



Leader individual differences, situational parameters, and leadership outcomes: A comprehensive review and integration

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ABSTRACT

In this article, we provide a wide-ranging review of recent research on leader individual differences. The review focuses specifically on the explosion of such research in the last decade. The first purpose of this review is to summarize and integrate various conceptual frameworks describing how leader attributes influence leader emergence and leader effectiveness. The second purpose is to provide a comprehensive review of empirical research on this relationship. Also, most prior reviews primarily examined leader personality traits; this review includes a broader array of leader attributes, including cognitive capacities, personality, motives and values, social skills, and knowledge and expertise. The final broad purpose of this paper is to review and integrate situational and contextual parameters into our conceptual framing of leader individual differences. Few, if any, prior reviews have systematically accounted for the critical role of such parameters in cuing, activating, or delimiting the effects of particular leader attributes. We do so in this article.

Introduction

The theme of individual differences that contribute to leadership is the longest-standing research topic in the science of leadership. Zaccaro, LaPort, and Jose (2013) identified reviews of this theme dating back to the 1920s and '30s. In that time span, the degree to which scientists focused high and sustained attention on leader traits and other attributes waxed and waned (Zaccaro, Kemp, & Bader, 2004) until the late 1980s and early '90s, when meta-analyses (e.g., Lord, De Vader, & Alliger, 1986), methodological advances (e.g., Kenny & Zaccaro, 1983), and new conceptual frameworks (e.g., House & Howell, 1992; Mumford, 1986) propelled the topic to a higher level of prominence. Indeed, reflecting this shift, *Leadership Quarterly* published three special issues on leadership and individual differences in 1991 and 1992 (e.g., Fleishman, Zaccaro, & Mumford, 1991).

Over the last 30 years, several increasingly complex models have emerged that describe how individual differences may be related to leadership outcomes. For example, Fleishman, Mumford et al. (1991) offered a taxonomy of functional leadership behavior that provided the basis for the specification of antecedent leader traits and attributes. Mumford, Zaccaro, Harding, Jacobs, and Fleishman (2000) used the fundamental arguments of this taxonomy to propose a process model of leader attributes and behaviors. Zaccaro et al. (2004) expanded this approach to argue for integrated patterns of leader attributes predicting leadership outcomes. Both models specified distal, more stable traits as

antecedents to leader characteristics that were more mutable, and in turn likely proximal predictors of leadership outcomes. Others have described how followers develop schemas and cognitive networks of leader attributes used in making judgments about potential leaders (Dinh & Lord, 2012; Lord, 1985; Lord & Maher, 1993; Shondrick, Dinh, & Lord, 2010). Researchers have also examined how leader traits can have both positive (bright) and deleterious (dark) effects on leadership outcomes (Judge, Piccolo, & Kosalka, 2009). An alternative framework, reflecting the “too-much-of-a-good thing” phenomenon (Pearce & Aguinis, 2013), has argued that moderate levels of leader traits predict outcomes more strongly than high and low levels (Kaiser & Hogan, 2011; Kaiser, LeBreton, & Hogan, 2015). These contributions have answered earlier calls for conceptual advancements (Lord & Hall, 1992) and brought vibrancy to the literature on leader individual differences.

This increase in conceptual sophistication has been matched by a proliferation of empirical summaries and meta-analyses. Between 1986 and 2010, meta-analyses of leader individual differences were published focusing on personality and motives (Bono & Judge, 2004; DeRue, Nahrgang, Wellman, & Humphrey, 2011; Judge, Bono, Ilies, & Gerhardt, 2002; Lord et al., 1986; Stewart & Roth, 2007), intelligence (Judge, Colbert, & Ilies, 2004), sex differences (Eagly, Johannesen-Schmidt, & van Engen, 2003; Eagly & Johnson, 1990; Eagly & Karau, 1991; Eagly, Karau, & Makhijani, 1995; Eagly, Makhijani, & Klonsky, 1992), and social capacities (Day, Schleicher, Unckless, & Hiller, 2002; Harms & Crede, 2010). These meta-analyses demonstrated significant

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corrected correlations between particular leader individual differences and various leadership outcomes. Also, in the period of 1986–2010, these meta-analyses were matched by several summaries of the literature that affirmed the importance of leader traits and attributes for leadership (Hogan & Kaiser, 2005; House & Howell, 1992; Judge et al., 2009; Kirkpatrick & Locke, 1991; Zaccaro et al., 2004).

A recent special issue of *Leadership Quarterly* recognized this growing body of work, and noted the increased complexity of models linking leader individual differences to leadership outcomes (Antonakis, Day, & Schyns, 2012). That special issue contained articles that integrated multistage and information processing perspectives of leader attributes (Dinh & Lord, 2012), offered a pattern or profile approach to both followers' leader perceptions and leader/follower composition (Foti, Bray, Thompson, & Allgood, 2012; Richards & Hackett, 2012), and provided a methodological focus on traits, as measured by self- versus other-ratings (Colbert, Judge, Choi, & Wang, 2012). These articles offered different perspectives that reflected more multifaceted and multivariate combinations of leader individual differences; that is, they went beyond prior approaches that tended to focus on univariate relationships with leadership outcomes (Zaccaro, 2012). The promise of this research led Antonakis et al. (2012) to declare that research on leader individual differences was “at the cusp of a renaissance” (p. 643).

Since that time, there has indeed been an exponential surge in research on leader individual differences. Xu et al. (2014) counted 45 articles on leader traits that were published in *Leadership Quarterly* alone in the 4-year span of 2011–2014, one more than the total number of such articles published in the two decades between 1991 and 2010. For this article, we surveyed issues of *Leadership Quarterly* published in 2015 and 2016, and found an additional 36 articles (including 13 that focused on leader gender). This represents a more than 6-fold increase in the annual mean number of such articles published in just the last 7 years in comparison to the previous 20 years in *Leadership Quarterly*!

The need for an integrative review

Given this explosive growth, we believe there is a need for a comprehensive and integrated review of recent research on leader individual differences. Leadership scholars have complained about a lack of coherence in the leadership literature (Avolio, 2007; DeRue et al., 2011; Tuncdogan, Acar, & Stam, 2017). The rapid proliferation of empirical studies in the past decade has increased this sense of fragmentation (Tuncdogan et al., 2017). Studies have examined a range of individual differences, specified a range of relationships among a variety of personal variables and outcomes, and offered a range of explanatory mechanisms for these relationships. This scattering propagation of different explanatory mechanisms without an integrating framework is perhaps the most chaotic element in the leader individual differences literature. There is a need, then, for a comprehensive conceptual framework that can offer clarity on this growing base of empirical studies by linking their findings through integrated explanatory processes.

A number of literature reviews have appeared through the history of leadership research in order to provide summaries and integrations of the field (see summary by Zaccaro et al., 2013). More recent reviews, both before and during the current period of growth, have varied considerably in the range of individual differences they have covered. For example, the review by Judge and Long (2012) was limited to personality traits, with their effects on leadership outcomes mediated by leadership styles (and motivation to lead). An earlier review by Judge et al. (2009) also focused primarily on personality traits, but included intelligence and leader skills and abilities, albeit with little discussion of the latter. Antonakis (2011) also focused primarily on personality, motives, and intelligence, but questioned the utility of such social capacities as emotional intelligence and self-monitoring. Tuncdogan et al. (2017) continued this primary focus on personality and intelligence. Their model, like the ones by Judge et al. (2009) and

Antonakis (2011), specified genes as critical exogenous predictors of leader traits.

DeRue et al. (2011) offered a model that specified a wider range of leader individual differences under categories of demographics, task competence, and interpersonal competence. The influences of these sets of attributes on leadership effectiveness were mediated by leadership style, as well as followers' attribution and identification processes. Mumford et al. (2000) defined cognitive abilities, personality, and motives as causal precursors of more specific leader problem-solving abilities and skills, which in turn predicted leadership performance. Models offered by Zaccaro et al. (2004) and Zaccaro, Dubrow, and Kolze (2018) also specified additional categories of leader attributes within process models. These contributions point to key leader individual differences beyond personality and intelligence.

Recent reviews have also modeled various antecedents and relationships among leader individual differences. Antonakis et al. (2012) noted the proliferation and contributions of process models that attempted to arrange leader individual differences into sets of characteristics that predicted (a) distal leader traits, (b) proximal leader attributes, (c) leadership styles and leadership behavior, (d) follower behavior, and (e) overall leader effectiveness. In some models, the effects of traits on effectiveness have been mediated by leadership styles and/or behaviors (Antonakis et al., 2012; Judge & Long, 2012; Tuncdogan et al., 2017); others have added follower processes, along with behavioral styles, as mediators of trait influences on outcomes (DeRue et al., 2011; Dinh & Lord, 2012). In still others, these relationships have been mediated by more specific leader knowledge, skills, and abilities (KSAs), which in turn have influenced outcomes (Antonakis, 2011; Judge et al., 2009; Zaccaro et al., 2004; Zaccaro et al., 2018). This proliferation of mediational models suggests a need for an integrating framework of leadership effectiveness that places particular individual differences and behavioral styles at different stages of a process model, with a clear conceptual rationale, supported by prior empirical findings, for the various placements.

Several of these models have also specified moderators of the relationships between leader individual differences and outcomes, with the most common being the leader's context or situation. The role of situation has been a conundrum in past research on leader individual differences. Most process models of leader individual differences have posited a role for situations. However, this role has often been left obtuse or treated in fairly narrow ways. Some models have argued that situational variables determine which leader traits predict leadership effectiveness in different contexts, thus acting as a moderator of trait influences (Ayman & Lauritsen, 2018; Fiedler, 1967). Others have argued that the situational performance requirements determine which leadership behaviors will be most functional for effective leadership, thus acting as a direct determinant of leadership behavior (Hersey & Blanchard, 1969; Mumford et al., 2000; Vroom & Jago, 1988; Zaccaro et al., 2004; Zaccaro et al., 2018). Still other models have argued that the situational or environment moderators may influence the degree to which leadership behaviors influence particular leadership outcomes (Ayman & Lauritsen, 2018; Dinh & Lord, 2012; Judge et al., 2009).

Some researchers have argued for more integrated person-situation perspectives. Trait activation models have posited that situational factors cue particular leader individual differences, both in terms of providing a context for trait expression (Tett & Burnett, 2003; Tett & Guterman, 2000) and influencing follower information processing (Dinh & Lord, 2012). Other approaches have argued that leader individual differences determine perceptions of the environment and subsequent reactions to situational characteristics. In these approaches, situational influences have been embodied in the leader's perceptions of the situation and selection of behavioral responses to those perceptions (Dinh & Lord, 2012; Hooijberg, 1996; Zaccaro, Gilbert, Thor, & Mumford, 1991).

These different models and perspectives suggest significant complexity and ambiguity regarding the role of situational characteristics in

the development, influence, and expression of leader attributes. Most of the aforementioned models of leader individual differences and leadership outcomes have treated the influences of the leader's context in vague or nonspecific terms. Researchers have therefore called for greater clarity regarding the situational characteristics or dimensions that may influence leadership behavior, either directly or by moderating the influences of leader traits (Dinh & Lord, 2012; Hoffman & Lord, 2013; Zaccaro, 2012).

The goals of this review

This integrative review is intended to address some of the issues we have noted with prior models, summaries, and reviews of the leader individual difference literature. In this review, we strive to achieve several goals. First, we offer a conceptual framework that integrates several other previous models of leader individual differences. This framework reflects core assumptions across these models, and adds additional ones. As we noted earlier, theories and explanatory mechanisms behind proposed relationships in prior models have been generally fragmented, incomplete, or absent. In our framework, we integrate and expand upon prior explanations to better inform the placement of attributes in phases of a process model of leader individual differences.

Second, our model reflects a multivariate perspective that emphasizes both additive and pattern combinations of leader individual differences (Zaccaro et al., 2013; Zaccaro et al., 2018). Most of the exponential increase in leader individual difference research over the last 6 years has focused on more complex relationships than those between single predictors and outcomes. In this review, we provide a comprehensive and updated summary of the empirical evidence for several multivariate models of individual differences, including variable, pattern, and process models of leader attributes. Our intent is to extract from this review well-grounded conclusions about the relationships among combinations of leader individual differences and leadership outcomes.

The final goal of this review, and the one that may provide the most substantive contribution to the extant leadership literature, is to systematically integrate the role of the leadership situation into a model of leader individual differences. Personality theorists have provided more advanced conceptual frameworks on how the integration of personality and situational characteristics influences subsequent behavioral expression (e.g., Dalal et al., 2015; Fleeson & Jayawickreme, 2015; Rauthmann et al., 2014; Tett & Guterman, 2000). With few exceptions (e.g., De Hoogh, Den Hartog, & Koopman, 2005; Dinh & Lord, 2012; Ng, Ang, & Chan, 2008; Phaneuf, Boudrias, Rousseau, & Brunelle, 2016), these advancements have not made their way into the mainstream of research on leader individual differences and contexts. In this review, we examine the role of individual differences in the leader's responses to situational characteristics. We also provide examples of task and social situational parameters that afford the expression of particular leader attributes. We intend that these elements of our review provide new ways to consider leadership situations in future research.

Leader individual differences and leadership outcomes: two influential pathways

While early work on leader individual differences tended to be mostly descriptive and atheoretical (Zaccaro et al., 2013), later research has reflected two sets of explanatory mechanisms used by leadership scholars to specify the leader qualities expected to predict leadership outcomes. The first of these mechanisms is the *performance requirements matching* approach, while the second is the *social information processing* approach. The performance requirements matching approach links the delineation of efficacious leader individual differences to the role and functional expectations engendered by leadership positions. Thus, the key explanatory mechanism in this approach is the degree to which the

range of personal attributes possessed by the leader fits or matches the performance requirements of the leader's role; the higher the match, the higher the promise of leadership effectiveness. Coffin (1944) provided an early rendition of this approach with his three-component model of leadership. He argued that leadership researchers should first define the functions of leaders and executives, and then specify personality traits that correspond to these functions. He proposed three general categories of leadership functions: planning, organization, and persuasion. He then compiled 135 traits from previous research studies, grouped them into 11 trait clusters, and sorted these clusters according to the leadership functions they most enabled. This analysis, based on selection and job analysis procedures made popular by industrial psychologists earlier in the 20th Century, provided a stronger conceptual rationale for the specification of traits than had appeared in the literature to that date. However, Coffin's contribution has gone relatively unnoticed, garnering only 44 citations to date (as of September 30, 2017) in the extant literature, according to Google Scholar.

The performance requirements matching approach remained fairly dormant in the leadership literature in the approximately four decades or so following Coffin (1944), perhaps reflecting the general lack of research interest in leader traits in this period. Katz and Kahn (1978) provided a notable exception. They defined three sets of leadership processes—origination, interpolation, and administration—which corresponded to the top echelons, intermediate levels, and lower levels of organizational leadership. They then specified three sets of cognitive and affective abilities and skills, respectively, for these leadership processes. Hunt (1991) and Zaccaro (2001) proposed similar delineations of leader attributes based on changing functional requirements at different organizational levels.

Since 1990, researchers have increasingly relied on the performance requirements matching approach to justify the specification of leader traits and attributes. Fleishman, Mumford et al. (1991) developed a classification of leadership behavior based on the functional perspective of leadership as organizational problem-solving activities intended to achieve goals related to organizational adaptation and success. While they alluded only briefly to linkages between their classification and leader traits, Mumford et al. (2000) used the functional requirements of organizational leadership to define sets of cognitive and social leadership skills that contributed to effective organizational problem-solving. Mumford, Todd, Higgs, and McIntosh (2017) provided the most recent extension of this work by delineating eight critical cognitive skills, reflecting different aspects of the problem-solving process, associated with leadership performance. In another example of this approach, Locke and Allison (2013) noted the demanding and complex nature of chief executive officer (CEO) work, and specified sets of CEO traits and skills that positioned the senior executive to handle the challenges of such work.

Zaccaro et al. (2013) adopted the approach originally championed by Coffin (1944) to link leader attributes to functional requirements of the leadership role. They surveyed the literature that provided job analysis information regarding leadership roles, and defined three sets of leadership performance requirements: cognitive, social, and self-motivational. They then specified corresponding requisite leader attributes for each set of requirements. Thus, they argued that cognitive performance requirements necessitated skills such as complex problem solving, creative thinking, cognitive complexity and flexibility, and self-regulation, as well as traits such as intelligence, openness, emotional stability, and conscientiousness. Social requirements suggested attributes such as social acuity, behavioral flexibility, communication and negotiation skills, conflict management skills, extraversion, and agreeableness. Motivational requirements called for traits such as dominance, need for power and achievement, resiliency, and emotional stability.

The performance requirements matching approach provides a sound theoretical foundation for the specification of leader individual differences that contribute to effective leadership performance. The key

mechanism in this approach is to maximize the match between individual differences and leader role performance requirements. Leader traits and attributes are then to be specified according to the strength of this matching. Arguably, then, this approach appears to fit with the actuality trait route described by Antonakis (2011), which defines traits in terms of their validation for actual effectiveness in the leader role. Antonakis also described a second route, called the ascription trait route, which argues that individuals perceived to have certain characteristics expected of leaders are more likely to attain leadership positions. This route reflects the social information processing perspective of leader individual differences and leadership outcomes.

The social information processing approach links the delineation of leader individual differences to the cognitive schemas and information processes of observers who provide or withhold endorsements of leader role candidates (Lord, Foti, & De Vader, 1984; Lord & Maher, 1993). According to this view, individuals acquire leadership roles when their perceived attributes approximate those coded in the cognitive representations of observers and potential followers. They gain credence as leaders depending upon their degree of match to the shared leader schemas of group members (Hollander & Julian, 1969; Lord & Maher, 1993). Leader traits, then, are socially constructed by followers and used to evaluate leader role fit. As Lord and Maher (1993) noted, “while traits may not be potent *causes* of a leader's behavior, they are important summary labels that help perceivers understand and predict a leader's behavior. In other words, traits, like beauty, are in the eye of the beholder” (p. 31).

The roots of this perspective appeared early in the history of leadership research, coincident with the emergence of the performance requirements approach suggested by Coffin (1944). Gibb (1947) critiqued Coffin's leadership functions as reflecting greater degrees of social distance between leaders and followers. However, he asserted that (p. 270–271):

There can be no leader without followers. An individual's intellectual quality may be very superior and his individual solution of a group problem may be excellent but he is not a leader until his solution is communicated, and then not until other people are associated with him in giving expression to his ideas. Leader and follower must be united by common goals and aspirations and by a will to lead, on one side, and a will to follow, on the other, i.e., by a common acceptance of one another. From this it follows that the individual must have membership character in the group which makes him its leader, because leaders and followers are interdependent.

Gibb argued for a more situational perspective of leadership, in which each leadership context demands particular traits that become the basis for leader selection or emergence.

This perspective was also reflected in Hollander's work on followership that emerged in the 1960s. For example, Hollander and Julian (1969) argued that “personality characteristics which may fit a person to be a leader are determined by the perceptions of the followers, in the sense of the particular role expectancies and satisfactions, rather than by the traits measured via personality scale scores” (p. 389); or, as Lord et al. (1986) summarized, “followers would tend to *allow* others to lead when those others matched followers' ideas of what good leaders should be” (p. 403). This argument contributed to the emergence of leader categorization theory (Lord et al., 1984), which specifies that cognitive constructions about leadership consist of three levels. The first level reflects the most generic view of leadership, the second pertains to broad domains of leadership (e.g., business, politics, etc.), and the third refers to more specific contexts within these domains. According to Lord et al. (1984), traits at the first level are most discriminating between leaders and non-leaders. However, as leadership situations become less generic, follower leader prototypes become correspondingly more contextualized, reflecting attributes differentiating leaders from non-leaders within a particular leadership domain. At each level,

though, follower cognitive representations are used to identify leaders with endorsements of leader role occupancy, a function of prototype matching.

More recently, Lord and his colleagues have extended these notions by defining leader prototypes as “connectionist network[s] where traits are each represented as nodes that are connected to other closely related traits (or nodes) by systems of network pathways” (Dinh & Lord, 2012, p. 655; see also Shondrick et al., 2010). Dinh and Lord (2012) noted that different situations may activate or suppress different nodes and connections within the network. Thus, they suggested that (p. 655):

In a *competitive* environment, for instance, leadership prototypes may center more on individual characteristics that emphasize ‘dominance’ and ‘aggression.’ However, in contexts that center on cooperation, a different type of leadership prototype may become active — e.g., one that views traits such as being ‘sensitive’ and ‘generous’ as being important leadership characteristics.

Research on leader traits has often reflected a contrast between a focus on leadership perceptions versus leadership effectiveness (Kaiser, Hogan, & Craig, 2008; Lord & Dinh, 2014). Recent models of leader traits have begun to integrate the two perspectives. For example, Dinh and Lord (2012) decomposed the relationship between individual differences and outcomes into (a) individual differences and behavior, and (b) behavior and outcomes. They noted that while the first part, reflecting an “intrapersonal effect” (p. 654), may rest on leader dispositions, the second part, referring to an “external environment effect” (p. 654), reflects how situational contingencies can alter follower prototypes used to process information about leader candidates. Tuncdogan et al. (2017) also argued that the influences of leadership behaviors on outcomes are mediated by follower effects. Antonakis (2011) specified that traits contribute to both actual and ascribed leader skills; actual skills lead to effectiveness, while ascribed skills lead to emergence. However, he noted that leader emergence also contributes to leadership effectiveness. The processes of leader emergence result in greater follower trust and endorsement of leadership actions, which in turn creates conditions for greater success. Similar connections between perception-based leader emergence and (actual) skill-based leadership effectiveness have been proposed by other theorists, as well (DeRue et al., 2011; Judge et al., 2009; Judge & Long, 2012).

The performance requirements and social information processing perspectives both provide conceptually compelling arguments for the role of leader individual differences in leadership outcomes. They offer different bases for the specification of leader traits that (a) foster effective responsiveness to the fundamental performance requirements of setting direction and managing others (Zaccaro, 2001), and (b) compose the followers' prototypes of leader attributes that apply to the most generic level of leaders (the superordinate level in Lord et al., 1984). Both perspectives can account for the variability in the relevance of particular individual differences across situations, as shifts in situational characteristics produce shifts in either (or both) specific performance requirements or in the trait nodes and links activated in follower cognitive networks.

