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# State-of-the-science review of leader-follower dyads research

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ABSTRACT

Despite its importance in multilevel research, the dyad level of analysis has been known as the most poorly understood level. Suggestions have been made recently in terms of levels alignment issues and methodologies to enhance the understanding of dyadic phenomena. Given recent remedies for dyads research and that the leader-follower dyad is generally considered the key dyad in organizations, we conducted a comprehensive review of the current state of leader-follower dyads research to assess what we know and how much we know about leader-follower dyads research conducted at the dyad level. Specifically, we summarized empirical studies that focused on leader-follower dyads that used data collected on the same variables from both dyadic partners. This review involved coding studies of these "pure" leader-follower dyads based on several dyadic theories (e.g., vertical dyad linkage, individualized leadership, leader-member exchange, leader-follower congruence) and multiple analytic methods (e.g., multilevel modeling, polynomial regression, WABA) that dealt with leader-follower dyads directly. Based on the results, this review generated a nomological network of constructs for understanding leader-follower dyads and to provide suggestions for future leader-follower dyads research.

## Introduction

The leader-follower dyad, a unit composed of one leader and one follower who are interdependent, is generally identified as the key dyad among multiple types of dyads in organizations (e.g., Bass, 2008; Gooty & Yammarino, 2011; Yammarino & Gooty, 2017) and has been the focus of numerous leadership studies (see Dionne et al., 2014; Gooty, Serban, Thomas, Gavin, & Yammarino, 2012; Yammarino, Dionne, Chun, & Dansereau, 2005). However, of the four levels of analysis in a typical levels framework (individual, dyad, group/team, and collective/organization - Dansereau, Alutto, & Yammarino, 1984), the dyad level is known as the most poorly understood level (Gooty & Yammarino, 2011; Yammarino & Gooty, 2017) and has often been ignored in multilevel research (Tse & Ashkanasy, 2015; Yammarino et al., 2005).

The major reason contributing to the lack of understanding of the dyad level is levels of analysis misalignment issues. In particular, there is an emerging consensus among organizational behavior and leadership scholars that when *pure* dyadic phenomenon is focal, it may be misleading to theorize and hypothesize at the dyad level but measure or assess the phenomenon from only one side of the dyadic partnership (an individual-level approach, e.g., individual's perceptions of the dyadic phenomenon) (Gooty et al., 2012; Gooty & Yammarino, 2011; Krasikova & LeBreton, 2012; Tse & Ashkanasy, 2015; Yammarino & Gooty, 2017). Pure dyadic phenomena reside conceptually and operate empirically at the dyad level (not the individual level) and can include notions such as dyad characteristics (e.g., dyadic tenure, demographic compositions), emergent properties (e.g., interaction, relationship, exchange) shared within the dyad, quality of those emergent properties as assessed by both members, and (dis)agreement between the dyadic partners. Since dyad-level phenomena are mostly emergent from the interaction between the two individuals (dyadic members or partners) (Gooty & Yammarino, 2011), measuring a variable of interest from solely one dyadic partner would lead to an incomplete view of the phenomenon of interest and may result in a misrepresentation of the dyadic relationship (Krasikova & LeBreton, 2012).

In other words, when understanding the (shared) reality of the dyadic relationship is of interest, rather than one person's perception of the relationship, taking a dual perspective (Paglis & Green, 2002) will

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provide a more valid understanding of the focal dyadic phenomenon. Measuring a variable of interest only from one dyadic member's perspective assumes that this focal person's view represents two possibly different views and ignores the other member's viewpoint. Omitting one member's perspective is potentially problematic as one person's perception may not be enough to represent two parties' perceptions of the shared dyadic experience, and two people's views toward an identical object can be either similar or different (Atwater & Yammarino, 1997; Matta, Scott, Koopman, & Conlon, 2015). The general idea of considering all participating parties in the phenomenon of interest is therefore critical from a validity standpoint. It is interesting to note that this approach is regularly used in group- and team-level studies, where data are frequently collected from *all* group and team members. In a similar approach, when interested in pure dyadic phenomenon, researchers could take both dyadic partners' view into account and collect data from all (both) dyad members (Dansereau et al., 1984; Krasikova & LeBreton, 2012; Tse & Ashkanasy, 2015; Yammarino & Gooty, 2017).

As these levels-of-analysis misalignment issues for the dyad level are becoming more understood and interest in applying potential remedies have increased (Krasikova & LeBreton, 2012; Tse & Ashkanasy, 2015; Yammarino & Gooty, 2017), we believe it is timely to review the current state-of-the-science of leader-follower dyads research. Our focus in this review is to take stock of *what we know* and *how much we know* about pure leader-follower dyadic phenomena. In doing so, we generate a nomological network for leader-follower dyads research to represent current empirical findings and highlight research areas that require further attention. We limit this review to “pure” leader-follower dyadic studies (see Gooty & Yammarino, 2011) that align the levels of theory, measurement, analysis, and inference at the dyad level. Such studies theorize a dyad-level phenomenon (e.g., dyad characteristics, emergent properties, (dis)agreement in dyads), assess at least one variable about the leader, follower, or relationship from both dyadic partners' perspectives, and generate dyad-level variables by matching both dyadic partners' responses. As our focus is on the pure dyad level, we will not be reviewing studies that mainly examined the correlates, causes, or effects of individual-level perceptions of the relationship (e.g., follower's leader-member exchange (LMX) perception) (see Dulebohn, Bommer, Liden, Brouer, & Ferris, 2012).

Our work differs from previous reviews that incorporated leader-follower dyadic theories (e.g., Dionne et al., 2014; Gooty et al., 2012; Krasikova & LeBreton, 2012; Liden, Anand, & Vidyarthi, 2016; Sin, Nahrgang, & Morgeson, 2009; Tse, Troth, Ashkanasy, & Collins, 2018; Yammarino et al., 2005) in that we have a specific focus on a single level of analysis (i.e., dyad level only) and yet a broader focus in terms of theories, as we are not limiting our review to LMX, one of the most studied theories on leader-follower relationship. Contrary to Yammarino et al. (2005)'s comprehensive review on leadership and levels of analysis that incorporated various leadership theories and pinpointed levels of analysis misalignment issues, we particularly focus on studies of dyad-level theories and summarize the current state of leader-follower dyads research. Moreover, beyond Dionne et al. (2014)'s more up-to-date review that examined levels of analysis incorporation in both conceptual and empirical leadership research published only in *The Leadership Quarterly*, this review focuses explicitly on dyad-level leadership studies published in several top organizational behavior and management journals and aims to summarize leader-follower dyads research in terms of theories, methods, variables, and variable dimensions.

In addition, our review differs from the extant reviews on leader-follower dyads that focus on levels-based issues only within LMX research (Gooty et al., 2012), only with regard to methodological issues in dyads research (Krasikova & LeBreton, 2012), only on LMX agreement (Sin et al., 2009), or only on the state of affect and LMX research from a multilevel perspective (Tse et al., 2018). Rather, our focus is to review pure dyad-level studies in terms of the usage of theories, methods, and variables in a broader scope. In terms of theories and variables, our scope includes but is not limited to dyad-level LMX (Tse et al., 2018) and/or LMX agreement (Sin et al., 2009). With respect to pure dyadic level investigations, we also consider vertical dyad linkage (VDL, e.g., Dansereau, Graen, & Haga, 1975), individualized leadership (e.g., Dansereau et al., 1995), LMX, relational leadership theory (RLT, e.g., Uhl-Bien, 2006), and leader-follower congruence (e.g., Kristof-Brown, Zimmerman, & Johnson, 2005). With regard to methods, we are not focusing on raising methodological concerns but rather concentrating on understanding how each dyadic research method proposed and reviewed elsewhere (e.g., Gooty & Yammarino, 2011; Krasikova & LeBreton, 2012) - such as multilevel modeling, polynomial regression, Within and Between Analysis (WABA), and Actor-Partner Interdependence Model (APIM)/One-With-Many Model (OWM) - has been utilized in leader-follower dyads studies. Finally, this review is distinct from Liden et al. (2016)'s theoretical/conceptual review, which centers on the development and nature of dyadic relationships, as we review empirical leader-follower dyads studies and concentrate on the variables used in those studies to generate a nomological network for leader-follower dyads research.

In summary, we extend the findings from the aforementioned reviews, first, by capturing studies on leader-follower dyads published in multiple journal outlets; second, by including dyadic relationship-based studies not limited to only LMX theory; third, by reviewing studies that include variables of focus assessed from both dyadic partners; and fourth, by developing a nomological network relevant for leader-follower dyads theory building and testing.

In the following sections, to help frame our review, we provide an overview of current theories on leader-follower dyads, suggested research methods for examining dyadic phenomena, and levels and dimensionality issues regarding leader-follower dyads. To explore how specific theories and methods have been utilized to examine dyadic phenomenon, we develop targeted research questions to be addressed via comprehensive review results derived from coding pure leader-follower dyads studies. Ultimately, we generate a nomological network derived from key variables within existing dyad studies and present the connection among these variables to summarize the current state of leader-follower dyads research. Based on review results and the proposed nomological network, we suggest future directions for leader-follower dyads research.

## Overview and research questions

### *Theories of leader-follower dyads*

We initially employed five theories (i.e., VDL, Individualized Leadership, LMX, Relational Leadership, Leader-Follower Congruence) on leader-follower dyads or leader-follower relationships identified in a previous review by Dionne et al. (2014) as the framework to categorize leader-follower dyads studies in our review. These five theories represent leadership generally proposed as pure leader-follower dyadic relations of interest.

#### *Vertical dyad linkage (VDL)*

VDL challenged the assumptions of the traditional leadership approach (i.e., Average Leadership Style, ALS) and explained the mechanism of differentiated relationship development by introducing the concept of ‘negotiating latitude’ (Dansereau et al., 1975; Dansereau, Cashman, & Graen, 1973; Graen, 1976). Specifically, depending on the degree of the negotiating latitude within dyads, the dyadic relationship between supervisor and subordinate can be either supervision (low negotiating latitude) or leadership (high negotiating latitude) (Dansereau et al., 1975). As VDL addressed a separation of in-groups and out-groups within an existing group, the level of analysis for VDL was suggested as dyads within group (see Dansereau, Yammarino, & Markham, 1995).

Empirical support for VDL showed mixed results. VDL was supported with superior-manager dyads in a public university setting (Dansereau et al., 1975; Liden & Graen, 1980), but with different samples (Rosse & Kraut, 1983) and different measures of negotiating latitude and analytical methods (Nachman, Dansereau, & Naughton, 1983), the results were inconsistent with the early studies. The conflicting results raised questions about the validity of the negotiating latitude measure and the level of analysis of VDL.

Despite these questions, VDL made a significant contribution to the field by challenging the assumption of ALS regarding leader-follower relationships and suggesting such relationships are often differentiated in a group context. This was a new perspective on leader-follower relationships that placed the 'dyad' as a central unit of analysis for leadership research. As a result, VDL became the foundation of other leader-follower dyadic relationships theories.

*Individualized Leadership*

Knowing that leaders form differentiated relationships with followers, Dansereau et al. (1984) provided empirical support for the level of the leader-follower relationship such that perceptions of investments and returns in the relationship were similar between the leader and follower and this pattern was replicated across all dyads with only the degree of investments and returns varying. The notion that a leader and a follower share similar perceptions but the degree of perceptions differ from dyad to dyad was further developed as individualized leadership theory (Dansereau, 1995; Dansereau et al., 1995; Yammarino & Dansereau, 2002). Individualized leadership focuses on the reciprocity (i.e., investments and returns) process that makes two individuals (i.e., leader and follower) become (or emerge as) a dyad. Specifically, the iterative process of exchanging support for self-worth and satisfying performance between leader and follower helps the relationship between the dyadic partners to become unique and independent from other dyads and the group, and fosters the interdependence within the dyad (Yammarino & Dansereau, 2002).

Individualized leadership has received empirical support from both quantitative and qualitative studies such that support for self-worth and satisfying performance (measured from both leader and follower perspectives in quantitative studies) showed similarity within the dyads and differences across the dyads (Dansereau et al., 1995; Wallis, Yammarino, & Feyerherm, 2011). In other words, dyads were characterized as independent from other dyads and the group yet having interdependence between dyadic partners in those studies.

Individualized leadership was not suggested as an alternative to ALS or VDL, but rather as an additional perspective on leadership by identifying a relatively new relational process (i.e., investment-return cycle), and suggesting two variables (i.e., support for self-worth, satisfying performance) and their association that operate at the dyad level (Dansereau et al., 1995). Although individualized leadership received empirical support, some questions on contextual factors (e.g., antecedents and outcomes of support for self-worth, boundary conditions) have been raised, resulting in calls for additional research to resolve issues and provide greater clarity to dyadic leadership concepts (Ferris & Harrell-Cook, 1998; Mumford, 1998).

*Leader-member exchange (LMX)*

LMX (Graen & Cashman, 1975; Graen & Uhl-Bien, 1995) kept the central notion of VDL – that leaders develop differentiated relationships that form in-groups/out-groups – but put more emphasis on the quality of the exchange relationship that a leader maintains with followers. A low-quality relationship was characterized as being transactional, which is close to economic exchange, whereas a high-quality relationship was characterized as having high trust, mutual liking, and respect, which represents social exchange (Bernerth, Armenakis, Feild, Giles, & Walker, 2007). After exploring the existence of differentiated relationships depending on the relationship qualities, LMX has evolved to reflect a cycle of leader-follower relationship development (Graen & Uhl-Bien, 1995).

After further development of LMX theory (for a review, see Dulebohn et al., 2012), Bernerth et al. (2007) introduced an additional perspective and measure (i.e., Leader-Member Social Exchange, LMSX) that concentrated on the 'social exchange' nature of the leader-follower exchange relationships. In other words, this additional view shifted the focus of LMX from the quality of the relationship (e.g., affect, respect) to the quality of the (social) exchange behavior in the relationship. Colquitt, Baer, Long, and Halvorsen-Ganepola (2014) provided initial evidence that LMSX captures the social exchange nature of the leader-follower relationship better than other relationship related measures, including LMX-7, by examining the face validity of the measures from undergraduate (mostly not employed) students' viewpoint (with same-source data) and suggested that LMSX might be more appropriate to use when studying LMX and the social exchange in relationships.

While LMSX has refocused exploration on the quality of the social exchange and related behaviors, some issues remain surrounding the concept of LMX such that the level of LMX theory is unclear. Although LMX was introduced conceptually as a dyad-level theory, the majority of LMX studies have been conducted at the individual level (see Dionne et al., 2014; Gooty et al., 2012; Yammarino et al., 2005). Followers' perception of LMX quality was mostly measured at the individual level and has been shown to be both an important predictor of an individual's cognitive, affective, and behavioral outcomes and a mediating mechanism that connects individual or interpersonal relationship characteristics and those individual outcomes (Dulebohn et al., 2012; Gerstner & Day, 1997; Ilies, Nahrgang, & Morgeson, 2007; Rockstuhl, Dulebohn, Ang, & Shore, 2012). Measuring LMX at the individual level can be helpful when examining the cause and effect (antecedents and outcomes) of an individual's relationship perceptions but may be problematic when used to represent the dyadic relationship, as one individual's relationship perception may not be an accurate representation of the relationship (Gooty & Yammarino, 2016; Krasikova & LeBreton, 2012). When an individual's LMX quality perception is used as a proxy for dyadic LMX quality, and inferences are made for a dyadic phenomenon, theoretical contribution for understanding leader-follower dyads may be limited.

Several researchers investigated the level at which LMX operates and showed that, when properly measured and analyzed with both dyadic partners' perspectives, LMX can be a dyadic phenomenon (Gooty & Yammarino, 2011; Markham, Yammarino, Murry, & Palanski, 2010; Schriesheim, Castro, Zhou, & Yammarino, 2001). Although the number of pure dyad-level LMX studies (i.e., with leader and follower both reporting about LMX and, for example, an outcome) is far less than individual-level LMX studies (e.g., follower reports about LMX perception and the leader reports about performance), dyad-level LMX studies are increasing recently with better measurement and analysis practices.

*Relational leadership*

Relational leadership theory (RLT) (Uhl-Bien, 2006; Uhl-Bien & Ospina, 2012) highlights the importance of the relational *process* that enables leadership and considers leadership as a socially constructed phenomenon (Yammarino, Salas, Serban, Shirreffs, & Shuffler, 2012). Moreover, the relationship is considered as an outcome that is produced through the relational process (e.g., social interactions) (Uhl-Bien, 2006). In other words, RLT is a theory that emphasizes relational dynamics as an organizing mechanism and views the relationship as an outcome.

As the major focus of RLT is on understanding the *process* of relationship development, qualitative research methods (e.g., organizational discourse analysis) have been suggested as a suitable investigative approach (Fairhurst & Uhl-Bien, 2012; Uhl-Bien, 2006; Uhl-Bien & Ospina, 2012). RLT has been further advanced through applying diverse disciplinary perspectives and contexts (see Uhl-Bien & Ospina, 2012) and mixed methods (e.g., Meinecke, Lehmann-Willenbrock, & Kauffeld, 2017) to capture, for example, the relational dynamics in leader-follower dyadic communication patterns.

The focal relationship in RLT, however, is not limited to leader-follower relationship but includes all possible forms of relationships within organizations (Uhl-Bien, 2006). In terms of levels, RLT involves dyads, but goes beyond and includes groups and collectives. Although RLT does not directly or solely focus on dyadic phenomenon, the theory's relational process orientation can be used as a framework to understand dyadic relationship development and procedural antecedents of relational outcomes. In particular, RLT provides insight to investigate issues such as the factors affecting relationship development, the associations among factors to build an emerging dyadic relationship, and patterns of social interactions in the relationships.

*Leader-follower congruence*

Congruence involves matching two conceptually distinct constructs and can be presented with different terms such as fit, similarity, match, or agreement (Edwards, 1994). Leader-follower congruence is one type of person-environment fit, considering the leader as the environment for the follower and vice versa (Kristof-Brown et al., 2005). Depending on the measure, congruence can be categorized into subjective (i.e., perceived) and objective (i.e., actual) congruence (Caplan, 1987; Kristof, 1996). While subjective congruence considers an individual's (e.g., follower's) belief about whether he/she fits well with the environment (e.g., leader), objective congruence involves explicit comparison of the follower's and the leader's characteristics or perceptions, measured from both independently (e.g., Cogliser, Schriesheim, Scandura, & Gardner, 2009; Sin et al., 2009). Needs-supplies fit and demands-abilities fit (Caplan, 1987; Kristof, 1996) have also been considered at the dyad level to predict followers' individual outcomes (e.g., Marstand, Martin, & Epitropaki, 2017).

Leader-follower congruence has gained empirical support in predicting various individual outcomes. Kristof-Brown et al. (2005)'s meta-analysis showed that leader-follower fit (e.g., value, goal, personality), including both subjective and objective fit, is positively related to individual outcomes such as job satisfaction, supervisor satisfaction, and LMX. Additionally, relational demography (Tsui & O'Reilly, 1989), which considers the similarity and dissimilarity of demographic characteristics (e.g., race, gender, education level, job tenure), was presented as a dyad-level variable that predicts individual outcomes. The association between (dis)similarity in individual characteristics in dyads and individual outcomes provides an understanding of how individuals are influenced by having a better/worse matched partner. This research framework can be extended by employing dyad-level outcomes and provide an additional understanding of leader-follower dyadic relationships.

*Summary*

Leader-follower dyadic phenomena have been viewed from diverse theoretical perspectives that fall into the general domain of leadership or leader-follower relationships. Each theory views the dyadic phenomena from different levels-of-analysis perspectives and captures the dyadic phenomena differently by focusing on either process or outcomes. Individualized leadership emphasizes the investment-return cycle as a key process to build interdependence in the dyad, whereas RLT focuses on the dynamic nature of the relationship development process. On the other hand, LMX concentrates on high quality relationship outcomes, and leader-follower congruence considers the outcomes of (mis)match between two individuals' characteristics. Given the different foci, each theory provides a foundation for different research questions on leader-follower dyadic phenomena. Moreover, it is possible that theories other than these five theories could have been used to examine different aspects of leader-follower dyads.

To understand how much the dyad- and/or relationship-related theories in leadership have been employed and what other theories have been used in leader-follower dyads studies since the beginning of dyads studies to provide a comprehensive overview of the state of leader-follower dyads research and identify theories that have been (under)utilized in leader-follower dyads studies, we propose the following research question on the usage of each theory in leader-follower dyads research.

**Research Question 1(RQ1)**. *What is the current usage of dyad theories to explain the leader-follower dyadic phenomenon? Which theories are used, to what degree, and how are they formulated to account for pure dyadic phenomenon?*

*Dyadic research methods*

Analyzing dyadic data with appropriate dyadic research methods and techniques requires specification of the type of dyads involved (Gooty & Yammarino, 2011; Krasikova & LeBreton, 2012; Tse et al., 2018). For example, failure to include group membership as a group-level variable when dyads are embedded in groups could result in inaccurate examination of dyadic phenomena. Specifically, dyadic data can be collected from either independent dyads (i.e., one leader and one follower) or dependent dyads (i.e., one leader and multiple followers in a group) (see Gooty & Yammarino, 2011). As the importance of considering data dependencies in dyadic analyses has been emphasized in previous research (Gooty & Yammarino, 2011; Krasikova & LeBreton, 2012; Tse et al., 2018), we examine whether the type of dyads has been considered in the leader-follower dyads research by addressing research question below:

**Research Question 2a (RQ2a).** *Do leader-follower dyad studies focus on independent or dependent dyads and how is the focus typically justified?*

Several specific methods have been suggested for testing theoretical notions about leader-follower dyads and analyzing data collected from both dyadic partners (see Gooty & Yammarino, 2011; Krasikova & LeBreton, 2012; Liden et al., 2016; Yammarino & Gooty, 2017). The usage of these available methods depends on the research questions, and certain questions may require the use of more than one of these primary methods summarized below.

*Multilevel modeling*

When a research question involves contemporary cross-level effects (see Yammarino & Gooty, 2019) – such as a direct relationship between a higher-level independent variable and a lower-level dependent variable, or a moderating effect of a higher-level independent variable on a lower-level independent-dependent variable relationship – multilevel (random coefficient) modeling can be implemented through several software platforms (e.g., Hierarchical Linear Modeling (HLM), R, Stata, and MPlus). When implementing a dyad-level variable as an independent variable, both dyadic partners' individual responses need to be included and aggregated (see Gooty & Yammarino, 2011).

Multilevel modeling can specify the types of dyads that enable researchers to study both independent and dependent dyads in organizations. In addition, multilevel modeling can address research questions involving (contemporary) cross-level interactions by including higher-level moderators in the model. Another strength of multilevel modeling comes from having an individual-level dependent variable; this allows for the examination of research questions pertaining to the effect of dyad-level predictors on individual outcomes. When the phenomenon of interest is a (contemporary) cross-level relationship, then multilevel modeling is a suitable method to use. However, when the phenomenon of interest involves a higher-level (e.g., dyad-level) dependent variable, multilevel modeling might not be applicable.

