Efremidze, L., et al. (2009). Testosterone administration decreases generosity in the Ultimatum Game. *PLoS ONE*, 4(12): e8330. doi:10.1371/journal.pone.0008330
- Zaleznik, A. (1992). Managers and leaders: Are they different? *Harvard Business Review*, 70(2), 126-135.

Figure 1. A process model of leadership