We suggest that, when constructing theoretical arguments for the validity of particular leader traits or combination of traits, researchers provide conceptual explanations that are compatible with the assumptions of both pathways. The strength of the explanation should rest, then, on the degree to which it satisfies the theoretical drivers offered by both of these approaches, by predicting both effectiveness and emergence through follower states. Moreover, models of leader individual differences and outcomes need to account for both cross-situational coherence in leadership outcomes and situational variance in leadership behavior (Zaccaro, Foti, & Kenny, 1991). That is, the model needs to integrate dispositional and situational influences (e.g., Dinh & Lord, 2012). As a starting point for this review, we summarize and integrate prior conceptual frameworks into one that we believe answers these conditions.

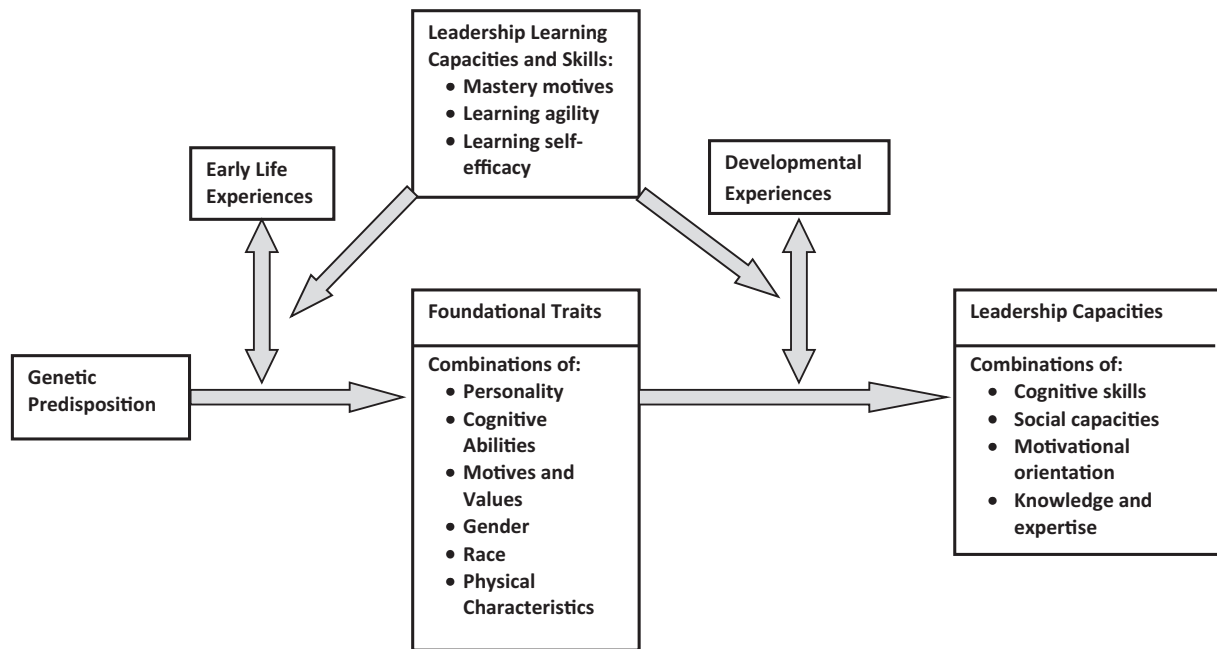


Fig. 1. The antecedents of leader foundational traits and leadership capacities.

Our starting point: an integrated model of leader individual differences

Figs. 1 and 2 illustrate the integrated model that serves as the conceptual starting point for our review. Fig. 1 depicts two main categories of individual differences: foundational traits and leadership capacities. Prior process models have differentiated between distal and proximal predictors of leadership outcomes, with more stable traits acting as distal attributes and more mutable leader KSAs serving as proximal predictors (Antonakis et al., 2012; Mumford et al., 2000; Zaccaro et al., 2004; Zaccaro et al., 2018). However, this distinction implies that “state-like” attributes are more strongly related to leadership outcomes than “trait-like” attributes, a premise that was not supported by Hoffmann, Woehr, Maldagen-Youngjohn, and Lyons's (2011) meta-analysis of leader individual differences. Moreover, this distinction reflects a relative relationship to leadership outcomes, rather than to specific causal connections between distal and proximal traits.

Therefore, to provide greater clarity to these distinct sets of leader individual differences, we relabel them as foundational traits and leadership capacities.

Foundational traits are those individual attributes that orient an individual toward seeking leadership roles and predispose him or her toward the behavioral strategies likely to be successful in that role. They are relatively stable over time and situations. Personality theorists have noted how traits can prompt a proclivity for some types of situations over others (Dalal et al., 2015; Schneider, 1987). Leadership situations typically entail the possibility of solving ill-defined organizational problems, influencing others toward individual and collective actions, and demonstrating high achievement and accomplishment (Fleishman, Mumford et al., 1991; Mumford, 1986). Accordingly, particular facets of conscientiousness (competence, achievement-striving), extraversion (assertiveness, excitement seeking), and openness (actions, ideas) should predispose individual leaders toward leadership situations (Zaccaro et al., 2013). A similar tendency also likely orients

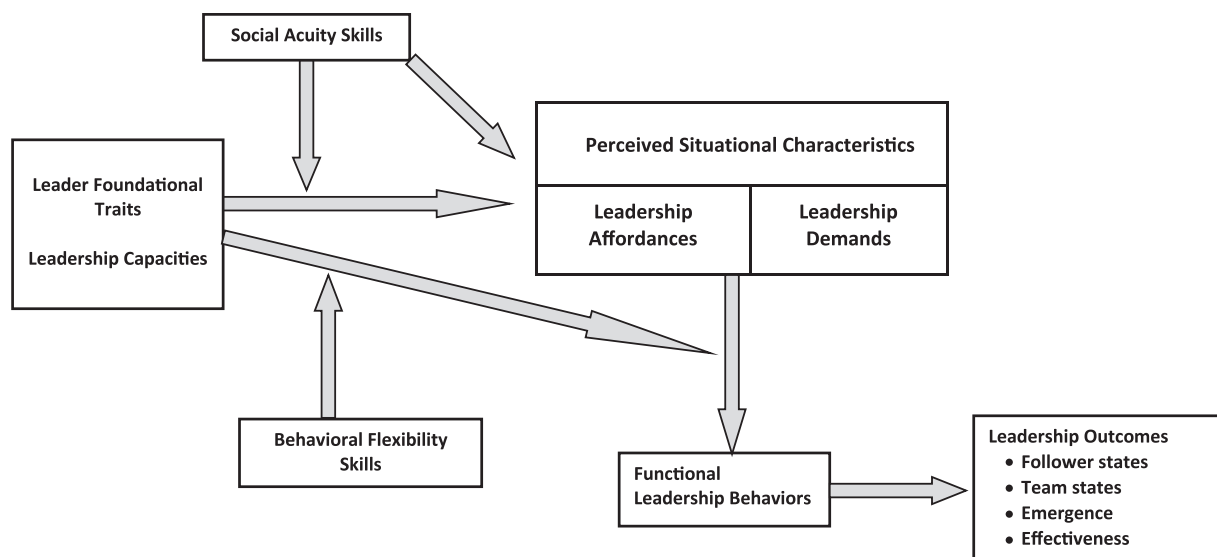


Fig. 2. Relationships of leader individual differences and situational characteristics on leadership outcomes.

people high in power, dominance, and achievement motives. For these reasons, higher levels of foundational traits are likely to be related to leadership emergence and effectiveness.

Foundational traits are also causal precursors to the development and expression of more specific leadership capacities. Such capacities refer to leaders' readiness to express particular behaviors needed to effectively address the range of performance requirements imposed by different leadership situations. They include cognitive and problem-solving skills, social skills, task knowledge, and social expertise. Motivational orientations toward engagement in leadership, such as leader self-efficacy and motivation to lead, also reflect leadership capacities.

Finally, we include leadership behavioral styles as part of this set. Styles such as initiating structure, consideration, transformational leadership, and servant leadership represent a leader's predisposition toward engaging in a relatively stable pattern of behavior. Day and Zaccaro (2007) noted from a personal communication (June 14, 2005) with Edwin Fleishman, who developed the first measures of leadership styles (Fleishman, 1953), that these were generally supposed to be considered relatively stable and consistent behavior patterns, a premise supported by Harris and Fleishman's (1955) empirical study. Some prior conceptual models have conflated behavior styles with expressed leadership behaviors in particular situations. In the current model, we separate them, positing different styles as part of the leader's capacity to engage in certain behaviors.

Leadership capacities are relatively mutable in that they can change and grow as a function of particular developmental activities and experiences. This reflects a second pathway through which foundational traits influence leadership capacities. Such traits not only predispose individuals toward particular leadership performance situations, but they also orient individuals toward particular developmental activities, and increase their readiness for such situations. For example, general cognitive ability, conscientiousness, and achievement motives have been associated with higher training motivation (Colquitt, LePine, & Noe, 2000). Avolio and Hannah (2008, 2009) argued that leader complexity and metacognitive ability predicted readiness for leadership development. Zaccaro (2014) described how preferences for certain leader developmental activities were derived from leader-related values and identity beliefs formed from childhood experiences. These perspectives suggest that foundational traits set the stage for development and growth of more specific leadership capacities.

Fig. 1 posits genetic factors as an antecedent of leader individual differences and outcomes. This premise has been an element in other models of leader individual differences (Antonakis, 2011; Judge et al., 2009; Tuncdogan et al., 2017) and recent research has supported this link (e.g., Li, Wang et al., 2015). However, researchers have also argued the need for greater clarity in understanding how genetic factors influence leadership. Based on an application of the reaction range model (Benson, 1992; Gottesman, 1963), we suggest that genetic influences establish a range of potential in leader foundational traits. The actualization of this potential depends upon developmental activities and experiences. Accordingly, this review examines research on how developmental experiences and the individual differences that facilitate learning from these experiences may influence the growth of foundational traits from genetic potential, as well as from traits to leadership capacities.

Fig. 2 articulates the pathways between leadership capacities, functional leadership behaviors, and leadership outcomes. Functional leadership behaviors refer to those activities by the leader that promote effectiveness. The present review summarizes the empirical evidence supporting these relationships, particularly referencing studies that have examined complex multivariate combinations among the proximal attributes. However, this model and accompanying review also provides two additional critical elements. We offer a framework for integrating situational parameters as moderators of how proximal attributes influence displayed leadership behaviors. Relying on several

models from the literatures on personality-situation interaction and environmental perception, we examine research on selected situational parameters that cue the expression of particular leader traits and capacities.

This part of our model speaks to the situational responsiveness of effective leaders. However, we add another set of variables that are critical moderators of this responsiveness – the degree to which leaders possess attributes that afford a capacity for them to be flexible in their display of leadership. Prior studies have argued for a role of such variables as cognitive flexibility, social intelligence, and emotional regulation skills in leadership effectiveness (Zaccaro, Foti et al., 1991; Zaccaro et al., 2013). However, other reviews have reported that the observed correlations between such attributes and leadership have been modest at best (Antonakis, 2011). We argue that, in keeping with pattern approaches to leader attributes, profiles of flexibility attributes, combining cognitive and social adaptation skills likely yield higher magnitudes of effects. We also suggest that such profiles act more strongly as moderators of how leader proximal attributes influence the dynamic expression of particular leadership behaviors than as direct antecedents of leadership outcomes.

Foundational traits and leadership capacities

Researchers have identified and found supporting evidence for a large number of individual differences associated with leadership outcomes. Zaccaro et al. (2013) summarized the results of 25 reviews and meta-analyses published between 1924 and 2011, and listed 48 individual differences from these reviews. Table 1 updates this list to include a sample of reviews and meta-analyses published between 2011 and 2017. Based on these more recent studies, we add 17 more individual differences to the original list.

As Table 1 illustrates, a wide range of individual differences have been associated with leadership. Zaccaro et al. (2013) grouped these attributes into cognitive capacities, social capacities, personality, motives, core beliefs, and knowledge. A final category of other attributes included a range of physical traits. While these were touted as important in early reviews (Stogdill, 1948), they were not included in later reviews. However, beginning with Eagly's meta-analyses of gender and leadership (Eagly & Johnson, 1990; Eagly & Karau, 1991), and continuing with more recent studies on age (Chaturvedi, Zyphur, Arvey, Avolio, & Larsson, 2012; Elgar, 2016), height (Elgar, 2016; Stulp, Buunk, Verhulst, & Pollett, 2013), and appearance (Little, 2014; Re & Perrett, 2014), researchers have returned to examining their role in influencing various leadership outcomes.

We would hasten to add that we do not see these as 65 distinct individual differences. As suggested in the table, the leader individual difference literature does appear to suffer from a degree of conceptual overlap, or the type of concept redundancy that is characteristic of some organizational constructs (Morrow, 1993). For example, at their core, metacognitive and self-regulation skills reflect self-reflection of achievement and goal-oriented processes. Cognitive complexity may be a key element of strategic thinking (Zaccaro, 2001). Under social capacities, social intelligence, ability to handle people, and interpersonal skills may reflect comparable attributes. Likewise, several motives such as dominance, power, and ambition may reflect related constructs. Moreover, achievement and dominance are elements of conscientiousness and extraversion, respectively (Digman, 1990; Mount & Barrick, 1995). Table 1 reflects the range of individual differences, denoted by particular measures, that have appeared in the literature. They are grouped into very broad categories. Future research should focus on defining superordinate classifications that combine similar leader individual differences into distinct classes.

Table 1 indicates a mix of individual differences that vary in their stability over time. Some, like intelligence and personality, are relatively fixed, although they too can change over long periods of time (Houkpatin, Boyce, Dunn, & Wood, 2017; Roberts, Walton, &

Table 1
Leader attributes examined by major leadership trait reviews and meta-analyses.

Attributes from reviews and meta-analyses (1924–2011) (Zaccaro et al., 2013)	Reviews and meta-analyses (2011–2017)															
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	
<i>Cognitive Capacities</i>																
Intelligence (23) ^b	X	X	X									X			X	
Divergent/Creative Thinking (7)		X											X			
Insight (4)																
Wisdom ^a													X			
Complex Problem Solving Skills (4)												X				
Cognitive Complexity (3)															X	
Cognitive Flexibility (3)																
Metacognitive Skills (2)																
Judgment/Decision Making Skills (10)															X	
Organizing and Admin. Skills (8)																
Ability to Learn (1)															X	
Self-regulation Skills ^a												X				
Strategic Thinking ^a															X	
<i>Social Capacities</i>																
Social Intelligence/Int. Sensitivity (11)															X	
Self-Monitoring Skills (3)																
Behavioral Flexibility (4)																
Emotional Regulation Skills (7)															X	
Ability to Handle People (3)																
Interpersonal Skills (6)		X													X	
Communication Skills (12)															X	
Persuasion Skills ^a															X	
Political Skills ^a															X	
<i>Personality</i>																
Big Five																
Extraversion (14)	X	X	X	X					X	X		X		X	X	
Conscientiousness (11)	X	X	X						X			X		X		
Openness (8)	X	X	X						X			X		X		
Agreeableness (9)	X	X	X	X					X			X		X		
Neuroticism/Emotional Stability (14)	X	X	X						X	X		X		X	X	
Optimism (3)																
Adaptability (5)																
Flexibility (3)																
Charisma (3)																
Positive/Negative Affectivity (2)										X				X		
Narcissism ^a			X		X							X				
Psychopathy ^a			X									X				
Stress Tolerance/Resilience (2)															X	
<i>Motives</i>																
Dominance (12)			X												X	
Power (6)	X							X								
Achievement (7)	X							X							X	
Affiliation ^a	X							X								
Motivation to Lead (3)			X													
Drive/Purpose (7)																
Energy (9)																
Ambition (9)																
Tenacity/Persistence (10)																
Proactivity/Initiative (11)																
<i>Core Beliefs/Self Evaluation</i>																
Locus of Control (2)			X												X	
Self-Confidence/Self-efficacy (13)		X	X												X	
<i>Knowledge and Skills</i>																
Knowledge of Situation (Tacit) (5)																
Knowledge of the Business (9)																
Experience ^a		X										X				
Tenure ^a												X		X		
Education Level ^a												X		X		
<i>Other</i>																
Masculinity-Femininity (2)		X														
Machiavellianism ^a			X									X				
Authoritarianism ^a		X														
Nurturance (1)																
Conservatism (3)																
Honesty/Integrity (9)																
Originality/Creativity (6)																
Humility/Modesty (1)																
Courage (4)																
<i>Physical traits</i>																
Gender ^a							X								X	
Age ^a						X						X	X		X	

(continued on next page)

Table 1 (continued)

Attributes from reviews and meta-analyses (1924–2011) (Zaccaro et al., 2013)	Reviews and meta-analyses (2011–2017)														
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Height ^a															
Appearance ^a															
Genes ^a	X												X		

A = Antonakis (2011); B = Ensari et al. (2011); C = Judge and Long (2012); D = Dulebohn, Bommer, Liden, Brouer, and Ferris (2012); E = Grijalva (2013); F = Walter and Scheibe (2013); G = Paustian-Underdahl, Walker, and Woehr (2014); H = Spangler et al. (2014); I = Deinert, Homan, Boer, Voelpel, and Gutermann (2015); J = Joseph, Dhanani, Shen, McHugh, and McCord (2015); K = Wang, Holmes, Oh, and Zhu (2016); L = Tuncdogan et al. (2017); M = Mumford et al. (2017); N = Mackey, Frieder, Brees, and Martinko (2017); O = Finkelstein, Costanza, and Goodwin (2017).

^a Individual differences added to the original list from Zaccaro et al. (2013)

^b Number in parentheses refers to the number of times the individual difference was mentioned across the 25 reviews and meta-analyses listed in Table 2 from Zaccaro et al. (2013)

Viechtbauer, 2006; Shiner, Allen, & Masten, 2017; Wettstein, Tauber, Kuzma, & Wahl, 2017). Others, such as social skills and knowledge, are more mutable in the short- and medium-term. The former also act to establish a platform for the growth and utilization of the later. We label more stable attributes as foundational traits and more mutable ones as leadership capacities.

Foundational traits

Foundational leader traits are those individual differences that (a) predispose an individual toward broad engagement in the leader role and in more specific manifestations of that role in particular contexts (*role predisposition*), and (b) facilitate the leader toward the growth and development of more specific skill sets (*growth facilitation*). For example, leadership tasks are likely to be cognitively demanding in terms of their performance requirements (Zaccaro et al., 2013). Higher levels of intelligence increase the likelihood of engaging such tasks (Wilk, Desmarais, & Sackett, 1995). Higher intelligence increases the gains in cognitive skills such as problem solving (Fung & Swanson, 2017) and divergent thinking (Furnham, Crump, Batey, & Chamorro-Premuzic, 2009; Shi, Wang, Yang, Zhang, & Xu, 2017) that can accrue from developmental experiences. It would also facilitate the development of more elaborate knowledge structures and expertise, which has been indirectly supported by studies linking higher cognitive abilities and career development (Judge, Klinger, & Simon, 2010; Lubinski & Benbow, 2006), training motivation (Colquitt et al., 2000), and developmental readiness (Avolio & Hannah, 2008, 2009).

A similar construction can be established for extraversion (Furnham, 1981). People high in this trait exhibit a preference for situations that entail being assertive and interacting with others (Serban et al., 2015; Taggar, Hackett, & Saha, 1999). As leader roles require engagement with multiple stakeholders and exerting influence on others, higher extraversion would lead to increased engagement in such roles (Ensari, Riggio, Christian, & Carslaw, 2011). As individuals engage more frequently in socially-oriented roles, especially earlier in their lives, they may develop a greater array of interpersonal skills.

Similar arguments can be made for other cognitive and personality foundational traits, as well as for motives. Moreover, the role of physical characteristics as foundational leader traits has experienced a resurgence. Studies have shown that height and facial attraction are significant leadership correlates (Judge & Cable, 2004; Little, 2014). The case for height as a foundational trait is grounded in the role predisposition argument. Height has been associated with a greater dominance orientation and consequently more leader role endorsements by followers (Stulp et al., 2013). Studies have also demonstrated significant associations between facial appearance and leadership. Certain facial features such as degree of masculinity, width-to-height ratio, and facial attractiveness have been associated with leader role acquisition and success in such roles (Re & Perrett, 2014). However, some studies have suggested that the influence of facial appearance depends upon the particular desired leader attributes. Thus, more

masculine-looking faces were preferred for competitive tasks while feminine-looking faces were preferred for tasks requiring more collaboration or cooperation (Little, 2014; Spisak, Homan, Grabo, & van Vugt, 2012).

Leadership capacities

Leadership capacities refer to KSAs and leadership styles that predispose individuals toward particular leadership behaviors in different leadership contexts. In essence, they reflect dominant response tendencies in a hierarchy of possible responses (Spence, 1956) within and across leadership situations. Thus, they indicate the behaviors leaders are likely to express when in situations requiring leadership responses. For example, when placed in cognitively demanding situations, the more dominant response tendencies of leaders with higher cognitive capacities are more likely to reflect the rapid utilization of related skills and knowledge. When placed in situations with a high social load, dominant responses of leaders with higher social capacities may reflect such skills as communication, networking, and social and emotional regulation skills.

Leadership capacities emerge and grow through developmental experiences over time. Cognitive capacities include problem solving skills, creative thinking, strategic thinking, wisdom, metacognitive skills, cognitive flexibility, and judgment and decision-making skills. Social capacities include communication skills, persuasion and negotiation skills, social acuity skills, behavioral flexibility, emotion regulations skills (typically labeled emotional intelligence in the extant literature), and political savvy. Motivational orientation refers to such attributes as motivation to lead, self-efficacy, and energy. Knowledge includes functional expertise and tacit knowledge. Leadership styles include transformational and transactional leadership, servant leadership, ethical leadership, initiating structure, and consideration.

Foundational traits and leadership capacities: multivariate evidence

A critical and persistent concern that researchers have voiced over the history of leader trait research has been the overabundance of single-variable studies. For example, Lord and Hall (1992, p. 153) noted that “too much research in the past has attempted to probe the complex issue of leadership using simple bivariate correlations. The prediction of leadership is likely to be a multivariate problem. Unfortunately, simple correlational analyses obscure much of the complexity in leadership processes.” Such simple approaches to empirical studies on leader individual differences leave them susceptible to the omitted variable bias (Zaccaro, 2012). Other scholars have argued that traits are not necessarily orthogonal (Ones, Viswesvaran, & Dilchert, 2005), and that research on leader traits needs to focus on their relative contributions to outcomes (DeRue et al., 2011).