*Polynomial regression*

Polynomial regression and response surface methodology (Edwards & Parry, 1993; Shanock, Baran, Gentry, Pattison, & Heggestad, 2010) have been introduced as alternatives to difference scores when examining the effect of similarity, congruence, fit, and/or the match between two entities or notions. As a dyad involves two individuals, polynomial regression could be a suitable method for studying the

**Table 1**
Summary of dyadic research methods.

| Method | Objective/research question | Dependent/independent dyad | Level: independent variable | Level: dependent variable |
|---|---|---|---|---|
| Multilevel modeling | Cross-level effects (contemporary) | Both | Dyad | Individual |
| Polynomial regression | Effect of leader-follower congruence | Both | Dyad | Individual |
| WABA | Level of variable (WABA I), level of relationship (multi-level effects) (WABA II), cross-level effects (traditional) | Both | Dyad | Dyad |
| APIM/OWM | Mutual influence | APIM: Independent<br>OWM: Dependent | Dyad | Individual |

effects of convergence and divergence of two individuals' perceptions (Liden et al., 2016) or the effects of similarity and dissimilarity of two individuals' characteristics on individual outcomes (e.g., Zhang, Wang, & Shi, 2012). After fitting the polynomial regression model, regression coefficients, covariances, and standard errors are used to estimate the response surface which visually shows the effects of convergence and divergence (Shanock et al., 2010). By examining the slope and curvature of the congruence and incongruence lines of the estimated response surface, research questions on the similarity, congruence, fit, or match can be investigated. In addition, nonindependence of dyads can be considered by employing cross-level polynomial regression (Jansen & Kristof-Brown, 2005).

Although polynomial regression is a useful tool to study the effect of congruence and/or divergence of the predictor on individual outcomes, this method cannot be directly implemented when examining dyad-level outcomes. The additional step of aggregating the two individuals' outcomes to generate a dyad-level variable is necessary to study dyadic phenomenon.

*Within and Between Analysis (WABA)*

WABA is useful for testing the level of analysis of variables (WABA I), the relationship between the variables (WABA II), and traditional cross-level effects (Dansereau et al., 1984; Gooty & Yammarino, 2011; Schriesheim et al., 2001; Yammarino & Dubinsky, 1992; Yammarino & Gooty, 2019). Contrary to other dyadic data analysis methods that allow dependent variables to only be at the individual level, WABA can be used when the dependent variable is a dyad-level variable. WABA uses ANOVA and correlation-based procedures to make inferences about the level(s) of variables and relationships between the variables and whether there are traditional cross-level effects (Dansereau et al., 1984; Yammarino, 1998; Yammarino & Gooty, 2017, 2019).

WABA is a tool to test the theoretically driven level of variables and relationships of interest. The strength of WABA is that it can consider different types of dyads (i.e., independent, dependent), test multi-level effects (e.g., dyad-level predictor – dyad-level outcomes), and employ dyad-level outcomes in the model. WABA can be challenging when the phenomenon of interest is complex, involving multiple mediators and moderators simultaneously in analyses (see Gooty & Yammarino, 2011; Yammarino & Gooty, 2017), but advanced WABA procedures can be employed to overcome this limitation (see Dansereau et al., 1984; Schriesheim, 1995; Yammarino, 1998).

*Actor-Partner Interdependence Model (APIM)/One with Many (OWM) model*

APIM and OWM models were initially suggested for dyadic analyses of interpersonal and romantic relationships (Kenny, Kashy, & Cook, 2006). The use of each model depends on whether the dyads are independent (i.e., APIM) or dependent (i.e., OWM) (Kenny et al., 2006; Krasikova & LeBreton, 2012). APIM requires both independent and dependent variables to be collected from both dyadic partners and could address research questions on how each dyadic partners' characteristics influence himself/herself and the dyadic partner (i.e., mutual influence) and can examine the relative strength of each effect (Krasikova & LeBreton, 2012). OWM can be employed for dependent dyads that involve multiple relationships of an individual. OWM encompasses the actor effect, partner effect, and relationship effect and allows researchers to examine whether the reciprocity between the actor and partner are generalized among or unique to dyads (Krasikova & LeBreton, 2012).

APIM/OWM, depending on the type of dyads being studied, can simultaneously investigate interpersonal and intrapersonal effects. The independent and dependent variables should both be matched data (i.e., obtained from both actor and partner) from the dyad. When running the model, the independent variable and dependent variable are not aggregated to one value that represents the dyads, but each individual's response is used separately. APIM/OWM can examine how a dyad member can impact his/her relationship partner, but unique characteristics of the dyad or the effect of the combination of two individuals' characteristics cannot be examined through this method.

*Summary*

Various methods that have different foci and involve different levels of variables have been suggested for dyadic data analysis (see Table 1). Based on the research questions or hypotheses, methods could be used alone, jointly, or sequentially (see Yammarino & Gooty, 2019).

To understand how these four dyadic data analysis methods have been employed and explore what other methods have been used to study leader-follower dyads, our review results will be summarized by focusing on the below research question:

**Research Question 2b (RQ2b).** *What dyadic research methods have been used, and to what degree, in leader-follower dyad studies? How are they formulated and used to account for pure dyads?*

*Antecedents and outcomes of leader-follower dyads*

Studies on leader-follower relationships have been scattered in terms of theoretical basis and levels of analysis (e.g., individual level and dyad level). For instance, currently what is known about leader-follower exchange relationships is mainly based on individual-level studies (e.g., individual LMX perceptions) such that several meta-analyses were conducted to show the antecedents, consequences, and correlates of individual-level LMX perceptions (Dulebohn et al., 2012; Dulebohn, Wu, & Liao, 2017; Gerstner & Day, 1997), but dyad-level LMX has received relatively little attention in the reviews which led to limited understanding of dyadic exchange relationships. In terms of dyad-level studies, leader-follower congruence studies were conducted at the dyad level and predicted the impact of dyad characteristics (e.g., relational demography, personality similarity) on diverse individual outcomes (e.g., Tsui & O'Reilly, 1989; Zhang et al., 2012). Individualized leadership studies were also conducted at the dyad level by examining the relationship between support for self-worth and satisfying performance, both measured at the dyad level (Dansereau et al., 1995).

Given the possibility of examining diverse levels of analysis in leader-follower dyads studies, it would be beneficial to review and summarize the *pure* leader-follower dyads studies. Accordingly, we review studies that aligned the levels of theory, measurement, and analysis at the dyad level (i.e., interested in dyadic phenomenon, collected matched data from both dyadic partners on at least one variable, and analyzed with dyadic research methods) to understand the antecedents and consequences of *pure* leader-follower dyadic phenomena.

To capture the current state of leader-follower dyads research, there is value in generating a nomological network (Cronbach & Meehl, 1955) that integrates previous research findings. In particular, a nomological network will show the unique characteristics of leader-follower dyads, and antecedents and consequences of those leader-follower dyads characteristics. As a result, the nomological network generated in this review will depict what we currently know about leader-follower dyads. Therefore, we propose the research question below:

**Research Question 3 (RQ3).** *What does the nomological network of leader-follower dyads look like? What are the key antecedents and consequences for leader-follower dyads, and are these dyadic level-focused or individual differences-focused precursors and consequences?*

In addition, the multidimensionality of leader-follower dyadic phenomenon could be considered as different dimensions capturing different aspects/characteristics of the dyad. Cognition, affect, and behavior dimensions have been widely used when studying groups/teams (e.g., Kozlowski & Ilgen, 2006), and these dimensions are applicable to dyads as a dyad is a unique/special form of a group. Dyads can have shared perceptions, affective states, and behavioral patterns, meaning that outcomes of dyadic interaction can be categorized into these dimensions.

For example, the LMX construct has been known to be multidimensional as different measures capture different aspects of the dyadic exchange relationship (Liden, Wu, Cao, & Wayne, 2016; Schriesheim, Castro, & Cogliser, 1999). LMX-7 (Graen & Uhl-Bien, 1995) appears to capture the cognitive aspect of a relationship by asking how the working relationship is perceived. LMX-MDM (Liden & Maslyn, 1998) measures affect, loyalty, contribution, and professional respect that appear to be a mix of affective, cognitive, and behavioral aspects of the relationship. Moreover, LMSX (Bernerth et al., 2007) focuses on the (social) exchanging behavior that takes place within the dyad. As such, for LMX and other dyadic phenomena, different measures capturing different aspects of leader-follower relationships raises the possibility of the multidimensional nature of dyadic phenomena. In addition, given that outcomes of leader-follower relationships can be categorized as affect, behavior, or cognition (Dulebohn et al., 2012; Gerstner & Day, 1997; Ilies et al., 2007; Rockstuhl et al., 2012), it would be worth examining the dimensions of the outcomes of dyads or dyadic relationships as well. Therefore, we propose:

**Research Question 4 (RQ4).** *What is the dimensionality (i.e., affective, behavioral, and cognitive) of variables in leader-follower dyads studies?*

## Literature review method

To explore the above research questions and conduct a comprehensive review of leader-follower dyads research, studies focusing on the leader-follower dyads were identified through abstract keyword searches from web-based databases (Business Source Ultimate, PsychINFO, PsychARTICLES). The search, as in prior studies, was constrained to high-quality peer-reviewed journals in management, applied psychology, and leadership published until August 2017. From the *Clarivate Analytics Web of Science* 2016 impact factor list (category: Management; Psychology, Applied), we filtered journals with impact factor > 2.0 and sorted journals that publish empirical work on micro organizational behavior phenomena. Journal search based on the impact factor yielded 24 journals. In addition to these 24 journals, we included two journals (i.e., *Group & Organization Management*; *Journal of Leadership & Organization Studies*) in our review that have been included in previous reviews on leadership (Fischer, Dietz, & Antonakis, 2017; Gooty et al., 2012). A full list of journals and the number of articles included in the current review by journal is presented in Table 2.

**Table 2**
Article counts by journals.

| Journal | Count |
|---|---|
| Academy of Management Journal | 13 |
| Administrative Science Quarterly | 1 |
| European Journal of Work and Organizational Psychology | 1 |
| Group & Organization Management | 8 |
| Human Relations | 4 |
| Journal of Applied Psychology | 6 |
| Journal of Business and Psychology | 1 |
| Journal of Leadership & Organizational Studies | 4 |
| Journal of Management | 2 |
| Journal of Management Studies | 1 |
| Journal of Occupational and Organizational Psychology | 9 |
| Journal of Organizational Behavior | 6 |
| Journal of Vocational Behavior | 2 |
| Organization Science | 2 |
| Organizational Behavior and Human Decision Processes | 1 |
| Personnel Psychology | 2 |
| The Leadership Quarterly | 16 |
| Total | 79 |

Keywords used in the search were based on leader-follower dyad theories (i.e., 'vertical dyad linkage', 'individualized leadership', 'leader-member exchange'/'LMX', 'relational leadership'). For LMX, the keyword 'dyad*' was combined to specify the level because LMX has been theoretically suggested (Graen & Uhl-Bien, 1995) and empirically tested at multiple levels and not limited to the dyad level (Gooty et al., 2012). We conducted a search with broader keyword phrases 'leader* & dyad*', 'superior* & dyad*', 'supervisor* & dyad*', and 'manager* & dyad*' to search articles that focused on leader-follower congruence, as different terms are used to represent congruence (e.g., fit, similarity, congruence, agreement), and to capture articles that are based on theories other than five initial theories discussed above.

As empirical studies on leader-follower dyads are the focus of this review, only *quantitative studies on leader-follower dyads in workplace* were included. Specifically, for quantitative studies on leader-follower dyads, only studies that measured at least one variable from both members of the dyad were included. Conceptual work, qualitative studies, meta-analyses, literature reviews, lab experiments, student samples studies, and scale development studies were excluded, as they did not fit our inclusion criteria to explore our research questions.

Initial keyword searches from the journals yielded 435 articles. Inclusion criteria were applied to screen the initial searched articles. Abstracts and method sections of all articles were examined to determine the final set of articles to be coded (see Fig. 1 for article screening process). After the screening, 356 out of 435 articles were excluded. These 356 articles did not meet the inclusion criteria because they were either (a) conceptual (24 articles), (b) meta-analysis/literature review (12 articles), (c) scale development/construct validation (four articles), (d) qualitative studies (six articles), (e) empirical studies not specifically focused on leader-follower dyads (71 articles), (f) lab experiments/simulation (13 articles), (g) student sample studies (seven articles), (h) individual-level studies on leader-follower dyads (i.e., all variables were collected at the individual level) (194 articles), or (i) empirical studies that focused on leader-follower dyads and collected dyadic data but did not match dyadic data and used the data for separate individual-level analyses only (25 articles). Thus, 79 articles remained to be coded.

## Coding process

### Coder training

Four coders with doctoral-level training in organizational behavior and leadership conducted the coding. All coders had knowledge about dyads and levels of analysis issues and had experience coding articles

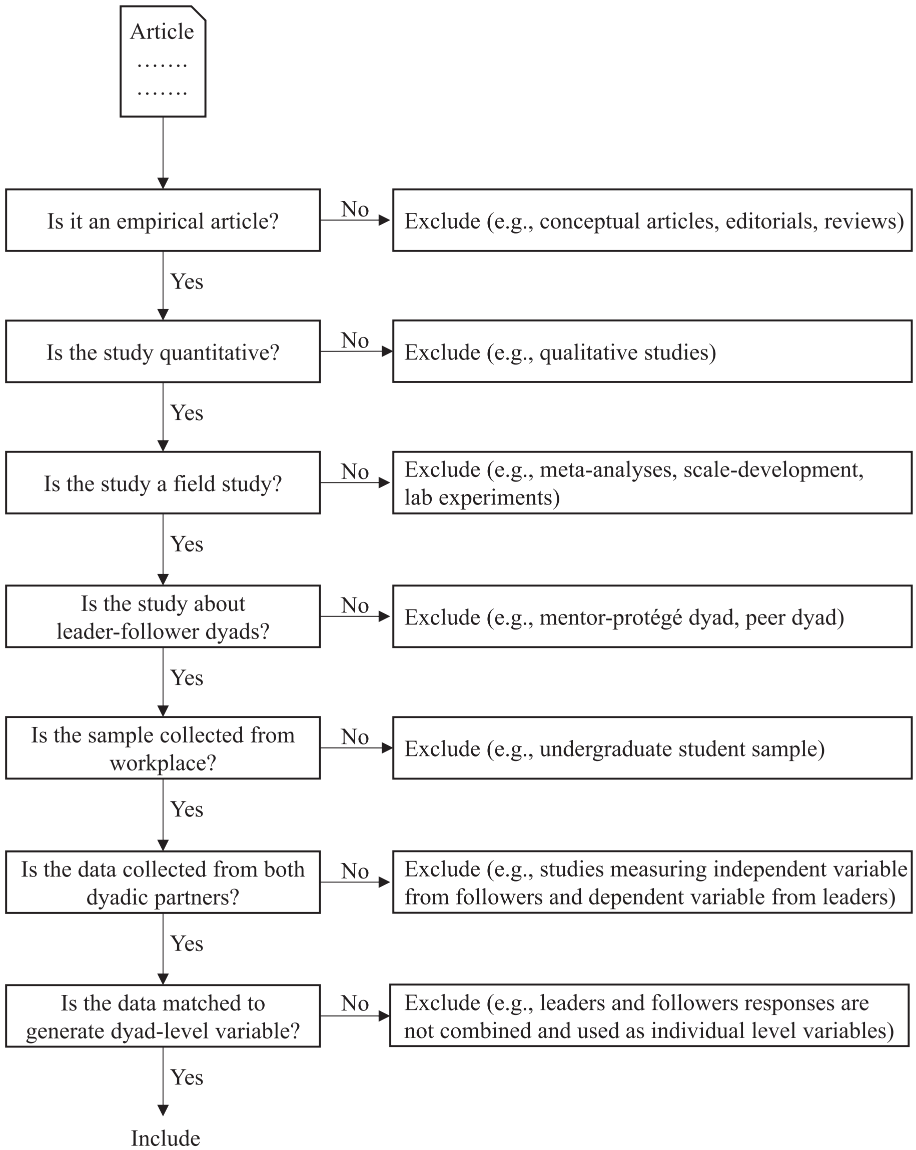


**Fig. 1.** Article screening process based on inclusion criteria.

based on a levels of analysis framework. To ensure accurate coding, all coders received extensive training to familiarize themselves with the coding scheme and process. The training was conducted in two phases. In the first phase, coders coded ten articles individually and met to compare the results. If any discrepancies were found, coders discussed differences to reach an agreement and a consensus code. In the second practice session, four coders were split into two pairs. After individually coding another 10 articles, coders met their partner to discuss the coding results and reach an agreement. After discussing within each pair, all coders met to review results that were agreed upon within the pairs. From this discussion, coders were able to cross-check the results between coding pairs. After the two complete practice sessions, all coders coded all 79 articles by following the process of coding independently, discussing the results with a partner, and checking the results with the other pair.

*Coding scheme*

Descriptive information about the articles such as authors, journal, and year of publication were recorded. All variables in the studies were recorded and the types of variables and relationships between the variables were specified. This information was used to answer RQ3 on the nomological network of leader-follower dyads. The theoretical basis of the studies, the type of dyads from which the study collected data, and the analytic methods were coded to answer RQ1, RQ2a, and RQ2b, respectively. For studies that used theories and methods other than the five theories and four primary methods discussed above, coders used an 'other' code and noted the name of the other theories and methods. In addition, studies that used multiple theories or methods were given multiple codes. To answer RQ4, all variables included in the hypotheses involving dyadic variables were considered, and levels and dimensions (i.e., affect, behavior, cognition, and demographics) of these variables were coded. For example, when a variable was measured from both the leader's and follower's perspectives and combined, the level of the variable was coded as 'dyad'. On the other hand, when the variable was measured from either leader or follower, but not both, the level of the variable was coded as 'individual'. Dimensions of each variable were coded as affect, behavior, cognition, or demographics based on the conceptualization.

## Results

Seventy-nine articles included in the current review can be summarized by published years as shown in Fig. 2. Since 1971, the number

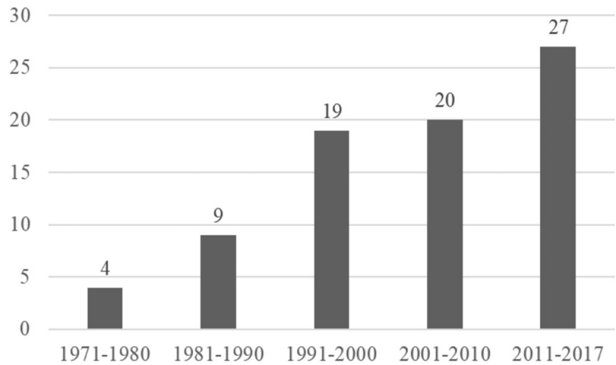


**Fig. 2.** Included leader-follower dyad studies by years.

**Table 3**
Summary of leader-follower dyad studies: theory.

| Theory code | 1 | 2 | 3 | 4 | 5 | 6 | Total |
|---|---|---|---|---|---|---|---|
| 1 | 3 | 1 | | | | | 4 |
| 2 | 1 | 3 | | | | | 4 |
| 3 | | | 5 | | 20 | 2 | 27 |
| 4 | | | | 0 | | | 0 |
| 5 | | | 20 | | 35 | 4 | 59 |
| 6 | | | 2 | | 4 | 6 | 12 |
| Total | 4 | 4 | 27 | 0 | 59 | 12 | 106 |

Note. 1 = VDL, 2 = Individualized leadership, 3 = LMX, 4 = Relational leadership, 5 = Leader-follower congruence, and 6 = Other. Number of articles with one theory is presented on the diagonal and number of articles using multiple theories is presented in the cells of the code combinations. Twenty-seven articles using multiple theories (located off-diagonal) have been counted twice, leading to a total of 106 (=79 + 27).

of leader-follower dyads studies that include a dyad-level variable has been increasing continuously.

*RQ 1 results*

A summary of leader-follower dyad articles by theory is presented in Table 3. Forty-six articles used one of the five theories reviewed above (presented on the diagonal of Theory Code 1 to 5 in Table 3), six articles used one or multiple other theories (presented on the diagonal of Theory Code 6), and 27 articles used either a combination of one of the five theories and other theories or a combination of two of the five theories to explain the phenomenon of interest (presented on the off-diagonal of Table 3). Among the 46 articles that used one theory, leader-follower congruence (35 articles) was the most used theory for leader-follower dyad studies, followed by LMX (five articles), individualized leadership (three articles), and VDL (three articles).

Studies on leader-follower congruence mainly focused on investigating the effect of similarity/dissimilarity of leader-follower characteristics (e.g., demographics, individual characteristics) (e.g., Pearce & Xu, 2012; Tsui & O'Reilly, 1989) or a leader's and a follower's perceptions (e.g., Greene, 1972; Wexley & Pulakos, 1983). Specifically, among the 35 articles, 19 articles (54%) studied the effects of demographic similarity. Studies on LMX examined the antecedents or consequences of dyadic LMX (e.g., Olsson, Hemlin, & Pousette, 2012; Schriesheim et al., 2001). Studies on individualized leadership concentrated on testing the levels of support for self-worth and satisfying performance (e.g., Keller & Dansereau, 1995). VDL studies investigated an antecedent of VDL quality (Snyder & Bruning, 1985) and consequences of negotiation latitude (Kozlowski & Doherty, 1989; Rosse & Kraut, 1983).

Six articles that were based on other theories employed transformational leadership, contingent reward leadership, relational control approach, or social exchange theory. Regarding transformational leadership and contingent reward leadership, the level of the theory and the level of the relationship between leadership behavior and outcomes were investigated (e.g., Yammarino, Dubinsky, Comer, & Jolson, 1997). Relational control approach was used to examine the dyadic conversation pattern (Courtright, Fairhurst, & Rogers, 1989), and social exchange theory was applied to develop an idea on the effect of a leader and a follower's commitment interaction on follower's job performance (Landry & Vandenberghe, 2012).

Regarding the 27 articles that applied two theories, 20 articles were related to both leader-follower congruence and LMX and examined the effect of a leader's and a follower's individual differences congruence on individual LMX perceptions (e.g., Byza, Schuh, Dörr, Spörrle, & Maier, 2017; Tsai et al., 2017) or the effect of LMX agreement on a follower's outcomes (e.g., Matta et al., 2015). Four articles combined leader-follower congruence and other theories (e.g., transformational leadership, guanxi), two articles used LMX and other theories (e.g., transformational leadership, resource dependence theory), and one article was based on VDL and individualized leadership.

*Summary*

The results showed that the majority of the studies concentrated on leader-follower congruence or LMX and predicted outcomes of the leader-follower relationship. In contrast, studies that used process-oriented theories, such as individualized leadership and relational leadership theory, were relatively limited. Interestingly, several other theories such as transformational leadership and contingent reward leadership were applied to study leader-follower dyadic phenomenon.