Recent studies have answered these admonishments, as the literature has featured a significant increase in the number of multivariate studies. In summarizing studies of foundational traits, we will focus on

two types of such studies, those that have taken an additive multivariate approach and those that have taken a pattern approach (Foti & Hauenstein, 2007; Zaccaro et al., 2013). Additive approaches consider the unique or relative contributions of individual traits to criteria. Such approaches need to offer distinct explanatory mechanisms for proposed relationships between proposed traits and particular leadership outcomes. They should link traits to (a) specific leader performance requirements, and to (b) contextualized elements of follower prototypes. As an example, DeRue et al. (2011) grounded the relative validity of personality traits in how they fostered particular performance requirements. Thus, they argued that (p. 14):

Highly intelligent and conscientious leaders, for example, will be especially adept at ensuring their followers have sufficient role clarity, structure, and goals to help facilitate task performance. In contrast, to the degree leadership effectiveness criteria focus on affective and relational elements, we expect that the interpersonal attributes of leaders, namely Extraversion and Agreeableness, will be important.

Pattern approaches treat the individual “as an integrated totality rather than as a summation of variables” (Foti & Hauenstein, 2007). This totality reflects the integrated and interactive constellation of multiple leader individual differences. The central argument of these approaches is that leadership outcomes derive from the joint influences of at least two or more leader individual differences (Zaccaro et al., 2004). From the performance requirements perspective, this approach suggests that the combined expression of multiple traits is necessary to effectively address leadership demands. From the information processing perspective, such traits may be linked as part of an integrated cognitive profile in the manner suggested by Dinh and Lord's (2012) connectionist networks.

Variable-centered models: foundational traits

Table 2 summarizes recent additive multivariate evidence for the validity of foundational leader traits in predicting a range of leadership outcomes. These outcomes include general leadership performance, specific dimensions of leadership performance (e.g., leading change, strategic thinking), emergent leadership, leader role occupancy, and several leadership styles. A review of the studies in Table 2 offers several observations. First, most of the studies include only personality and demographic individual differences as variables of interests. Only three of the studies include intelligence (Dragoni, Oh, Vankatwyk, & Tesluk, 2011; Lilienfeld et al., 2012; Reichard et al., 2011). This suggests a need for more studies that examine a wider range of foundational traits, including cognitive abilities and motives and values, along with personality.

Second, the majority of studies provide evidence for contributions of unique variance by multiple personality traits. Across the range of criteria examined in these studies, extraversion and conscientiousness have more often yielded significant amounts of explained variance as significant drivers of leadership outcomes than agreeableness, openness, and neuroticism. This pattern of results is similar to one found by DeRue et al. (2011) in their meta-analysis of research that predates the bulk of studies in Table 2. However, the pattern shifts considerably across different criteria. For example, agreeableness has been associated with a number of leadership outcomes, but the relationship is positive in some studies (e.g., de Vries, 2012), negative in others (e.g., Oh & Berry, 2009), and curvilinear in still others (e.g., Nadkarni & Herman, 2010; see Table 5). Moreover, it tends to explain unique variance in measures of supportive leadership (DeRue et al., 2011), including ratings of leader member exchange (LMX), (Bernierth, Armenakis, Field, Giles, & Walker, 2007), abusive leadership (negatively related; Breevaart & de Vries, 2017), and socially-oriented emergent leadership (Cogliser, Gardner, Gavin, & Broberg, 2012). Similarly, openness has been associated with measures of transformational and charismatic leadership (de Vries, 2012; Garcia, Duncan,

Carmody-Bubb, & Ree, 2014; Zopiatis & Constanti, 2012). This association is not surprising, given that both styles of leadership incorporate intellectual stimulation and inspirational motivation, which in turn may be enhanced by openness to experience.

Variable-centered models: capacities and foundational traits

Table 3 includes studies that examine multiple leadership capacities, with or without including foundational traits. As with studies of only foundational traits, these have also predicted a range of leadership outcomes, including leadership performance and effectiveness, leader emergence and role occupancy, leadership potential, promotion rate, leadership styles, LMX quality, follower satisfaction with the leader, as well as overall job satisfaction, and leader role continuance. A review of these studies suggests a number of conclusions. First, this group of studies examines a greater range of distinct sets of foundational traits than the studies summarized in Table 2. Of the studies that include foundational traits, eight cover only personality traits, while two include only cognitive ability, and two focus only on motives. However, six other studies examine both personality and cognitive traits, one includes personality and motives, and one includes personality, cognitive ability, and motives. As with the studies in Table 2, of the studies in Table 3 that examine personality, extraversion continues to be one of the traits that most consistently explains significant unique variance across a range of outcomes. The studies that indicate conscientiousness as explaining significant unique variance examined leadership performance as the outcome of interest. Agreeableness explained unique variance in measures of follower satisfaction with the leader and the job, and managerial contextual performance (Bakker-Pieper & de Vries, 2013; Bergner et al., 2010). Among the studies in Table 3, other personality traits have not yielded a consistent pattern of explained variance across criteria. Two studies indicated unique variance explained by cognitive ability, after including personality variables in regression equations (Rockstuhl, Seiler, Ang, van Dyne, & Annen, 2011; Serban et al., 2015). Taken together, these findings regarding both foundational traits and leadership capacities indicate that foundational traits contribute unique variance to outcomes, but that the pattern of such contributions shifts across different leadership criteria.

Most of the capacities examined by the studies in Table 3 were from the set of social attributes, primarily emotional intelligence and communication styles, although some studies examined cognitive capacities in the form of writing skills, problem-solving skills and dimensions of wisdom. Others included motivation attributes such as self-efficacy and motivation to lead. Finally, several studies included knowledge in the form of role experience and tenure. As a whole, these studies have provided evidence for significant unique variance explained by these capacities, even after controlling for foundational traits. Some studies have provided evidence of unique contributions from capacities in different sets. For example, Greaves, Zacher, McKenna, and Rooney (2014) reported that emotional intelligence and dimensions of wisdom explained significant variance in ratings of transformational leadership. Rockstuhl et al. (2011) reported that emotional intelligence and prior international experience predicted general leadership effectiveness among military leaders. Troth and Gyetvey (2014) found that problem-solving skills, work engagement, and aspiration levels contributed significant unique variance to ratings of leadership potential. However, we are not aware of any study that has simultaneously examined and found significant variance for candidate attributes from social, cognitive, motivational, and knowledge sets of capacities.

The significant unique variances explained by different capacities shift considerably across leadership criteria. For example, Bergner et al. (2010) reported significant effects for leadership motivation and assertiveness for ratings of managerial task performance, which referred to the manager's technical and administrative responsibilities. Social sensitivity was not related to this outcome. However, contextual performance, which referred to the manager's support for the social and organizational environment, was predicted by social sensitivity and

Table 2
Foundational traits.

Study	Sample Characteristics	Attribute Sets				Outcome: R ²
		Cognitive	Personality	Motives	Other	
Alkahtani, Abu-Jarad, Sulaiman, and Nikbin (2011)	N = 105 Industry = Mixed Occupation = Manager		Conscientiousness ^a Openness to experience ^a Emotional stability Extraversion ^a		Gender Age ^a Race ^a (–) with Leading change (+) with autocratic style Educational level ^a Experience as head of department	Leading change: 0.29 Democratic leadership style: 0.13 Laissez-faire leadership style: 0.14 Autocratic leadership style: 0.34 Involvement leadership style: 0.30
Bernerth et al. (2007)	N = 195 Industry = Mixed Occupation = Supervisor		Conscientiousness Extraversion Agreeableness ^a Openness Neuroticism		Employee conscientiousness ^a Employee extraversion ^a Employee agreeableness (–) Employee openness ^a (–) Employee neuroticism ^a	LMX R ² not reported
Breevaart and de Vries (2017)	N = 107 Male = 52.3% Industry = Business Occupation = Supervisor		(–) Honesty-humility ^a Emotionality Extraversion (–) Agreeableness ^a Conscientiousness Openness to experience		Industry Gender Age Tenure	Abusive supervision: 0.35
Brunell et al. (2008) - Study 1	N = 432 Male = 54.6% Industry = Education Occupation = Student		Exhibitionism Extraversion ^a Agreeableness Conscientiousness Neuroticism Power ^a Exhibitionism Openness	Self-esteem	Sex	Group ratings of leadership R ² not reported
Brunell et al. (2008) - Study 2	N = 408 Male = 31.6% Industry = Education Occupation = Student		Narcissism Power ^a Exhibitionism Extraversion Agreeableness Conscientiousness Neuroticism Openness		Sex Self-esteem	Group ratings of leadership R ² not reported
Cogliser et al. (2012)	N = 243 Male = 55.2% Industry = Education Occupation = Student		Extraversion Agreeableness ^a Conscientiousness ^a Emotional stability Openness to experience			Task-oriented emergent leadership: 0.02 Social-oriented emergent leadership: 0.02
Colbert et al. (2012)	N = 178 Male = 39% Industry: Education Occupation: Student		Neuroticism Extraversion ^a Openness ^a Agreeableness Conscientiousness		Education Sex	Leadership: 0.24
de Vries (2012)	N = 113 Male = 69.9% Industry = Mixed Occupation = Leader		Honesty-humility ^a (–) with Task-oriented leadership (+) with ethical leadership Emotionality ^a Extraversion ^a Agreeableness ^a Conscientiousness ^a Openness to experience		Gender Age ^a (–) with Supportive leadership Education Sector (profit/non-profit) ^a Number of subordinates Years in current leadership position ^a Subordinate gender ^a (0 = F, 1 = M) (–) with Supportive leadership Subordinate age Subordinate yrs w/ current leader ^a (–) Gender ^a (0 = M, 1 = F) Ethnicity (–) Years of experience ^a Time in lead role Accumulated work experience ^a	Ethical leadership Charismatic leadership Supportive leadership Task-oriented leadership R ² not reported
Dragoni et al. (2011)	N = 703 Male = 83% Industry = International consulting Occupation = Executive	Cognitive ability ^a	Extraversion ^a Openness to experience			Assessment center ratings of strategic thinking performance: 0.28

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Table 2 (continued)

Study	Sample Characteristics	Attribute Sets				Outcome: R ²
		Cognitive	Personality	Motives	Other	
Gallagher and Blackstone (2015)	N = 11 Male = 100% Industry = Politics Occupation = US President		Excitement seeking ^a Openness to actions (–) Deliberation ^a Achievement striving ^a Compliance ^a (–) with significant executive orders (+) with policy executive orders (–) Anxiety ^a Openness to experience ^a Conscientiousness ^a (–) for passive avoidant leadership			Presidential executive orders Symbolic and routine Policy Significant <i>R² not reported</i>
Garcia et al. (2014)	N = 242 Male = 10.3% Industry = Elementary School Occupation = Teacher or Paraprofessional		Extraversion Agreeableness ^a Neuroticism ^a (–) for transformational and transactional leadership; (+) for passive avoidant leadership		Age Education Ethnicity Gender (0 = M, 1 = F) (–) for transformational and transactional leadership Tenure	Transformational Leadership Transactional Leadership Passive Avoidant Leadership <i>R² not reported</i>
Harms, Roberts, and Wood (2007)	N = 366 Male = 44.5% Industry = Education Occupation = Student	Intellect	Extraversion ^a Emotional stability ^a Agreeableness ^a Conscientiousness ^a	Dominance ^a Hope for power ^a Fear of power ^a (–) with subjective influence		Social influence: 0.09 Subjective influence: 0.20 Executive office power: 0.12
Harms, Spain, and Hannah (2011)	N = 919 Male = 81% Industry = Military Occupation = Cadet		(–) Skeptical ^a Excitable ^a Cautious Reserved (–) Leisurely ^a Bold Mischievous Colorful ^a Imaginative Diligent ^a Dutiful Openness Extraversion Agreeableness Conscientiousness ^a Emotional stability		Age Sex Year 1 periodic development review (PDR) ^a	Officership (i.e., military leadership competence): 0.15
Kalshoven, Den Hartog, and De Hoogh (2011) - Study 1	N = 91 Male = 68% Industry = Mixed Occupation = Manager		Openness Extraversion Agreeableness Conscientiousness ^a Emotional stability			Ethical leadership: 0.08 <i>Adjusted R²</i>
Kalshoven et al. (2011) - Study 2	N = 150 Male = 77% Industry = Mixed Occupation = Manager		Openness Extraversion Agreeableness ^a (–) With role clarification; (+) with fairness and power sharing Conscientiousness ^a Emotional stability ^a		Gender Direct reports Managerial level(–) with role clarification; (+) with power sharing LMX ^a	Ethical leadership: 0.59 Fairness: 0.34 Power sharing: 0.33 Role clarification: 0.25 <i>Adjusted R²</i>
Lilienfeld et al. (2012)	N = 42 Male = 100% Industry = Politics Occupation = U.S. President	Intelligence	Fearless dominance ^a Impulsive antisociality ^a (+) With willingness to take risks, impeachment resolutions, and tolerance of subordinate unethical behavior Openness Conscientiousness Emotional stability ^a Extraversion Agreeableness ^a (–) With managerial task performance, Neuroticism Extraversion ^a Openness Agreeableness Conscientiousness			Presidential performance indicators, skills, and behaviors <i>R² not reported</i>
Oh and Berry (2009)	N = 277 Male = 73.6% Industry = Energy Occupation = Middle Manager		Openness Conscientiousness Emotional stability ^a Extraversion Agreeableness ^a (–) With managerial task performance, Neuroticism Extraversion ^a Openness Agreeableness Conscientiousness			Managerial task performance: 0.16 Managerial contextual performance: 0.15 <i>Adjusted R²</i>
Reichard et al. (2011)	N = 106 Male = 52.8% Industry = Mixed Occupation = Mixed	IQ	Conscientiousness Extraversion ^a Openness Agreeableness Conscientiousness			Work leadership Duties: 0.14 Transformational leadership: 0.16
Schaumburg and Flynn (2012) Study 2	N = 144 Male = 45.1% Industry = Education Occupation = Students; Staff		Conscientiousness Extraversion Emotional stability Openness		Gender (–) Normative English speaker ^a Familiarity in group	Emergent leadership behaviors: 0.10 <i>Adjusted R²</i>

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Table 2 (continued)

Study	Sample Characteristics	Attribute Sets				Outcome: R ²
		Cognitive	Personality	Motives	Other	
Strang and Kuhnert (2009)	N = 67 Male = 70% Industry = Consulting Occupation = Management Executive		Agreeableness Shame proneness Guilt proneness ^a Conscientiousness Neuroticism Openness to experience Extraversion		Gender Age Leader developmental level ^a	Leader performance: Peer ratings: 0.22 Subordinate ratings: 0.27 Superior ratings: 0.19 Follower salary: 0.19 Follower promotions: 0.11 Follower career satisfaction: 0.06 Follower emotional exhaustion: 0.09 Follower job satisfaction: 0.04 Transformational leadership style: 0.47 Contingent reward leadership style: 0.38 Management by exception leadership style: 0.08 Passive/avoidance leadership style: 0.46 Adjusted R ²
Volmer et al. (2016) (note corrected results)	N = 811 Male = 43.5% Industry = Mixed Occupation = Subordinate Note: Participants are subordinates		Agreeableness Narcissism ^a Psychopathy ^a (–) With follower job satisfaction Machiavellianism ^a (–) With follower career satisfaction		Follower age ^a Follower gender ^a Follower working hours ^a	
Zopiatis and Constanti (2012)	N = 131 Male = 71% Industry = Hotel Occupation = Mixed		Neuroticism Extraversion ^a Openness ^a Agreeableness ^a (–) With passive/avoidance leadership Conscientiousness ^a (–) With passive/avoidance leadership			

^a Significant Beta weight in relation to at least one outcome. Direction of effects are positive unless noted otherwise in parentheses.

leadership motivation. It was also negatively associated with a striving for perfectionism. Foster and Roche (2014) found that emotional intelligence and extraversion, a social capacity and a socially-oriented foundational trait, were associated with ratings of leadership effectiveness and transformational leadership, but not transactional leadership. Rockstuhl et al. (2011) reported that cultural intelligence was positively related to cross-border leadership effectiveness, but not to general leadership effectiveness (with a negative regression weight).

These variances across studies point to the importance of carefully tailoring the selection of individual difference predictors to targeted criteria. Most models of leader individual differences and outcomes tend to be broad in scope, not making more fine-grained distinctions across criteria. However, both the performance requirements matching and the social information processing approaches point the importance of such distinctions. Different criteria give rise to alternative performance requirements that, in turn, suggest greater or less weight on certain individual attributes. For example, transformational leadership styles include components such as individualized consideration and inspirational motivation, which increase the needs for social and motivational individual differences (Avolio & Bass, 1995). Multicultural contexts require greater cultural sensitivity from leaders, increasing the need for cultural intelligence (Rockstuhl et al., 2011). Likewise, follower prototypes of leadership are also likely to shift according to particular criteria. Perceived attributes associated with transformational leaders are more likely to include social characteristics than those associated with transactional leaders (Zhang, 2008). Likewise, follower prototypes of effective cross-cultural leaders are more likely to include attributes such as cultural sensitivity and motivation to work with diverse populations than those of leaders in general (Javidan & House, 2001). Both approaches then offer explanatory mechanisms for how the relative weights of foundational traits and leadership capacities shift across different leadership criteria.

Person-centered models

Antonakis (2011) noted that research on leader trait configurations and patterns “is underdeveloped” (p. 281), and urged more studies of

this topic. As shown in Table 4, researchers have begun to respond to this suggestion. Table 4 summarizes a number of studies that have examined patterns or profiles of three or more leader traits and capacities, indicating a proliferation of such studies over the last decade. This proliferation has been driven in part by increasing use of latent profile and latent class analysis to identify patterns. The studies in Table 4 examine patterns associated with a range of outcomes, including leadership effectiveness, leadership styles (destructive and paternalistic leadership), leader emergence, and CEO differentiation. Two of the studies (Bray, Foti, Thompson, & Wills, 2014; Foti et al., 2012) describe attribute profiles that compose perceptions of leaders.

Several of these studies include variables from within only one of the sets of individual differences shown in Table 1. Four of the studies examine only personality traits, while 1 focuses exclusively on social attributes. Patterns that include personality indicate a similar trend as additive or variable-centered models that include foundational traits. Profiles consistently linked to leadership effectiveness tend to contain either (or both) extraversion and/or conscientiousness as core attributes. For example, O’Neil (2007) found that a profile consisting of extremely high scores on extraversion and conscientiousness was associated with consistent leadership effectiveness over time. However, he also suggested that the dominance and perfectionism factors of extraversion and conscientiousness, respectively, may work against the interpersonal requirements of the leader role. This profile counteracted such effects by also including high scores on agreeableness. O’Neil (2007) also found that a profile consisting of extremely low scores on extraversion and openness and low scores on conscientiousness was linked to a decline in leadership performance over time. However, another profile that also consisted of low scores on conscientiousness, but higher scores on openness, was associated with an increase in leadership effectiveness. This suggests that the aspects of openness associated with preferences for variety and complex problem-solving may counteract deleterious aspects of low conscientiousness for leadership.

Parr, Lanza, and Bernthal (2016) also demonstrated the varying roles conscientiousness could play in leadership effectiveness. Using an assessment center, they examined particular dimensions of leadership

Table 3
Capacities: additive multivariate evidence.

Study	Sample Characteristics	Foundational Traits (Cognitive Abilities; Personality; Motives)	Capacities		Other	Outcome: R ²
			Social	Cognitive Capacities	Motivational Orientation	
Bakker-Pieper and de Vries (2013)	Studies 1 & 2 (combined) N = 220 Male = 33.3%	Agreeableness ^a (P) Openness (P) Emotionality (P) Honesty-humility ^a (P)	(–) Verbal aggressiveness ^a Questioningness ^a Impression manipulativeness			Study 1 & 2 Leader performance: 0.60
	Study 2 N = 118 Male = 36.4%	Extraversion ^a (P) Conscientiousness ^a (P)	Expressiveness ^a Preciseness ^a Emotionality (communication style) ^a			Satisfaction with the leader: 0.63
	Industry = Mixed Occupation = Mixed					Study 2 only Intention to leave: 0.20
						Leader-Member Exchange: 0.59
Balthazard et al. (2009)	N = 262 Male = 51%	Extraversion (P) Conscientiousness (P) Neuroticism (P)		Communication quality Idea density Grammatical complexity ^a	Activity level Initiation of ideas Frequency of participation ^a	Trust in leader: 0.45 Emergent transformational leadership R ² not reported
	Industry = Education Occupation = Student	Agreeableness (P) Openness (P) Extroversion ^a (P)			Team size Gender	
	N = 296 Male = 87%	Hardiness ^a (P) Conscientiousness ^a (P) College entrance equivalency rating ^a (C)				
	Industry = Military Education Occupation = Student		Social judgment		Sex	Leader performance Term 1: 0.06 Term 2: 0.08
Bergner, Neubauer, and Kreuzthaler (2010)	N = 130 Male = 55.4%	Emotional stability ^a (P) Extraversion ^a (P) Openness ^a (P)				
	Industry = Technical and Service Sectors Occupation = Middle Manager	(–) With promotion rate; (+) With contextual performance				
		Agreeableness (P) Conscientiousness ^a (P) General mental ability (C)	Social Sensitivity ^a (–) With task performance; (+) With contextual performance Assertiveness ^a		(–) Perfectionism ^a Achievement motivation ^a (–) Leadership motivation ^a	Task performance: 0.17 Contextual performance: 0.31 Job satisfaction: 0.12 Income: 0.23 Promotion rate: 0.17 Adjusted R ²
	Industry = Financial Services Occupation = Division Executive	Extraversion (P) Conscientiousness (P) Agreeableness (P) Openness (P) Neuroticism (P)	Emotional/social intelligence ^a		Size of division ^a	Sales leadership performance (recruitment): 0.78
Cote, Lopes, Salovey, and Miners (2010)	N = 138 Male = 29.7%	(–) Agreeableness (P) ^a Conscientiousness (P) Emotional Stability (P) Extraversion (P)	Emotional intelligence ^a		Gender	Leadership emergence R ² not reported
	Industry = Education Occupation = Student	Openness (P) Cognitive Intelligence (C) Agreeableness (P) Conscientiousness (P) Emotional Stability (P) Extraversion (P)	Emotional intelligence ^a Self-monitoring		Gender	Leadership emergence R ² not reported
	N = 165 Male = 44.2%					
	Industry = Education Occupation = Student					
Cote et al. (2010)	N = 165 Male = 44.2%					
	Industry = Education Occupation = Student					
de Vries, Bakker-Pieper, and Oostenveld (2010)	N = 279 Male = 52%	Communication Styles Verbal aggressiveness ^a (–) with charismatic and human oriented leadership; (+) with task- oriented leadership Expressiveness ^a Preciseness ^a				Charismatic leadership: 0.69 Human-oriented leadership: 0.79
	Industry = Ministry of Education, Culture and Science Occupation = Mixed					

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Table 3 (continued)