*RQ 2a results*

The type of dyads assessed or used in each study is summarized in Table 4. Studies were coded as operationalizing the dyads as independent dyads when the number of leaders and followers in the sample were identical, and as dependent dyads when dyad data were collected from groups/teams and the number of leaders and followers were different (i.e., a leader had multiple followers). For dependent dyads studies, we coded whether the nested nature of the data was considered in the analyses. Studies that did not report the number of both leaders and followers were coded as not specifying the type of dyads.

Of 79 articles, 19 articles specified that dyadic data were collected from independent dyads, 41 articles were based on data collected from dependent dyads, 17 articles (22%) did not specify the type of dyads used in the study, and two articles conducted multiple studies with different operationalizations. For example, Guarana and Barnes (2017) collected data from independent dyads for the first study and from dependent dyads for the second study; and Paustian-Underdahl, King, Rogelberg, Kulich, and Gentry (2017) did not provide adequate information to discern the type of dyads in one study and collected dependent dyad data in the other study. Regarding the 43 articles that used data from dependent dyads, including two articles that

**Table 4**
Summary of leader-follower dyad studies: type of dyads.

| Operationalized as | Count | Conducted test for levels[a] (in case of dependent dyads) |
|---|---|---|
| Independent dyads | 19 | |
| Dependent dyads | 41 | Yes: 25<br>No: 16 |
| Not specified | 17 | |
| Multiple | 2 | Yes: 2 |
| Total | 79 | |

Note.
[a] Yes: considered nesting of dyads in analysis; No: did not consider nesting of dyads in analysis.

operationalized the dyads differently across studies, 27 articles (63%) considered the nesting of dyads within groups or teams.

The 27 articles used different methods to take the group-level effects into consideration. WABA was used to directly test whether the levels of the relationship of interest were at the dyad or group level (e.g., Yammarino & Dubinsky, 1994). Some studies used aggregation tests (i.e., ICC) to either eliminate the possibility of group-level effect (e.g., Tsai et al., 2017) or aggregate a group-level variable (e.g., Colbert, Kristof-Brown, Bradley, & Barrick, 2008). In the case of studies employing multilevel modeling, variables related to leaders were included as group-level variables to either control the nesting of dyads under a common leader or explain group-level effects (e.g., Guarana & Barnes, 2017; Kant, Skogstad, Torsheim, & Einarsen, 2013).

*Summary*

As independent dyads (i.e., one leader and one follower) and dependent dyads (i.e., one leader and multiple followers) are conceptually distinct, and have the potential to involve different levels of analysis (Gooty & Yammarino, 2011), the type of dyads included in the study needs to be specified and the requisite proper methodological attention should be given to the specified dyadic type (Tse et al., 2018). Although most studies discussed the type of dyads, some studies failed to specify this explicitly. Moreover, among the studies that collected data from dependent dyads, approximately one third of the studies did not consider the nesting of dyads within a group. The results suggest room for improvement in specifying the type of dyads and implementing methodological rigor when studying dependent dyads.

*RQ 2b results*

A summary of leader-follower dyad articles by method is shown in Table 5. Twenty-six articles used one of the four dyadic research methods (i.e., multilevel modeling, polynomial regression/response surface methodology, WABA, APIM/OWM) reviewed above (presented on the diagonal of Method Code 1 to 4 in Table 5), eight articles used either a combination of one of the four methods and other methods or a combination of two of the four methods (presented on the off-diagonal of Table 5), and 45 articles used other methods (presented on the diagonal of Method Code 5 in Table 5).

Among the 26 articles that used one of the four methods, multilevel modeling and WABA (nine articles each) were the most used method, followed by polynomial regression (seven articles), and APIM/OWM (one article). Multilevel modeling was used to consider both dyad-level effects and group-level effects, such as group phenomenon (e.g., Chun, Cho, & Sosik, 2016) or leader-specific effects in groups (e.g., Triana, Richard, & Yücel, 2017). WABA was employed to test whether the variables and associations of interest operated at the dyad level (e.g., Markham, Markham, & Smith, 2015). Polynomial regression was implemented in studies that focused on the effect of congruence and

**Table 5**
Summary of leader-follower dyad studies: method.

| Method code | 1 | 2 | 3 | 4 | 5 | Total |
|---|---|---|---|---|---|---|
| 1 | 9 | 1 | 2 | | 1 | 13 |
| 2 | 1 | 7 | | | 1 | 9 |
| 3 | 2 | | 9 | | 3 | 14 |
| 4 | | | | 1 | | 1 |
| 5 | 1 | 1 | 3 | | 45 | 50 |
| Total | 13 | 9 | 14 | 1 | 50 | 87 |

Note. 1 = Multilevel modeling, 2 = Polynomial regression/response surface methodology, 3 = WABA, 4 = APIM/OWM, and 5 = Other. Number of articles with one method is presented on the diagonal and number of articles using multiple methods is presented in the cells of the code combinations. Eight articles using multiple methods (located off-diagonal) have been counted twice, leading to a total of 87 (=79 + 8).

incongruence of a leader's and a follower's characteristics/perceptions (e.g., Matta et al., 2015).

Regarding the eight articles that used at least one of the four reviewed methods and another method, two articles that used multilevel modeling conducted WABA as an additional test for levels of the phenomenon of interest (Douglas, 2012; Gooty & Yammarino, 2016), one article that conducted structural equation modeling used WABA to justify aggregation of the variable of interest (Clarke & Mahadi, 2017), two articles that employed WABA as a primary method used additional methods such as structural equation modeling (Dansereau et al., 1995) and correlations (Keller & Dansereau, 1995), two articles that applied polynomial regression used either multilevel modeling to eliminate the possibility of group-level effects when using dependent dyad data (Tsai et al., 2017) or structural equation modeling for mediation tests (Colbert et al., 2008), and one article that had two studies employed regression and multilevel regression for each study (Paustian-Underdahl et al., 2017).

Other methods used in the 45 articles were multiple linear regression (21 articles), ANOVA/MANOVA (10 articles), structural equation modeling/path analysis (five articles), correlation (four articles), a mix of these methods (e.g., correlation and regression, ANOVA and regression) (three articles), Grizzle, Starmer, and Koch (GSK) approach (one article) (Courtright et al., 1989), and Simon-Blalock technique (one article) (Greene & Organ, 1973). Studies using multiple linear regression used difference scores to represent dyad characteristics (e.g., Tsui & O'Reilly, 1989), and studies using ANOVA/MANOVA employed categories of dyads to examine the difference in the outcomes of interest (e.g., Sherman, Kennedy, Woodard, & McComb, 2012).

*Summary*

Less than a half of the articles (34 out of 79 articles) used at least one of the methods reviewed here, and the rest of the articles used other methods such as multiple regression and ANOVA/MANOVA. Among the four reviewed dyadic research methods, when used either separately or in some combination, WABA was the most utilized method and APIM/OWM (Kenny et al., 2006) was the least utilized method. The low usage of APIM/OWM may be due to its relatively recent introduction compared to the other methods (i.e., multilevel modeling, WABA, polynomial regression). Given that APIM/OWM can explain various research questions about dyads (for sample research questions, see Krasikova & LeBreton, 2012; Tse et al., 2018), more attention is needed to this method.

*RQ 3 results*

In total, 224 hypotheses that included at least one dyad-level variable were coded and 132 hypotheses received empirical support. Based on the supported hypotheses for direct and indirect effects, we generated a nomological network of leader-follower dyads research as shown in Figs. 3, 4, and 5.

Three clusters emerged in the nomological network and each cluster included different set of theories. The first cluster (Fig. 3) included core variables of VDL (i.e., negotiation latitude), LMX, and leader-follower congruence; the second cluster (Fig. 4) was based on VDL and individualized leadership (i.e., support for self-worth, satisfying performance); and the third cluster (Fig. 5) was composed of variables studied using other leadership theories (e.g., transformational leadership, contingent reward leadership).

In Fig. 3, leader-follower (in)congruence was central, as it predicted numerous individual-level, both leader-related and follower-related, outcomes. Leader-follower (in)congruence variables were further categorized as demographics/individual differences (e.g., race, gender, personality, competence), cognition- (e.g., relational schema, role perceptions), affect- (e.g., anger, affectivity), and behavior- (e.g., conflict resolution strategy) based variables. Among the four categories, affect- and behavior-based variables were less studied compared to

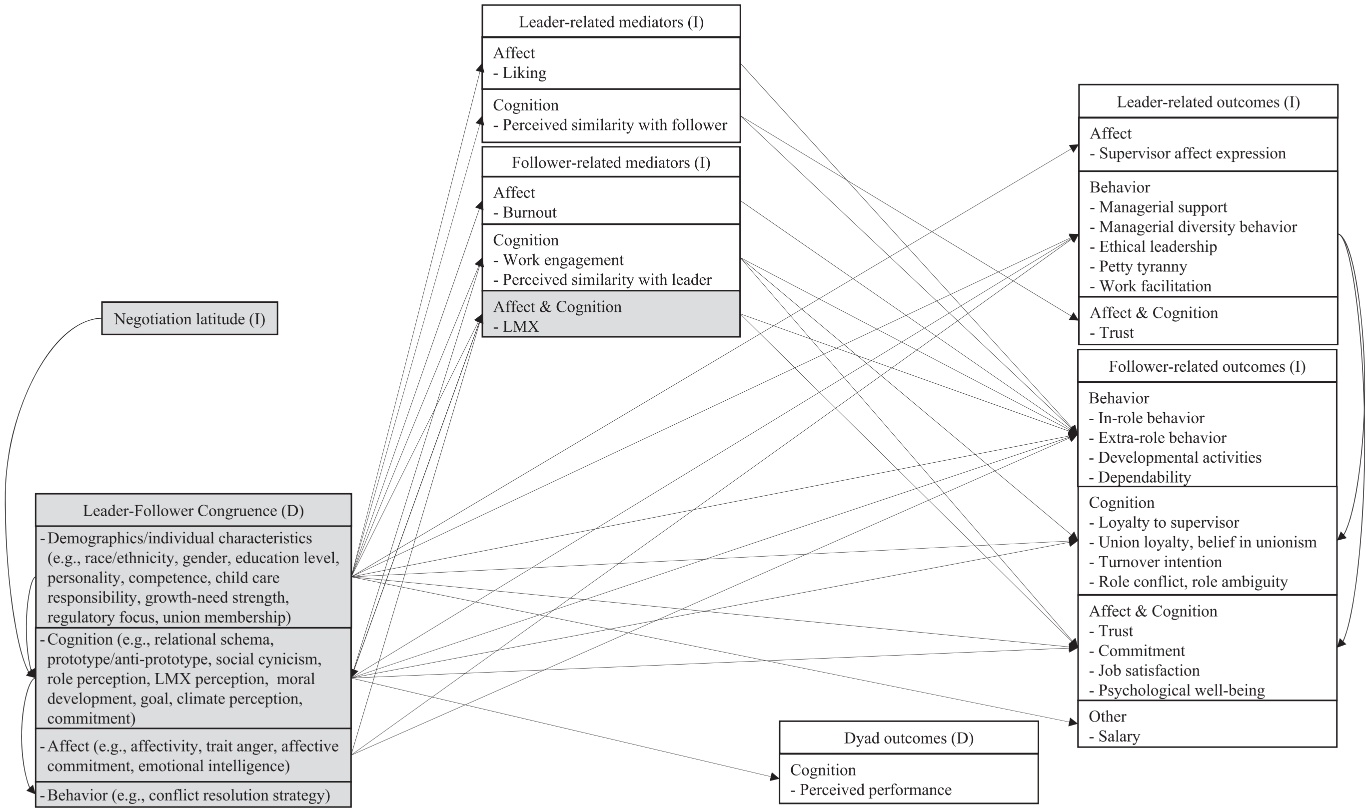


**Fig. 3.** *Note*: (I): individual level; (D): dyad level; Constructs/Variables in five leader-follower dyads theories are shaded.
Nomological network of leader-follower dyads research – cluster 1 (VDL, LMX, leader-follower congruence).

demographics/individual differences-based variables and cognition-based variables. While demographics/individual differences-based variables and cognition-based variables had either direct or indirect effects, affect-based variables only had direct effects on outcomes (e.g., individual-level LMX, in-role behavior). Several mediators were identified for the relationship between leader-follower congruence and follower-related individual-level outcomes (e.g., in-role behavior, extra-role behavior, job satisfaction, trust, commitment) and follower-rated LMX was one of the mediators.

Regarding LMX at the dyad level, two different approaches emerged in the nomological network. The first approach, which was examining the effect of LMX agreement (i.e., congruence) between a leader and a follower (e.g., Markham et al., 2010; Matta et al., 2015; Sherman et al., 2012), appeared in the first cluster (Fig. 3). As this approach reflects the congruence between a leader's and a follower's perception, it was categorized under cognition-based leader-follower congruence. LMX agreement predicted perceived performance at the dyad level, a follower's work engagement, extra-role behavior, and turnover intention.

The second approach to study LMX at the dyad level, which was generating a dyad-level LMX score as an aggregate of leader-rated and follower-rated LMX, appeared in the third cluster (Fig. 5). This aggregated LMX score was used to mediate the effect of individual-focused transformational leadership occurring at the dyad level and follower's in-role and extra-role behavior (Chun et al., 2016) and the relationship between the leader's emotional intelligence and follower-related outcomes such as psychological well-being and turnover intention (Clarke & Mahadi, 2017).

Fig. 4 was formulated around VDL and individualized leadership. Different dyad-level variables were present and the relationships among the variables were either causal or based on covariations (Keller & Dansereau, 1995; Markham et al., 2015; Yammarino & Dubinsky, 1992).

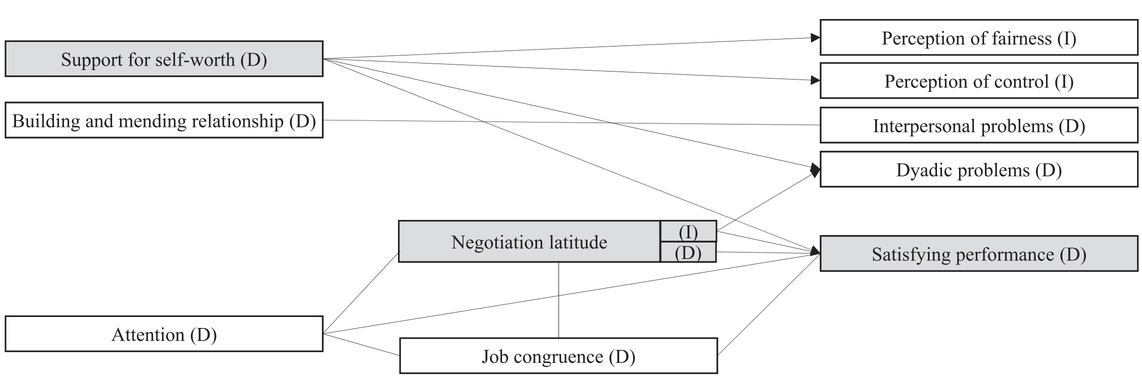


**Fig. 4.** *Note*. (I): individual level; (D): dyad level; Constructs/Variables in five leader-follower dyads theories are shaded.
Nomological network of leader-follower dyads research – cluster 2 (VDL, individualized leadership).

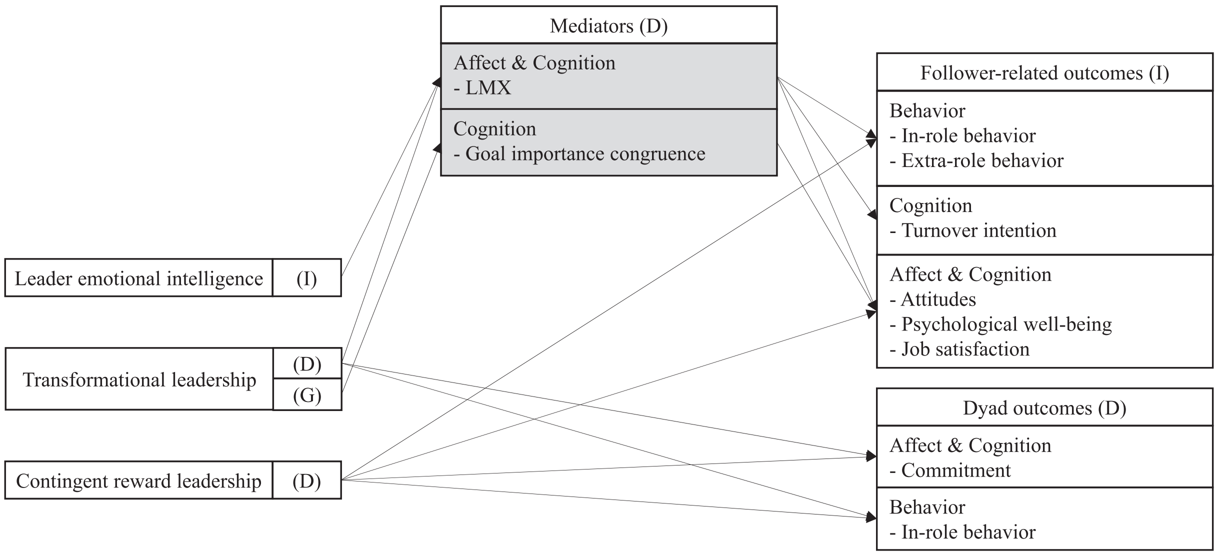


**Fig. 5.** *Note.* (I): individual level; (D): dyad level; (G): group level; Constructs/Variables in five leader-follower dyadstheories are shaded.
Nomological network of leader-follower dyads research – cluster 3 (other theories).

As shown in Fig. 5, transformational leadership and contingent reward leadership were also studied at the dyad level. Transformational leadership was an antecedent of dyad-level LMX, dyad-level performance, and shared perception of subordinate commitment at the dyad-level (Chun et al., 2016; Yammarino et al., 1997). Dyad-level contingent reward leadership predicted a follower's outcomes such as job satisfaction, extra-role performance, and in-role performance (Chun, Yammarino, Dionne, Sosik, & Moon, 2009). In addition, contingent reward leadership was also related to dyad-level performance and shared perception of subordinate commitment at the dyad level (Yammarino et al., 1997).

*Summary*

The nomological network included three clusters. The first cluster was built based on leader-follower congruence and LMX. The second cluster was formulated with variables mainly studied from an individualized leadership standpoint and included multiple dyad-level variables (e.g., negotiation latitude, support for self-worth, satisfying performance). The third cluster included other theories studied at the dyad-level (i.e., transformational leadership, contingent reward leadership). Most of the outcomes in the first cluster were individual-level outcomes such as performance, job satisfaction, and turnover intention. Among the studies on leader-follower congruence, most of the studies focused on a leader's and a follower's individual differences that were manifested before the dyadic relationship began (e.g., demographics, personality).

In the nomological network, LMX has been employed more as an individual-level variable than a dyad-level variable. Only two antecedents of dyad-level LMX were identified and outcomes of dyad-level LMX were all individual-level outcomes. In line with Gooty et al. (2012)'s review on levels issue in LMX research, despite LMX being one of the most studied leader-follower dyadic phenomena, relatively little is known about dyad-level LMX.

*RQ 4 results*

Variables investigated in leader-follower dyads studies can be categorized into either variables that represent characteristics of dyads (i.e., dyad-level variables) or outcome variables operating at levels other than dyad level. A list of dyad-level variables and dimensions of each variable is presented in Table 6, and a list of outcome variables and dimension of each variable is summarized in Table 7. Dimensions were determined based on the conceptualization of each variable and coded as affect, behavior, cognition, or demographics.

In total, 50 dyad-level variables were identified. Among the identified variables, 44 variables were used as one type of variable with 25 variables as an independent variable, 7 variables as a moderator, one variable as a mediator, and 11 variables as a dependent variable. Six variables were used as multiple types of variables and, among them, three variables were used as both an independent variable and a dependent variable.

Regarding the dimensions of the variables, 34 out of 50 were based on cognition. The majority of cognition-based variables were related to (dis)similarity or (in)congruence between two individuals' characteristics (e.g., competence, growth-need strength, social cynicism, relational schema, implicit leadership theory) or perceptions of particular target such as relationship quality (i.e., LMX), role, or performance rating. Seventeen variables were conceptually related to behavior occurring within dyads such as attention, building and mending relationship, leadership behavior, support for self-worth, and performance (i.e., considering both a subordinate's performance and a supervisor's effectiveness). Of the 10 variables categorized as affect variables, except (dis)similarity or (in)congruence of anger, emotional irritation, and emotional intelligence between a leader and a follower, all variables were conceptually a mix of the affective aspect and cognitive aspect such as LMX, satisfaction, and commitment. Four variables were identified as capturing relatively objective characteristics such as demographics (e.g., race, gender, education level), dyadic tenure, relationship type, and guanxi as a former relationship type between a leader and a follower.

Individual-level outcomes studied in leader-follower dyads studies (Table 7) were categorized into follower-related outcomes and leader-related outcomes. Forty-two variables were identified as follower-related outcomes. In terms of the conceptual dimensions of the follower-related outcomes, cognition (27 variables) was the most studied aspect, followed by behavior (13 variables) and affect (nine variables). Among the follower-related outcomes, nine variables (e.g., organizational commitment, job satisfaction, trust) were considered to be capturing multiple aspects (e.g., affect and cognition, behavior and cognition).

Regarding leader-related outcomes, 18 variables were found and behavior (12 variables) was the most studied dimension, followed by affect (six variables) and cognition (five variables). Among the leader-related outcomes, four variables (e.g., managerial support, leader effectiveness) were a mix of multiple dimensions (e.g., affect and

**Table 6**
Dimensions of dyad-level variables used in leader-follower dyads research.

| Type[a] | Variable | Dimensions | | | |
|---|---|---|---|---|---|
| | | Affect | Behavior | Cognition | Demographics |
| IV | Attention | | X | | |
| IV | Building and mending relationship | | X | X | |
| IV | Contingent reward leadership | | X | | |
| IV, MOD | (In)congruence – demographics | | | | X |
| IV | (In)congruence – affective commitment | X | | X | |
| IV | (In)congruence – anger | X | | | |
| IV | (In)congruence – cognitive moral development | | | X | |
| IV | (In)congruence – commitment - other | | X | X | |
| IV | (In)congruence – communication style | | X | X | |
| IV | (In)congruence – competence | | | X | |
| IV | (In)congruence – emotional intelligence | X | | | |
| IV | (In)congruence – growth-need strength | | | X | |
| IV | (In)congruence – political skills | | X | | |
| IV | (In)congruence – power | | | X | |
| IV | (In)congruence – personality | X | X | X | |
| IV | (In)congruence – regulatory focus | | | X | |
| IV | (In)congruence – social cynicism | | | X | |
| IV | (In)congruence – relational schema | | | X | |
| IV | (In)congruence – implicit leadership theory | | | X | |
| IV, MOD, DV | (In)congruence – LMX perception | X | X | X | |
| IV | (In)congruence – attribution conflict | | | X | |
| IV, MED, DV | (In)congruence – role, job content perception | | | X | |
| IV, DV | (In)congruence – other perception | | | X | |
| IV | Guanxi | | | | X |
| IV, MOD | Interaction/relationship type | | | | X |
| IV | Interpersonal problems | | X | X | |
| IV | Job latitude | | | X | |
| IV | Job congruence | | | X | |
| IV, MED | LMX | X | | X | |
| IV | Support for self-worth | | X | X | |
| IV | Transformational leadership | | X | | |
| MED | (In)congruence – goal importance | | | X | |
| MOD | (In)congruence – emotional irritation | X | | | |
| MOD | (In)congruence – meaning of work | | | X | |
| MOD | (In)congruence – self-efficacy | | | X | |
| MOD | (In)congruence – individual characteristics | | | X | |
| MOD | Dyadic tenure | | | | X |
| MOD | Role clarity | | | X | |
| MOD | Role conflict | | | X | |
| DV | Commitment | X | | X | |
| DV | Conflict (in conversations) | | X | | |
| DV | Conflict resolution strategy | | X | | |
| DV | Discussion (in conversations) | | X | | |
| DV | Dyadic problems | | | X | |
| DV | (In)congruence – performance ratings | | | X | |
| DV | Influence tactics | | X | | |
| DV | Performance | | X | X | |
| DV | Satisfaction | X | | X | |
| DV | Satisfying performance | X | | X | |
| DV | Subordinate's extra effort | | X | | |
| Total | 50 | 10 | 17 | 34 | 4 |

Note.
[a] IV: independent variable; MED: mediator; MOD: moderator; DV: dependent variable. All are dyad-level (and not individual-level) variables.

cognition, affect and behavior, mix of all three dimensions).

*Summary*

In terms of dyad-level variables, a small number of variables were identified as outcome variables and most of the variables were either independent variables or moderators. In other words, few variables have been investigated as purely dyadic outcomes. In addition, dimensions of dyad-level variables were mostly cognitions.

With regard to outcomes of leader-follower dyads, all variables were at the individual level and mostly related to followers. Again, outcomes were also heavily focused on cognitive aspects. These results guide future research to further explore and investigate more dyad-level outcomes and consider dimensions other than cognitions.

## Discussion

By focusing on the dyad level in the realm of leadership and going beyond extant reviews on leader-follower dyads (e.g., Krasikova & LeBreton, 2012; Liden et al., 2016), LMX research (e.g., Gooty et al., 2012; Tse et al., 2018), and LMX agreement (e.g., Sin et al., 2009), the current review broadly examined empirical findings in leader-follower dyads research with consideration of both theories and methods employed in leader-follower dyads studies. Given our focus on pure dyads studies, we excluded individual-level relationship perceptions studies (e.g., all variables are at the individual level). Articles that met the inclusion criteria were coded to address research questions on the theoretical basis of each study, the usage of dyadic research methods, the nomological network of leader-follower dyadic phenomena, and the

**Table 7**
Dimensions of individual-level outcome variables in leader-follower dyads research.

| Leader/follower | Variable | Dimensions | | | |
|---|---|---|---|---|---|
| | | Affect | Behavior | Cognition | Other |
| Follower | Attitude | X | | X | |
| | Belief in unionism | | | X | |
| | Commitment | X | | X | |
| | Dependability | | X | | |
| | Developmental activities | | X | | |
| | Dominance | | X | | |
| | Employee self-development | | | X | |
| | Equity perception | | | X | |
| | Extra-role behavior (e.g., OCB) | | X | | |
| | Idea generation | | X | | |
| | Influence in decision making | | X | | |
| | Ingratiation | X | X | | |
| | In-role behavior (e.g., task performance, creative performance) | | X | | |
| | Intent to remain | | | X | |
| | Job burnout | X | | | |
| | Job Satisfaction | X | | X | |
| | Level in the organization | | | | X |
| | LMX | X | | X | |
| | Loyalty to supervisor | | | X | |
| | Met expectation | | | X | |
| | Nurturance | | X | | |
| | Organizational commitment | | X | X | |
| | Perception of control | | | X | |
| | Perception of fairness | | | X | |
| | Performance (rating) | | | X | |
| | Procedural justice | | | X | |
| | Psychological well-being | X | | X | |
| | Quality of communication | | | X | |
| | Responsibility to the union | | | X | |
| | Role ambiguity | | | X | |
| | Role conflict | | | X | |
| | Salary | | | | X |
| | Satisfaction with the supervisor | X | | X | |
| | Talk time | | X | | |
| | Trust | X | | X | |
| | Turnover (actual) | | X | | |
| | Turnover intentions | | | X | |
| | Union loyalty | | | X | |
| | VDL quality | | | X | |
| | Willingness to work for the union | | | X | |
| | Work engagement | | | X | |
| | Work withdrawal | | X | | |
| Subtotal (follower) | 42 | 9 | 13 | 27 | 2 |
| Leader | Affect expression | X | | | |
| | Delegation | | X | | |
| | Diversity behavior | | X | | |
| | Dominance | | X | | |
| | Ethical leadership | | X | | |
| | Idea generation | | X | | |
| | Influence in decision making | | X | | |
| | Leader effectiveness | X | X | | |
| | Liking for leader | X | | | |
| | LMX | X | | X | |
| | Managerial support | X | X | X | |
| | Nurturance | | X | | |
| | Petty tyranny | | X | | |
| | Quality of communication | | | X | |
| | Respect for leader | | | X | |
| | Talk time | | X | | |
| | Trust | X | | X | |
| | Work facilitation | | X | | |
| Subtotal (leader) | 18 | 6 | 12 | 5 | 0 |
| Total | 60 | 15 | 25 | 32 | 2 |

Note. All are individual-level (and not dyad-level) variables.

dimensionality of variables covered in dyads research.

Our review results indicate that little has been uncovered in terms of pure dyadic phenomena between leaders and followers. In other words, leader-follower dyads research field has a potential to expand widely in the future. By looking at the nomological network generated and the summary on the usage of theories on leader-follower dyads from this review, researchers will be able to identify areas that need future investigation for replication and to expand the nomological network to enhance our knowledge of dyadic phenomena. Moreover, researchers can try replicating the findings of leader-follower dyadic phenomena investigated with early methods (e.g., multiple regression; ANOVA/MANOVA) by employing more contemporary methods suggested for dyadic research, when applicable.

In general, to expand our understanding of leader-follower dyads, future studies on leader-follower dyads should pay closer attention to the levels of theory, measurement, analysis, and inference, as suggested by other reviews on levels of analysis issues in leadership research (e.g., Dionne et al., 2014; Gooty et al., 2012; Yammarino et al., 2005). Additionally, future research can align the levels issues at the dyad level by addressing research questions on areas that have gained limited interest in the nomological network of leader-follower dyads and employ dyad-level analysis with matched data collected from both leaders and followers.

Based on the findings of the current review, we can summarize when it is necessary to consider both the leader's and follower's perspective and make suggestions in terms of future research questions and methods to further develop the areas that received limited attention in leader-follower dyads research. For example, it is important to take a dyadic perspective when researchers are interested in dyadic phenomena such as:

1. Interaction process, reciprocity, and/or exchange between a leader and a follower;
2. The interplay of a leader's and a follower's individual characteristics;
3. The agreement/disagreement between a leader's and a follower's perceptions; and.
4. Emergent properties, components, and characteristics of dyadic relationships.

Additionally, sample research questions that can be addressed by taking a dyadic perspective include:

1. What underlies the formulation of dyadic relationships and how do the components interact to build the relationships? (e.g., Other than LMX, what are the characteristics of low/high performing dyads and do they operate at the dyad level?; In addition to support for self-worth and satisfying performance, what can be exchanged within a dyad to increase the interdependency of a leader and a follower within a dyad?)
2. What properties emerge after interactions/exchange between a leader and a follower and how long do these elements take to emerge within the dyad?
3. For leader-follower congruence studies, what affect- and behavior-based individual differences can be matched in a dyad to predict individual and dyadic outcomes?
4. What dyad characteristics can impact better/worse leader-follower congruence (e.g., relationship perceptions)?
5. What dyad-level consequences can be predicted from leader-follower dyadic relationships? (e.g., Can individual-level outcomes studied in leader-follower congruence studies also be examined at the dyad-level? What are the dyad-level outcomes of low/high-quality dyadic relationships?)

Finally, suggestions for methodology include:

1. When interested in dyadic phenomenon, collect data on the variable of interest from both a leader's and a follower's perspective and combine, when appropriate, responses from the two perspectives to generate a dyad-level variable. When aggregation of dyad scores of the focal variable is necessary, test the level of the variable via WABA or some other appropriate technique after combining the responses.
2. Specify the type of dyads (i.e., independent vs. dependent dyads) collected in the study by providing the number of both leaders and followers in the sample.
3. When dyads are dependent (i.e., nested within groups having one leader and multiple followers), consider the dependency in the analysis by either testing the potential group-level effects through WABA or calculating ICCs, for example, before conducting dyad-level analyses, or conduct multilevel (random coefficient) modeling to consider both dyad-level effects and group-level effects (see Gooty & Yammarino, 2011; Yammarino & Gooty, 2019).

In a more general way, we believe the results of this review point toward several broad potential future directions for research related to leader-follower dyads. First, there is a great need to unpack and explore the temporal dynamics of leader-follower relationships. The process-oriented theories related to leader-follower dyads (e.g., individualized leadership and relational leadership theory) have received very little empirical attention from a pure dyad perspective. This is unfortunate as dyadic phenomena do not always emerge from leader-follower interactions (see Gooty & Yammarino, 2011; Yammarino & Gooty, 2017), and it would be helpful to know how the various temporal dynamics suggested by existing theories inform our understanding of these realities. Moreover, given the potential value of high quality leader-follower dyadic relationships to positively impact an array of important outcomes (e.g., Dansereau et al., 1984; Gooty & Yammarino, 2016; Markham et al., 2010), it would be insightful to enhance understanding of factors that could accelerate the rate of development for these relationships.

There is no doubt that the longitudinal studies needed to explore such leader-follower relationships are challenging: they require intensive repeated data collection and additional modeling complexities (e.g., Bliese & Lang, 2016; Ployhart & Vandenberg, 2010). However, recent advances in big data and the increasing availability of "digital traces" (Kozlowski, Chao, Chang, & Fernandez, 2015) may ease the collection of repeated data for both leaders and followers. Additionally, there are likely to be ways to combine existing dyadic data analysis methodologies with multilevel modeling and other growth modeling techniques (e.g., Bliese & Ployhart, 2002) to address modeling complexities. Lastly, there are potentially interesting ways in which computational models/agent-based simulations can be coupled with targeted empirical studies (cf. Grand, Braun, Kuljanin, Kozlowski, & Chao, 2016) to shed light on and investigate important temporal aspects involved with the development and maintenance of leader-follower dyadic phenomena.

Second, there is room to further investigate the conceptual complexities involved with dependent leader-follower dyads. While this review demonstrates that these types of dyads are common, much of existing research has focused on the methodological implications of these dyads. The unique theoretical implications associated with these types of dyads, such as the potential for there to be contagion and other diffusion effects among leader-follower dyads in a given group and the possibility for characteristics associated with follower-follower dyads to impact leader-follower dyads, have yet to be incorporated into existing theories regarding leader-follower dyads. Such considerations are likely to be particularly important as scholarship in this area more fully investigates the temporal aspects involved with the development and maintenance of leader-follower dyadic phenomena.

Third, we see potential for the use of network-related approaches to examine leader-follower dyadic phenomena. The dyad is a fundamental unit of analysis in network-based approaches, and it offers the added benefit of providing the ability to visualize and explore the broader pattern and configuration of dyads in a given unit (Borgatti & Foster, 2003; Borgatti, Mehra, Brass, & Labianca, 2009; Wasserman & Faust, 1994). Despite these applicable and potentially insightful aspects of network-based methods, this review did not identify any "pure" dyad leadership studies that used network techniques. There is thus an opportunity to leverage network approaches, particularly exponential random graph models (Kim, Howard, Pahnke, & Boeker, 2016; Lusher, Koskinen, & Robins, 2013) and associated multilevel extensions (Wang, Robins, Pattison, & Lazega, 2013; Zappa & Lomi, 2015), in future leader-follower dyads studies.

Fourth, there are opportunities to explore the bottom-up impact of dyad-level phenomena and outcomes on phenomena at a higher-level of analysis beyond the dyad. While this review found that the examination of dyad-level outcomes was relatively rare (especially when compared to the emphasis on outcomes at the individual level), consideration of the impact at the group/team or higher levels of analysis was practically nonexistent. This is surprising as dyads are frequently referred to as the fundamental building blocks of groups/teams and are likely to play an important role in the emergence of a variety of group/team phenomena (e.g., cohesion, trusting environment, climate) (e.g., Liden et al., 2016). Moreover, prior research suggests that leader-follower dyads are likely to be a particularly salient set of dyads in a given group/team (Bass, 2008; Gooty & Yammarino, 2011; Yammarino & Gooty, 2017). We therefore see possibilities for future theoretical and empirical research on leader-follower dyads to enhance understanding of how the dynamics and outcomes associated with these dyads can impact phenomena and outcomes at the group/team levels of analysis.

Finally, given our review of pure leader-follower dyad relationships, we believe it is premature to offer specific practical implications when we do not know much about leader-follower dyads yet. If leader-follower dyads research expands by addressing more diverse research questions and including more constructs, and the findings are replicated, then we would be able to provide practical implications such as how to build high-performing dyadic relationships, how to manage low-quality dyadic relationships, and what leaders and followers can expect from their good/poor dyadic relationships. Until that point in the development of this line of research (i.e., more data, more replications, better understanding of foundational issues), we believe that it is prudent scientifically to avoid asserting practical implications when they are not warranted or may be inaccurate.

## Conclusion

The current review presents a summary of leader-follower dyads research and identifies areas that have been understudied and require additional theoretical and empirical attention. We also have provided suggestions regarding several new promising directions for future research on leader-follower dyads to explore. Our overall hope is that these findings stimulate greater specificity in future leader-follower dyads research, increase the appropriate investigation of purely dyadic phenomena between leaders and followers, and lay the groundwork for a new wave of research related to leader-follower dyads.

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# The *Leadership Quarterly Yearly Review*: Comprehensive and integrative perspectives on leadership research, theory, and methods

The Yearly Review issue of *The Leadership Quarterly* publishes high-quality, high-impact, state-of-the-science reviews across a diverse set of leadership topics. It has been an annual mainstay of the journal since the Yearly Review was introduced in 2000. The 2020 issue follows that tradition and aspires to extend and enhance contributions to leadership science. The process to publication involves a rigorous, peer-review system described in more detail in the following paragraph. The importance afforded to the Yearly Review issue is such that it appears as the first published issue in February for each volume of the journal.

There are a few features that make the Yearly Review distinct from regular issues of the journal. As the Yearly Review Editor, I am responsible for this category of articles in consultation with the Editor in Chief. A competitive call is published early each year for authors to submit a 10-page proposal, plus all end matter. Each proposal is first screened by me and the Editor in Chief. Proposals that are judged to be in scope and are sufficiently well-developed are sent out for review. Proposals receive detailed feedback from at least two reviewers for the authors to consider and address in their respective full manuscripts. Point-by-point responses to the reviewers' comments are required along with submission of the review manuscript. Invitation to submit a full manuscript does not guarantee eventual publication; however, the reviewers and I work in a constructive and developmental manner to enhance the publication potential of each manuscript. Typically, full manuscripts undergo at least two and typically more revisions before a final decision is made with regard to publication suitability in the Yearly Review. These articles take the form of narrative reviews, integrations, meta-analyses, and other formats related to the focal topic of leadership, broadly defined.

In terms of article scope, we seek to publish reviews on substantive areas of leadership theory and research, or to address relevant methodological issues. In particular, we seek to publish articles that have the potential to launch a new line of research, redirect existing research streams, propose concrete research agendas, or shut down areas of scholarship that are no longer relevant or have ceased making meaningful contributions to the field. What we do not typically publish in the Yearly Review are theory-development pieces into new areas of leadership science. Those types of papers should be submitted for review to the regular issue or a relevant special issue. Regardless of focus or approach, we strive for Yearly Review articles to be "pushing the envelope" in the respective area of leadership being reviewed. Authors are encouraged to take a stand, be provocative, and even stir some controversy, if needed.

The current issue comprises 13 articles that review relevant leadership literature and forge directions for future researchers to build on. The lead article focuses on an important methodological topic by providing an introduction, review, and guidelines for conducting natural experiments in the leadership field (Jost Sieweke and Simone Santoni). Other articles in the issue include a review and critique of the "healthy leadership" literature (Cort Rudolph and colleagues) and examining the contemporary topic of leading teams in the digital age (Lindsay Larson and Leslie DeChurch), reviewing much of what is known on leadership and technology. Additional reviews include the topics of functional leadership in multi- and inter-team contexts (Dorothy Carter and colleagues); leader-follower transgressions and relationship repair and outcomes (Olga Epitropaki and colleagues); situation-trait approaches and situation-encoding schema in leader decision-making (Ryan Gottfredson and Christopher Reina); leadership in and of socio-political vanguards, also known as political fringe groups (Richard Marcy); examining what we know about the daily causes and consequences of leadership behaviors on what is called everyday leadership (Thomas Kelemen and colleagues); follower transformation as the foundation of transformational leadership theory (Nathapon Siangchokyoo and colleagues); evolution-based dual strategies for understanding leadership in modern organizations (Kaylene McClanahan); leader-follower dyads (Kim Jayoung and colleagues); and leadership succession in business and political organizations (Bassam Farah and colleagues). The final article provides a review of the literature published during the third decade of *The Leadership Quarterly* (Kevin Lowe and colleagues) following an informal tradition that takes decennial perspectives on the accumulation of leadership science in the journal. It is a diverse and wide-ranging collection of article topics that will certainly stimulate – and possibly even provoke – your thinking about leadership research, theory, and methods. In keeping with the spirit of the journal and its international focus, the authorship teams in this volume represent multiple countries and continents.

In closing, on behalf of the authors and myself, many thanks to the reviewers for their constructive and developmental comments that ultimately improved every article in this issue. Looking ahead, I encourage future authors to consider submitting their proposals for future Yearly Review issues that consider timely and provocative leadership issues. In the meantime, I hope you enjoy reading the 2020 Yearly Review.

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Call for Proposals

# The Leadership Quarterly Yearly Review (LQYR) for 2022

Kevin B Lowe (Incoming Yearly Review Editor)

*University of Sydney Business School*

The Leadership Quarterly seeks proposals for the 2022 LQYR; historically, these articles are high-impact and important contributions to the success of the journal. Eligible topics are broadly defined to include theory, research, and practice in the field of leadership. Published manuscripts could include systematic literature reviews, theoretical integrations, bibliometric studies, new methodological developments, meta-analyses, or some combination of these. The review could be set in any scientific discipline that studies leadership scientifically, from traditional organizational behavior, management or industrial-organizational psychology points of views to other perspectives including but not limited to evolutionary biology, neuroscience, anthropology, economics, or sociology. Of particular interest are contributions that adopt provocative—but also theoretically or empirically grounded—viewpoints that go beyond reviewing the relevant literature to proposing where the future of leadership studies should, and should not, continue. For example, are there theories, measures, or practices that no longer contribute meaningfully to the field of leadership broadly construed? Are some definitions of constructs badly defined and operationalized? Should a particular approach to studying leadership be abandoned? Well-reasoned and soundly-argued papers with persuasive evidence, serving to stimulate debate and potentially change the field will be given special consideration in the review process. As always, we encourage integrative and synthetic reviews of research streams that are not only exemplary, but where new developments and insights will trigger advances in leadership research.

Potential authors are required to submit a 10-page maximum (plus references, tables, figures, and other end matter not included in the 10-page maximum), double-spaced proposal outlining the proposal topic and approach. Authors sending a full manuscript instead of proposal will not be considered for the LQYR. The proposal must elaborate on why coverage of a chosen topic(s) is necessary, and concisely summarize the potential contribution of the work in terms of how the manuscript will serve leadership theory, research, and/or practice per se or to reshape them. Proposal submissions (and full papers) are subject to competitive peer-review with an accept/reject option (note, proposals that are deemed by the editorial team to be exceptional in terms of excellence will be given an immediate accept/revise decision).

For articles to be published in the first issue of 2022, the please note the following timetable:

| Submission stage | Deadline |
|---|---|
| 1. Proposals submitted through EVISE choosing LQYR 2020 as the item type | 16 October 2020* |
| 2. Decisions sent to authors for paper commissioning | 15 January 2021 |
| 3. Invited paper first full drafts submission deadline | 15 April 2021 |
| 4. Decisions sent to authors for manuscript revision | 31 May 2021 |
| 5. Deadline for receipt of final manuscripts from invited authors | 1 September 2021 |

*Authors may submit their proposals starting 16 September 2020; proposals will be evaluated on a rolling basis.

Questions regarding the appropriateness of a manuscript topic or idea are welcome; please contact Keven Lowe at kevin.b.lowe@sydney.edu.au

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Review

# The leadership trilogy: A review of the third decade of *The Leadership Quarterly*

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A B S T R A C T

The present research reviews the most recent ten years, 2010–2019, of the work published in *The Leadership Quarterly* (*LQ*). We follow on prior decade-focused reviews published in *LQ*, including the period 1990–1999 (Lowe & Gardner, 2000) and 2000–2009 (Gardner, Lowe, Cogliser, Moss & Mahoney, 2010). The present work complements and expands the first two reviews by documenting how the field has evolved with new characters, methodologies, and theories emerging while others decline and become less relevant. We extend the story of how *LQ* emerged from a start-up niche journal, evolved into the predominant outlet for leadership research and new theories, gained awareness of a growing need to reduce construct proliferation, and adopted increasingly sophisticated methodological techniques that call into question some of the field's prior research findings.

## Introduction

The purpose of this manuscript is to review the most recent ten years, 2010–2019, of the research published in *The Leadership Quarterly*. In preparing this review, we follow on prior decade-focused reviews published in *The Leadership Quarterly* (*LQ*), including the period 1990–1999 (Lowe & Gardner, 2000) and 2000–2009 (Gardner, Lowe, Moss, Mahoney, & Cogliser, 2010). We maintained key features of past reviews to provide comparability over time while introducing new features and variables, including a revised leadership taxonomy (Meuser et al., 2016), that reflects the evolution of the leadership field over *LQ*'s third decade. In doing so, we address topics and trends which may be of interest to readers of *LQ* specifically, and more broadly to those who read and publish leadership research across a range of journals.

## Ode to the past, prelude to the present

Lowe and Gardner (2000) chronicled, catalogued, and classified the first decade of *LQ*. Originally conceived by Bernard Bass, Bob House, and Henry Tosi over dinner in 1988, the primary rationales for founding *LQ* were two-fold. First, it was to provide a focused outlet for the publication of leadership research by scholars from management, psychology, and other disciplines which, at the time, were scattered over a wide range of journals. Second, it was to provide an interdisciplinary home for leadership research that would create a virtuous cycle of stimulating perspectives across diverse disciplines that would broaden the impact of leadership scholarship to spur cross-disciplinary theoretical and methodological innovations.