Study	Sample Characteristics	Foundational Traits (Cognitive Abilities; Personality; Motives)	Capacities		Other	Outcome: R ²
			Social	Cognitive Capacities	Motivational Orientation	
Foster and Roche (2014)	N = 208 Male = 62% Industry = Pharmaceutical, Banking, and Financial services Occupation = Mixed	(–) Neuroticism ^a (P) Extraversion ^a (P) Openness (P) Agreeableness (P) Conscientiousness (P)	Assuredness ^a			Task-oriented leadership: 0.30
			Supportiveness ^a Argumentativeness ^a Ability emotional intelligence ^a Self-report emotional intelligence Ability emotional intelligence × Self report emotional intelligence (Interaction) ^a Emotional intelligence ^a		Age Gender Education Tenure	Leadership outcomes: 0.27
Greaves et al. (2014)	N = 77 24.7% Male Industry = Private high school Occupation = Mixed	General mental ability (C) (–) Narcissism ^a (P) (–) Relativism of values and life priorities ^a (M)		Rich factual knowledge about life Rich procedural knowledge about life Recognition and management of uncertainty ^a GPA Intellect	Lifespan contextualism	Transformational leadership: 0.29
			Selfemotions appraisal Others emotions appraisal Use of emotions Regulation of emotions	Affective-identity motivation to lead ^a Non-calculative motivation to lead Social-normative motivation to lead	Age (–) Gender ^a (0 = M, 1 = F) Work experience (–) English as a second language ^a (0 = English as a first language; 1 = English as a second language) (–) Group size ^a Percent females ^a	Leadership effectiveness: 0.32
Hong et al. (2011) Study 2	N = 121 Male = 36.4% Industry = Education Occupation = Student	Extraversion (P) Agreeableness (P) Conscientiousness (P) Emotional Stability (P)	Self-emotions appraisal Others emotions appraisal Use of emotions Regulation of emotions	Affective-identity motivation to lead Non-calculative motivation to lead Social-normative motivation to lead ^a	Age Gender English as a second language Grade Leader experience Group size % Females Integrated solutions Number of meetings Number of emails	Leadership effectiveness: 0.09 (Pseudo-R ² within-group)
						Leader role occupancy: 0.17
Luria and Berson (2013); Study 2	N = 60 Male = 100% Industry = Military Occupation = Soldiers	Cognitive ability (C) Core self-evaluation (P)	Impression management ^a Emotional control Emotional sensitivity Political skills ^a Emotional control × Emotional sensitivity (Interaction) Emotional control × Political skills (Interaction) ^a Emotional sensitivity × Political skills (Interaction) ^a	Motivation to lead ^a	Age	Transformational leadership: 0.63
Mercel, Weffald, and van Iltersum (2016)	N = 278 Male = 42% Industry = Mixed Occupation = Mixed	Core self-evaluation (P) ^a				

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Table 3 (continued)

Study	Sample Characteristics	Foundational Traits (Cognitive Abilities; Personality; Motives)	Capacities		Other	Outcome: R ²
			Social	Cognitive Capacities	Motivational Orientation	
Rockstuhl et al. (2011)	N = 126 Male = 100% Industry = Swiss Military Occupation = Military Officer	General intelligence ^a (C) Agreeableness (P) Conscientiousness (P) Emotional stability (P) Extraversion (P) Openness to experience (P) GMAT scores (C) Conscientiousness (P) Extraversion (P) Emotional stability (P) Openness (P) Agreeableness (P) Shame proneness (P) Guilt proneness (P)	Emotional control × Emotional sensitivity × Political skills (Interaction) Emotional intelligence ^a Cultural intelligence ^a		Age Years of Leadership experience Prior international experience ^a Gender	General leadership effectiveness: 0.19 Cross-border leadership effectiveness: 0.26 Leader Effectiveness: 0.11 Adjusted R ²
Schaumborg and Flynn (2012) Study 3	N = 139 Male = 64% Industry = Mixed Occupation = Mixed	Cognitive ability ^a (C) Extraversion ^a (P) Conscientiousness (P) Cognitive ability × Team type (Interaction) ^a Extraversion × Team type (Interaction) ^a Conscientiousness × Team type (Interaction) Cognitive ability × Density of ties ^a (Interaction) Extraversion × Density of ties ^a (Interaction) Conscientiousness × Density of ties (Interaction) Cognitive ability ^a (C)	Density of network ties ^a	Comfort with technology Comfort × team type (Interaction) Comfort × Density of ties (Interaction) Density of network ties (Interaction)	Team type ^a (face-to-face versus virtual teams) Self-efficacy Self-efficacy × Team type (Interaction) ^a Self-efficacy × Density of ties (Interaction) ^a	Leader emergence: 0.14 Sample 1 = .75 Sample 2 = .14 Sample 3 = .15 Cox & Snell R ²
Serban et al. (2015)	Sample 1: Agent-based modeling sample Sample 2: quasi-experiment, N = 201 Sample 3: experiment, N = 178 Industry = Education Occupation = Student Note: Summary reflects findings in one or more samples					
Siegling, Nielsen, and Petrides (2014)	N = 96 Male = 74% Industry = Not stated Occupation = mixed N = 191 Male = 80.1% Industry = Mixed Occupation = Top Level Executive	Emotional intelligence ^a			Tenure Age (-) Gender ^a (0 = M, 1 = F) Gender Race Age Educational Degree Business sector Tenure Job performance ^a	Leadership status: 18.6% (Cox & Snell R ²) 27.9% (Nagelkerke R ²) Managerial ratings of executive performance: 0.25
Sosik, Gentry, and Chun (2012)		Integrity ^a (P) Bravery ^a (P)	Competency in developing and empowering others Social intelligence ^a	Business perspective capacity		
Troth and Gyetvey (2014)	N = 166 Male = 44.9% Industry = Australian Government Occupation = Mixed N = 60 Male = 50% Industry = Education Occupation = Student	Aspiration ^a (M)	Emotional intelligence	Problem-solving ^a (C)	Engagement ^a	Manager-rated leadership potential: 0.43 Adjusted R ²
Turetgen, Unsal, and Erdem (2008)		Dominance (M)	Self-monitoring ^a		Self-efficacy	Leadership rating: 0.26 Leadership ranking: 0.18
					Self-efficacy	(continued on next page)

Table 3 (continued)

Study	Sample Characteristics	Foundational Traits (Cognitive Abilities; Personality; Motives)	Capacities		Other	Outcome: R ²
			Social	Motivational Orientation		
Zaccaro et al. (2015)	N = 640 Male = 93% Industry = Army Occupation = Officer	Extroversion (P)	Networking skills	Verbal reasoning	(–) Gender ^a (1 = M, 2 = F)	Officer continuance: 0.38
		Stress tolerance (P)	Emotional perceptiveness	Complex problem solving ^a		
Zacher, Pearce, Rooney, and McKenna (2014)	N = 75 Male = 85.3% Industry = Religion Occupation = Religious Leader	Openness (P)	Interpersonal insight	Divergent thinking ^a	Marital status ^a (0 = single; 1 = married)	Leader-member exchange quality: 0.29
		Responsibility (P)	Verbal expression skills	Writing skills		
		Agreeableness (P)	Flexibility		Measurement form	
		Tolerance for ambiguity (P)			Consideration leadership style	
		Dominance (M)			Socially desirable responding	
		Achievement orientation (M)				
		(–) Learning goal orientation ^a (M)				
		Status seeking (M)				
		Extraversion (P)	Emotional intelligence	Personal wisdom ^a		
		Agreeableness (P)				
		Conscientiousness (P)				
		(–) Neuroticism ^a (P)				
		Openness to experience (P)				
		Narcissism ^a (P)				

Motive. S = Social. P = Personality. C = Cognitive. O = Other.

^a Significant Beta weight in relation to at least one outcome. Direction of effects are positive unless noted otherwise in parentheses.

performance, including defining or executing strategy, building partnerships, and translating the message. Two profiles, one characterized by high scores on conscientiousness, but low scores on extraversion and agreeableness (Conscientious Backend Leaders), the other characterized by high scores on all three traits (Power Players), were associated with effectiveness on defining and executing strategy. However, when leadership entailed more socially-oriented performance requirements, the Conscientious Backend Leader displayed the lowest performance scores. Power Players and Creative Communicators, a profile composed of individuals with high extraversion and openness scores, but low conscientiousness scores, performed highest on building partnerships and communication. Power Players who were high on all of the personality traits were most able to handle different performance requirements; the strengths in their profiles allowed them to respond to a wider range of performance requirements.

While intriguing, these findings resulted from studies that included only personality traits in their profiles. One study in Table 4, by Lisak and Erez (2015) focused exclusively on social capacities that should have promoted effectiveness in multicultural contexts. However, successful completion of performance requirements in most leader roles calls for other cognitive, social, and motivational attributes (Zaccaro et al., 2013). Accordingly, leader profiles should also include representatives from these sets of variables. Along this line, LaPort (2012) examined patterns containing individual differences from each of the four attribute sets of personality, cognitive capacities, motives/motivational orientation, and social skills. She found that intelligent extraverts displayed higher leadership effectiveness scores than disengaged introverts. However, her patterns did not yield significant incremental variance over a variable-centered approach. Foti and Hauenstein (2007) did report such incremental variance. They found that a pattern consisting of high scores on intelligence, dominance, general self-efficacy, and self-monitoring was more strongly associated with leader emergence and effectiveness than patterns consisting of lower or mixed scores on these attributes. Foti and her colleagues (Bray et al., 2014; Foti et al., 2012) also examined patterns of social, cognitive, and motivational attributes composing the perceptions followers held of their own and others' leadership. These studies have extended the pattern approach beyond the performance requirements perspective to social information processing models of leadership.

We limit our review to those leader attribute patterns or profiles consisting of three or more individual differences. This is because most studies adopting this perspective have emphasized more than 2 attributes in their examined patterns. However, there have been several other studies that examined interactions of two leader attributions (called "simple attribute" patterns by Zaccaro et al., 2018, p. 40). For example, four studies in Table 3 (Blickle, Kane-Frieder et al., 2013; Foster & Roche, 2014; Mencl et al., 2016; Serban et al., 2015) included interactions among attributes in their sets of either foundational traits or leadership capacities. Multiple tables described later in this article will include studies that denote several other interactions among leader individual differences. Such studies reflect a core premise of pattern approaches that particular combinations of individual differences influence leadership.

Process models of leadership outcomes

Our review to this point has focused on the unique contributions individual differences and patterns of leader individual differences can make to leadership outcomes. These contributions have been considered relative to one another, at the same causal or temporal point. However, most conceptual formulations in reviews of leader individual differences and outcomes that have been proposed over the last 15 years have specified process models in which the effects of leader traits and capacities on the criteria of choice are mediated by other attributes, behaviors, or states (e.g., Antonakis et al., 2012; Judge et al., 2009; Tuncdogan et al., 2017; Zaccaro et al., 2004). Our model in Fig. 1 makes a similar proposition, where foundational traits predict

Table 4
Person-centered or pattern studies of leader individual differences.

Study	Sample Characteristics	Variables in Profile	Method	Findings
Booth, Murray, Overduin, Matthews, and Furnham (2016)	N = 1152 Male = 80.7% Industry = Mixed Occupation = CEOs and senior managers	Neuroticism: Anxiety, Hostility, Depression, Self-conscious, Impulsive, Vulnerable (P) Extraversion: Warmth, Gregarious, Assertiveness, Activity, Excitement seeking, Positive emotion (P) Openness to experience: Fantasy, Aesthetics, Feelings, Actions, Ideas, Values (P) Agreeableness: Trust, Straightforward, Altruism, Compliance, Modesty, Tender-mindedness (P) Conscientiousness: Competence, Order, Dutifulness, Achievement, Self-discipline, Deliberation (P) Social sensitivity (S) Intelligence (C) Dedication (M) Tyranny (P) Authoritarianism (LS) Benevolence (LS) Morality (LS)	Profile analysis	On average, CEOs scored higher on Tender-Mindedness (Agreeableness), and Activity (Extraversion), and lower on Self-Discipline and Deliberation (Conscientiousness). However, results did not show overall profile differences between CEOs and senior managers.
Bray et al. (2014)	N = 483 Male = 24.7% Industry = Education Occupation = Student	Social sensitivity (S) Intelligence (C) Dedication (M) Tyranny (P) Authoritarianism (LS) Benevolence (LS) Morality (LS)	Latent profile analysis	Results indicated four distinct profiles used in perceptions and judgments of leaders. Self-leader profiles were related to ideal leader profiles but not to leader judgment profiles. Ideal leader profiles were associated with leader judgment profiles.
Chou, Sibley, Liu, Lin, and Cheng (2015)	N = 420 Male = 94.9% Industry = Military Occupation = Officers	Emotional stability (P) Extraversion (P) Openness (P) Agreeableness (P) Conscientiousness (P) Adjustment (P) Ambition (M) Intellectance (C) Likeability (S) Prudence (S) Sociability (S) School success (C) Intelligence (C) Dominance (P) General self-efficacy (M) Self-monitoring (S)	Latent profile analysis	A profile consisting of highest scores on morality and benevolence, and lower scores on authoritarianism resulting in higher task performance and lower turnover intentions in followers than other profiles.
Dilchert (2007)	N = 574 Male = 44% Industry = Mixed Occupation = Mixed	Emotional stability (P) Extraversion (P) Openness (P) Agreeableness (P) Conscientiousness (P) Adjustment (P) Ambition (M) Intellectance (C) Likeability (S) Prudence (S) Sociability (S) School success (C) Intelligence (C) Dominance (P) General self-efficacy (M) Self-monitoring (S)	Multiple regression pattern recognition	Profiles high in extraversion and low in agreeableness were related to influencing others and leadership interest. Profiles high in ambition and sociability, but low in adjustment, likeability, and school success, were related to influencing others and leadership interest. Profiles high in extraversion, but low in agreeableness and openness were related to leadership interest. Profiles high in ambition and prudence, but low in adjustment and school success, were related to supervision interest.
Fori and Hauenstein (2007)	N = 81 Male = 100% Industry = the Corps of Cadets (Military) Occupation = Cadet	Intelligence (C) Dominance (P) General self-efficacy (M) Self-monitoring (S)	Cluster analysis	A pattern of high scores on all four attributes was associated with greater scores on measures of leader emergence, promotion, and effectiveness.
Fori et al. (2012)	N = 491 Male = 24.8% Industry = Education Occupation = Student	Social sensitivity (S), Intelligence (C) Dedication (M) Tyranny (P) Cognitive ability (C) Extraversion (P) Emotional Stability (P) Achievement motivation (M) Motivation to Lead (M) Social Intelligence (S)	Latent profile analysis	Prototypical and ideal leader self-perceptions match those preferred of ideal leaders (high intelligence and dedication, and low tyranny).
LaPort (2012)	N = 312 Industry = Army Occupation = Officer	Social sensitivity (S), Intelligence (C) Dedication (M) Tyranny (P) Cognitive ability (C) Extraversion (P) Emotional Stability (P) Achievement motivation (M) Motivation to Lead (M) Social Intelligence (S)	Cluster analysis	Disengaged introverts scored lowest on achievement motivation and moderately on the Armed Forces Qualifications Test (AFQT). Motivated individuals with lower cognitive ability performed high on achievement motivation, and lot on the AFQT. Intelligent extraverts scored highest on all variables (i.e., AFQT, achievement motivation, emotional stability, extraversion, motivation to lead, and social intelligence). Intelligent extraverts exhibited higher scores on leadership behaviors and leadership effectiveness than disengaged introverts.
Lisak and Erez (2015)	N = 317 Male = 53% Industry = Education Occupation = Student	Global identity (S) Openness to cultural diversity (S) Cultural intelligence (S)	Assignments to patterns based on mean differences	Individuals high in all three attributes (global identity, openness to cultural diversity, and cultural intelligence) were more likely to emerge as leaders in multicultural teams than individuals mixed or low on these attributes.
O'Shea, Foti, Hauenstein, and Bycio (2009)	N = 726 Male = 3%	Global identity (S) Openness to cultural diversity (S) Cultural intelligence (S)	Cluster analysis	"Optimal leaders" are those with both high transformational and contingent reward leadership behaviors, with low passive behaviors. (continued on next page)

Table 4 (continued)

Study	Sample Characteristics	Variables in Profile	Method	Findings
O'Neil (2007)	Industry = Healthcare Occupation = Nurse	Transformational (LS) Contingent reward (LS) Passive Management-by-Exception (LS) Conscientiousness (P) Agreeableness (P) Neuroticism (P) Openness (P) Extraversion (P) Humility (p) Justice (P) Transcendence (P) Temperance (P) Narcissism (P) Machiavellianism (P) Conscientiousness (P) Agreeableness (P) Neuroticism (P) Openness (P) Extraversion (P)	Latent class analysis	A profile consisting of lower scores on extraversion, agreeableness, conscientiousness, and temperance was associated with an increase in leadership effectiveness over time. A second profile consisting of average scores extraversion, agreeableness, conscientiousness, and temperance exhibited average and stable levels of leadership effectiveness over time. A third profile consisting higher scores on conscientiousness, extraversion, agreeableness, and temperance exhibited consistently high leader effectiveness ratings over time. A profile consisting of individuals low on agreeableness and conscientiousness and moderate on other attributes resulted in higher destructive leadership scores than all other profiles.
	N = 835 Male = 84.4% Industry = Military Occupation = Cadet			
Olls (2016)	N = 135 Male = 58% Industry = Mixed Occupation = Manager	Conscientiousness (P) Agreeableness (P) Neuroticism (P) Openness (P) Extraversion (P)	Cluster analysis and latent profile analysis	Individuals who scored higher on assessment center performance measures of defining and executing strategy were characterized by two profiles: (a) high scores on conscientiousness but low scores on extraversion and agreeableness ("Conscientious Backend Leaders"), and (b) high scores on all five personality factors ("Power Players"). Conscientious Backend Leaders had the lowest means, while Power Players and Creative Communicators (high scores on extraversion and openness, but low scores on conscientiousness) exhibited the highest ratings on building partnerships and translating messages. Three clusters were identified. 'Alphas' were highest on energy and drive. 'Pragmatics' had low scores on ambition, adjustment, interpersonal traits, sociability, inquisitiveness, and learning. 'Mavericks' are similar to Alphas, but had higher scores on risk and ambiguity. Each cluster displayed different sets of displayed different sets of derailleurs, or dark side traits.
	N = 2461 Male = 75% Industry = Mixed Occupation = 2nd or 3rd level leader	Conscientiousness (P) Agreeableness (P) Neuroticism (P) Openness (P) Extraversion (P)		
Winsborough and Sambath (2013)	N = 151 Male = 78.8% Industry = Mixed Occupation = CEO Incumbent and Candidate	Adjustment (P) Ambition (P) Sociability (S) Interpersonal (S) Prudence (S) Inquisitive (P) Learning (P)	Cluster analysis	Individuals who scored higher on assessment center performance measures of defining and executing strategy were characterized by two profiles: (a) high scores on conscientiousness but low scores on extraversion and agreeableness ("Conscientious Backend Leaders"), and (b) high scores on all five personality factors ("Power Players"). Conscientious Backend Leaders had the lowest means, while Power Players and Creative Communicators (high scores on extraversion and openness, but low scores on conscientiousness) exhibited the highest ratings on building partnerships and translating messages. Three clusters were identified. 'Alphas' were highest on energy and drive. 'Pragmatics' had low scores on ambition, adjustment, interpersonal traits, sociability, inquisitiveness, and learning. 'Mavericks' are similar to Alphas, but had higher scores on risk and ambiguity. Each cluster displayed different sets of displayed different sets of derailleurs, or dark side traits.

M = Motive, S = Social, P = Personality, C = Cognitive, LS = Leadership Style.

Table 5
Process models.