In its first decade, *LQ* published 188 articles ranging from a low of 13 articles in the founding year to a high of 24 articles in the concluding issue of the decade. Nine special issues, spanning a range of topics including 360-degree feedback, diversity, levels of analysis, political leadership, and environmental change, were an important part of attracting manuscripts to *LQ* in its founding years. Fifty-five percent of the articles were empirical and 46% were theoretical or review pieces. Neo-charismatic approaches (e.g., charismatic leadership, transformational leadership, visionary leadership) were by far the most widely employed theoretical underpinning (34%) in *LQ*'s first decade. The second highest number of articles published in the first ten years did not fall neatly into a specific domain of leadership theory based on the taxonomy in use and thus were classified as “New Directions” (e.g., political leadership, strategic leadership, self-sacrificial leadership). This finding suggested, at least prima facie, that the journal was delivering on the stated purpose of being open to innovation.

In summarizing the progress of *LQ* over its first decade, Lowe and Gardner (2000) concluded that *LQ* had: 1) made substantial progress toward its meta-goal of being the leading scholarly journal for

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leadership theory and research (p. 464); and 2) successfully moved from being a new journal to one that was more established for promoting leadership research. The authors suggested that *LQ*'s second decade would offer an important opportunity to solidify the journal's emergent position as a place to publish and obtain the best in leadership research.

In *LQ*'s second decade Gardner et al. (2010) catalogued 353 published articles as compared to 188 in the first decade — an increase of 88%. This significant growth in the number of published articles was achieved by increasing the number of publications per issue and increasing this "quarterly" journal to six issues each year. The number of pages grew from 4501 in the first decade to 7870 in the second decade—an increase of 75%. The increased number of articles and pages did not come at the expense of quality, as the journal's impact factor continued to climb in the second decade, as indicated by the upward trend from 2006 (IF = 1.72), to 2007 (IF = 1.77), and 2008 (IF = 2.21). Once again, special issues played an important role in attracting high quality leadership research to *LQ* with 17 special issues published, a near doubling of the nine in the prior decade. Fifty-five percent of the articles were empirical (it was also 55% in the first decade), and 42% were theoretical or review pieces (as compared to 46% in the first decade), a remarkably consistent pattern over multiple time periods and editors. Neo-charismatic approaches were again the most frequently employed theoretical category with 84 articles published in the second decade as compared to 68 neo-charismatic articles in the first. However, this absolute increase masks the more interesting relative decrease in the influence of the neo-charismatic paradigm which declined to 13% of all articles versus 34% in the first decade. Gardner et al. (2010) observed an even more dramatic change in the proportion of theories categorized as New Directions. The New Directions category exploded from 14% of all articles in the first decade to 44% of all articles in the second. Theoretical perspectives identified as New Directions included: contextual influences on leadership; development and identification of leaders and leadership; ethical, servant, spiritual, and authentic leadership; leading for creativity and innovation; strategic leadership by top executives; leadership in teams and decision groups; political and public leadership; complexity theory of leadership; leadership effects of task, technology, distance, and virtuality; ideological and pragmatic leadership; destructive leadership; and leading change in organizations.

The resurgence of interest in leadership research, spurred in part by the neo-charismatic paradigms, prompted Gardner et al. (2010) to abandon the leadership taxonomy used in the prior decade's review. In an effort to more carefully describe a vibrant field that was experiencing many innovations in theoretical development as well as the methods employed to test those theories, they developed a more contemporary leadership taxonomy, which remains influential in the development of more recent taxonomies of leadership theory (cf. Dinh et al., 2014; Meuser et al., 2016).

The expansion of the journal over its second decade in terms of volume and prominence supports the notion that the journal was delivering on the stated purpose of advancing the understanding of leadership as a phenomenon, how to study it, as well as its practical implications for organizations. In summarizing the progress of *LQ* over its second decade, Gardner et al. (2010) concluded that: 1) the field of leadership was more diverse and robust than at any time in recent decades; 2) there was clear evidence that *LQ* had played an important role in advancing the field theoretically and methodologically; and 3) that *LQ* had solidified its position as the leading outlet focused on publishing rigorous leadership research.

We include this brief overview of *LQ*'s journey over the first two decades because it provides the context for grounding our current review. In this review we seek, as our focal purpose, to describe the content of the journal over the period 2010–2019. While our primary focus is on the content in the most recent decade, we also seek to compare, on several dimensions, the content of the journal's third decade with that of prior decades. We make this historical comparison because a secondary purpose of our manuscript is to continue telling the story of the evolution of *The Leadership Quarterly*, a story where the first two chapters have been written in ten-year increments (Gardner et al., 2010; Lowe & Gardner, 2000). In doing so, we seek to provide updated answers to the broad research questions we have asked in prior reviews such as: What is published in *LQ* and by whom?; Who has provided editorial leadership for the journal and how has the composition (disciplinary and structurally) changed during the decade? What are the topical characteristics (methods and design) and content (theories and constructs) of the research that appears in *LQ*?; Is *LQ* the primary outlet for quality leadership research? To what extent has *LQ* met its mission? What is the trajectory of the journal and what might that vantage point suggest about the next decade of research that will be published in *LQ*? In addition, we ask new questions, including: Where does leadership data come from? What proportion of articles employ multiple methods/studies?

In preparing this review, we are mindful that the leadership field has been fortunate to have multiple excellent comprehensive reviews of the leadership literature in recent years. Dinh et al. (2014) utilized a process-oriented framework to review 752 leadership articles published in ten leading journals over a thirteen-year period (2000–2012). In doing so, their focus was on developing a better taxonomy of leadership theory that considered both forms of emergence and levels of analysis. Meuser et al. (2016) reviewed 864 leadership articles published in ten top journals over a fourteen-year period (2000–2013). Using graphic network analysis, they drew conclusions about the state of theoretical integration in leadership research and identified theoretical neighborhoods where focal and supporting leadership theories tended to congregate. Zhu, Song, Zhu, and Johnson (2019) conducted a bibliometric analysis of co-citation and co-occurrence in 6528 leadership articles over a 28-year period (1990 to 2017) in an effort to describe the developmental trajectory of leadership research over time in terms of significant authors and journals. Zhao and Li (2019) likewise conducted a bibliographic analysis of leadership theories over the same 28-year time span, but rather than manually coding documents to create a single map of 18 leadership theories, they "used software tools to code and organize 2,115 leadership articles authored by 3,190 authors and published in 10 academic journals." (p. 396) Next, they used the VOSviewer, version 1.6.6 (van Eck & Waltman, 2017, October 23) to visually represent the inductively-derived taxonomies of 56 popular leadership research topics, as well as the collaboration networks of 160 highly productive leadership scholars. Lord, Day, Zaccaro, Avolio, and Eagly (2017) reviewed leadership research published in the *Journal of Applied Psychology* over a 99-year period (1917 to 2015). Rather than comprehensively including all articles published over that period as was done in the other reviews just described, the approach of Lord et al. was "selective, emphasizing those publications that represented or sparked unique turns and conceptual developments in the literature….a subjective task that drew on our combined experience in the leadership field" (p. 434).

While these reviews are useful and influential, the current review is substantively different in terms of scope, scale, and focus. The scope of this manuscript, in terms of variables of interest, is distinct from these other reviews which focused squarely on developing a theoretical taxonomy (Dinh et al., 2014), providing a network of co-citations (Zhu et al., 2019), mapping the field of leadership using artificial intelligence (Zhao & Li, 2019), examining the level of theoretical integration (Meuser et al., 2016), or looking for seminal inflection points in the long range trajectory of a journal (Lord et al., 2017). In coding for leadership theory, our work resembles that of Dinh et al. (2014), Meuser et al. (2016), and Zhu et al. (2019), but we also code for a range of variables including study design, sample characteristics, methods employed (e.g. CFA, $r_{wg}$, measure adaption), and author attributes, to name just a few, that were not considered in those reviews. Our article is similar to Lord et al. (2017) in that we focus on a single journal, highlight some of the most-cited work, and describe the contents of the journal using theoretical themes, but our approach is markedly different as we comprehensively code each article (albeit in a much shorter time frame) and weight each article in a dispassionate manner in our content analysis.

We are able to achieve increased scope, as compared to other reviews through more focus (a single journal) and by reduced scale (coding a decade of articles rather than 13, 14, 28 or 99 years). We also differentiate our review by noting that Dinh et al. (2014) and Meuser et al. (2016) have 2012 and 2013 respectively as their end-of-analysis years. So, our sample periods have relatively little overlap. Collectively, our review is substantially differentiated from other recent reviews of the literature not only in scope and focus, but also by the time period reviewed. Finally, because our review of *LQ*'s third decade follows a similar approach to that of the reviews for its first and second decades, we can report on trends in this journal over a third point in time.

Having situated the current review of *LQ*'s most recent decade in the context of prior decade reviews and recent reviews of the leadership literature, we turn to a description of the approach and content of this review. Multiple methods were used to prepare this review including quantitative techniques and qualitative analyses. Our content analysis examines the type of article (theory, empirical, and methods), contributors (gender, discipline, institutional affiliation, and location), theoretical foundations, research strategies, sample type, data collection measures and methods, and analytical procedures across the decade. Embedded in this discussion are an assessment of the top institutional contributors; the number, focus, and role of special issues; and a citation analysis of the decade's most cited articles. Following from the content analysis, we provide summary-level observations about the content and trajectory of research published in *LQ* over the most recent decade, comparing that to the previous two decades of *LQ*. We conclude with directions for future research by revisiting the recommendations offered in the prior *LQ* decade reviews and assess the extent to which those recommendations have been fulfilled by the field. We also share observations from the three scholars who served as editors during *LQ*'s third decade on the trends in the topics and methods used to extend our knowledge of leadership theory and practice.

## Methods

We coded many of the variables found in the Lowe and Gardner (2000), Gardner et al. (2010), and Dinh et al. (2014) reviews, while adding some new features. We coded *article type*, expanding on the typology of Dinh et al. (2014): qualitative, quantitative, theory, method, special issue, and review issue. We utilized a slightly modified version of the Gardner et al. *typology of methods* as expanded by Dinh et al.: computer simulation, content analysis, diary study/experience sampling method (ESM), lab experiment, field study (primary data), field survey (secondary data), field experiment, experimental simulation, quasi-experiment, judgment task, meta-analysis (quantitative review), and review (non-meta-analysis), to which we added convenience sampling, interviews, observation, and archival data. Rather than use the Gardner et al. case study/qualitative study category, we employed the expanded typology of Cresswell and Poth (2018, p. 82) for *qualitative designs*: 1) narrative, 2) phenomenological, 3) grounded theory, 4) ethnographic, and 5) case study. We followed the *quantitative analytical method* typology employed by Scandura and Williams (2000), Gardner et al. (2010), and Dinh et al. (2014). Specifically, we coded for whether the article used: 1) simple statistics only (e.g., correlation); 2) analysis of variance (ANOVA/MANOVA) or analysis of covariance (ANCOVA/MANCOVA); 3) computer simulations (e.g., bootstrapping studies); 4) linear regression; 5) linear techniques for categorical dependent variables; 6) structural equation modeling (SEM)/path analysis; 7) multiple-levels-of analysis techniques (e.g., hierarchical linear modeling [HLM], Multi-level SEM [MSEM]); 8) meta-analytic techniques (e.g., Hunter & Schmidt, 2004); 9) non-parametric techniques; and 10) time series/event history techniques (e.g., latent growth or change modeling). After an initial round of coding, we expanded this typology to include: 11) two-stage least squares (2SLS; (Antonakis, Bendahan, Jacquart, & Lalive, 2010)); 12) (social) network analyses (e.g., computing network centrality and/or using UCINET); 13) curvilinear analyses (e.g., Edwards & Cable, 2009); and 14) dominance/relative weight analysis.

New to this decade review, we elected to explore *construct validation* over the last decade. For this reason, we moved and separated factor analysis into two categories: 1) confirmatory factor analysis (CFA); and 2) exploratory factor analysis (EFA). To this, we added: 3) internal consistency reliability estimates (e.g., Cronbach's alpha); 4) interrater reliability (IRR); 5) $r_{wg}$ (James, Demaree, & Wolfe, 1984); 6) ICC(1) (Bliese, Halverson, & Schriesheim, 2002); 7) ICC(2) (Bliese et al., 2002); 8) within and between analysis (WABA; Yammarino, 1998); 9) test/retest reliability; 10) split-half reliability; 11) Cohen's kappa, 12) consensus coding. We also coded: 1) convergent, 2) discriminant, 3) face, and 4) predictive validities, but only if the authors discussed these explicitly. We recorded if the authors reported *reliability information* for: 1) all relevant variables, 2) only some relevant variables, or if reliability was 3) not applicable for some or 4) not applicable for all variables. Continuing the trend of interest in *measures*, we also recorded if the authors reported employing: 1) existing measures, 2) modified existing measures, 3) a new measure created for the study, 4) difference scores, or 5) unobtrusive measures.

Another new feature of our review that differentiates it from others involves coding where, when, and from whom authors acquired their data. We develop the following *data source* typology: 1) self/focal (e.g., self-rated personality or performance); 2) peer of focal (e.g., questions about a co-worker who is not a supervisor or subordinate); 3) follower of focal (e.g., leader-rated follower performance); 4) leader of focal (e.g., employee reporting about a supervisor); 5) family of focal (e.g., spouse of an employee, as one might find in work-family conflict research); 6) customer of focal (e.g., emotional contagion spreading from leader to employee to customer); 7) company archival records (e.g., annual report or turnover data); 8) third-party archival records (e.g., a public database or newspaper); 9) (expert) rater provided (e.g., participants responding after watching a video, experts rating team interactions); and when the referent in question is the 10) team or 11) organization. We also coded from which country the sample was drawn. We coded *when these data were collected* using the following typology: 1) cross-sectional (all data collected at one time point); 2) cross sectional with a time lag (e.g., follower rating leader at Time 1, leader rating follower at Time 2 a few weeks later in time), or 3); longitudinal (repeated measures over time and hypothesized/expected change). Our *sample type* typology is: 1) private/company (e.g., Fortune 500 or entrepreneurial entity); 2) public (e.g., government, municipal, or education); 3), military; 4) health care; 5) non-governmental organization (NGO); 6) purpose/theoretical sampling (e.g., where a specific population is targeted because the phenomenon of interest is present or relevant in that population); 7) snowball sampling; 8) MTurk; 9) Qualtrics panel; 10) other online third party sampling tool; 11) undergraduate non-working students, 12) undergraduate working students; 13) graduate/MBA non-working students; or 14) graduate/MBA working students, or 15) sample not reported. In student samples, we recorded the percent of working students when that information was available; student samples where work was not mentioned were coded as non-working.

For leadership theory, we employed the taxonomy provided in Meuser et al. (2016), which is available on the *Journal of Management*'s website as supplemental material (https://journals.sagepub.com/doi/suppl/10.1177/0149206316647099). This built on the taxonomies in Lowe and Gardner (2000), which Gardner et al. (2010), and Dinh et al. (2014) expanded and refined. We coded the primary leadership theory, which we call the *focal theory*, present in the article. Like Meuser et al., we found that some articles employed an integrated view such that no

**Table 1**
Associate editors of the Leadership Quarterly (2010–2019).

| Name | Discipline/sub-discipline | Institution | Role | Years of service |
|---|---|---|---|---|
| Francis J. Yammarino | Management/leadership | State University of New York at Binghamton | AE/yearly review editor | 2010 |
| Peter Dorfman | Management/leadership | New Mexico State University | AE/theoretical and practitioner letters | 2010 |
| Cynthia McCauley | IO psychology/leadership | Center for Creative Leadership | AE/theoretical and practitioner letters | 2010 |
| Barbara Crosby | Leadership | University of Minnesota | AE/social sciences studies | 2010 |
| Ron Riggio | Psychology/leadership | Claremont McKenna College | AE/social sciences studies | 2010–2013 |
| Joanne Ciulla | Philosophy/leadership ethics | University of Richmond | AE/philosophy, ethics and the humanities | 2010 |
| David V. Day | IO psychology/leadership | University of Western Australia; Claremont McKenna College | AE/assessment, evaluation and design | 2010/2017–2019 |
| David Waldman | IO psychology/leadership | Arizona State University | AE/contemporary leadership | 2010 |
| Craig L. Pearce | Management/leadership | Claremont Graduate University | AE/contemporary leadership | 2010 |
| John Antonakis | Management/leadership; RM | University of Lausanne | AE | 2011–2016 |
| Shelley Dionne | OB/leadership | Binghamton University | AE | 2011–2016 |
| Kevin B. Lowe | Business/leadership | The University of Auckland/University of North Carolina at Greensboro/The University of Sydney | AE | 2011–2019 |
| Chester A. Schriesheim | Management/leadership | University of Miami | AE/yearly review editor | 2011–2016 |
| William Gardner | Business/leadership | Texas Tech University | AE | 2013–2019 |
| Stephanie L. Castro | OB/leadership | Florida Atlantic University | AE | 2014–2016 |
| Michael Cole | Management/RM | Texas Christian University | AE | 2015–2019 |
| Olga Epitropaki | Management/leadership | The American College of Greece/Durham University | AE | 2015–2019 |
| Dusya Vera | Business/strategy | University of Houston | AE | 2016–2019 |
| Seth M. Spain | IO psychology/personality | Concordia University | SAE | 2017–2019 |
| Mark van Vugt | Psychology/evolutionary psychology | Vrije Universiteit Amsterdam | SAE | 2017–2019 |
| Alice H. Eagly | Psychology/gender psychology | Northwestern University | AE | 2017–2019 |
| Alex Haslam | Psychology/social psychology | University of Queensland | AE | 2017–2019 |
| Michael Hogg | Psychology/social identity | Claremont Graduate University | AE | 2017–2019 |
| Ronit Kark | Psychology/leadership | Bar-Ilan University | AE | 2017–2019 |
| Philip M. Podsakoff | Business/leadership; RM | University of Florida | AE | 2017–2019 |
| Rolf van Dick | Psychology/social psychology | Goethe University | AE | 2017–2018 |
| Roberto Weber | Economics/behavioral and experimental economics | University of Zurich | AE | 2017–2019 |
| Nicolas Bastardoz | Business and economics/RM | University of Zurich | AE and methods advisor | 2017–2019 |
| George C. Banks | Management/leadership | University of North Carolina at Charlotte | SAE | 2018–2019 |
| Janka I. Stoker | OB/leadership | University of Groningen | SAE | 2018–2019 |
| Roseanne Foti | IO psychology | Virginia Tech University | AE | 2019 |
| Janaki Gooty | Management | University of North Carolina at Charlotte | AE | 2019 |
| Renee B. Adams | Finance | University of Oxford | AE | 2019 |
| Philippe Jacquart | Management/RM | Emlyon Business School | AE and methods advisor | 2019 |
| Niels van Quaquebeke | Social psychology/leadership | Kuhne Logistics University | AE | 2019 |

*Note*. RM = Research Methods; AE = Associate Editor; SAE = Senior Associate Editor

single theory was focal, and these were coded as such.

We also recorded author affiliations and locations as given in the article, as well as author gender and discipline in order to explore the composition of authorship teams. We acknowledge that gender was coded in a binary fashion (male/female) for this research. Finally, to ascertain the extent to which the composition of *LQ*'s editorial team leadership reflects the type of diversity of disciplines and international backgrounds that the founding editors sought to achieve (Lowe & Gardner, 2000), we collected information on the disciplines, institutions, and roles of the scholars who served as an Associate Editor (AE) for *LQ* during its third decade (see Table 1).

## Editorial leadership of *LQ* in its third decade

Three scholars served as the Editor-in-Chief of *LQ* during its third decade: Michael (Mike) Mumford, Leanne Atwater, and John Antonakis. Mike Mumford took over from Jerry Hunt in 2005 and served as editor during a pivotal period of *LQ*'s development, as he oversaw a sizable increase in submissions (from roughly 80 per year to 250), increases in the number of articles published, special issues on a range of diverse topics (e.g. destructive leadership, team leadership, crisis leadership, and spiritual/authentic leadership), and substantial increases in the impact factor (from 1.75 in 2005 to 2.90 in 2010). The journal also became more international and embraced a growing diversity of theoretical perspectives and methods (Mumford, 2005; Mumford, 2011). All of the AEs were United States citizens by birth, and reflected the disciplines of management, psychology, and philosophy by training. A complete summary of the disciplines, institutions, roles, and years of appointment for all scholars who served as AEs during *LQ*'s third decade is provided in Table 1.

Leanne Atwater assumed the role of Editor-in-Chief in 2011 and served in that role until 2016 (Atwater, 2011; Atwater, 2016). During her tenure she introduced several innovations, including automated submission and review process, changes to roles and responsibilities of the AEs (see Table 1), and a further increase in the size and international composition of the Editorial Review Board. In addition, the number of submissions continued to grow rapidly, increasing from 361 in 2012 to 688 in 2015 (70% of which came from outside the U.S.), while acceptance rates declined from 16% in 2012 to 8% in 2015. During Atwater's tenure, *LQ* continued to publish high-quality special issues on relevant topics such as cognition, emotion, gender, network approaches, biology, Asian models, and longitudinal studies (see Table 2; discussed further in the Special Issues section). Finally, during her tenure five *LQ* articles were "retracted to protect the integrity of the scientific record" (Atwater, Mumford, Schriesheim, & Yammarino, 2014, p. 1174). The explanation of the reasons for and the process used

**Table 2**
Special issue topics.

| Year | Volume | Issue | Topic | Editor(s) |
|---|---|---|---|---|
| Forthcoming | | | Leadership in the digital era: Social media, big data, virtual reality, computational methods, and deep learning | Banks, G.C., Dionne, S.D., Sayama, H., Schmid Mast, M. |
| Forthcoming | | | Evolution and biology of leadership: A new synthesis | van Vugt, M., von Rueden, C. |
| Forthcoming | | | Economics and leadership | Garretsen H., Stoker J., Weber R. |
| Forthcoming | | | Strategic leadership and strategic management | Bonardi, J., Hitt, M.A., Vera, D., Withers, M.C. |
| Forthcoming | | | 21st century leadership development: bridging science and practice | Day, D., Riggio, R., Conger, J., Tan, S. |
| Forthcoming | | | Replication and rigorous retesting of leadership models | Clapp-Smith, R., Carsten, M., Gooty, J., Connelly, S., Haslam, A., Bastardoz, N, Spain, S. |
| Forthcoming | | | Social identity and leadership | Hogg, M.A., Haslam, S.A., Rast, D.E., Steffens, N.K., Gaffney, A.M. |
| Forthcoming | | | Leader power: rigorous insights on its causes and consequences | Sturm, R.E., Hertz, H., Antonakis, J. |
| 2017 | 28 | 4 | Charisma: new frontiers. A special issue dedicated to the memory of Boas Shamir | Antonakis, J., Gardner, W.L. |
| 2017 | 28 | 2 | Dynamic viewpoints on implicit leadership and followership theories | Foti, R.J., Hansborough, T.K, Epitropaki, O., Coyle, P.T. |
| 2016 | 27 | 3 | Gender and leadership | Eagly, A.H., Heilman, M.E. |
| 2016 | 27 | 2 | Collective and network approaches to leadership | Cullen-Lester, K.L., Yammarino, F.J. |
| 2015 | 26 | 4 | Leadership and emotions | Connelly, S., Gooty, J. |
| 2015 | 26 | 3 | Leader cognition | Mumford, M. |
| 2015 | 26 | 1 | Asian models of leadership | Arvey, R., Dhanaraj, C., Javidan, M., Zhang, Z. |
| 2014 | 25 | 1 | Leadership Quarterly 25th anniversary issue | Yammarino, F.J. |
| 2013 | 24 | 3 | Leader integrity | |
| 2012 | 23 | 4 | Leadership and individual differences | Antonakis, J., Day, D.V., Schyns, B. |
| 2012 | 23 | 2 | Biology of leadership | Senior, C., Lee, N., Butler, M. |
| 2011 | 22 | 3 | Longitudinal studies of leadership development | Riggio, R.E., Mumford, M. |
| 2010 | 21 | 4 | Leadership development evaluation | Hannum, K.M., Craig, S.B. |
| 2010 | 21 | 2 | Public integrative leadership: Multiple turns of the kaleidoscope | Crosby, B.C., Bryson, J.M. |

in issuing these retractions is described in an editorial by Atwater et al. (2014). Mirroring procedures put in place across much of the social sciences, the ultimate consequence of the retractions has been a recommitment to ensuring the rigor and accuracy of research published in *LQ* through a number of refinements to journal review processes (Antonakis, 2017, a), as described below.