Study	Sample Characteristics	Exogenous Variables (Leader Attributes)	Mediators (Emergent States, Behaviors)	Leadership Outcome	Findings
<i>Leader Attributes → Follower/Team States/Behaviors → Leadership Outcomes</i>					
Hu and Judge (2017)	N = 71 teams (268 members) Male = 87% Industry = Technology Occupation = Technician or Engineer	a) Extraversion b) Extraversion c) Conscientiousness d) Conscientiousness e) Agreeableness f) Agreeableness	a) Team potency b) Leader identification c) Team potency d) Leader identification e) Team potency f) Leader identification	Team in-role and extrarole performance	a) No mediation b) Fully mediated for both performance measures in high team power distance conditions c) Fully mediated for in-role performance only in high team power distance conditions d) No mediation e) Fully mediated for in-role performance only in low team power distance conditions f) Fully mediated for both performance measures in low team power distance conditions
Li, Zhou, et al. (2015)	N = 562 Male = 63.9% Industry = Chinese state-owned energy enterprise controlled by the central government Occupation = Mixed	a) Neuroticism b) Extraversion c) Conscientiousness d) Agreeableness e) Openness	Subordinate collective efficacy	Team performance	a) No mediation b) Fully mediated c) Fully mediated d) No mediation e) No mediation
Nadkarni and Hermann (2010)	N = 195 Industry = Mixed Occupation = Mixed	a) Conscientiousness (–) b) Emotional stability c) Agreeableness d) Agreeableness squared (–) e) Extraversion f) Openness to experience	Organization strategic flexibility	Firm performance	a) Fully mediated b) Fully mediated c) Fully mediated d) Fully mediated e) Fully mediated f) Fully mediated
<i>Leader Attributes → Leadership Behaviors → Leadership Outcomes</i>					
Blickle, Kane-Frieder et al. (2013)	N = 190 Male = 67% Industry = Mixed Occupation = Leader	Position power × Political skill (Interaction)	a) Leader structuring behaviors b) Leader consideration behaviors	Follower satisfaction	a) Fully mediated b) Fully mediated
Cavazotte et al. (2012)	N = 134 Male = 63% Industry = Energy Occupation = Manager	a) Intelligence b) Emotional intelligence, c) Openness, d) Conscientiousness, e) Neuroticism, f) Extraversion, g) Agreeableness h) Conscientiousness i) Emotional stability j) Openness to experience k) Political skill	Transformational leadership	Managerial performance	a) Fully mediated b) No mediation c) No mediation d) Fully mediated e) No mediation f) No mediation g) No mediation h) No mediation i) No mediation j) Fully mediated k) Fully mediated
Colbert et al. (2013)	N = 93 Male = 78.5% Industry = Credit Unions Occupation = CEOs	a) Conscientiousness b) Emotional stability c) Openness to experience d) Extraversion e) Conscientiousness f) Emotional stability g) Openness to experience h) Extraversion i) Political skill	Transformational leadership	a) Org Performance b) Org Performance c) Org Performance d) Org Performance e) Org Commitment f) Org Commitment g) Org Commitment h) Org Commitment	a) No mediation b) Fully mediated c) Fully mediated d) No mediation e) No mediation f) Fully mediated g) Fully mediated h) No mediation
Ewen et al. (2013)	N = 408 leaders; 1429 followers Male = 50% Industry = Education Occupation = Headmaster, teachers	a) Transactional leader behavior b) Transactional leader behavior c) Transformational leader behavior d) Transformational leader behavior	a) Transactional leader behavior b) Transactional leader behavior c) Transformational leader behavior d) Transformational leader behavior	a) Leader effectiveness b) Follower satisfaction c) Leader effectiveness d) Follower satisfaction	a) Fully mediated b) Fully mediated c) Fully mediated d) No mediation
Flynn et al. (2016)	N = 283 Male = 87.5%	Core self-evaluation	Servant leadership	Leader effectiveness	Fully mediated

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Table 5 (continued)

Study	Sample Characteristics	Exogenous Variables (Leader Attributes)	Mediators (Emergent States, Behaviors)	Leadership Outcome	Findings
Hur et al. (2011)	Industry = Education Occupation = Manager, subordinates N = 859 Male = 74% Industry = Public sector Occupation = Mixed Respondents are subordinates	Emotional intelligence	Transformational leadership	a) Leader effectiveness b) Team effectiveness c) Service climate	a) Fully mediated b) No mediation c) Fully mediated
	Luria and Berson (2013): Study 1 N = 182 Male = 100% Industry = Israeli Military Occupation = Recruit	Cognitive ability × Motivation to lead (Interaction)	Teamwork behaviors	Leader emergence	Moderated mediation
Resick et al. (2009)	Industry = Major League Baseball Occupation = CEO	a) Core self-evaluations b) Core self-evaluations c) Core self-evaluations d) Core self-evaluations e) Core self-evaluations f) Core self-evaluations g) Core self-evaluations h) Core self-evaluation i) Narcissism j) Narcissism k) Narcissism l) Narcissism m) Narcissism n) Narcissism o) Narcissism p) Narcissism	a) Transformational leadership b) Transformational leadership c) Transformational leadership d) Transformational leadership e) Contingent reward f) Contingent reward g) Contingent reward h) Contingent reward i) Transformational leadership j) Transformational leadership k) Transformational leadership l) Transformational leadership m) Contingent reward n) Contingent reward o) Contingent reward (–) p) Contingent reward (–)	a) Distal Winning % b) Distal attendance c) Proximal manager turnover d) Executive influence e) Distal Winning % f) Distal attendance g) Proximal manager turnover h) Executive influence i) Distal winning j) Distal attendance k) Proximal manager turnover l) Executive influence m) Distal winning n) Distal attendance o) Proximal manager turnover p) Executive influence	a) Fully mediated b) Fully mediated c) No mediation d) Fully mediated e) No mediation f) No mediation g) No mediation h) No mediation i) No mediation j) No mediation k) No mediation l) No mediation m) No mediation n) No mediation o) Fully mediated p) Fully mediated
Sosik and Dinger (2007)	N = 183 Male = 65% Industry = Corporate Occupation = Manager	a) Need for social approval b) Need for social approval c) Need for social approval d) Need for social approval e) Need for social approval f) Need for social approval g) Need for social power h) Need for social power i) Need for social power j) Need for social power k) Need for social power l) Need for social power m) Self-monitoring n) Self-monitoring o) Self-monitoring p) Self-monitoring q) Self-monitoring r) Self-monitoring	a) Charismatic leadership b) Charismatic leadership (–) c) Contingent reward leadership d) Contingent reward leadership e) Laissez Faire leadership f) Laissez Faire leadership g) Charismatic leadership h) Charismatic leadership (–) i) Contingent reward leadership j) Contingent reward leadership k) Laissez Faire leadership l) Laissez Faire leadership m) Charismatic leadership	a) Inspirational vision theme b) Instrumental vision theme c) Inspirational vision theme d) Instrumental vision theme e) Inspirational vision theme f) Instrumental vision theme g) Inspirational vision theme h) Instrumental vision theme i) Inspirational vision theme j) Instrumental vision theme	a) Fully mediated b) Fully mediated c) Fully mediated d) Fully mediated e) No mediation f) No mediation g) No mediation h) No mediation i) Partially mediated j) Fully mediated k) No mediation l) No mediation m) Fully mediated n) Fully mediated o) No mediation p) No mediation q) No mediation r) No mediation Note: Despite these significant paths, the authors noted (continued on next page)

Table 5 (continued)

Study	Sample Characteristics	Exogenous Variables (Leader Attributes)	Mediators (Emergent States, Behaviors)	Leadership Outcome	Findings
Walter et al. (2012) Study 1	N = 70 Male = 55% Industry = Education Occupation = Student	Emotion recognition × Extraversion (Interaction)	n) Charismatic leadership (–) o) Contingent reward leadership p) Contingent reward leadership q) Laissez Faire leadership r) Laissez Faire leadership	theme k) Inspirational vision theme l) Instrumental vision theme m) Inspirational vision theme n) Instrumental vision theme o) Inspirational vision theme p) Instrumental vision theme q) Inspirational vision theme r) Instrumental vision theme	that “the indirect effects...did not contribute to a practically significant model” (p. 146)
	N = 280 Male = 60 Industry = Education Occupation = Student	Emotion recognition × Extraversion (Interaction)	Task coordination behavior	Leader emergence	Fully mediated in high extraversion leaders Note: Mediation analyses controlled for the attributes of gender, cognitive ability and the remaining Big 5 personality variables
Walter et al. (2012) Study 2	N = 280 Male = 60 Industry = Education Occupation = Student	Emotion recognition × Extraversion (Interaction)	Task coordination behavior	Leader emergence	Fully mediated in high extraversion leaders Note: Mediation analyses controlled for the attributes of gender, cognitive ability, self-monitoring and the remaining Big 5 personality variables
Allen et al. (2014)	N = 1232 Male = 86.6% Industry = Army Occupation = Officer Candidate	a) Cognitive ability b) Hostility to Authority (–) c) Hostility to Authority (–) d) Equity sensitivity (–) e) Equity sensitivity (–) f) Stress tolerance g) Stress tolerance h) Tolerance for injury i) Emotional stability j) cognitive ability	a) Implicit leadership beliefs b) Interest in leadership c) Leadership self-efficacy d) Interest in leadership e) Leadership self-efficacy f) Interest in leadership g) Leadership self-efficacy h) Interest in leadership i) Interest in leadership j) implicit leadership beliefs	a) Leadership performance b) Leadership potential c) Leadership performance d) Leadership potential e) Leadership performance f) Leadership potential g) Leadership potential h. Leadership performance i) Leadership performance j) leadership potential	a) No mediation b) Fully mediated c) Fully mediated d) Partially mediated e) Partially mediated f) Partially mediated g) Partially mediated h) Partially mediated i) Partially mediated j) no mediation
Fearing (2015)	N = 196 Male = 91% Industry = Nuclear Power Consulting Occupation = Leader	a) Neuroticism b) Extraversion c) Conscientiousness d) Openness e) Agreeableness f) Extraversion g) Independence h) Neuroticism i) Conscientiousness	a) Leadership self-efficacy b) Leadership self-efficacy c) Leadership self-efficacy d) Leadership self-efficacy e) Leadership self-efficacy f) Affective identity motivation to lead g) Affective identity motivation to lead h) Noncalculative motivation to lead i) social-normative motivation to lead Political skill	Leadership effectiveness	a) No mediation b) No mediation c) No mediation d) No mediation e) No mediation f) No mediation g) Fully mediated h) No mediation i) No mediation Note: These were hypothesized effects. Tests of an alternative model indicated leadership self-efficacy partially mediated the effect of independence on affective identity motivation to lead
Gentry et al. (2013)	N = 225 Male = 61.3%	a) Perceptiveness b) Affability	a) Decisiveness - Direct report measure b) Decisiveness - Direct	a) Decisiveness - Direct report measure b) Decisiveness - Direct	a) Fully mediated b) not mediated

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Table 5 (continued)

Study	Sample Characteristics	Exogenous Variables (Leader Attributes)	Mediators (Emergent States, Behaviors)	Leadership Outcome	Findings
Guerin et al. (2011)	Industry = Mixed Occupation = Manager	c) Perceptiveness d) Affability		report measure c) Decisiveness - Peer report measure d) Decisiveness - Peer report measure	c) not mediated d) Fully mediated
	N = 106 Male = 54% Industry = Mixed Occupation = Mixed	a) Intelligence b) Intelligence c) Extraversion d) Extraversion	Social skills	a) Transformational leadership b) Leadership work duties c) Transformational leadership d) Leadership work duties	a) No mediation b) No mediation c) Fully mediated d) Fully mediated
Gnambis and Batinic (2012)	N = 417 Male = 41% Industry = Mixed Occupation = Mixed	a) Extraversion b) Extraversion c) Openness to experience d) Openness to experience e) Neuroticism f) Neuroticism g) Typical intellectual engagement h) Typical intellectual engagement i) General self-efficacy j) General self-efficacy	a) Generalized opinion leadership b) Objective knowledge c) Generalized opinion leadership d) Objective knowledge e) Generalized opinion leadership f) Objective knowledge g) Generalized opinion leadership h) Objective knowledge i) Generalized opinion leadership j) Objective knowledge	Domain-specific opinion leadership	a) Fully mediated b) Fully mediated c) Fully mediated d) Fully mediated e) No mediation f) No mediation g) No mediation h) No mediation i) No mediation j) No mediation
Kim and van Dyne (2012) Study 2	N = 181 Male = 29.1% Industry = Mixed Occupation = Mixed	a) Prior intercultural contact (Intercultural knowledge)		International leadership potential	Fully mediated
	N = 394 Male = 100% Industry = Military Occupation = Recruit	a) Neuroticism b) Extraversion c) Conscientiousness	Leadership self-efficacy	Leader effectiveness	a) Partially mediated b) Fully mediated c) Fully mediated
Hendricks and Payne (2007)	N = 100 M = 53% Industry = Education Occupation = Student	Neuroticism Extraversion Conscientiousness Openness Agreeableness	Stage 1 Learning goal orientation Performance goal orientation Stage 2 Leadership self-efficacy Stage 3 Motivation to lead Stage 1 Leadership experiences Motivation to lead Stage 2 Knowledge, skill, and ability to lead	Leadership effectiveness	Note: Mediation analyses controlled for cognitive ability and leadership experience. Also, some effects were moderated by job characteristics (see Table 7) Learning goal orientation partially mediated effects of personality on leadership self-efficacy. Motivation to lead partially mediated the effects of learning goal orientation on leadership effectiveness.
	N = 471 Male = 86.8% Industry = Army Occupation = Noncommissioned Officers	Cognitive ability Conscientiousness Emotional stability Extraversion		Leader Performance	The relationships between personality variables and leader performance were partially mediated by motivation to lead and leadership experiences at stage 1 and KSAs at stage 2. The relationship between cognitive ability and performance was mediated by leader KSAs.
Van Van Iddekinge et al. (2009)				Leader effectiveness	

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Table 5 (continued)

Study	Sample Characteristics	Exogenous Variables (Leader Attributes)	Mediators (Emergent States, Behaviors)	Leadership Outcome	Findings
	N = 120 Industry = Army Occupation = Squad Leader or Company Commander	Cognitive ability Emotional stability Extraversion Achievement motivation	Stage 1 Social intelligence Motivation to lead Stage 2 Leader behaviors		Motivation to lead mediated effects on extraversion and achievement motivation on leadership behaviors, which in turn influenced leadership effectiveness. The effects of cognitive ability on leadership effectiveness were mediated by leadership behaviors. No other mediated paths were significant.

Note: The exogenous, mediator, and leadership outcomes tagged with the same letter indicate the mediation path that is summarized in the corresponding finding. If the study has only one mediator and/or outcome, then that variable refers to all the specified attribute-mediator-outcome paths. A negative sign next to the exogenous attribute indicates a negative effect.

leadership capacities, which predict functional leadership behavior and, in turn, leadership outcomes. As these models suggest, process configurations of leader individual differences provide clarity on the possible explanatory mechanisms by which they influence various outcomes.

Table 5 summarizes a number of studies that have appeared over the last decade, and have tested various process models of leader individual differences. The table pairs each antecedent examined in a study with a corresponding mediator, and indicates whether that relationship was fully, partially, or not mediated. The process models summarized in Table 5 have taken different forms. The most basic form, shown in the top panel of this table, specifies that follower, team, and organizational behaviors and states mediate the influences of leader characteristics on outcomes. For example, Nadkarni and Hermann (2010) found that CEO Big 5 personality factors influenced firm performance through their effects on the firm's strategic flexibility, defined as the ability to adapt continuously to change. They also found that the effects of agreeableness were curvilinear, such that medium levels yielded higher flexibility than low or high levels. They argued that CEOs who possessed such agreeableness could balance the concerns for employees with the assertiveness needed to drive change.

The two remaining studies in this set examined team states as mediators of the effects of leader personality. Li, Zhou, Zhao, Zhang, and Zhang (2015) examined team collective efficacy as explaining the effects of leaders' personality traits on team performance. They found that collective efficacy fully mediated the effects of conscientiousness and extraversion on team performance. None of the other traits influenced the mediator or team performance. Thus, this study mirrored the stronger weight reported in other studies for conscientiousness and extraversion over other traits in predicting leadership outcomes. Hu and Judge (2017) examined a team motivational state, team potency, as well as team members' relational identification with the leader, as mediators of the effects of leader extraversion, conscientiousness, and agreeableness on team performance. They also tested team power distance values, which refers to members' beliefs about power differentiation in the team, as a moderator of these pathways. They found that the effects of extraversion on particular team outcomes were mediated by relational identity, the effects of conscientiousness by team potency, and the effects of agreeableness by both potency and relational identity. All of these effects occurred under conditions of higher team power distance values.

As a set, these studies demonstrate that leader individual differences influence several organizational, team, and follower emergent states, that in turn affect collective performance. Other studies have examined particular leadership behaviors as mediators of leader attributes. Several of these have found that transformational or charismatic leadership mediates the effects of intelligence (Cavazotte, Moreno, & Hickman, 2012), personality (Cavazotte et al., 2012; Colbert, Barrick, & Bradley, 2013; Resick, Whitman, Weingarden, & Hiller, 2009), motivational needs (Sosik & Dinger, 2007), and emotional intelligence (Hur, van den Berg, & Wilderom, 2011) on various leadership outcomes. Others have reported significant mediated pathways of personality and servant leadership (Flynn, Smither, & Walker, 2016), personality and transactional leadership (Resick et al., 2009), and political skill and transactional leadership (Ewen et al., 2013) to a range of outcomes. Blickle, Kane-Frieder et al. (2013) also found that political skill influenced a leadership outcome—in this case follower satisfaction with the leader—but that the effects appeared only for leaders with high position power. Taken together, these studies confirm that leader individual differences are expressed in particular leadership behaviors that facilitate leadership success.

Zaccaro et al. (2004) argued that patterns of leader individual differences, or at least interactions among them, occur at different points in a process model of leader effectiveness. Two studies in this set indicated significant moderated mediation among individual differences that support this proposition. Luria and Berson (2013) reported that

cognitive ability and motivation to lead interacted, such that higher levels of both variables were significantly more likely to produce teamwork facilitation by the leader, which in turn predicted leader emergence. Walter, Cole, der Vegt, van Rubin, and Bommer (2012) found in two different samples that the effects of extraversion on task coordination behavior were moderated by emotion recognition components of emotional intelligence. As in Luria and Berson (2013), the leader's task-related behaviors influenced leader emergence scores. Again, the mediation occurred when leaders were high on both individual differences. Both studies demonstrate that different combinations of foundational traits and leadership capacities act as important antecedents of leadership behaviors, which predict leadership outcomes. We note that, while there are studies that show team and follower states and behaviors mediating the effects of leadership behaviors on leadership outcomes (e.g., Schaubroeck, Lam, & Cha, 2007; Schaubroeck, Lam, & Peng, 2011), we are not aware of any studies that add other leader individual differences to this chain.

The sets of process models reviewed above examined individual differences as antecedents of particular leader and follower behaviors and states that mediate their effects on outcomes. However, the model in Fig. 1 posits that leadership capacities mediate the effects of foundational traits on leadership behaviors and outcomes. Foundational traits provide the basis for development and emergence of more specific leadership KSAs. They also predispose selection of situations where these KSAs can be more readily applied (a point we return to later in this article). Thus, process models of leader individual differences should examine the degree to which capacities mediate the effects of foundational traits on outcomes.

The remaining sections of Table 5 summarize several recent studies that have provided such tests. Allen et al. (2014) found, in a military sample, that the effects of leader personality on leadership performance and rated potential in officer candidate school were mediated by candidate motivation to lead and leadership self-efficacy. Fearing (2015) found that the effects of one personality trait, independence (reflecting the facets of dominance, social boldness, vigilance, and openness to change) on motivation to lead was partially mediated by leadership self-efficacy; motivation to lead also fully mediated the effects of leadership self-efficacy on performance. A similar model was tested by Hendricks and Payne (2007) who proposed multistage mediators of personality effects on leadership effectiveness. Stage 1 included learning and performance goal orientation. Stage 2 included leadership self-efficacy, while stage 3 included elements of motivation to lead. They found support for learning goal orientation as a stage 1 mediator of the effects of personality on leadership self-efficacy, and for motivation to lead as a mediator of the effects of these antecedents on leadership effectiveness. Ng et al. (2008) also examined leadership efficacy as a mediator of personality influences on leadership effectiveness. They found support for the proposed mediation, but these pathways varied by job in terms of levels of demands and job autonomy. Thus, situational attributes moderated these effects. These four studies indicate significant support for motivational capacities as mediators of foundational traits on leadership outcomes. They also demonstrate, however, that these relationships can become complex, such that some capacities may act as mediators of foundational trait influences on other capacities, and that these relationships may vary according to particular situational cues.

Studies have also examined other capacities as mediators of personality effects. Guerin et al. (2011) assessed extraversion measured in adolescents at age 17, and social skills and leadership potential, defined as (a) the conduct of leadership duties in one's job, and (b) potential for transformational leadership, measured at a later age. They found that social skills mediated the effects of extraversion on their measures of leadership potential. In another study, Gnambis and Batinic (2012) examined knowledge, and general opinion leadership, which was defined as "an individual's disposition to influence opinions, attitudes, and behaviors of others in a desired direction" (p. 6), as mediators of the

effects of personality, general self-efficacy, and typical intellectual engagement on the exertion of opinion leadership in particular domains. They found significant support for the role of product knowledge, and generalized opinion leadership as mediators. Thus, these two studies investigated social and cognitive capacities as mediators of foundational trait effects on leadership outcomes.

Other studies have provided more comprehensive tests of leadership capacities and behaviors as mediators of foundational traits. LaPort (2012) examined social intelligence along with motivation to lead as stage 1 mediators of the effects of cognitive ability and personality on demonstrated leadership behaviors. Behaviors were then proposed as mediating the effects of foundational traits and capacities on leadership effectiveness. She found mixed support for the proposed model: motivation to lead mediated the effects of extraversion and achievement motivation on leadership behavior, which in turn predicted effectiveness. While cognitive ability, emotional stability, and extraversion influenced social intelligence, this variable did not mediate their effects on behaviors or performance.

Van Iddekinge, Ferris, and Heffner (2009) tested a model of leadership performance containing cognitive ability and personality at the most distal stage, knowledge in the form of prior leadership experience and motivation to lead at the first stage of mediation, and leadership KSAs at the second stage of mediation. The KSAs were measured by (a) a biodata instrument that assessed direct leadership skills such as directing and motivating others, (b) a situational judgment test that asked participants to indicate their responses to 24 leadership situations, and (c) a behavioral description interview that covered two questions on past leadership behavior. A composite of the three measures was formed, representing perhaps the most direct measure of one's response tendencies in leadership context, and reflecting the core definition of leadership capacities. Results indicated that (a) cognitive ability was mediated by leadership KSAs and leadership experiences (albeit, for the latter, in the opposite direction from predicted); (b) motivation to lead mediated the effects of extraversion, conscientiousness, and emotional stability; and (c) leadership KSAs mediated the effects of motivation to lead on leader performance.

Taken together, the results of these studies offer support for foundational traits as drivers of multiple capacities, and for different types of capacities serving as antecedents of other capacities. Other studies summarized in Table 5 provided variations on these findings, including political skills as a mediator of certain narrow personality traits (Gentry et al., 2013), and cultural intelligence as a mediator of the effects of cultural knowledge in the form of prior cultural contact (Kim & van Dyne, 2012). These studies, and several of the ones reviewed earlier, indicate that relationships among capacities may be more complex than our model suggests. However, further research is needed to more carefully parse and explain which capacities are antecedents of other capacities. Such research needs to improve upon prior studies, to establish temporal precedence in design, and to afford valid tests of mediation.

Genetic antecedents of leader individual differences

The scientific study of leadership dates to work by Galton (1869), who linked eminence to inherited traits. The perspective of inherited leadership fell out of favor through much of the 20th Century, as researchers focused more on malleable attributes and leadership situations. However, recent studies have used data from identical and fraternal twins to estimate the degree of heritability associated with leadership. The heritability estimate refers to the amount of variance in a trait that can be attributed to genetic factors. According to Ilies, Gerhardt, and Le (2004, p. 209):

"For an individual differences trait, the correlation between genotype and the measured trait (phenotypic manifestation) is h and it estimates the degree to which individual differences on the

Table 6
Heritability Estimates for Leadership Outcomes, Leadership Styles, Foundational Traits, and Leadership Capacities.