John Antonakis has served as the Editor-in-Chief from 2017 to the present. He is the first *LQ* editor to hail from a continent other than North America. Indeed, his background is truly unique as he is "the first European editor in chief, a Swiss who is U.S. trained, having a South African accent and a Greek surname (go figure!)" (Antonakis, 2017, a). Additionally, he again expanded the number of AEs to include "five senior associate editors and nine associate editors, and a junior associate editor[3] that assists with article screening" and the size of the editorial board (adding more than 30 members), while further increasing the disciplinary and cultural diversity represented among its members (Antonakis, 2017, a). Disciplines that are represented within the editorial leadership for the first time through the appointment of AEs with significant expertise in these fields include behavioral economics, political science, evolutionary and biological psychology, social psychology, research methods, and strategy and organization theory (see Table 1). In addition, greater international representation is apparent among the AEs, with scholars from Europe and Australia, in addition to North America.

Antonakis also instituted several changes to *LQ*'s policies and processes. He expanded the types of articles that *LQ* publishes to include—in addition to full length articles, *LQ Yearly Review of Leadership* articles, and special issue articles—short communications, commentaries of published articles, and research proposals (registered reports and results-masked articles). He initially increased the desk reject rate from the 50% level of the prior editorial team to roughly 70%, to "use editorial and reviewer resources wisely and efficiently" (Antonakis, 2017, a). At the same time, he charged AEs to "spend their time making substantive and constructive comments on manuscripts with potential." Further, in a section of a position paper (Antonakis, 2017, b) titled, "How to make a more useful contribution to the research record," he challenged submitting authors to strive to make more meaningful contributions through "better theorizing, not ignoring endogeneity, designing realistic experiments, conducting rigorous qualitative research, declaring conflicts of interest, being transparent with data, methods and reporting, and being an honest broker" (Antonakis, 2017, a). Finally, prior to an empirical manuscript being accepted, the Methods Advisor AE now conducts a check "to ensure that reporting guidelines are followed, that there are no flaws in reporting and analysis, and that limitations are transparently reported" and hence the manuscript is "squeaky clean" (Antonakis et al., 2019, p. 5).

Early returns on these changes are quite positive, as *LQ*'s impact factor has risen from 3.31 in 2016 to 5.63 in 2018. This impact factor places *LQ* 6th among applied psychology journals and 18th among management journals in the most recent rankings (2019 Release of Journal Citation Reports; https://clarivate.com/webofsciencegroup/solutions/journal-citation-reports/). Additionally, analyses in a recent "State of the Journal" editorial indicate that citations to *LQ* articles within management, applied psychology, and outside disciplines (e.g., economics, political science, industrial engineering, nursing, computer science, social psychology, medicine, public administration, hospitality, leisure, sport and tourism) are increasing rapidly and at rates that compare favorably with those of other and more established management and applied psychology top tier journals (Antonakis et al., 2019). However, what matters most to the leadership of *LQ* is not impact factor per se, which, despite its flaws, is used extensively to judge journal quality; instead, "[w]hat we care most about is to ensure that we report on how leadership works by publishing quality science; science that is robust, creative, and will make a difference" (p. 4).

All three of *LQ*'s editors during *LQ*'s third decade identified a goal to increase both the size and the diversity of *LQ*'s editorial board. An examination of changes in the size and composition of the board over the past decade suggests that some progress in achieving this goal has been made. During the decade, the size of the board increased from 73 to 162 members, while the percentage of female members increased from approximately 30 to 36%. The geographic representation of the board has also expanded. In 2010, scholars from the United States and

[3] The title Junior Associate Editor no longer exists. It was replaced with Associate Editor and Methods Advisor

**Table 3**
Article type.

| Year/article count | Volume | Qualitative | Quantitative | Theory | Methods | Special issue | Review issue | Total |
|---|---|---|---|---|---|---|---|---|
| 2010 | 21 | 17 | 44 | 4 | 9 | 15 | 9 | 98 |
| 68 | 11.1% | 25.0% | 64.7% | 5.9% | 13.2% | 22.1% | 13.2% | 12.1% |
| 2011 | 22 | 14 | 49 | 24 | 3 | 9 | 8 | 107 |
| 79 | 12.8% | 17.7% | 62.0% | 30.4% | 3.8% | 11.4% | 10.1% | 13.2% |
| 2012 | 23 | 3 | 59 | 7 | 7 | 13 | 9 | 98 |
| 80 | 13.0% | 3.8% | 73.8% | 8.8% | 8.8% | 16.3% | 11.3% | 12.1% |
| 2013 | 24 | 3 | 45 | 6 | 1 | 6 | 8 | 69 |
| 61 | 9.9% | 4.9% | 73.8% | 9.8% | 1.6% | 9.8% | 13.1% | 8.5% |
| 2014 | 25 | 8 | 52 | 4 | 3 | 7 | 7 | 81 |
| 68 | 11.1% | 11.8% | 76.5% | 5.9% | 4.4% | 10.3% | 10.3% | 10.0% |
| 2015 | 26 | 8 | 55 | 6 | 0 | 29 | 12 | 110 |
| 70 | 11.4% | 11.4% | 78.6% | 8.6% | 0.0% | 41.4% | 17.1% | 13.5% |
| 2016 | 27 | 5 | 45 | 8 | 0 | 21 | 0 | 79 |
| 55 | 8.9% | 9.1% | 81.8% | 14.5% | 0.0% | 38.2% | 0.0% | 9.7% |
| 2017 | 28 | 2 | 22 | 13 | 1 | 12 | 13 | 63 |
| 45 | 7.3% | 4.4% | 48.9% | 28.9% | 2.2% | 26.7% | 28.9% | 7.8% |
| 2018 | 29 | 3 | 30 | 9 | 0 | 0 | 14 | 56 |
| 48 | 7.8% | 6.3% | 62.5% | 18.8% | 0.0% | 0.0% | 29.2% | 6.9% |
| 2019 | 30 | 1 | 26 | 12 | 3 | 0 | 9 | 51 |
| 41 | 6.7% | 2.4% | 63.4% | 29.3% | 7.3% | 0.0% | 22.0% | 0.0% |
| Total | | 64 | 427 | 93 | 27 | 112 | 89 | 812 |
| Total % | | 10.4% | 69.4% | 15.1% | 4.4% | 18.2% | 14.5% | |

Note: $N$ = 615 articles; average number of articles per year = 61.5.

Canada, respectively, composed 76% and 2.7% of the board members versus 59.9% and 2.5% in 2019. Conversely, regions experiencing greater representation include Europe (10.7%), with the Netherlands, United Kingdom, Norway, Switzerland, and Finland increasing (27.2%) and scholars from Germany, Denmark, Sweden, France, Spain, Slovenia and Portugal added (though Norway and Finland are no longer represented). Australia/New Zealand is also more represented (5.3% in 2010 vs. 6.7% in 2019). The Middle East, formerly represented only by Israel (5.3% in 2010), is now represented by Israel and Lebanon (2.5% in 2018). Unrepresented in 2010, Asia, is represented by the countries of Singapore and Turkey (1.2%) in 2019. Through these changes, *LQ* has moved closer to fulfilling the vision of the founding editors to be a global outlet for leadership research.

## What has *LQ* published in its third decade and by whom?

### *Number and types of articles*

Next, we investigated the number and mix of article types by year (Table 3). The second decade of *LQ* showed a marked increase in publications over the first decade (from 34 to 62); the number of articles in the third decade remained constant on average (61.5 per year) as compared to the second decade. As Gardner et al. (2010) noted, the increase from the first to second decade reflects the move from four to six volumes per year. We found a large range of published articles per year within the decade. 2011 showed the largest number of published articles (79) and 2019 the smallest (41). Moreover, 2015 and earlier showed significantly more published articles than 2016 to present (average of 71 vs. 47.25 per year). January 2017 corresponds to a change in editorship, with John Antonakis taking over for Leanne Atwater, who concluded her term in December 2016. As previously noted, John Antonakis increased the proportion of desk rejects, producing a reduction in the number of articles published and an increase in rigor.

Overall, 69.4% of articles involved quantitative exploration of phenomena, followed by qualitative (10.4%), theory (15.1%), and methods (4.4%) articles. Membership in these categories is not mutually exclusive. For example, an article could involve a mixed methods approach, employing both qualitative and quantitative exploration techniques. These percentages show a marked change from 2000 to 2010, where theoretical articles accounted for 42.0%. Methods articles continued to decline, suggesting, as Gardner et al. (2010) did, that editors may wish to stimulate methods-related submissions when this type of scholarship is called for to advance the exploration of a phenomenon. Alternatively, it may be that the reason why methods-oriented articles have declined is that there is now an organization studies journal devoted to publishing methods-oriented articles–*Organizational Research Methods*. While the number and proportion of articles in review issues remains stable (54/15.0% in the prior decade; 89/14.5% currently), the number of special issue articles has remained similar but the proportion has decreased markedly (109/31.0% in the prior decade; 112/18.2% currently). Review issues continue to be highly cited, as two of the top three most cited articles of the decade (see Table 4) were published in this forum.

### *Special issues*

Special issues (Table 2) represent a significant investment of journal resources in a topic area. In total, there were 22 special issues published or initiated during the decade, which is an increase from nine and 17 in the prior two decades, respectively. The diversity of topics reflect many emerging areas of leadership methods and research, including the Biology of Leadership (Lee, Senior, & Butler, 2012), Asian Models of Leadership (Arvey, Dhanaraj, Javidan, & Zhang, 2015), Collective and Network Approaches to Leadership (Cullen-Lester & Yammarino, 2016), Leadership and Economics (Garretsen, Stoker, & Weber, 2017), and Leadership in the Digital Era (Banks, Dionne, Sayama, & Mast, 2019). The variety of these special issue topics demonstrates a continuing commitment to the vision of *LQ*'s founders to advance leadership knowledge through multi- and interdisciplinary research (Lowe & Gardner, 2000).

In their review of *LQ*'s second decade, Gardner et al. (2010) noted that the proliferation of *LQ* special issues was part of a larger trend across top management journals identified by Olk and Griffith (2004). Drawing from archival data and interviews with journal editors, Olk and Griffith collected data on the quality and impact of special issues for five top tier management journals (*Academy of Management Journal*, *Academy of Management Review*, *Administrative Science Quarterly*, *Strategic Management Journal*, and *Organization Science*). Gardner et al. (2010) observed that the proportion of *LQ* special issues published during the journal's second decade (30.3%) was roughly equivalent to

**Table 4**
Top 50 highly cited papers.

| Rank cites/year | Cites/year | Rank cites | Total cites | Year | Vol | Issue | Authors | Title | Type | Focal theory | Content |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 76.7 | 1 | 690 | 2010 | 21 | 6 | Antonakis J., Bendahan S., Jacquart P., Lalive R. | On making causal claims: A review and recommendations | Review | None | Empirical, method, review issue |
| 2 | 68.6 | 2 | 343 | 2014 | 25 | 1 | Dinh J.E., Lord R.G., Gardner W.L., Meuser J.D., Liden R.C., Hu J. | Leadership theory and research in the new millennium: Current theoretical trends and changing perspectives | Review | None | Empirical, special issue |
| 6 | 41.5 | 3 | 332 | 2011 | 22 | 6 | Gardner W.L., Cogliser C.C., Davis K.M., Dickens M.P. | Authentic leadership: A review of the literature and research agenda | Review | Authentic leadership | Theory, review issue |
| 7 | 36.3 | 4 | 290 | 2011 | 22 | 5 | Rosing K., Frese M., Bausch A. | Explaining the heterogeneity of the leadership-innovation relationship: Ambidextrous leadership | Article | Entrepreneurial | Empirical, theory |
| 5 | 46.5 | 5 | 279 | 2013 | 24 | 1 | Schyns B., Schilling J. | How bad are the effects of bad leaders? A meta-analysis of destructive leadership and its outcomes | Article | Destructive leadership | Empirical |
| 3 | 52.8 | 6 | 264 | 2014 | 25 | 1 | Day D.V., Fleenor J.W., Atwater L.E., Sturm R.E., McKee R.A. | Advances in leader and leadership development: A review of 25 years of research and theory | Review | Leadership development | Special issue |
| 4 | 49.4 | 7 | 247 | 2014 | 25 | 1 | Uhl-Bien M., Riggio R.E., Lowe K.B., Carsten M.K. | Followership theory: A review and research agenda | Review | Followership theory | Special issue |
| 11 | 26.8 | 8 | 214 | 2011 | 22 | 1 | Tims M., Bakker A.B., Xanthopoulou D. | Do transformational leaders enhance their followers' daily work engagement? | Article | Transformational leadership theory | Empirical |
| 12 | 25.8 | 9 | 206 | 2011 | 22 | 1 | Kalshoven K., Den Hartog D.N., De Hoogh A.H.B. | Ethical leadership at work questionnaire (ELW): Development and validation of a multidimensional measure | Article | Ethical leadership theory | Empirical, qualitative |
| 13 | 22.6 | 10 | 203 | 2010 | 21 | 1 | Liu W., Zhu R., Yang Y. | I warn you because I like you: Voice behavior, employee identifications, and transformational leadership | Article | Transformational leadership theory | Empirical |
| 9 | 32.5 | 11 | 195 | 2013 | 24 | 1 | Braun S., Peus C., Weisweiler S., Frey D. | Transformational leadership, job satisfaction, and team performance: A multilevel mediation model of trust | Article | Transformational leadership theory | Empirical |
| 15 | 20.1 | 12 | 181 | 2010 | 21 | 6 | Gooty J., Connelly S., Griffith J., Gupta A. | Leadership, affect and emotions: A state of the science review | Review | Emotions & leadership | Review issue |
| 18 | 18.1 | 13 | 163 | 2010 | 21 | 3 | Carsten M.K., Uhl-Bien M., West B.J., Patera J.L., McGregor R. | Exploring social constructions of followership: A qualitative study | Article | Followership theory | Empirical, qualitative |
| 22 | 16.0 | 14 | 144 | 2010 | 21 | 1 | Ladkin D., Taylor S.S. | Enacting the 'true self': Towards a theory of embodied authentic leadership | Article | Authentic leadership | Theory |
| 23 | 15.7 | 15 | 141 | 2010 | 21 | 6 | Fleenor J.W., Smither J.W., Atwater L.E., Braddy P.W., Sturm R.E. | Self-other rating agreement in leadership: A review | Review | None | Method, review issue |
| 24 | 15.6 | 16 | 140 | 2010 | 21 | 2 | Crosby B.C., Bryson J.M. | Integrative leadership and the creation and maintenance of cross-sector collaborations | Article | (Public) integrative leadership | Empirical, qualitative, theory, special issue |
| 24 | 15.6 | 16 | 140 | 2010 | 21 | 3 | Norman S.M., Avolio B.J., Luthans F. | The impact of positivity and transparency on trust in leaders and their perceived effectiveness | Article | Authentic leadership | Empirical |
| 27 | 15.2 | 18 | 137 | 2010 | 21 | 4 | Hoppe B., Reinelt C. | Social network analysis and the evaluation of leadership networks | Article | Leadership development | Method, special issue |
| 31 | 14.2 | 19 | 128 | 2010 | 21 | 6 | Gardner W.L., Lowe K.B., Moss T.W., Mahoney K.T., Cogliser C.C. | Scholarly leadership of the study of leadership: A review of The Leadership Quarterly's second decade, 2000–2009 | Review | None | Empirical, qualitative, review issue |
| 17 | 18.1 | 20 | 127 | 2012 | 23 | 3 | Volmer J., Spurk D., Niessen C. | Leader-member exchange (LMX), job autonomy, and creative work involvement | Article | LMX | Empirical |
| 28 | 15.1 | 21 | 121 | 2011 | 22 | 6 | Neider L.L., Schriesheim C.A. | The Authentic Leadership Inventory (ALI): Development and empirical tests | Article | Authentic leadership | Empirical, method, review issue |
| 30 | 14.6 | 22 | 117 | 2011 | 22 | 6 | Van Knippenberg D. | Embodying who we are: Leader group prototypicality and leadership effectiveness | Review | Social identity theory of leadership | Theory, review issue |
| 20 | 16.3 | 23 | 114 | 2012 | 23 | 6 | Fairhurst G.T., Uhl-Bien M. | Organizational discourse analysis (ODA): Examining leadership as a relational process | Review | Relational leadership | Method, review issue |
| 33 | 13.9 | 24 | 111 | 2011 | 22 | 4 | Gao L., Janssen O., Shi K. | Leader trust and employee voice: The moderating role of empowering leader behaviors | Article | Participative, shared leadership, delegation and empowerment | Empirical |
| 16 | 18.2 | 25 | 109 | 2013 | 24 | 2 | Hunter E.M., Neubert M.J., Perry S.J., Witt L.A., Penney L.M., Weinberger E. | Servant leaders inspire servant followers: Antecedents and outcomes for employees and the organization | Article | Servant leadership theory | Empirical |

(*continued on next page*)

**Table 4** (*continued*)

| Rank cites/year | Cites/year | Rank cites | Total cites | Year | Vol | Issue | Authors | Title | Type | Focal theory | Content |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 8 | 36.0 | 26 | 108 | 2016 | 27 | 4 | Banks G.C., McCauley K.D., Gardner W.L., Guler C.E. | A meta-analytic review of authentic and transformational leadership: A test for redundancy | Article | Authentic leadership | Empirical |
| 34 | 13.5 | 26 | 108 | 2011 | 22 | 5 | Zhang A.Y., Tsui A.S., Wang D.X. | Leadership behaviors and group creativity in Chinese organizations: The role of group processes | Article | Transformational leadership theory | Empirical |
| 26 | 15.3 | 28 | 107 | 2012 | 23 | 1 | Biemann T., Cole M.S., Voelpel S. | Within-group agreement: On the use (and misuse) of r WG and r WG(J) in leadership research and some best practice guidelines | Article | None | Method |
| 42 | 11.7 | 29 | 105 | 2010 | 21 | 3 | Cho J., Dansereau F. | Are transformational leaders fair? A multi-level study of transformational leadership, justice perceptions, and organizational citizenship behaviors | Article | Transformational leadership theory | Empirical |
| 42 | 11.7 | 29 | 105 | 2010 | 21 | 3 | Vecchio R.P., Justin J.E., Pearce C.L. | Empowering leadership: An examination of mediating mechanisms within a hierarchical structure | Article | Participative, shared leadership, delegation and empowerment | Empirical |
| 35 | 13.1 | 29 | 105 | 2011 | 22 | 6 | Hernandez M., Eberly M.B., Avolio B.J., Johnson M.D. | The loci and mechanisms of leadership: Exploring a more comprehensive view of leadership theory | Review | None | Theory, review issue |
| 42 | 11.7 | 29 | 105 | 2010 | 21 | 1 | Yang J., Mossholder K.W. | Examining the effects of trust in leaders: A bases-and-foci approach | Article | None | Empirical |
| 36 | 13.0 | 33 | 104 | 2011 | 22 | 1 | Vinkenburg C.J., van Engen M.L., Eagly A.H., Johannesen-Schmidt M.C. | An exploration of stereotypical beliefs about leadership styles: Is transformational leadership a route to women's promotion? | Article | Transformational leadership theory | Empirical |
| 29 | 14.7 | 34 | 103 | 2012 | 23 | 5 | Eisenbeiss S.A. | Re-thinking ethical leadership: An interdisciplinary integrative approach | Article | Ethical leadership theory | Theory |
| 37 | 12.9 | 34 | 103 | 2011 | 22 | 2 | Shamir B. | Leadership takes time: Some implications of (not) taking time seriously in leadership research | Article | Contextual/complexity/adaptive | Theory |
| 45 | 11.4 | 34 | 103 | 2010 | 21 | 3 | Battilana J., Gilmartin M., Sengul M., Pache A.-C., Alexander J.A. | Leadership competencies for implementing planned organizational change | Article | Behavioral approaches (OSU/ LBDQ) | Empirical |
| 14 | 20.6 | 34 | 103 | 2014 | 25 | 3 | Van Dierendonck D., Stam D., Boersma P., de Windt N., Alkema J. | Same difference? Exploring the differential mechanisms linking servant leadership and transformational leadership to follower outcomes | Article | Servant leadership theory | Empirical |
| 19 | 16.5 | 38 | 99 | 2013 | 24 | 6 | Epitropaki O., Sy T., Martin R., Tram-Quon S., Topakas A. | Implicit leadership and followership theories "in the wild": Taking stock of information-processing approaches to leadership and followership in organizational settings | Review | Implicit leadership | Review issue |
| 46 | 11.0 | 38 | 99 | 2010 | 21 | 6 | Shondrick S.J., Dinh J.E., Lord R.G. | Developments in implicit leadership theory and cognitive science: Applications to improving measurement and understanding alternatives to hierarchical leadership | Review | Implicit leadership | Review issue |
| 49 | 10.9 | 40 | 98 | 2010 | 21 | 3 | Côté S., Lopes P.N., Salovey P., Miners C.T.H. | Emotional intelligence and leadership emergence in small groups | Article | Leadership emergence | Empirical |
| 32 | 14.0 | 40 | 98 | 2012 | 23 | 5 | Carlson D., Ferguson M., Hunter E., Whitten D. | Abusive supervision and work-family conflict: The path through emotional labor and burnout | Article | Destructive leadership | Empirical |
| 21 | 16.2 | 42 | 97 | 2013 | 24 | 1 | Zhu W., Newman A., Miao Q., Hooke A. | Revisiting the mediating role of trust in transformational leadership effects: Do different types of trust make a difference? | Article | Transformational leadership theory | Empirical |
| 10 | 32.0 | 43 | 96 | 2016 | 27 | 1 | Chen A.S.-Y., Hou Y.-H. | The effects of ethical leadership, voice behavior and climates for innovation on creativity: A moderated mediation examination | Article | Ethical leadership theory | Empirical |
| 50 | 10.6 | 44 | 95 | 2010 | 21 | 4 | Ely K., Boyce L.A., Nelson J.K., Zaccaro S.J., Hernez-Broome G., Whyman W. | Evaluating leadership coaching: A review and integrated framework | Article | Leadership development | Empirical, qualitative, special issue |
| 41 | 11.8 | 45 | 94 | 2011 | 22 | 2 | Harris K.J., Wheeler A.R., Kacmar K.M. | The mediating role of organizational job embeddedness in the LMX-outcomes relationships | Article | LMX | Empirical |
| 38 | 12.7 | 46 | 89 | 2012 | 23 | 3 | Cavazotte F., Moreno V., Hickmann M. | Effects of leader intelligence, personality and emotional intelligence on transformational leadership and managerial performance | Article | Transformational leadership theory | Empirical |
| 38 | 12.7 | 46 | 89 | 2012 | 23 | 1 | Sun L.-Y., Zhang Z., Qi J., Chen Z.X. | Empowerment and creativity: A cross-level investigation | Article | Transformational leadership theory | Empirical |

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**Table 4** (*continued*)

| Rank cites/year | Cites/year | Rank cites | Total cites | Year | Vol | Issue | Authors | Title | Type | Focal theory | Content |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 46 | 11.0 | 48 | 88 | 2011 | 22 | 1 | Wang H., Tsui A.S., Xin K.R. | CEO leadership behaviors, organizational performance, and employees' attitudes | Article | Strategic | Empirical, qualitative |
| 46 | 11.0 | 48 | 88 | 2011 | 22 | 3 | Harms P.D., Spain S.M., Hannah S.T. | Leader development and the dark side of personality | Article | Leadership development | Empirical, special issue |
| 40 | 12.3 | 50 | 86 | 2012 | 23 | 3 | Piccolo R.F., Bono J.E., Heinitz K., Rowold J., Duehr E., Judge T.A. | The relative impact of complementary leader behaviors: Which matter most? | Article | None | Empirical |

that of *Organization Science* (30%), which was the highest among the journals Olk and Griffith studied. While the proportion of special issues (23.3%) declined during *LQ*'s third decade, it is clear that they continue to play a pivotal role in introducing new theories and methods to the discipline.