Phenotype	Study	Heritability estimates
<i>Leadership Outcomes</i>		
Emergent leadership	Chaturvedi et al. (2012)	.21–.71
	Ilies et al. (2004)	.17 ^b
Leader role occupancy	Arvey et al. (2006)	.30
	Arvey, Zhang, Avolio, and Krueger (2007)	.32
	De Neve et al. (2013)	.24
	Li, Arvey, Zhang, and Song (2012)	.29
	Zhang et al. (2009)	.32
<i>Leadership Styles</i>		
Autocratic—aggressive	Johnson et al. (1998)	.33 ^a
Autocratic—submissive	Johnson et al. (1998)	.31 ^a
Democratic—co-operative	Johnson et al. (1998)	.36
Laissez-faire	Johnson et al. (1998)	.42
Machiavellianism	Hatemi, Smith, Alford, Martin, and Hibbing (2015)	.00–.12
Transactional leadership	Johnson, Vernon, Harris, and Jang (2004)	.47
	Johnson et al. (1998)	.48
Transformational leadership	Chaturvedi et al. (2011)	.49
	Johnson et al. (2004)	.57
	Johnson et al. (1998)	.59 ^a
	Li et al. (2012)	.49
<i>Foundational Traits</i>		
Achievement	Arvey et al. (2006)	.43
	Johnson et al. (2004)	.41
Agreeableness	Borkenau, Riemann, Angleitner, and Spinath (2001)	.35–.68
	Ilies et al. (2004)	.46 ^b
	Jang, McCrae, Angleitner, Riemann, and Livesley (1998)	.27—altruism
		.38—compliance
		.00–.46—modesty
		.31—straightforwardness
		.34—tendermindedness
		.37—trust
		.48—called disagreeableness
	Johnson et al. (2004)	.34–.41
Assertiveness/Dominance	Kandler (2012)	.64
	Rushton, Fulker, Neale, Nias, and Eysenck (1986)	.52
	Johnson et al. (2004)	.40
Cognitive structure (Tolerance for ambiguity)	Johnson et al. (2004)	.38–.84
Conscientiousness	Borkenau et al. (2001)	.49 ^b
	Ilies et al. (2004)	.46—achievement striving
	Jang et al. (1998)	.29—competence
		.30—deliberation
		.37—dutifulness
		.44–.58—order
		.13–.41—self-discipline
		.48
Dispositional hope	Johnson et al. (2004)	.41–.51
Endurance	Kandler (2012)	.53
Extraversion	Chaturvedi et al. (2011)	.39
	Johnson et al. (2004)	.06–.63
	Borkenau et al. (2001)	.62 ^b
	Ilies et al. (2004)	.38—activity
	Jang et al. (1998)	.46—assertiveness
		.46—excitement seeking
		.40—gregariousness
		.38—positive emotions
		.40—warmth
		.64
	Johnson et al. (2004)	.39–.55
	Kandler (2012)	.35–.55
	Kandler et al. (2016)	.38
Intellect/Intelligence	Borkenau et al. (2001)	.20–.70
	Briley and Tucker-Drob (2017)	.79 ^b
	Ilies et al. (2004)	.22–.62
	Kandler et al. (2016)	

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Table 6 (continued)

Phenotype	Study	Heritability estimates
Neuroticism	Borkenau et al. (2001) Ilies et al. (2004) Jang et al. (1998)	.27–.57—called emotional stability .52—called emotional stability ^b .41—anxiety .44—depression .37—hostility .37—impulsiveness .46—self-consciousness .40—vulnerability .55
Openness	Johnson et al. (2004) Kandler (2012) McRae et al. (2017) Borkenau et al. (2001) Ilies et al. (2004) Jang et al. (1998)	.37–.49 .41 .39–.69 .61 ^b .44—actions .46—aesthetics .40—fantasy .31—feelings .49—ideas .38–.62—values .68 .49–.54 .37–.47
Perfectionism	Johnson et al. (2004) Kandler (2012) Kandler et al. (2016) Iranzo-Tatay et al. (2015)	.23–.30—self-oriented .39–.42—socially prescribed .54
Social potency	Arvey et al. (2006)	
<i>Leadership Capacities</i>		
Activity	Kandler (2012)	.37–.47
Appropriate disclosure	Beatty, Marshall, and Rudd (2001)	.00
Articulation	Beatty et al. (2001)	.00
Creativity	Kandler et al. (2016)	.05–.33
Emotion regulation	McRae et al. (2017)	.20—cognitive reappraisal .35—expressive suppression .34–.52
Emotional reactivity	Kandler (2012)	
Empathy	Hatemi et al. (2015) Rushton et al. (1986)	.09–.57 .68
Nonverbal abilities	Trzaskowski, Shakeshaft, and Plomin (2013)	.21–.42
Nurturance	Rushton et al. (1986)	.70
Planning	Tuvblad, May, Jackson, Raine, and Baker (2017)	.00–.55
Social composure	Beatty et al. (2001)	.88
Social confirmation	Beatty et al. (2001)	.36
Verbal abilities	Trzaskowski et al. (2013)	.29–.36
Wit	Beatty et al. (2001)	.90

Note: Ranges indicate multiple measures (i.e. self, peer, or video ratings) or samples (i.e. male and female; age cohorts; longitudinal waves) reported within the same paper; not confidence intervals.

^a Indicates that reported effects are dominant genetic effects, rather than the typically reported additive genetic effect heritability estimates.

^b Indicates true score estimates.

measured trait are caused by genetic differences between individuals. The squared correlation between genotype and a phenotypic manifestation is called heritability (h^2), and it estimates the proportion of phenotypic variance between individuals accounted for by genetic differences. Thus, the heritability of a trait estimates the extent to which genetic differences explain observed differences between individuals on that trait.”

Over the last two decades, researchers have calculated heritability estimates for leader role occupancy, emergent leadership, leadership behavioral styles, and a range of individual differences predicted to be associated with these outcomes. Table 6 indicates these estimates for leadership outcomes, as well as for foundational traits and capacities. The range of heritability estimates for leader role occupancy indicated across these studies is 0.24 to 0.32. For emergent leadership, studies have demonstrated a wider range from 0.17 to 0.71. According to Chaturvedi et al. (2012), the observed range is a function of both age and gender effects, with young and middle-aged women yielding estimates of 0.41 and 0.71, respectively, while other age and gender combinations yield estimates ranging from 0.21 to 0.40. Table 6 also indicates moderate to high heritability estimates for leadership styles, and for foundational traits and leadership capacities that have been linked to leadership outcomes.

The studies summarized in Table 6 have provided substantial evidence that a portion of the variance in leader role occupancy, leader emergence, and leadership styles can be explained by factors tied to leader genetics. Indeed, recent studies have also identified specific genes associated with leader role occupancy (De Neve, Mikhaylov, Dawes, Christakis, & Fowler, 2013; Li, Wang et al., 2015). However, although research demonstrating genetic influences on leadership has burgeoned, a recent review noted that “we know little about the mechanisms by which genes affect leadership” (Tuncdogan et al., 2017, p. 44). While Table 6 shows that studies have demonstrated significant heritability estimates for foundational traits and leadership capacities, and common genetic influences among them, evidence is generally lacking that indicates these individual differences mediate the effects of genetics on leadership outcomes. Arvey, Rotundo, Johnson, Zhang, and McGue (2006) examined social potency and achievement as mediators of the genetic-leadership relationship. However, they did not find support for such mediation. Chaturvedi, Arvey, Zhang, and Christoforou (2011) did find support for dispositional hope mediating the influence of genetics on one leadership style, transformational leadership. Evidence is lacking, though, for other foundational traits and leadership capacities as mediators.

One reason for this lack of evidence may be the relative inattention

of leadership researchers to the interaction of genetics and environment on the development of foundational traits and capacities that portend effective leadership (Tuncdogan et al., 2017). Zhang, Ilies, and Arvey (2009, p. 118) noted that “the environment and the developmental efforts stemming from the environment could have an active influence on the extent to which one capitalizes on his or her genetic endowments for leadership.” This idea reflects the reaction range theory of the genetics-environment interaction (Benson, 1992; Gottesman, 1963; Weinberg, 1989). This theory suggests that genotypes establish a potential range of phenotype manifestations, and that environmental variability is associated with the development and level of the actual phenotype (Turkheimer & Gottesman, 1991). Thus, “each person’s genotype provides an upper and lower boundary for development. The environment provides the variation within that reaction range” (Benson, 1992, p. 938).

Zhang et al. (2009) tested a genetics-by-environment interaction on leader role occupancy. They noted that enriched environments could have countervailing effects on the relationship between genetics and leader role occupancy. First, in line with prior research examining genetic effects on intelligence, such environments provide greater opportunities for the practice and elaboration of leadership capacities. Alternatively, they argued that because leadership is inherently an interpersonal capacity which emerges from overcoming adversity, impoverished environments provide more episodes of such adversity, and therefore more occasions to develop particular leadership skills. Note, that both arguments suggest environment characteristics that realize the potential suggested by genetic predispositions; they differ on the role of environmental enrichment versus challenge as specific moderators. In their study, they examined three elements of environment enrichment: family socioeconomic status, parental support, and parental conflict. They found that genetic effects on leadership decreased under circumstances of high SES, high perceived support, and low levels of parental conflict. Thus, their results suggested that environmental adversity and challenge in childhood and adolescence actualized a greater amount of the potential provided by individuals’ genetic compositions. These findings mirror research on adult leader development indicating that challenging developmental assignments are a critical precursor for growth in leadership capacities (DeRue & Wellman, 2009; McCauley, Ruderman, Ohlott, & Morrow, 1994).

While Zhang et al. (2009) provided evidence of a genes-by-environment interaction on leader role occupancy, behavioral geneticists have argued that the interplay between genes and environment is more complicated, because significant covariation can exist between genetic and environmental factors. This covariation has been shown to result through multiple mechanisms (Benson, 1992; Scarr & McCartney, 1983). First, genes inherited by children from their parents also drive the parents’ shaping of their child(ren)’s environment. Thus, parents with genes predisposing them toward leadership and leader role occupancy may more likely favor early leadership experiences for their children. Second, genetic expression early in a child’s life may elicit environmental stimuli and events that reinforce genotypes. Thus, children who are high in genotypes predisposing social potency and extraversion may be presented with greater numbers of early leadership-oriented experiences than those lower on such predispositions. Third, as children and adolescents gain greater agency over their environmental choices, they may begin selecting environmental contexts more congruent with their leader identities that emerge from early childhood interactions (Zaccaro, 2014). Each of these mechanisms can produce greater covariation between genetics and environment.

These mechanisms still reflect a unidirectional process of genetic predispositions influencing the types and ranges of experienced environments. However, researchers have also argued for behavioral epigenetic effects, whereby environmental influences alter DNA structures and therefore subsequent genetic manifestations. Conradt (2017) used the epigenetic principles to demonstrate how early life stressors resulted in DNA methylation (addition of a methyl molecule to DNA

nucleotides), which in turn influenced later behavioral expressions. Essex et al. (2013) also found that parental adversity early in a child’s life resulted in DNA methylation that influenced behavioral expression later in that child’s life during adolescence. These findings are particularly interesting in light of Zhang et al.’s (2009) finding that sources of parental adversity played a key role in determining leader role occupancy later in life. As researchers have begun to isolate particular genes that appear to be instrumental in leader role occupancy (De Neve et al., 2013; Li, Wang et al., 2015), they may establish the basis for future research demonstrating how early life experiences, such as challenge and adversity, could result in structural alterations of these genes.

Early development antecedents of leader individual differences

One obstruction to such a research direction has been a general lack of well-designed empirical research identifying key leadership development experiences in childhood and adolescence (Murphy & Johnson, 2011). Murphy and Johnson (2011) noted that “most studies on leader development examine managers and executives, ignoring development in youth and adolescence” (p. 459). However, many of the foundational traits, including leader role-related motives, values, and identities are likely to emerge throughout childhood and adolescence. Zaccaro (2014) argued that particular leadership stories and memes that children resonate with, and which get reinforced by early corresponding developmental activities, contribute to growth of leader identity. He also posited that such identities, in turn, contribute to a cognitive developmental template used to evaluate the expected return from developmental opportunities in late adolescence through adulthood. Moreover, the aforementioned epigenetic models suggest that consistent experiences of particular life and developmental events may manifest as changes in DNA structures that, in turn, influence long-term leadership behavior. Accordingly, understanding the emergence and impact of leader individual differences over the leader’s career and lifespan requires a greater awareness of the most formative leader development experiences in childhood and adolescence.

While most of the recent work on leadership development earlier in life has been theoretical (Avolio & Gibbons, 1988; Murphy & Johnson, 2011), researchers have begun to accrue evidence for certain key learning activities early in childhood and adolescence. For example, Oliver et al. (2011) found that a family environment that reflected an intellectual cultural orientation was associated with an increase in transformational leadership potential. Kudo, Longhofer, and Floersch (2012) also found a link between family environments that encouraged a mastery orientation and subsequent transformational leadership skills. Ligon, Hunter, and Mumofrd (2008) focused on the role of 6 types of early life events that could occur and influence the development of different leadership styles. These were originating, turning point, anchoring, analogous, redemptive and contaminating events (see Ligon et al., 2008, Table 2, p. 317, for benchmark examples of each life event). They found that originating and anchoring events were more frequent occurrences in the biographies of outstanding leaders than other types of life events. Also, of the three styles of ideological, pragmatic, and charismatic leadership, ideological leaders were more likely to have experienced early life anchoring events, charismatic leaders were more likely to have experienced turning point events, and pragmatic leaders were more likely to have experienced originating events.

These studies showcase the relationships between childhood events and family environments, respectively, and the growth of particular leadership styles. However, there has been little empirical work on specific developmental experiences tied to the emergence of other leadership capacities. Our model in Fig. 1 specifies that early development experiences can (a) actualize the potential suggested by genetic predispositions (with the caveat that certain forms of such experiences can alter genetic structures, and (b) facilitate the contribution of

foundational traits to particular leadership capacities. Studies to date appear to have linked certain developmental experiences to a subset of capacities. More research is needed to expand both sets of examined experiences and capacities. [Murphy \(2011\)](#); see also [Murphy & Johnson, 2011](#)) provided a framework of leadership development activities that could occur at different ages from 2 to 22, and could inculcate different leadership skills and capacities. This and similar frameworks can provide a strong basis for research.

We note that our model specifies another key role for leader individual differences: they moderate learning gains that can accrue from developmental experiences. Research on job training has long recognized the importance of individual attributes and training motivation for successful training outcomes. Cognitive and motivational capacities increase an individual's training readiness, or ability to maximize gains from learning experiences. A meta-analysis of this literature by [Colquitt et al. \(2000\)](#) found that cognitive abilities and motivation to learn were positively related to skill acquisition and training transfer. They also reported that an internal locus of control and achievement motivation was associated with a higher motivation to learn. [Cerasoli et al. \(2017\)](#) found, in a more recent meta-analysis, that personality factors such as conscientiousness, curiosity, adaptability, and learning motives were positively associated with the incidents of informal learning behaviors that took place outside of formal training settings.

[Avolio and Hannah \(2008\)](#) extended these ideas to the domain of leadership development by arguing that leaders' learning goal orientation, developmental efficacy, self-awareness, self-complexity, and metacognitive ability contributed to their gains from leadership development activities. Recent studies have supported these arguments. [Dai, De Meuse, and Tang \(2013\)](#) found that executives' learning agility was positively associated with gains in leadership competence and with subsequent outcomes of successful leadership development, including promotion rate and salary growth. [Blair, Gorman, Helland, and Delise \(2014\)](#) reported that leader intelligence facilitates development by increasing the congruence between performance feedback and developmental goals. Intelligence also positively affects the quality of learning goals. [Wallace \(2017\)](#) found that a leader's learning goal orientation, motivation to lead, and beliefs about whether leadership could be trained were positively associated with a leader's generalized motivation to develop as a leader, which in turn was linked to motivation for specific assignments and greater feedback-seeking behaviors in such assignments. [DeRue, Nahrgang, Hollenback, and Workman \(2012\)](#) examined after-event reviews as a key element of effective leadership development. They found that such reviews contributed positively to learning gains from development, and that this relationship was stronger for individuals higher in conscientiousness, openness to experience, and emotional stability.

The three studies by [Wallace \(2017\)](#), [Blair et al. \(2014\)](#), and [DeRue et al. \(2012\)](#) demonstrate not only that individual differences influence the amount of gains accrued through leadership development, but also how such gains may occur, specifically by affecting feedback-seeking, feedback-goal congruence, and after-event reflection upon learning experiences. Accordingly, individual differences exert influences at multiple stages of the leadership development process. These studies, combined with those reviewed earlier on the influences of genetic predispositions and development experiences, indicate support for the premise in our model in [Fig. 1](#) that individual differences act as critical moderators of relationships among genetics, experiences, and the growth of foundational traits and leadership capacities.

Summary

We have summarized a great number of empirical studies, published mostly in the last 10 years, which have supported the proposed pathways in [Fig. 1](#) of our model. Genetic composition has been found to predict leader traits, capacities, and outcomes. Foundational traits,

particularly extraversion and conscientiousness, have been supported as significant antecedents of leadership capacities that, in turn, predispose effective leadership response tendencies. This is not surprising, as these two particular traits particular are perhaps most responsive to the range of social and task performance requirements existing across a broad swath of leadership roles. However, as [Fig. 2](#) suggests, the influence of leader traits and capacities on leadership behaviors and outcomes depends heavily upon situational characteristics. We turn to that premise in our next section.

The leadership situation

Thus far, our summary of empirical research on leader individual differences has reflected primarily what personality theorists would call a “person approach” (e.g., [Cervone, 2005](#); [Funder, 2008](#); [Magnusson, 2003](#)), in which leadership behavior is a function of relatively stable characteristics of the person. However, considerable evidence from personality research has demonstrated that there is significant within-person variability in the expression of trait-related behaviors ([Church et al., 2013](#); [Mischel & Shoda, 1995](#)). Similar evidence has been reported for leadership behavior. For example, [Michel and LeBreton \(2011\)](#) had managers rate the degree to which they used active and passive leadership strategies across three different leadership situation vignettes. They found that managers exhibited only a moderate degree of similarity in such strategies across situations, indicating some variability in behavioral expression. [Park, Arvey, and Tong \(2011\)](#) compared leader role activities across 6 leadership domains and across 2 points in time (high school and community settings in adulthood). They reported evidence for both a degree of stability and variability across domains. They noted that “while we find leadership is to be somewhat generalizable, it is nonetheless a latent quality that individuals express differently across situations” (p. 235).

These contributions indicate that the leadership context or situation has a significant influence on the expression of leadership. The situation has long been a key element of leadership theories (see Reviews by [Ayman & Lauritsen, 2018](#); [Yukl, 2011](#)). [Fiedler's \(1967\)](#) contingency theory defined elements of situational favorability for the relationship between leader traits and leadership effectiveness. Several other theories, such as Situational Leadership Theory ([Hersey & Blanchard, 1969](#)), Path Goal Theory ([House, 1996](#)), Normative Decision Model ([Vroom & Jago, 1988](#)), and Leadership Substitutes Theory ([Kerr & Jermier, 1978](#)) focused on how characteristics of tasks and followers moderated or directly influenced leadership behavior patterns. Despite this proliferation of theories and ensuing empirical research, the prevailing conclusion has been that they have suffered from conceptual weaknesses ([Graeff, 1997](#); [Yukl, 2011](#)) and have not garnered strong evidentiary support.

This lack of support should not be interpreted as meaning the situation is not important in leadership. However, we suggest that research on the role of the situation in leader individual difference models has not generally reflected important contributions from interactional theories that have argued for more holistic integrations of person and situation (e.g., [Block & Block, 1981](#); [Endler & Magnusson, 1976](#); [Funder, 2008](#); [Zuroff, 1986](#)). This lack of attention has been displayed in several ways in the leadership literature. First, researchers have tended to confound “objective” and “subjective” situations; second, they have tended to treat leader and situational characteristics as generally orthogonal, when actually each set of characteristics may influence the other in different ways; and third, leaders have been treated as primarily reacting to situational characteristics.

Objective versus subjective situations

There is a difference between the “objective” (or the psycho-biological situation as generally understood or perceived by others) and the subjective situation (how the situation is uniquely perceived by an

individual; Hatstrup & Jackson, 1996; Jansen et al., 2013). Personality theorists have argued that situations should be considered as psychologically constructed in terms of their subsequent influences on action choices (Hatstrup & Jackson, 1996; Jansen et al., 2013; Mischel, Mendoza-Denton, & Shoda, 2002). Rauthmann, Sherman, and Funder (2015) recently posited 3 types of situational information. They labeled the first one “cues,” which refers to objective characteristics of situations, including: “(i) persons, relationships and social interactions; (ii) objects; (iii) events/activities; (iv) locations; and (v) time” (p. 364). In leadership contexts, cues can refer to such elements as follower and group surface demographic characteristics, leader-follower physical distance, the leader's number of direct and indirect reports, and organizational size. Rauthmann et al. (2015) noted that situation cues are objective, not imbued with any psychological meaning. They argued that “situations only acquire ‘psychological importance’ by being processed and psychologically experienced by at least one individual (who then may act based upon his or her situational experiences)” (p. 367). Thus, the subjective situation is a function of not only the objective situation, but also the person's attributes or traits (Hatstrup & Jackson, 1996).

According to Rauthmann et al. (2015), situation construal processes include attending to and filtering, interpreting, and coding situational cues, resulting in the derivation of the second type of situation information, “characteristics.” These refer to the “psychologically important meanings of perceived cues” (p. 364). Thus, the number of projects in a leader's portfolio (a situational cue) could be interpreted as work overload (a situation characteristic). Likewise, a leader's low amount of time spent with followers (a situation cue) could be interpreted as social distance (a situation characteristic; e.g., Antonakis & Atwater, 2002). Individual perceptions of situations guide behavior, suggesting “the most relevant level of situational analysis for theory building and research is the functional situation” (Hatstrup & Jackson, 1996: p. 512), which reflects the individual's interpretation of the situation's objective and socially constructed characteristics.

Situation cues and characteristics can be categorized into more abstract “classes”, Rauthmann et al.'s (2015) third type of situation information. Thus, some leadership situational characteristics, such as overload or complexity, can be grouped into a “Task” class, while others, such as social distance, can be grouped into a “Social” class. Other situation taxonomies have emerged that also have relevance for the leadership context. Parrigon, Woo, Tay, and Wang (2017) offered one that included several situational characteristic dimensions that could be applied to leadership, including complexity, adversity, and typicality. Hoffman and Lord (2013) also proposed a more specific taxonomy of leadership event characteristics that were applicable to leadership effectiveness.¹

A focus on psychological aspects of situations emphasizes *situation construal* as a central driving process contributing to situation effects. Such construal presumably would be influenced by individual differences, or attributes of the perceiver. Personality theorists have argued for greater integration of person and situational characteristics, contending that traits influence how situation cues are interpreted; thus, “the person and the situation at any given moment are inextricably interwoven” (Rauthmann et al., 2015, p. 363). Fleenon and Jayawickreme's (2015) Whole Trait Theory provides a framework for defining such integration. They proposed that traits are composed of two parts, a descriptive part and an explanatory part. The descriptive part refers to how individuals typically behave across situations, and is represented as a density distribution of personality states. Personality states refer to the expression of a personality trait within the duration of a particular context or event. Personality state distributions can vary in

their mean (referring to the mean level of trait expressions across situations) and their width or range (referring to the variability of trait expression across situations). The explanatory part of the trait accounts for the degree of variability in expressed personality states around the mean expression, and reflects several social-cognitive processes. Fleenon and Jayawickreme (2015) labeled the processes as *interpretative*, *motivational*, *stability-inducing*, *temporal*, and *random error*. They applied these processes to extraversion as follows (p. 87):

Extraversion state levels are the function of interpreting the current situation as favorable toward extraversion, pursuing a goal that produces extraverted behavior, a homeostatic tendency toward extraverted behaviors, an ongoing trend that leads to extraverted behavior, and/or purely random processes.

A full explication of these ideas is beyond the scope of this paper, and interested readers are referred to Fleenon and Jayawickreme (2015), as well as to a number of other papers that describe such integrated person-situation frameworks (e.g., Dalal et al., 2015; Rauthmann et al., 2014; Tett & Guterman, 2000). However, they pose significant promise in helping leadership researchers understand the role of the situation in leader trait-leader outcome relationships. For example, the descriptive and explanatory aspects of foundational traits described by Fleenon and Jayawickreme (2015) could explain both the relative constancy and variability of leadership behavior that has been observed across situations (Michel & LeBreton, 2011; Park et al., 2011). Likewise, the width of personality state distributions could be a function of other individual difference characteristics that predispose leaders to be more or less consistently responsive to shifting situational contingencies, a point we return to later in this article.

Leader agency of situations

When considering the role of the situation in leadership, most researchers have adopted a stance that leaders are presented with situation cues, and then react to them with either their dominant leadership style (which may or may not be effective; Fiedler, 1967) or the leadership activity suggested by situational cues (Vroom & Jago, 2007). However, this stance ignores the fact that leaders have a significant degree of agency over their contexts. They are not always passive recipients of contextual influences to which they need to respond; instead they choose situations in which to take on the leader role, or they can shape the situation to better suit their dispositions and capacities (Dalal et al., 2015; Schneider, 1987). Note that this argument is similar to the ones by Benson (1992) and Scarr and McCartney (1983), described earlier in this paper to explain how genes covary with early environments. Along this line, Wrzus, Wagner, and Riediger (2016, p. 782) stated:

People choose and create their daily environments and situations according to their personality because such environments are compatible with their behavioral dispositions, that is, their personality. Put differently, momentary situations partly covary with people's personality dispositions because situations were (in)directly sought or created, where the existing behavioral dispositions can be (or have been) lived out.

Leadership choices can occur at multiple levels. First, individuals make general choices about whether or not to engage in leadership roles. For example, children and adolescents can choose to seek leadership roles in their social and school groups. Adult workers can make choices about moving from technical, nonsupervisory positions to ones in which they would be responsible for leading others. These choices would likely be influenced by an individual's dominance motives, need for power, and general motivation to lead. A second level for choice applies to particular domains or sectors within an organizational space. These choices are likely to be determined by a compound of foundational traits and leadership capacities. For example, a leadership

¹ We note, however, that these taxonomies may represent only a portion of leadership situations; there is need for a more comprehensive taxonomy that can fully capture critical characteristics of leader situations.

position, such as director of strategy, that entails operating under long time horizons with high levels of ambiguity, may attract leader role candidates who are higher in openness to experience, complex problem solving, and strategic thinking capacities. Likewise, a director of operations position that entails planning and strategy implementation may be favored by leader role candidates higher on conscientiousness, planning, and self-regulation skills. Finally, a leadership position that entails working across functions in an organization and interacting frequently with a variety of internal and external stakeholders may be the choice of leaders who are higher in extraversion, social intelligence, political savvy, and communication skills. In these cases, the leaders' mix of traits and capacities influence their choices and engagement of particular leadership roles and situations.

Leaders can also shape situation cues they are presented with to increase the fit with their own traits and capacities. Indeed, this is the premise of the Leader Match training program that facilitates a leader's shaping of situations to be more congruent with their dispositions (Chemers & Fiedler, 1978). According to Chemers and Fiedler (1978):

This [training program] seeks to teach [leaders] to analyze the predominant behavior strategies they tend to use in leadership situations, to analyze the most important parameters in the leadership situation (i.e., leader-member relations, task structure, and leader position power), and to match their leadership situations to their leadership styles in order to be maximally effective (p. 392).

Such “situation engineering” (Ayman & Lauritsen, 2018, p. 143), then, helps leaders change their context to foster a greater congruence between their dispositions, skills, and/or behavioral style, respectively, and situational characteristics. Dalal et al. (2015) suggested that the individuals shape situations to be consistent with their behavioral tendencies by providing information to other actors in the situation, along with any sources of power at their disposal (e.g., they can offer incentives (reward power) and disincentives (coercive power); to that we add French and Raven's (1959) other sources of power: legitimate, expert and referent).

We do not mean to suggest that these proactive strategies largely account for how leaders engage situations. We stipulate that, at least after actors broadly choose the leader role, many leadership situations and problem contexts are likely imposed on the leader with little choice of engagement or avoidance. Nonetheless, situational choice and shaping do represent common ways leaders can influence the objective situation and their subsequent situational perceptions. Moreover, leader perceptions of, and reactance to, situation cues still entail an integrated interplay between leader individual differences and situational characteristics.

Leadership affordances and situational demands

We argue that leader perceptions play a significant role in how situational characteristics influence functional leadership behaviors. However, a central question is “what do leaders perceive?” Our model in Fig. 2 specifies that leaders perceive two kinds of psychological situational information: leadership demand characteristics and leadership affordances.

Leadership demand characteristics

Leadership demand characteristics refer to contextual information that signals or cues which leadership strategies and activities are necessary for performance success in a particular situation. Cued strategies are, in turn, associated with specific foundational traits and leadership capacities that likely predict the successful or unsuccessful enactment of associated strategies. These connections are derived from three perspectives: functional leadership models of team leadership (Hackman & Walton, 1986; Morgeson, DeRue, & Karam, 2010), the performance requirements approach (Coffin, 1944; Zaccaro et al., 2013), and trait activation theories of work performance (Tett &

Burnett, 2003).

Functional Leadership Theory argues that leaders are responsible for accomplishing, or helping their followers accomplish, whatever tasks are necessary for collective success (Hackman & Walton, 1986). Extending this notion, Morgeson et al. (2010) defined specific leadership behaviors that are likely to be functional at different phases of team performance cycles. Thus, in the transition phase of team performance, where collective action is designed and planned, necessary leadership functions include such activities as defining missions, establishing expectations, sense-making, and developing solution plans. In the action phase, where team members interact in performing team tasks, requisite leadership functions include team monitoring, boundary managing, challenging and encouraging the team, and creating a supportive social climate. This model suggests that the situational characteristics of team performance phase cues specific leadership strategies necessary to enhance the probability of team success.

Situational characteristics and their cued leadership strategies, in turn, portend particular leader traits and capacities. Zaccaro et al. (2013) associated a number of leadership performance requirements, including all of the ones suggested by Morgeson et al. (2010), to corresponding leader individual differences. Successful enactment of transition activities, such as sense-making, solution generation, and planning, required individual differences such as cognitive abilities, complex problem-solving skills, self and unit regulations skills, emotional stability, and conscientiousness. The enactment of team coordination and supervision, communication of strategies, sense-giving, and staffing/selecting personnel necessitated social acuity skills, communications skills, conflict management skills, extraversion, and agreeableness. Thus, successful leadership performance through meeting behavioral requirements calls for primed leader traits and capacities.

Trait Activation Theory offers similar formulations. Tett and Burnett (2003) argued that “traits are expressed in work behavior as responses to trait-relevant situational cues (e.g., demands)” (p. 503). They identified three classes of such cues: task, social, and organizational. Task cues refer to work requirements of the job. Social cues are related to those interactions required by the job, including the “needs and expectations of peers, subordinates, supervisors, and clients regarding an individual's effort, communication, and related socially prescribed behaviors, as well as team functions (e.g., production vs. support service)” (p. 504). Organizational cues reflect the structural, policy, and climate-related aspects of the organization. Tett and Burnett defined specific demands for each class of situational cues, and associated these demands with personality traits. For example, job demands of deadlines and high-quality task completion are associated with conscientiousness; job demands of creativity are associated with openness to experience; and, job demands of energetic and cohesive teamwork are associated with extraversion. Judge and Zapata (2015) provide supporting empirical evidence for similar trait activation processes. These trait-relevant situational cues activate particular traits and capacities that are expressed via work behavior. As a whole, the functional leadership approach and trait activation theory suggest that leadership situational characteristics cue requisite leadership behavior *and* traits and capacities.

Leadership affordances

Leadership demand characteristics prescribe certain traits and capacities (to be reflected in leadership behavior) as necessary for effective leadership performance. This formulation suggests that, because leadership problems that need to be solved are not always at the discretion of leaders, the situation drives the need for and activation of particular individual differences. However, the concept of *leadership affordances* suggests a stronger integration between individual differences and perceptions of situational characteristics. Originally proposed by Gibson (1979), affordances have been defined as “opportunities for action” that are perceived by individuals in features of the environment (Stoffregen, 2003a, p. 124). The notion of perceived action possibilities

Table 7
Studies of leader individual differences by different situation classes.

Situation Classes	Studies
<i>Task Complexity</i> Task complexity (multifaceted)	<i>Hunter, Bedell-Avers, and Mumford (2009)</i> : Charismatic leadership was more positively related to performance under conditions of low complexity. Ideological leadership was more positively related to performance under conditions of high complexity. <i>Kane, Zaccaro, Tremble, and Masuda (2002)</i> : Leadership self-efficacy had a stronger effect on the setting of difficult goals under conditions of high versus low task complexity. <i>Marta et al. (2005)</i> : Individuals who engaged in structuring and planning activities were more likely to emerge as leaders in high task complexity conditions. High levels of both planning skills and structuring was associated with high quality and originality of group plans. <i>Tyssen, Wald, and Heidenreich (2014)</i> : Transformational and transactional leadership were more positively associated with follower project commitment under conditions of high project complexity.
Turbulence	<i>De Hoogh et al. (2005)</i> : Leader openness and neuroticism were more positively related to charismatic leadership under conditions of higher dynamism. Leader agreeableness and conscientiousness were negatively associated with such leadership under higher dynamism. Charismatic leadership was positively related to effectiveness under conditions of higher dynamism. <i>Ensley et al. (2006)</i> : Transformational leadership was positively related to performance under conditions of higher turbulence (i.e., dynamism). Transactional leadership was negatively related to performance under these conditions. <i>Peng et al. (2016)</i> : CEO intellectual stimulation was positively related to employee work meaningfulness under conditions of high industry dynamism (e.g., rapid and unpredictable changes in the industry). <i>Prasad and Junni (2016)</i> : CEO transformational leadership was more positively related to organizational innovation under conditions of high environmental dynamism. CEO transactional leadership was more positively related to organizational innovation under conditions of low environmental dynamism.
Information load	<i>Eissa and Lester (2017)</i> : Leader neuroticism was more positively related to supervisor frustration (which in turn was associated with abusive supervision) under conditions of high supervisor role overload.
Job demands	<i>Ng et al. (2008)</i> : Leadership self-efficacy mediates the effects of neuroticism, extraversion, and conscientiousness on leadership effectiveness only under conditions of low job demands.
Job autonomy	<i>Babalola et al. (2017)</i> : Leader conscientiousness was more positively related to ethical leadership (through moral reflectiveness) under conditions of high leader decision making autonomy. <i>Neubert, Hunter, and Tolentino (2016)</i> : Servant leadership was positively related to patient satisfaction (through nurse job satisfaction) under conditions of high organizational structure.
Task novelty	<i>Herrmann and Felfe (2013)</i> : Transformational leadership was positively related to follower creativity under conditions of high task novelty.
<i>Social Complexity</i> Large scope and scale; organizational level	<i>Kaiser and Craig (2011)</i> : The relationship between behavior and effectiveness depended on organizational level of leadership. Leader learning agility was more positively and empowering leadership was positively related to overall effectiveness for executives compared to supervisors and middle managers. Supportive leadership was positively related to overall effectiveness for middle managers compared to executives and supervisors. Abrasiveness was more negatively related to overall effectiveness for supervisors compared to managers. <i>Paullin et al. (2014)</i> : Importance of KSAs (e.g., psychomotor ability, openness, directing and supervising skills, team building skills, planning skills) varied across officer rank. <i>Schyns et al. (2012)</i> : Leader extraversion was more positively and leader conscientiousness was more negatively related to LMX loyalty under conditions of high span of control (i.e., more followers). Leader agreeableness was more positively related to LMX under conditions of low span of control (i.e., fewer followers).
Follower diversity; Multicultural contexts	<i>Groves and Feyerherm (2011)</i> : Leader cultural intelligence was positively related to follower perceptions of leader performance and team performance under conditions of high team ethnic and national diversity. <i>Hmieleski and Ensley (2007)</i> : Empowering leadership was positively related to new venture performance under conditions of high dynamism and homogenous top management teams. Directive leadership was positively related to new venture performance under conditions of (1) high dynamism and heterogeneous top management teams and (2) low dynamism and homogenous top management teams. <i>Rockstuhl et al. (2011)</i> : Cultural intelligence was positively related to leadership effectiveness in cross-border (international) assignments compared to domestic assignments.
Follower characteristics	<i>Grant, Gino, and Hofmann (2011)</i> : Leader extraversion was positively related to store profits under conditions of low employee proactivity. <i>Holland (2015)</i> : Follower characteristics determined which leader characteristics led to agreement on leadership emergence. High motivation to lead was positively related to unanimous leader emergence when other members were low in motivation to lead and/or highly agreeable. <i>Wofford et al. (2011)</i> : Transformational leadership was positively related to group effectiveness under conditions of high follower need for autonomy. Transformational leadership was more positively related to follower satisfaction with supervision and leader effectiveness under conditions of high follower growth need strength. <i>Zacher and Jimmieson (2013)</i> : Transformational leadership was more positively related to organizational citizenship behavior under conditions of low follower learning goal orientation.
Leader physical distance; virtual teams	<i>Balthazard et al. (2009)</i> : Leader emotional stability and extraversion were positively related to the emergence of transformational leadership in face-to-face compared to virtual teams. <i>Joshi et al. (2009)</i> : Inspirational leadership was more positively related to followers' commitment to the team and trust in team members under conditions of high team dispersion. <i>Serban et al. (2015)</i> : In a Monte Carlo simulation, cognitive ability, extraversion and self-efficacy were more positively related to leader emergence in face-to-face teams compared to virtual teams.

is jointly based on particular environmental information and the actor's behavioral potentials (e.g. KSAs; *Baron & Boudreau, 1987*). Thus, actors perceive the physical environment in terms of what actions it allows (or affords) them relative to their own capabilities (*Chemero, 2003*). *McArthur and Baron (1983)* noted, however, perceivers approach environments not only from the perspective of their own abilities, but also

from their social goals. What the person desires or intends to accomplish in a situation attunes their perception of affordances in that situation; that is, situational characteristics offer information about the person's "intentional aspects," or those purposes for which contextual elements can serve (*Fiebich, 2014, p. 152*).

Baron and Boudreau (1987) extended these notions of the

perception of physical environments to social environments, using examples that are particularly relevant across an array of leadership situations. They noted (p. 1223):

While information specifying the affordance for edibility exists in the fruit to be detected by the animal, the affordance for cooperativeness does not reside exclusively in any single object or entity. It truly only exists in the reciprocal, coordinated action of two or more individuals, that is, cooperative action involves two or more people engaged in actions that are mutually facilitative in the sense that there is joint movement toward a common goal. Similarly, helpfulness requires a helper and a recipient, competition requires a rival, and dominance requires a subordinate.

Situations can afford the probability of trait expression. For instance, Rauthmann et al. (2014) found that situations high in “duty” characteristics were most strongly correlated with conscientiousness and achievement affordances; while situations with “sociality” characteristics were most strongly correlated with extraversion and agreeableness affordances. However, the expression of traits in response to situational characteristics can vary across individuals such that some leaders might attend to situational characteristics that afford traits and capacities that most align with their own trait profiles (Dalal et al., 2015). For instance, leaders who are predisposed by capacities or motivational states toward cooperativeness, helpfulness, or dominance will likely attend to social characteristics in their contexts that afford those relationships. This formulation, therefore, connects leader perceptions of situations more directly to their foundational traits, leadership capacities, and leadership problem solving demands to explain how leaders react to organizational context.

Implications for leadership behavior

Our model in Fig. 2 specifies that the joint effects of leadership demands and leadership affordances determine subsequent functional leadership action choices. Perceptions of leader performance requirements and the affordances that are present in the context influence the action choices and leadership strategies that leaders express. We refrain from suggesting a relationship between leadership affordances and leadership demands. Arguments about what is perceived in situations abound in the affordance literature (Chemero, Klein, & Cordeiro, 2003; Fiebig, 2014; Kirlik, 2004; Stoffregen, 2003b). Likewise, personality theorists have continued to wrestle with the precise nature of the person-situation interaction (Judge & Zapata, 2015; Sherman, Rauthmann, Brown, Serfass, & Jones, 2015). Accordingly, an analysis of whether leadership affordances and leadership demands are the same or separate derivatives from perceived situational characteristics is beyond the scope and limits of this article. However, both aspects of leaders' perceptions of situations result in similar effects on leaders' expressed behavior: they invite or cue particular leadership actions associated with particular foundational traits and capacities. Responses correspondent to cued leadership actions could result in effective performance in-situ; however, the leader needs to possess certain traits and capacities in order to express these cued actions. Situational characteristics are expected, then, to moderate the influence between expression of leader individual differences and effective performance across leadership situations.

There are few studies in the leadership literature (e.g., Marta, Leritz, & Mumford, 2005) that have tested the intricate relationships we propose between situational characteristics, cued behavioral requirements and perceived situational characteristics, leader traits and capacities, and leadership effectiveness. However, to illustrate the implications of these ideas for leadership behavior, we have aggregated a set of studies that examined situational moderation of leader traits and capacities and leadership effectiveness. These studies are summarized in Table 7. We divide leadership situations in terms of whether they vary aspects of task or social complexity, as both classes of situational characteristics

have significant import for the connection of traits and capacities to leadership behavior (Zaccaro, 2001). We also define which traits and capacities are likely cued by or influencers of each situational characteristic.

Leadership and task complexity

For task complexity, we use definitions offered by Wood (1986) and Schroder, Driver, and Streufert (1967; see also Campbell, 1988). Wood defined task complexity in terms of required “component complexity (number of acts and information cues involved), coordinative complexity (type and number of relationships among acts and cues), and dynamic complexity (changes in acts and cues and the relationships among them)” (Wood, Mento, & Locke, 1987, p. 418). Schroder and colleagues placed greater emphasis on information characteristics and argued that task complexity reflects information load (amount of information that requires handling), information diversity (the multiplicity of alternatives and solution paths associated with information tasks), and information change (the degree of dynamism in information provision). For the sake of breadth, we add both novelty of the task and job demands associated with task completion. Thus, the class of task-complex situations includes characteristics such as task demands and challenge, novelty, overload, dynamism, and difficulty.

Elements of task complexity suggest a number of leader individual differences that could contribute differentially to leadership functional behaviors and outcomes. Environmental turbulence increases the need for sense-making and planning behaviors by the leader. Likewise, as followers tend to resist change, leaders need to engage in more motivating and empowering behaviors, and encourage intellectual contributions from followers. Accordingly, leadership styles such as transformational leadership should be more strongly related to positive outcomes under conditions of higher turbulence. For similar reasons, we expect that higher task novelty in leadership situations cues a transformational leadership style, because the intellectual stimulation, empowerment, and inspirational motivation elements of this style should encourage follower creativity. In turbulent and novel situations, we also expect leader openness to experience to be more strongly related to leadership behaviors and outcomes. Conscientiousness should be less related to effectiveness in turbulent and novel circumstances, as the tendency to follow rules and the relative inflexibility associated with this trait is not afforded by these contexts.

Studies described in Table 7 support these suggestions. Ensley, Pearce, and Hmieleski (2006) found that transformational leadership styles were more positively related to performance under conditions of higher environmental dynamism; transactional leadership, which does not embody the leadership skills and behaviors called for by dynamism, was negatively related to performance in such contexts. Prasad and Junni (2016) reported that transformational leadership was positively related to organizational innovation in high dynamic contexts. Transactional leadership was associated with such innovation in low dynamic contexts. Supporting the role of transformational leadership in encouraging follower innovation, Herrmann and Felfe (2013) found that this leadership style was more strongly related to follower creativity under conditions of higher task novelty. Peng et al. (2016) focused on another follower effect, and found that one element of transformational leadership, intellectual stimulation, was associated with employee work engagement, in the form of perceived meaningfulness, under conditions of higher dynamism.

Table 7 indicates several other individual differences that vary in their efficacy according to conditions of task complexity. Leader neuroticism is related to higher levels of supervisor frustration and abusive supervision under high task overload (Eissa & Lester, 2017). However, leader neuroticism is related to higher perceptions of charismatic leadership under conditions of higher dynamism; such leadership styles are also more strongly related to effectiveness in these conditions (De Hoogh et al., 2005). Neuroticism may facilitate leaders' ability to sound the alarm and create a sense of urgency, which is a necessary condition

for change (Kotter, 2008). Regarding another personality trait, conscientiousness is negatively associated with charismatic leadership in conditions of higher dynamism (De Hoogh et al., 2005) and is positively associated with ethical leadership under conditions of higher leader decision making autonomy (Babalola, Bligh, Ogunfowora, Guo, & Garba, 2017). We argue that these and other studies summarized in Table 7 show how situational characteristics cue or afford particular leadership styles and attributes. Each context affords the expression of particular attributes, potentially drawing leaders who possess them to engage in such contexts. When the leader attribute or style matches the performance requirement suggested in the situation, the leader outcomes are more positive.

Leadership and social complexity

Similar effects have occurred for elements of social complexity. Social complexity refers to the number and diversity of different functional units, social situations, and stakeholders the leader must attend to in his or her organizational role; it also reflects the range of roles the leader must enact and balance, as well as the amount of boundary-spanning to external constituencies expected of the leader (Zaccaro, 2001). Thus, the class of socially complex situations includes such characteristics as the leader's scope and scale of responsibility, characteristics and diversity of followers, composition and diversity of teams, and amount of boundary-spanning activities.

One such element is organizational level (Zaccaro, 2001). Leaders at lower organizational levels engage in more direct supervision of smaller teams. At higher levels, leadership becomes more indirect, and involves greater span of control, as well as greater contact with external stakeholders. Accordingly, Paullin et al. (2014) found that leader KSAs such as innovation, planning and organizing, problem solving, and delegating were rated as more important at higher organizational levels than at lower levels. Alternatively, KSAs associated with supervising and developing others were rated as more important at lower levels. Nichols and Cottrell (2014) also found that interpersonal traits were perceived as more desirable in lower level leaders. However, extraversion and empowering forms of leadership were more strongly associated with LMX and effectiveness, respectively, at higher levels of leadership (Kaiser & Craig, 2011; Schyns, Maslyn, & van Veldhoven, 2012). Thus, organizational level affords different leader capacities and traits.