From their analysis, Olk and Griffith (2004) concluded that articles published in special issues are characterized by greater upward variance in quality (more exceptional as opposed to mediocre articles) and significantly higher citation rates than regular issues. These finding are consistent with those obtained by Smith, Leggat, and Araki (2012), who assessed the bibliographic performance and relative impact of a 2007 special issue from the Japanese journal, *Industrial Health*. Specifically, Smith et al. (2012, p. 88) concluded "that special issues can attract more immediate citations and more overall citations than regular issues as well as having a positive effect on its impact factor in the years immediately following publication." Gardner et al. (2010) came to a similar conclusion regarding articles published in special issues during *LQ*'s second decade, as they accounted for 47 of the top 100 most-cited articles, even though they constituted only 30% of the total. However, special issue articles appear to have been less impactful during *LQ*'s third decade, as only 7 of the top 50 most-cited articles (14%) appeared in special issues. Perhaps, as the topics of *LQ* special issues have grown more focused on particularized and nascent streams of research, their appeal to a wider audience of leadership scholars has declined, at least relative to the prior decade. However, it would be premature to conclude that *LQ* special issues are not more impactful than articles published in regular issues. According to SCOPUS data as of December 18, 2019, special issue articles in the third decade have been cited 38.1 times on average compared to 32.7 for regular articles. To further answer this question, a more systematic bibliographic analysis along the lines of that conducted by Smith et al. (2012) is required, which is beyond the scope of the current review. Moreover, as suggested above, we recommend that *LQ* editors continue to publish special issues to help fulfill the journal's ongoing mission to serve as the outlet for cutting edge and multi-disciplinary leadership research.

### *Review issues*

With the dawn of the new millennium, *LQ* Editor Jerry Hunt (2000) launched the inaugural *LQ Yearly Review of Leadership* (*LQYR*). "With this series, Jerry displayed his tremendous talent as a visionary and leading edge thinker in bringing us a series of articles from top and emerging scholars not only in leadership, but in other areas Jerry saw that could inform leadership" (Uhl-Bien, 2008, p. 632).[1] From the outset, the purpose of the *LQYR* issue was to provide state-of-the art coverage of a wide range of content and methodologically-oriented pieces, to be complemented by subsequent special issues for some of the featured topics. It was hoped that over time, a wide range of reviews would be provided and serve as a baseline for future work by leadership scholars and others interested in the field of leadership. "The *LQYR* reviews were not designed to be encyclopedic, though some are more encyclopedic than others, depending on the topic…they needed to have some kind of integrating framework and generally be understandable by both specialists and generalists…. Reviews vary in their breadth but are representative of the topic area selected, and they cover a time period appropriate to tie in with previous work and provide a representative picture of where the topic stands" (Hunt, 2000, p. 432).

A summary of the year, volume, issue, title, editor, and themes of the *LQYR* issues published in *LQ*'s third decade is provided in Table 5. Note that from its inception in 2000 until 2017, the *LQYR* issue appeared in the last issue of the volume, which was Issue 4 until the number of issues expanded to six in 2002. Hence, the first six *LQYR*

[1] Jerry Hunt served as the *LQYR* Editor from 2000 to 2007; Mary Uhl-Bien succeeded him and served as *LQYR* Editor in 2008 and 2009.

**Table 5**
Yearly review issues.

| Year | Volume | Issue | Title | Theme | Editor/citation |
|---|---|---|---|---|---|
| 2010 | 21 | 6 | A scholarly tribute to Bernard M. Bass and James G. Hunt | No | Yammarino, F. J. (2010) |
| 2011 | 22 | 6 | None | No | Schriesheim, C. A. (2011) |
| 2012 | 23 | 6 | Methodological advances in leadership | Yes | Schriesheim, C. A. (2012) |
| 2013 | 24 | 6 | Advances in traditional leadership theory (part I) | Yes | Schriesheim, C. A. (2013) |
| 2014 | 25 | 6 | Advances in traditional leadership theory (part II) | Yes | Schriesheim, C. A. (2014) |
| 2015 | 26 | 6 | Advances in leadership theory and research | No | Schriesheim, C. A. (2015) |
| 2016[a] | 27 | | | | |
| 2017 | 28 | 1 | Multidisciplinary, multilevel, multisource, multiskilled and multigenerational perspectives | No | Dionne, S. D. (2017) |
| 2018 | 29 | 1 | Pushing the frontiers of leadership scholarship | No | Day, D. V. (2018) |
| 2019 | 30 | 1 | State-of-science reviews on leadership theory, methods, and measurement | No | Day, D. V. (2019) |

[a] The *Yearly Review* issue was moved from Issue 6 of 2016 to Issue 1 of 2017; it is published in Issue 1 every year thereafter.

issues of *LQ*'s third decade appeared in Issue 6. However, with the change of editors from Leanne Atwater to John Antonakis in 2017, Antonakis decided to publish the *LQYR* in Issue 1, where it has appeared every year thereafter. As such, no *LQYR* issue was published in 2016.

For the first decade (2000–2009) of the *LQYR*, each issue included reviews on a diverse set of substantive topics, and hence they did not reflect a theme per se. However, the 2010 issue edited by Fran Yammarino (2010), served as a scholarly tribute to two prominent leadership scholars and former *LQ* Editors – Bernard M. (Bernie) Bass and Jerry Hunt, who had recently passed away. From 2011 to 2015, Chet Schriesheim served as the *LQYR* editor; in 2012, he introduced a theme for the first time, as the *LQYR* focused on methodological advances in leadership research (Schriesheim, 2012). The next two *LQYR* issues likewise had a thematic focus, as both featured articles that advanced traditional leadership theory and research (Schriesheim, 2013, 2014). None of the subsequent *LQYR* issues have had a thematic focus. However, the last three edited by Shelley Dionne and David Day, respectively, reflect “multi-disciplinary, multilevel, multisource, multi-skilled and multigenerational perspectives” (Dionne, 2017, p. 22), and seek to push the “frontiers of leadership scholarship” (Day, 2018, p. 1), through “state-of-the science reviews of leadership theory, methods, and measurement” (Day, 2019, p. 10). Over the years, this “series has become a cornerstone of *LQ*, and the impact is demonstrated by the fact that, since its inception, *LQYR* articles have been regular recipients of the Best Paper Award in *LQ*” making it “a noble endeavor” and an ongoing tribute to Jerry Hunt's legacy (Uhl-Bien, 2008, p. 632). It is also noteworthy that a disproportionate number of *LQYR* articles (11/22%) are included among the 50 most highly cited articles discussed in the next section (see Table 4), providing further evidence of their impact. Review issue articles in the third decade of *LQ* were cited 43.3 times per article on average compared to 32.7 for regular articles. This finding is also consistent with Antonakis, Bastardoz, Liu, and Schriesheim's (2014) conclusion that articles published in review issues tend to be highly cited (although they have high variance), as are quantitative, theory, and methods articles.

### *Most cited articles*

Following Gardner et al.'s (2010) example, we compiled a list of the most highly cited articles of those published during *LQ*'s third decade (see Table 4). Here, we report the total citations, citations per year, and the rank for each article. The most highly cited article is a *LQYR* methods review on causal claims (Antonakis et al., 2010), suggesting that scholars recognize and appreciate methods articles (Antonakis et al., 2014), even though there were not a large number of these published in *LQ* during the last decade. This particular methods article has been highly impactful because it highlights endogeneity issues that negate the ability of authors to make causal inferences about focal relationships, but also introduces corrective actions for addressing endogeneity issues to the leadership field. 2010 ranks first in the number of most highly-cited articles (17), followed by 2011 (14), 2012 (eight), 2013 (five), and 2014 (four). With the exception of 2016 (two), the last half of the decade is absent from this list, most likely because insufficient time has passed for citations of these articles to accumulate. With regards to the leadership theories reflected in highly-cited articles, 19 theories are present. Transformational leadership dominates the most-cited list with nine articles focused on its premises. Authentic leadership is second with five articles, followed by leadership development (four), ethical leadership (three), and two articles each for destructive leadership, implicit leadership, leader-member exchange (LMX), servant leadership, followership theory, and participative/shared leadership/delegation and empowerment.

### *Institutional contributions and authorship teams*

We investigated the composition and diversity of authorship teams from the perspective of gender, team size, affiliations, world regions, and how articles, authors, and authorships are distributed across world regions. In order to account for authors who publish multiple papers in *LQ*, we define authorships as the number of papers on which a person is an author.

Regarding gender, 58.3% of authors were male versus 41.7% female; 61.4% of authorships were male versus 38.6% female. Thus, males are more likely to have published more than once versus females. We noticed that some leadership theories seem to be preferred publication topics based on gender. For example, 73.8% and 67.6% of the authorships on articles which focused on charismatic leadership and participative/shared leadership/delegation and empowerment were male, while 61.6%, 59.6%, and 53.3% of the authorships on articles that focused on leadership development, leadership and diversity, and identity and identification processes, respectively, were female.

Author team size varied widely between one and ten authors. Three-author teams were most common (31.4% of articles), followed by two-author teams (25.5%), four-author teams (18.4%), five-author teams (9.4%), and single-author papers (8.0%). Author teams of six to 10 authors accounted for 7% of papers. The author teams drew from one to seven affiliations, with author teams from two affiliations most common (38.4%), followed by single-affiliation articles (27.6%), articles representing three affiliations (21.6%), and articles with four affiliations (9.1%). Articles with five to seven affiliations represented 2.9% of papers. These affiliations span 41 countries (Table 6). Authors affiliated with United States universities contributed to 60.3% of articles, followed by the United Kingdom (14.3%), Australia (9.8%), the Netherlands (9.6%), Germany (7.5%) and Canada (6.7%; see Table 6 for others).

We grouped countries together by geographic region in order to parsimoniously investigate the diversity of contributions and contributors. Articles with authors from a single region dominated *LQ* in the last decade (69.9%), yet a meaningful number (26.7%) came from

**Table 6**
Contributions by country.

| Country | Rank | Articles | |
|---|---|---|---|
| United States | 1 | 371 | 60.3% |
| United Kingdom | 2 | 88 | 14.3% |
| Australia | 3 | 60 | 9.8% |
| Netherlands | 4 | 59 | 9.6% |
| Germany | 5 | 46 | 7.5% |
| Canada | 6 | 41 | 6.7% |
| China | 7 | 34 | 5.5% |
| Switzerland | 8 | 20 | 3.3% |
| Hong Kong | 9 | 17 | 2.8% |
| Israel | 10 | 15 | 2.4% |
| South Korea | 11 | 14 | 2.3% |
| Singapore | 11 | 14 | 2.3% |
| Norway | 13 | 12 | 2.0% |
| Taiwan | 14 | 10 | 1.6% |
| New Zealand | 15 | 9 | 1.5% |
| Portugal | 15 | 9 | 1.5% |
| Belgium | 17 | 8 | 1.3% |
| Spain | 18 | 5 | 0.8% |
| Sweden | 18 | 5 | 0.8% |
| Denmark | 20 | 4 | 0.7% |
| Malaysia | 21 | 3 | 0.5% |
| France | 21 | 3 | 0.5% |
| Macau | 21 | 3 | 0.5% |
| Brazil | 21 | 3 | 0.5% |
| Finland | 25 | 2 | 0.3% |
| Turkey | 25 | 2 | 0.3% |
| Italy | 25 | 2 | 0.3% |
| Slovenia | 25 | 2 | 0.3% |
| Austria | 25 | 2 | 0.3% |
| Colombia | 25 | 2 | 0.3% |
| Cyprus | 31 | 1 | 0.2% |
| Egypt | 31 | 1 | 0.2% |
| Greece | 31 | 1 | 0.2% |
| Ireland | 31 | 1 | 0.2% |
| Argentina | 31 | 1 | 0.2% |
| Liechtenstein | 31 | 1 | 0.2% |
| Pakistan | 31 | 1 | 0.2% |
| Philippines | 31 | 1 | 0.2% |
| Scotland | 31 | 1 | 0.2% |
| United Arab Emirates | 31 | 1 | 0.2% |
| Lebanon | 31 | 1 | 0.2% |

**Table 7**
Contributions by world region.

| World region | Articles | | Authors | | Authorships | |
|---|---|---|---|---|---|---|
| Australia/New Zealand | 69 | 11.2% | 84 | 6.1% | 121 | 6.1% |
| Asia | 86 | 14.0% | 120 | 8.7% | 166 | 8.4% |
| Central/South America | 5 | 0.8% | 9 | 0.7% | 9 | 0.5% |
| Europe | 226 | 36.7% | 407 | 29.6% | 548 | 27.7% |
| Middle East | 21 | 3.4% | 25 | 1.8% | 34 | 1.7% |
| North America non-US | 41 | 6.7% | 69 | 5.0% | 85 | 4.3% |
| United States | 371 | 60.3% | 663 | 48.1% | 1016 | 51.3% |

two different geographic regions. Articles with authors representing three and four world regions were rare (3.1%). Articles with affiliations from Europe (36.7%) were the second most common after the United States (60.3%), followed by Asia (14.0%), Australia and New Zealand (11.2%), North America non-US (Mexico and Canada; 6.7%), Middle East (3.4%), and Central/South America (0.8%). The percent of authors and authorships by geographic region were similar (see Table 7). So, while the United States was the largest contributor with respect to affiliations, approximately 50% of the authors and authorships came from non-US sources. Further, while US-based University of Oklahoma and Binghamton University (SUNY) topped the list, there were 14 non-US institutions in the top 34 in terms of contributions to articles (41.2%; Table 8), with Erasmus University Rotterdam placing third. These data suggest that during the third decade, *LQ* has expanded its international footprint to become a more global journal. Finally, corporate/consulting affiliations account for 2% of the authorships. The Center for Creative Leadership leads in terms of number of authors (5), number of articles (11), and affiliations (16).

As noted during the prior discussion of the distribution of disciplines represented among *LQ*'s editorial leadership, one of the primary components of *LQ*'s mission since its inception has been to publish articles from a wide array of disciplines. In their review of *LQ*'s first decade, Lowe and Gardner (2000) noted that the journal had modest success in achieving this goal, as 67% of authors were affiliated with business schools and/or management departments, with psychology a distant second with 16%. Gardner et al. (2010) concluded that progress toward this goal was achieved in *LQ*'s second decade, as the proportion of authors from non-management/business disciplines increased from 33% to 38%. Our findings suggest that this trend was reversed in *LQ*'s third decade, as roughly two-thirds (69.3%) of authorships were again affiliated with management departments, and another 23.6% with psychology departments, leaving only 7.2% from other fields (i.e., 30.7% non-management). However, greater diversity of disciplines is apparent for 2019 (Table 9), where the proportion of psychology-affiliated authorships dropped to 18.6%, and the level of representation from the fields of economics (6.4%), anthropology (2.1%), and other fields (3.6%) increased. Thus, we echo Lowe and Gardner's initial conclusion that only modest success with regard to this element of *LQ*'s mission has been achieved over the past three decades. Nonetheless, there is some preliminary evidence that the strategic decision of the current editor, John Antonakis, to recruit AEs with more diverse disciplinary backgrounds is attracting scholars from disciplines that have not historically been represented among contributing authors. It remains to be seen if this trend will be sustained and perhaps accelerated over the next decade.

### Coder agreement

In an effort to ensure consistency in the coding of articles, the six-member author team developed a coding manual. Each article was then coded by one of the authors using the codebook as a point of reference. In a further effort to promote coding consistency, the author team met regularly throughout the coding process to discuss and address any challenges/uncertainties regarding the coding scheme and its application. Following the coding of the 615 articles, interrater reliability was computed by having a different author independently code a subset of 20% of the articles. Interrater reliability was computed for the three main coding categories of focal theory, article type, and study methods and analyses. Note that the article type and focal theory were coded at the article level, whereas the study methods and analysis were coded at the study level, since some articles reported methods and results for multiple studies. The percentage agreement for the focal theory, a single coding item, was 93%. For article type, the percentage agreement was 97% and the pairwise Cohen's kappa was 0.92 with a range of 0.88–0.97. For study methods, the percentage agreement was 98% and Cohen's kappa was 0.89 with a range of 0.81–0.96. Each of these results is indicative of a very high level of rater agreement and hence reliability (Fleiss, 1981), with values of 0.81–1.0 characterized as near perfect agreement (Landis & Koch, 1977). Following the computation of the interrater reliability statistics, all discrepancies were discussed until a consensus was reached.

### Leadership theories

A summary of the focal theories reflected in studies published in *LQ* during the last decade, as coded using the aforementioned Meuser et al. (2016) taxonomy (https://journals.sagepub.com/doi/suppl/10.1177/0149206316647099), is presented in Table 10. Two important points about how we coded theories merit attention. First, by focal theory, we

**Table 8**
Contributions by institution.

| Institution name | Articles | Rank by articles | Affiliations | Rank by affiliations |
|---|---|---|---|---|
| University of Oklahoma | 37 | 1 | 77 | 1 |
| Binghamton University (SUNY) | 25 | 2 | 62 | 2 |
| Erasmus University Rotterdam | 20 | 3 | 40 | 3 |
| Pennsylvania State University | 19 | 4 | 34 | 4 |
| Arizona State University | 15 | 7 | 33 | 5 |
| University of Queensland (UQ) | 17 | 5 | 33 | 5 |
| University of Groningen | 16 | 6 | 32 | 7 |
| George Mason University | 9 | 18 | 24 | 8 |
| University of Warwick | 15 | 7 | 23 | 9 |
| University of Washington | 13 | 9 | 20 | 10 |
| University of Houston | 9 | 18 | 20 | 10 |
| Vrije Universiteit Amsterdam | 11 | 12 | 19 | 12 |
| National University of Singapore (NUS) | 9 | 18 | 19 | 12 |
| Durham University | 13 | 9 | 19 | 12 |
| University of North Carolina At Charlotte | 8 | 26 | 19 | 12 |
| University of Miami | 9 | 18 | 18 | 16 |
| University of Nebraska | 11 | 12 | 18 | 16 |
| Aston University | 9 | 18 | 17 | 18 |
| University of Lausanne | 8 | 26 | 17 | 18 |
| University of Illinois At Chicago (UIC) | 10 | 15 | 17 | 18 |
| University of Central Florida | | | 17 | 18 |
| Texas Tech University | | | 16 | 22 |
| Center For Creative Leadership | 11 | 12 | 16 | 22 |
| University of Amsterdam | 9 | 18 | 16 | 22 |
| Florida State University | 8 | 26 | 16 | 22 |
| Michigan State University | 12 | 11 | 15 | 26 |
| Xi'An Jiaotong University | | | 15 | 26 |
| Bi Norwegian Business School | 9 | 18 | 14 | 28 |
| California State University, Fullerton | | | 14 | 28 |
| University of Akron | 9 | 18 | 14 | 28 |
| Queen's University | | | 13 | 31 |
| Peking University | 10 | 15 | 12 | 32 |
| University of Toronto | | | 12 | 32 |
| Australian National University (ANU) | | | 12 | 32 |
| Ludwig-Maximilians-Universität München | | | 12 | 32 |
| Claremont Graduate University | 10 | 15 | 11 | 36 |
| University of Minnesota | | | 11 | 36 |
| University of Exeter | 8 | 26 | 11 | 36 |
| Bar-Ilan University | 8 | 26 | 11 | 36 |
| University of Melbourne | | | 11 | 36 |
| Georgia Institute of Technology (Georgia Tech) | | | 10 | 41 |
| University of Alabama | | | 10 | 41 |
| University of St. Gallen (HSG) | | | 10 | 41 |
| United States Military Academy | | | 10 | 41 |
| Claremont Mckenna College | 8 | 26 | 9 | 45 |
| Monash University | | | 9 | 45 |
| Drexel University | | | 9 | 45 |
| Virginia Polytechnic Institute (Virginia Tech) | | | 9 | 45 |
| Renmin (People's) University of China | | | 9 | 45 |
| University of Western Australia (UWA) | 8 | 26 | 9 | 45 |
| State University of New York at Binghamton | | | 9 | 45 |
| Florida International University | | | 8 | 52 |
| Griffith University | | | 8 | 52 |
| Katholieke Universiteit Leuven | | | 8 | 52 |
| University of Haifa | | | 8 | 52 |
| University of California, Berkeley (UCB) | | | 8 | 52 |
| University of Notre Dame | 8 | 26 | 8 | 52 |
| University of Waterloo | | | 8 | 52 |
| University of New South Wales (UNSW) | | | 8 | 52 |
| University of Richmond | | | 8 | 52 |

We applied a cutoff of eight for both articles and affiliations.

mean the theory that is most prominent and provides the underlying theoretical foundation for the research. Second, while we also coded supporting theories that complemented the focal theory, for the sake of parsimony, we limit our analysis and discussion to the focal theories. Nonetheless, it is also important to recognize that many leadership theories that were infrequently identified as focal theories nonetheless appeared as supporting theories (e.g., attribution theories, transactional leadership) that were used in concert with the focal theory to better explicate the nuances and intricacies of dynamic leadership processes.[2]

Before we examine the focal theories published in *LQ* during its

[2] A summary of the coding results for secondary leadership theories is available from the first author upon request.