Follower diversity and multicultural contexts call for greater sensitivity to follower differences on the part of leaders, and greater ability to respond effectively to such differences. Accordingly, studies have found that higher leader cultural intelligence has been more strongly associated with effectiveness in such contexts (Groves & Feyerherm, 2011; Rockstuhl et al., 2011). Hmieleski and Ensley (2007) also found that different leadership styles varied in their efficaciousness under joint conditions of team heterogeneity and environmental dynamism.

Follower characteristics have been established as critical elements of the leader's context that can shift the weight of leader individual differences in terms of their influence on different outcomes. For example, Wofford, Whittington, and Goodwin (2011) found that transformational leadership was more strongly related to several leadership outcomes under conditions of higher follower growth and autonomy needs. These follower needs afford the behavioral elements that compose the transformational leadership style. Holland (2015) examined how the combination of particular leader and follower characteristics led to agreements between them on leader role granting and taking (DeRue & Ashford, 2010). She argued that perceptual connects, where leaders and followers agree on their respective role taking, are a function of specific attribute patterns in both leaders and followers. Perceptual disconnects, where disagreements exist among leaders and followers on role occupancy occur when leader-follower compositional patterns are not aligned. Holland (2015) found that agreement in leader-follower ties was more likely to occur when leaders were higher in social skills and followers were either (or both) lower in motivation

to lead or higher in agreeableness. She also found that unrequited leadership, where followers do not grant the leader role to others seeking it, occurred when (a) leaders were higher in motivation to lead and followers were lower in agreeableness; and when (b) leaders were higher in motivation to lead, but lower in social skills, and followers were also high in motivation to lead, but low in conscientiousness. These studies demonstrate how follower characteristics can cue and afford certain leader individual differences to influence leadership effectiveness and emergence.

Team dispersion can also influence the efficacy of particular leader traits and capacities. For example, extraversion may have a more potent effect in face-to-face teams, where there are greater opportunities for social interaction and social dominance. However, dispersed teams present motivational challenges to keep distant members engaged and committed to the team and its tasks. Thus, leadership styles that foster greater follower motivation, and leader attributes that promote greater leader motivation, should carry greater weight in such contexts. In support of these arguments, Serban et al. (2015) found that extraversion (which includes a dominance component) was more strongly related to leadership emergence in face-to-face teams than in dispersed teams. Similarly, Balthazard, Waldman, and Warren (2009) reported that extraversion and emotional stability were more strongly related to transformational leadership in face-to-face teams. Joshi, Lazarova, and Liao (2009) found that inspirational forms of leadership that heightened follower motivation were more instrumental in dispersed than face-to-face teams. These studies demonstrate how team dispersion can require some leader attributes (motivational capacities) and afford the expression of others (extraversion).

We have described two possible situational classes—task and social complexity. Another can relate to perceived characteristics of the organization. Along this line, Spangler, Tikhomirov, Sotak, and Palrecha (2014) defined classic and modern versions of 4 types of organizations: bureaucracies, entrepreneur firms, voluntary organizations, and professional services firms. They also associated Miner's (1993) role requirements to leader roles within each organization, and then linked requirements and organizations to achievement, power, and affiliation motive profiles. Thus, according to Spangler, et al., power motives were most likely to be instigated in both classic and new bureaucracies, new voluntary organizations, and new professional services firms. Achievement motives were most aligned with classic and new entrepreneurial firms, while affiliation motives were most aligned with new bureaucracies, classic voluntary organizations, and new professional services firms. Moreover, these relationships were moderated by leaders' levels of activity inhibition. This conceptual framework illustrated how profiles of attributions could be linked to organizational characteristics. Our model suggests that such characteristics either (a) provide information about performance requirements, the premise suggested by Spangler, et al., and/or (b) different types of organizations afford different leader motive profiles. Our review uses task and social complexity as example leadership situation classes. Spangler et al.'s work demonstrates the need for a more comprehensive taxonomy that includes a wider range of leader situation classes.

Summary

We offer ideas for how situations can be integrated with leader individual differences to influence leadership outcomes. Our key points are that (a) leaders choose, shape, or react to situations' perceived performance requirements and leadership requirements, (b) situations cue particular individual differences for the expression of functional leadership behaviors, and (c) situations afford certain leadership choices and actions that are, in turn, derived from individual differences. Therefore, leader individual differences can become inextricably bound with situational characteristics. The studies offered in Table 7 are not intended to be either conclusive or inclusive around these themes. We offer them to spur more research that examines this

integration of leader individual differences. However, we would be remiss if we did not consider how particular leader individual differences facilitate situational responsiveness, and therefore functional leadership behavior.

Leader individual differences and situational responsiveness

While leadership behavior varies by situation, the leader role occupant often remains constant (Zaccaro, Foti et al., 1991). A key point that we have not acknowledged is that (a) perceptions of situational characteristics are further determined by levels of leader social acuity, and that (b) the functionality of action choices is determined by the leader's capacity for behavioral flexibility. Social acuity enhances the leader's ability to perceive both performance requirements in leadership contexts and the leadership behaviors such situations afford. Thus, effective leaders understand that more planning and structuring behaviors, more motivation and empowering of subordinates, and more encouragement for creative thinking, are required in turbulent, dynamic, and novel circumstances. They also recognize that leadership at higher levels, in multicultural contexts, in dispersed teams, and in response to followers with their own particular attributes, requires greater sense-giving, delegation, cultural intelligence, and leader-follower complementarity to be successful. Moreover, they may choose and thrive in situations that afford their strong foundational traits and leadership capacities. Accordingly, failed leadership is often a function not of possessing particular individual differences, but rather of failing to recognize the need to employ them differentially across situations. As a result, such leaders will find themselves in mismatched situations that increase likelihood of failure.

Social acuity is not enough. Leaders may perceive that particular situations require different leadership behaviors, but not have the skill or motivation to express those behaviors. Thus, in addition to social acuity, leaders need skills in behavioral flexibility to enhance situational responsiveness (Dinh & Lord, 2012; Hooijberg, 1996; Zaccaro, Gilbert et al., 1991). Such flexibility consists of both a wide response repertoire and the capacity to apply particular skills to particular contexts (Hooijberg, 1996). Moreover, these arguments suggest that the leader's possession of social acuity and behavioral flexibility skills should moderate the contributions of other leader individual differences to leadership effectiveness by improving their congruency to situational requirements and leadership affordance.

Several leader individual differences capture skills in social acuity and behavioral flexibility, including social intelligence, political savvy, self-monitoring, cultural intelligence, and emotional intelligence. The definition of each of these constructs contains skills in perceiving situational cues and responding congruently to them. For example, social intelligence was defined by Marlowe (1986) as the “ability to understand the feelings, thoughts, and behaviors of persons, including oneself, in interpersonal situations and to act appropriately upon that understanding” (p. 52). Political savvy has been defined as “the ability to effectively understand others at work, and to use such knowledge to influence others to act in ways that enhance one's personal and/or organizational objectives” (Ahearn, Ferris, Hochwarter, Douglas, & Ammeter, 2004, p. 311). Both constructs include skill in situational understanding and skill in behavior management and adaptation. Definitions with similar constructions have been offered for emotional intelligence (Salovey & Mayer, 1990), cultural intelligence (Ang & Van Dyne, 2008), and self-monitoring (Snyder & Gangestad, 1986).

These formulations suggest that leaders with high levels of these skills should be more effective in perceiving situational performance requirements and leadership affordances, and adapting their expressions of leadership behavior accordingly. Thus, these skills should moderate the degree to which foundational traits and leadership capacities are associated with leadership outcomes, because they increase the congruence between leader attributes and situational cues. Table 8 summarizes several recent studies that have provided support for this

proposition. In each study, one of the aforementioned skills interacts with either a foundational trait or a leadership capacity to influence a leadership outcome. Most often, the effect of the social acuity/behavioral flexibility skill has been to enhance the relationship between an individual difference and an outcome. These studies help address how leader individual differences integrate with situational characteristics to facilitate functional leadership outcomes.

Conclusions and future research

Research on leader individual differences has burgeoned dramatically over the last decade. This review indicates that a number of foundational traits and leadership capacities contribute uniquely and as part of attribute configurations to a range of behavioral outcomes. Foundational traits act as precursors of leadership capacities, which in turn mediate their effects on leadership behaviors and outcomes. Substantial evidence also points to a significant genetic basis for leader individual differences, while suggesting that leadership is an integrated outcome of genes and environment. Taken together, the body of research summarized in this review affirms that we are indeed in another renaissance of research on leader individual differences (Antonakis et al., 2012).

For this renaissance to continue, we believe the leadership researchers must attend more systematically and extensively to leadership context, and particularly how leader individual differences are integrated with situational characteristics. We have offered some principles that we hope can facilitate such research. Considering situational characteristics as subjective helps to explain how leaders actively engage situations in the conduct of leadership. Leaders do more than react to situational demands; they choose and shape leadership contexts. Social construal, then, becomes a key mediator between leader attributes and contextual elements. We have suggested situational performance requirements and leadership affordances as explanatory mechanisms for the integration of leader individual differences and situational characteristics.

Our integrated model of leader individual differences and outcomes is a complex one, linking genetics, early environment, learning agility, foundational traits, leadership capacities, leadership contexts, and functional leadership behaviors to each other and to leadership outcomes. We recognize that testing the full model presents a range of methodological and statistical difficulties for leadership researchers. Indeed, in discussing computational modeling, Burton and Obel (1995) argued that too much complexity can reduce construct validity. However, they also noted the need to balance experimental design and the computational model with the question or purpose being investigated, specifically its degree of phenomenological realism. Models of leader individual differences need to correspond to the complexity of leadership phenomena. Proliferation of simpler models that do not more fully reflect this complexity contributes to the fragmentation noted in the leadership literature by many leadership scholars (e.g., Avolio, 2007; DeRue et al., 2011; Tuncdogan et al., 2017).

We would point out, though, that ours is a theoretical model that can be deconstructed into simpler models for empirical testing without losing its overall conceptual integrity. For example, researchers have already focused on the influence of genetics on foundational traits, with some adding environmental effects into their investigations (e.g., Zhang et al., 2009). An extension of this existing work could entail more nuanced examinations of how genetics influence environments (and vice versa), along with investigations of how learning capacities moderate these linkages. Likewise, researchers can investigate the integration of individual differences and situational parameters in studies that are separate from those that focus on the development of foundational traits and leadership capacities. However, we would argue that specification of situational parameters needs to be thoughtfully connected to the focal individual differences. This is a main point in our conceptual framing. Situational factors afford particular leader individual

Table 8

Interactions between leader individual differences and skills that promote social acuity and behavioral flexibility.

Study	Sample Characteristics	Interaction Variables (Antecedent × Moderator)	Description
Blickle, Meurs, Wihler, Ewen, and Peiseler (2014)	N = 113 Male = 81.4% Industry = Mixed Occupation = Leader	Inquisitiveness (P) × Political skill (F)	Political skill moderated the relationship between inquisitiveness and charisma by strengthening the positive relationship.
Blickle, Meurs et al. (2013)	N = 196 Male = 64.8% Industry = Mixed Occupation = Mixed	Conscientiousness (P) × Political skill (F) × Learning approach	Political skill and learning approach moderated the relationship between conscientiousness and task performance in jobs with complex task demands such that high levels of both jointly resulted in a positive relationship.
Elenkov and Manev (2009)	N = 153 Male = 76% Industry = Mixed Occupation = Mixed	Visionary transformational leadership (O) × Cultural Intelligence (F)	Cultural intelligence moderated the relationship between visionary transformational leadership and organizational innovation by strengthening the positive relationship.
Ewen et al. (2014)	N = 510 Male = 51.6% Industry = Schools Occupation = Headmaster	Motive to get ahead (M) × Political skill (F)	Political skill moderated the relationship between motive to get ahead and initiating structure by strengthening the positive relationship
Lan, Wong, Jiang, and Mao (2017)	Sample 1: N = 219 Male = 52.1% Industry = Hotel/Service Occupation = Mixed Sample 2: N = 208 Male = 93.3% Industry = Manufacturing Occupation = Mixed	Emotional intelligence (F) × LMX (O)	Emotional intelligence moderated the effect of LMX on work-related flow through empowerment as a mediator, by strengthening the positive relationship. This effect occurred in the service sample, but not the manufacturing sample.
Lee, Veasna, and Wu (2013)	N = 156 Male = 84.6% Industry = Mixed Occupation = Manager	Transformational leadership (O) × Cultural intelligence (F) Social support (F) × Socialization experiences (O)	Cultural intelligence moderated the relationship between transformational leadership and expatriate performance by strengthening the positive relationship.
Mencl et al. (2016)	N = 278 Male = 42% Industry = Mixed Occupation = Mixed	Political skill (F) × Emotional control (F) Political skill (F) × Emotional sensitivity (F) Emotional control (F) × Political Skill (F) × Work engagement (M) Emotional sensitivity (F) × Political skills (F) × Work engagement (M)	Cultural intelligence moderated the relationship between transformational leadership and expatriate adjustment by strengthening the positive relationship. Political skill moderated the relationship between emotional control and transformational leadership by strengthening the positive relationship. Political skill moderated the relationship between emotional sensitivity and transformational leadership by strengthening the positive relationship. There was a significant three-way interaction between emotional control, political skill, and work engagement in determining transformational leadership. There was a marginal three-way interaction between emotional sensitivity, political skill, and work engagement in determining transformational leadership.
Moss and Baruto (2010)	N = 108 Industry = Mixed Occupation = Leader	Social astuteness (F) × Altruism (S)	Social astuteness, an element of political skills, interacted with altruism to influence leadership effectiveness, such that the high levels of both produced a more positive relationship.
Williams, Brandon, Hayek, Haden, and Atinc (2017)	N = 280 Industry = Mixed Occupation = Mixed	Servant leadership (O) × Political Skill (F)	Political skill moderated the relationship between servant leadership and workplace spirituality, by strengthening the positive relationship. Workplace spirituality fully mediated the effects of the interaction on follower creativity.
Zhang, Jia, and Gu (2012)	N = 146 Industry = Crisis Management Occupation = Leader	Transformational leadership (O) × Emotion self-regulation (F)	Leader emotion self-regulation moderated the relationship between transformational leadership and value congruence by strengthening the positive relationship.

F = Flexibility attribute. M = Motive. S = Social. P = Personality. O = Other.

differences; or such factors provide cues as to the particular performance requirements that are likely to be facilitated by corresponding leader attributes.

The complexity of conceptual models can certainly outpace the statistical methods for testing them – this is long-standing problem in leadership research. However, past gains in such research have often been triggered by new statistical approaches (Lord, Day, Zaccaro, Avolio, & Eagly, 2017). New and emerging statistical packages and techniques provide us adequate tools to test more complex models, such as models with multiple levels-of-analysis, which could be addressed using software such as HLM and R. Another concern is that existing theories and empirical research limit the testing our theoretical model to only certain operationalizations of individual capacities and situations (such as those relationships described in Table 7). While we do

agree that relationships between variables should be theoretically supported, statistical advances allow for tests of prediction rather than solely construct-based explanations (Putka, Beatty, & Reeder, 2017). Traditional methods (e.g., regression, structural equation modeling) have been used to test for theoretically-driven causal relationships between variables. Modern methods (e.g., lasso, elastic nets, random forests), however, provide new possibilities to model data and improve prediction (see, e.g., Putka et al., 2017). Using modern methods, researchers can predict leadership outcomes and behavior from a wide variety of person-situation relationships. Such prediction using modern methods will likely go *beyond* previously established theoretical frameworks and instead could be used to *build* or *improve* new theories about relationships between specific leader individual differences-and situations. In sum, statistical advances can improve our ability to test

the complex theoretical model presented in this paper, and modern methods can help uncover specific leader capacity-situation relationships not yet proposed by existing theories.

Many of the studies reviewed in this article have relied on self-administered, subjective, and perceptual questionnaires for most of the variables in our model. An explication of the issues surrounding such measures is beyond the scope of this paper; moreover, we are not arguing against their use. However, the exclusive use of such measures can present problems for testing aspects of our model. For example, earlier in this article we made a distinction between performance requirements matching and social information processing pathways in providing a rationale for the specification of leader foundational traits and capacities in particular contexts. Researchers may experience difficulty in disentangling these perspectives if assessments of performance requirements and leader prototypes are both perceptual and single-source in nature.² Moreover, assessments of performance requirements and leadership affordances in a leadership context may possibly be influenced by one's self-assessment of foundational traits and capacities. While subjective or perceptual measures of leader individual differences and other constructs in our model can be susceptible to several types of bias, measures that are more objective or implicit in their assessments can also suffer from different biases and constraints (e.g., Fiedler, Messner, & Bluemke, 2006). Accordingly, we would argue that tests of our model should use a mix of different types of single- and multi-source assessments, including not only self-administered questionnaires, but also others such as historiometric (Spangler, Gupta, Kim, & Nazarian, 2012) and implicit (Gawronski & De Houwer, 2014) measures of leader traits and capacities, and objective measures of leadership behavior and performance.

Extensions of our model: trait paradoxes and curvilinear effects

We believe our construction of the leadership context can facilitate understanding of two research themes that we have not covered: trait paradoxes (bright/dark traits) and curvilinear effects. Judge et al. (2009) argued that both bright traits (e.g., Big 5 personality factors) and dark traits (e.g., narcissism, dominance, histrionic personality, and Machiavellianism) could have benefits and costs (Judge et al., 2009; Judge & Long, 2012) for leadership. Indeed, several studies have provided empirical evidence for their assertion, pointing to the benefits of narcissism in several leadership contexts (e.g., Campbell & Campbell, 2009; Volmer, Koch, & Göritz, 2016; Wales, Patel, & Lumpkin, 2013), including for U.S. presidents (Watts et al., 2013). We suggest that the benefits of both bright and dark traits accrue when they match situational performance requirements and leadership affordances. Their costs may occur, then, when there is misalignment between situational characteristics and the leader's expression of the trait. Thus, we believe our framing of the integration of leader individual differences and the leadership context provides a fruitful research direction to help explicate the riddle of trait paradoxes.

Our framework can also help explain curvilinear effects of individual differences observed by several researchers on leadership outcomes. For example, Antonakis, House, and Simonton (2017) reported a curvilinear relationship between leader intelligence and perceptions of effective leadership. Vergauwe, Wille, Hofmans, Kaiser, and Fruyt (2017) found that charismatic leadership personality exhibited a curvilinear relationship with observer ratings of leadership effectiveness. Nadkarni and Hermann (2010) found a curvilinear relationship between CEO agreeableness and firm performance. Finally, several studies that used the Leadership Versatility Index to examine too much or too little forceful, enabling, strategic, and operational behavior in leadership contexts reported curvilinear relationships between leader personality traits and scores on these scales (Kaiser et al., 2015; Kaiser

& Hogan, 2011).

These studies point to the need for more research to integrate nonlinear relationships between leader attributes and outcomes into existing models that are mostly linear in their specifications of relationships. We believe a closer examination of leadership contexts and situational characteristics will help such integration. For example, the curvilinear relationship between intelligence and perceived leadership effectiveness reported by Antonakis et al. (2017) reflected the intelligence of the leader *relative* to levels among his or her followers. Variability in mean levels of intelligence among followers would presumably change the shape and asymptote of the curve. Indeed, Antonakis et al. concluded that “the choice of the optimum intelligence is contingent on the demands of a given leadership position and thus must be determined on a case by case basis” (p. 1017). The argument offered by Vergauwe et al. (2017) for curvilinear effects of charismatic personality is that leaders low in such personality would not be able to engage effectively in strategic formulation behaviors, while those high in charismatic personality would not be as effective with operational behaviors, such as near-term execution activities. However, leaders at each end of the charismatic personality spectrum may thrive in situations that cue or afford particular behaviors that align with their level of charisma. For example, low charismatic leaders may excel in organizational situations calling for execution of company strategies and the direct management of subordinates in such operations. Leaders with high charismatic personalities may excel in those situations that call for taking a long-term perspective and developing corresponding strategic initiatives. Similar arguments could be made for the findings by Kaiser and his colleagues (Kaiser et al., 2015; Kaiser & Hogan, 2011). The curvilinear effects of agreeableness on firm performance reported by Nadkarni and Hermann (2010) were conditioned by the fact that firms were operating in dynamic environments in which CEOs needed to balance concern for followers with the need to quickly drive change. In different settings, where the performance requirements may shift, the effects of agreeableness may change accordingly. These arguments point to the need for leadership researchers to incorporate leadership context more thoroughly into nonlinear models of leader individual differences. We hope the pathways we suggest in this review are helpful for such integrations.

Likewise, we urge researchers to build on prior research demonstrating genetic influences on leadership, by integrating how environments and developmental activities, especially for children and adolescents, moderate these influences on growth of leader foundational traits and leadership capacities. Murphy and Johnson (2011) noted the lack of systematic research on early leadership development. We believe that more of such research in connection with models of genetic-environment covariance can inform understanding of how particular individual differences emerge to influence leadership.

Conclusion

Our review demonstrates substantial support for the premise that individual differences matter in leadership. Research has also demonstrated the process relationships among leader attributes, behavior, and outcomes. However, we see the need for two enhancements to this research. First, process models have been restricted mostly to (a) personality and, in a few cases, cognitive ability in their foundational traits, and (b) social capacities (often in the form of emotional intelligence), or motivation to lead. Process models need to incorporate a wider range of attributes at both the foundational and capacities stages. Second, pattern or profile models of leader attributes need to incorporate cognitive abilities, motivational attributes, and social capacities into their configurations. While some studies have done so (e.g., Foti & Hauenstein, 2007), many of the ones summarized in this review focus mainly on personality traits. Yet the premise of pattern models is that leader performance requirements are broad enough to require a mix of cognitive, social, motivational, and personality attributes.

² We thank an anonymous reviewer for this observation.

Research on such patterns should more accurately reflect this premise.

Our review of the literature on individual differences and leadership has offered an integrating framework for this literature, and summarized the recent exponential increase in studies testing more complex models of leader individual differences. These studies provide some empirical validation of our integrated framework. More importantly, we provide a more elaborate and systematic framework for the integration of leadership situations with leader individual differences to explain how leaders select, shape, and react to different contexts. Our expectation is that this review and integration can provide greater impetus to the renaissance in this literature that was declared by Antonakis et al. (2012).

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