**Table 9**
Author discipline.

| Year | Management | Psychology | Anthropology | Economics | Sociology | Political science | Engineering | Medical | Legal | Philosophy | Mathematics | Physics | Other |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2010 | 125 | 43 | 0 | 1 | 0 | 1 | 2 | 3 | 0 | 0 | 0 | 0 | 19 |
| | 64.4% | 22.2% | 0.0% | 0.5% | 0.0% | 0.5% | 1.0% | 1.5% | 0.0% | 0.0% | 0.0% | 0.0% | 9.8% |
| 2011 | 143 | 73 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 11 |
| | 61.9% | 31.6% | 0.4% | 0.4% | 0.4% | 0.4% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 4.8% |
| 2012 | 181 | 57 | 1 | 2 | 0 | 1 | 1 | 3 | 0 | 0 | 0 | 0 | 6 |
| | 71.8% | 22.6% | 0.4% | 0.8% | 0.0% | 0.4% | 0.4% | 1.2% | 0.0% | 0.0% | 0.0% | 0.0% | 2.4% |
| 2013 | 146 | 34 | 0 | 5 | 0 | 4 | 0 | 1 | 0 | 0 | 0 | 0 | 4 |
| | 75.3% | 17.5% | 0.0% | 2.6% | 0.0% | 2.1% | 0.0% | 0.5% | 0.0% | 0.0% | 0.0% | 0.0% | 2.1% |
| 2014 | 173 | 64 | 0 | 1 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 7 |
| | 69.8% | 25.8% | 0.0% | 0.4% | 0.0% | 0.0% | 0.4% | 0.8% | 0.0% | 0.0% | 0.0% | 0.0% | 2.8% |
| 2015 | 165 | 59 | 3 | 5 | 0 | 0 | 1 | 4 | 0 | 0 | 0 | 0 | 1 |
| | 69.3% | 24.8% | 1.3% | 2.1% | 0.0% | 0.0% | 0.4% | 1.7% | 0.0% | 0.0% | 0.0% | 0.0% | 0.4% |
| 2016 | 124 | 27 | 0 | 2 | 1 | 7 | 1 | 1 | 0 | 0 | 0 | 0 | 5 |
| | 73.8% | 16.1% | 0.0% | 1.2% | 0.6% | 4.2% | 0.6% | 0.6% | 0.0% | 0.0% | 0.0% | 0.0% | 3.0% |
| 2017 | 103 | 38 | 1 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 3 |
| | 69.6% | 25.7% | 0.7% | 1.4% | 0.0% | 0.0% | 0.0% | 0.7% | 0.0% | 0.0% | 0.0% | 0.0% | 2.0% |
| 2018 | 117 | 47 | 0 | 4 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 1 |
| | 68.4% | 27.5% | 0.0% | 2.3% | 0.0% | 0.0% | 0.0% | 1.2% | 0.0% | 0.0% | 0.0% | 0.0% | 0.6% |
| 2019 | 97 | 26 | 3 | 9 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 3 |
| | 69.3% | 18.6% | 2.1% | 6.4% | 0.7% | 0.0% | 0.0% | 0.7% | 0.0% | 0.0% | 0.0% | 0.0% | 2.1% |
| Totals | 1374 | 468 | 9 | 32 | 3 | 14 | 6 | 18 | 0 | 0 | 0 | 0 | 60 |
| | 69.3% | 23.6% | 0.5% | 1.6% | 0.2% | 0.7% | 0.3% | 0.9% | 0.0% | 0.0% | 0.0% | 0.0% | 3.0% |

third decade, it is useful to elaborate on the findings from the prior two decades provided in our introduction. Lowe and Gardner (2000) found that neo-charismatic leadership theories, which included transformational leadership, were by far the most common focal theories (34%) employed in *LQ* articles during the journal's first decade, followed by contingency theories (12%), multiple level approaches (9%), and trait theories (8%). However, a full quarter of the theories were classified as Other Approaches and encompassed leadership and diversity, cross-cultural leadership, and managerial work. Moreover, 14% of the articles were classified as New Directions. In *LQ*'s second decade, the focal leadership theories that Lowe and Gardner (2000) categorized as New Directions exploded to encompass a full 44.4% of the articles, with emerging theories such as ethical/servant/spiritual/authentic leadership (5.4%), the development and identification of leaders and leadership (5.5%), and contextual influences on leadership (5.6%) gaining attention. While neo-charismatic (12.6%) approaches remained popular, the proportion of articles focused on these approaches declined, as it did for more traditional leadership theories such as trait theories (3.8%), behavioral theories (4.4%), and contingency theories (1.0%). Slightly more attention was devoted to multiple level approaches (12%) in *LQ*'s second decade.

An examination of Table 10 reveals some interesting trends in terms of the relative prominence of theories represented in *LQ* studies over the past decade. At the outset, it is important to recognize that the focal theory taxonomies used by Lowe and Gardner (2000) and Gardner et al. (2010) included 28 and 29 theories, respectively. In contrast, the Meuser et al. (2016) taxonomy we employed includes 49 focal theories; hence, comparisons of the proportions of articles that adopted a given focal theory are smaller, simply because there are more focal theories. As such, our comparisons across decades focus on the relative proportions of articles using a focal theory, as opposed to the percentage. To facilitate such comparisons, we have sorted the focal theories from most to least commonly used and grouped them into clusters in the table.

The first cluster reflects the most commonly-used focal theories and includes nine that were invoked in more than 4% of the articles coded. As in *LQ*'s first decade, transformational leadership again emerged as the most commonly researched theory, serving as the focal theory in 7.6% of the articles. Note that in their 2010 review, Gardner and colleagues did not distinguish between transformational and charismatic leadership, as both were coded as neo-charismatic theories. Applying the more fine-grained Meuser et al. (2016) taxonomy, however, it becomes apparent that popularity of these theories has followed different trajectories, as charismatic leadership only served as the focal theory in 3.4% of the articles. Thus, despite pointed criticisms (e.g., van Knippenberg & Sitkin, 2013), transformational leadership theory remains popular. In contrast, despite Antonakis, Bastardoz, Jacquart, and Shamir's (2016) efforts to strengthen charismatic leadership theory and a special issue devoted to the topic (Antonakis & Gardner, 2017), the proportion of articles focused on charisma has declined. Nonetheless, we speculate that the refined definition and recommendations for enhancing the rigor of charismatic leadership research advanced by Antonakis et al. (2016) may stimulate renewed interest in the topic in the next decade.

Interestingly, the coding category of "none" tied with transformational leadership as the most commonly selected category at 7.6%. This indicates that many articles published in *LQ*'s third decade lacked a focal theory. Reasons why this category may have been applicable include: a) the inclusion of multiple but no dominant leadership theory (often the case for review articles such as this one); b) a focus on methods rather than theory; and c) a focal theory that reflects a new conceptual perspective that could not be classified using the Meuser et al. (2016) taxonomy. The former case is consistent with Meuser and colleagues' conclusion that many leadership articles draw upon and integrate multiple leadership theories. In the latter case, the "none" category essentially reflects the New Directions category employed in the prior two reviews. Thus, even with a taxonomy of 49 leadership theories, new theories emerged over the last decade that defied classification. This finding documents the theoretical vigor of the field, while simultaneously raising concerns about unnecessary construct proliferation (Banks, Gooty, Ross, Williams, & Harrington, 2018; Leavitt, Mitchell, & Peterson, 2010).

The next most common focal theory was leadership development at 5.8%. The inclusion of a special issue devoted to leadership development (Riggio & Mumford, 2011) early in the decade clearly contributed to the relatively high proportion of articles with the publication of articles in subsequent years demonstrating continued interest in the topic. We consider this to be a very positive development as insufficient attention has been devoted to this critical topic in the past. Leader-member exchange (LMX) theory emerged as the third most common focal theory (5.7%), and interest in this topic remained strong throughout the decade. *LQ*'s third decade also saw a resurgence in attention to trait (dispositional) approaches, as this constituted the fourth most common focal theory (5.0%). Perhaps this resurgence is, at least in part, the result of work by Judge and colleagues (Judge & Bono, 2000;

**Table 10**
Focal leadership theories.

| Theory | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | Total | % of Articles |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Transformational Leadership | 7 | 10 | 6 | 7 | 3 | 11 | 2 | 1 | 0 | 0 | 47 | 7.6% |
| NONE | 5 | 3 | 10 | 3 | 7 | 3 | 0 | 4 | 8 | 4 | 47 | 7.6% |
| Leadership Development | 8 | 10 | 1 | 1 | 6 | 2 | 0 | 4 | 2 | 2 | 36 | 5.8% |
| LMX | 1 | 2 | 9 | 2 | 8 | 2 | 3 | 3 | 4 | 1 | 35 | 5.7% |
| Trait Theories | 0 | 9 | 6 | 3 | 3 | 3 | 1 | 2 | 2 | 2 | 31 | 5.0% |
| Leadership & Diversity | 2 | 1 | 2 | 0 | 0 | 2 | 12 | 2 | 4 | 5 | 30 | 4.9% |
| Emotions & Leadership | 2 | 2 | 4 | 5 | 3 | 9 | 1 | 1 | 1 | 1 | 29 | 4.7% |
| Strategic Leadership | 6 | 3 | 3 | 2 | 4 | 2 | 3 | 2 | 1 | 2 | 28 | 4.5% |
| Destructive Leadership | 1 | 3 | 4 | 7 | 1 | 2 | 2 | 1 | 2 | 2 | 25 | 4.1% |
| Leader & Follower Cognitions | 2 | 1 | 2 | 0 | 4 | 10 | 1 | 1 | 0 | 1 | 22 | 3.6% |
| Participative/Shared/Delegation/Empowerment | 2 | 2 | 1 | 1 | 4 | 2 | 8 | 1 | 0 | 1 | 22 | 3.6% |
| Charismatic Leadership | 2 | 2 | 2 | 2 | 0 | 0 | 3 | 7 | 1 | 2 | 21 | 3.4% |
| Ethical Leadership | 0 | 4 | 2 | 5 | 1 | 3 | 1 | 1 | 4 | 0 | 21 | 3.4% |
| Authentic Leadership | 2 | 2 | 4 | 3 | 2 | 0 | 2 | 1 | 2 | 1 | 19 | 3.1% |
| Implicit Leadership | 1 | 2 | 1 | 1 | 6 | 1 | 0 | 3 | 1 | 1 | 17 | 2.8% |
| Contextual/Complexity/Adaptive | 2 | 2 | 0 | 0 | 0 | 1 | 3 | 0 | 2 | 2 | 12 | 1.9% |
| Leadership in Teams | 1 | 2 | 2 | 0 | 2 | 1 | 2 | 0 | 1 | 1 | 12 | 1.9% |
| Emergence | 1 | 0 | 1 | 0 | 0 | 2 | 2 | 1 | 1 | 3 | 11 | 1.8% |
| Identity/Identification Process | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 3 | 2 | 0 | 11 | 1.8% |
| Power/Influence/Politics | 2 | 2 | 1 | 2 | 0 | 2 | 0 | 2 | 0 | 0 | 11 | 1.8% |
| Public Leadership | 8 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 11 | 1.8% |
| Info Processing/Decision Making | 3 | 3 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 9 | 1.5% |
| Social Identity | 0 | 1 | 0 | 1 | 3 | 1 | 1 | 0 | 2 | 0 | 9 | 1.5% |
| Behavioral Theories | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 2 | 2 | 8 | 1.3% |
| Cross-Cultural (GLOBE) | 0 | 0 | 2 | 1 | 0 | 5 | 0 | 0 | 0 | 0 | 8 | 1.3% |
| Servant Leadership | 0 | 0 | 0 | 2 | 1 | 1 | 2 | 0 | 1 | 1 | 8 | 1.3% |
| Followership Theory | 1 | 0 | 1 | 2 | 1 | 0 | 0 | 0 | 0 | 1 | 6 | 1.0% |
| Ideological/Pragmatic Leadership | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 5 | 0.8% |
| Relational Leadership | 0 | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0.8% |
| Leadership Skills/Competence | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 4 | 0.6% |
| Social Network Approaches | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 4 | 0.6% |
| Reward and Punishment Behavior | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 3 | 0.5% |
| Entrepreneurial Leadership | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0.3% |
| Romance of Leadership | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 0.3% |
| Spiritual Leadership | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 0.3% |
| Contingency Theories | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0.2% |
| E-Leadership | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0.2% |
| Leader Motive Profile | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0.2% |
| Pygmalion Effect | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0.2% |
| Transactional Leadership | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0.2% |
| Aesthetic Leadership | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| Attribution Theories | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| Flexibility | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| Idiosyncratic | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| Leadership Substitute | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| Multiple Linkage Model | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| Path-Goal Theory | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| Self-Sacrificing Leadership | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| Situational Leadership | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |

Judge, Colbert, & Ilies, 2004; Judge, Piccolo, & Kosalka, 2009) which demonstrated that prior reviews were misinterpreted as dismissing the utility of the trait approach (Mann, 1959; Stogdill, 1948). This dismissal is now regarded as premature as traits were shown to have considerable power in predicting leadership emergence and effectiveness. Prominent theories that were previously coded by Lowe and Gardner (2000) and Gardner et al. (2010) as Other Approaches or New Directions that gained increased attention in *LQ*'s third decade include leadership and diversity (4.9%), emotions and leadership (4.7%), strategic leadership (4.5%), and destructive leadership (4.1%), which includes abusive supervision. It is noteworthy that Dinh et al. (2014) reported similar findings with respect to the prominent and emerging theories they identified in their review of the leadership literature published in top management journals between 2000 and 2012.

The next set of focal leadership theories includes 18 that were found in less than 4% but more than 1% of the articles coded. Note that ethical (3.4%), authentic (3.1%), and servant (1.3%) leadership first emerged as focal theories in the Gardner et al. (2010) review, where they were grouped together with spiritual leadership to account for 5.4% of the focal theories. As a set, it is clear that these theories garnered increased attention over the past decade. Additionally, given that these theories differ in their assumptions and posited processes, the separation of these theories into distinct categories proved to be useful, both for conceptual reasons and to better track their relative influence. The rise of these theories is consistent with trends identified by Dinh et al. (2014), which suggests that the field of leadership and *LQ* in particular continues to be open to new and maturing perspectives, along with empirical tests of theories that emerged during the prior two decades. Additional focal theories that were labeled as Other Approaches and New Directions in prior reviews that fall into this cluster include leadership in teams (1.9%), contextual/complexity/adaptive approaches (1.9%), power/influence/politics (1.8%), public leadership (1.8%), and cross-cultural leadership (1.3%). Interest in these topics has remained relatively steady over the past two decades. Finally, some focal theories (e.g., followership theory; 1%) gained recognition as distinct theories for the first time, while the influence of some theories that were once

**Table 11**
Research designs.

| Year | Vol | Computer sim bootstrap | Content analysis | Diary study ESM | Lab experiment not exp sim | Field survey (primary data) | Field survey (secondary data) | Field experiment | Experimental simulation | Quasi-experiment | Judgment task | Meta-analysis (quant review) | Review (non meta) | Convenience sample | Interview | Observation | Archival data |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2010 | 21 | 2 | 6 | 0 | 13 | 32 | 3 | 4 | 1 | 2 | 6 | 0 | 4 | 28 | 9 | 1 | 14 |
| 2011 | 22 | 5 | 9 | 2 | 15 | 40 | 5 | 1 | 1 | 0 | 16 | 1 | 17 | 55 | 8 | 3 | 18 |
| 2012 | 23 | 0 | 3 | 0 | 14 | 47 | 4 | 0 | 1 | 2 | 2 | 1 | 10 | 34 | 3 | 2 | 7 |
| 2013 | 24 | 0 | 2 | 0 | 24 | 29 | 0 | 1 | 0 | 0 | 2 | 2 | 7 | 39 | 3 | 2 | 12 |
| 2014 | 25 | 3 | 4 | 0 | 24 | 35 | 1 | 0 | 5 | 2 | 10 | 2 | 8 | 49 | 5 | 1 | 13 |
| 2015 | 26 | 2 | 2 | 1 | 22 | 32 | 2 | 1 | 0 | 2 | 2 | 2 | 4 | 39 | 7 | 1 | 13 |
| 2016 | 27 | 3 | 3 | 0 | 11 | 24 | 0 | 5 | 0 | 1 | 6 | 2 | 3 | 19 | 4 | 0 | 11 |
| 2017 | 28 | 0 | 0 | 0 | 7 | 9 | 2 | 3 | 1 | 0 | 0 | 5 | 10 | 16 | 1 | 0 | 4 |
| 2018 | 29 | 0 | 0 | 1 | 19 | 22 | 0 | 0 | 3 | 1 | 10 | 4 | 14 | 29 | 1 | 2 | 3 |
| 2019 | 30 | 3 | 4 | 0 | 9 | 10 | 3 | 0 | 2 | 1 | 5 | 2 | 11 | 15 | 1 | 0 | 10 |
| Total | | 18 | 33 | 4 | 158 | 280 | 20 | 15 | 14 | 11 | 59 | 21 | 88 | 323 | 42 | 12 | 105 |
| Total % | | 3.0% | 5.5% | 0.7% | 26.4% | 46.8% | 3.3% | 2.5% | 2.3% | 1.8% | 9.9% | 3.5% | 14.7% | 54.0% | 7.0% | 2.0% | 17.6% |

dominant (e.g., behavioral approaches; 1.3%) has waned.

The third cluster of theories includes 13 that were found in fewer than 1% but more than 0% of the studies coded. This cluster includes a mixture of theories from relatively young areas of inquiry (e.g., ideological/pragmatic [0.8%], relational [0.8%], social network [0.6%], entrepreneurial [0.3%], spiritual [0.3%], and E-leadership [0.2%]), as well as others that are more mature (e.g., leadership skills/competence [0.6%], reward and punishment behavior [0.5%], romance of leadership [0.3%], transactional [0.2%], leader motive profile [0.2%], Pygmalion effect [0.2%], and contingency [0.2%] approaches).

The final cluster of theories identifies nine theories that are included in our taxonomy but were not indicated as the focal theory in any article published in *LQ* in the most recent decade. These include a mixture of mature theories (e.g., leadership substitute theory, multiple linkage theory, path-goal theory, attribution theories, situational leadership theory, idiosyncratic leadership theory), and several that are relatively narrow in focus (e.g., aesthetic leadership, self-sacrificing, flexibility leadership theory). While a resurgence of interest in some of the mature approaches is certainly possible, as has been the case for the trait approach, we think it is more likely that the decades-long decline in attention to these approaches (Dinh et al., 2014; Gardner et al., 2010; Lowe & Gardner, 2000; Zhao & Li, 2019) will continue, while the trends for the ascending approaches (e.g., authentic, ethical, servant, and strategic leadership; Dinh et al., 2014; Zhao & Li, 2019) will be sustained. Perhaps some of the more narrowly-focused theories are candidates for integration with more general leadership theories, such as contextual/complexity/adaptive approaches to leadership.

*Quantitative techniques and designs*

A summary of the types of research designs used in quantitative studies is presented in Table 11. As with prior decade reviews, we found that field surveys are still favored when collecting primary data with 46.8% of studies in the present decade employing this technique. One potential concern is the use of convenience samples (e.g., students, online panels, or samples from authors' own social media connections), which accounted for the sample in 54.0% of the 598 quantitative studies, the vast majority of which involved surveys. Laboratory experiments showed a marked increase in usage, ranking second (26.4%) overall; only 5% of quantitative studies used experimental designs in the prior decade. Consistent with prior decade reviews, we find experience sampling, field experiments, quasi-experiments, field surveys with secondary data, and computer simulations to be employed infrequently. Clearly, given the strengths of some of these designs, such as quasi-experimental research (Grant & Wall, 2009), opportunities remain to better capitalize on a wider range of research designs to generate novel and more rigorous findings.

*Quantitative analytical techniques*

A summary of the analytical/statistical techniques employed in quantitative studies is provided in Table 12. The most common statistical analyses performed in quantitative studies were: 1) linear regression (43.0%); 2) analysis of variance, including both ANOVA, ANCOVA, and MANOVA/MANCOVA (32.6%); 3) structural equation modeling (SEM) and path analysis (16.6%); and 4) multi-level analytical techniques (e.g., hierarchical linear modeling [HLM], and multi-level SEM; 19.2%). Given the inherently multi-level nature of leadership phenomena (e.g., leaders and members within dyads and groups; leaders, members and groups within organizations), it is somewhat surprising that multi-level analytical techniques were not used more often. Nonetheless, they were used more often than was the case in the prior decade (8%), so there is evidence of increasing efforts to evaluate multi-level leadership relationships. Another favorable trend involves the increased use of non-parametric techniques (8.4%) over the prior decade (2%), as such methods have notable advantages over traditional null hypothesis testing (Kruschke, Aguinis, & Joo, 2012).

**Table 12**
Quantitative techniques.

| Year | Vol | Analysis of variance (ANOVA/ MANOVA) | Computer sim | Techniques for categorical DVs (can include MSEM) | Linear regression (single outcome var; not path analysis) | Multiple levels of analysis (HLM, MSEM) | Meta-analysis | Non-parametric techniques | SEM & path analysis | Time series/ event history (LGM) | 2SLS | (Social) network analysis | Curvilinear analyses | Domin./ relative weight | PLS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2010 | 21 | 23 | 3 | 2 | 19 | 11 | 0 | 0 | 8 | 2 | 0 | 1 | 0 | 0 | 0 |
| 2011 | 22 | 22 | 0 | 2 | 22 | 12 | 1 | 3 | 7 | 3 | 0 | 0 | 7 | 0 | 2 |
| 2012 | 23 | 18 | 0 | 4 | 33 | 16 | 1 | 7 | 17 | 0 | 1 | 0 | 0 | 4 | 1 |
| 2013 | 24 | 22 | 0 | 7 | 23 | 11 | 2 | 12 | 16 | 0 | 1 | 0 | 0 | 2 | 0 |
| 2014 | 25 | 32 | 1 | 6 | 37 | 13 | 2 | 19 | 11 | 1 | 2 | 1 | 4 | 1 | 0 |
| 2015 | 26 | 27 | 2 | 9 | 32 | 17 | 2 | 4 | 12 | 1 | 1 | 0 | 1 | 0 | 0 |
| 2016 | 27 | 12 | 4 | 3 | 25 | 12 | 2 | 2 | 8 | 1 | 1 | 3 | 3 | 0 | 0 |
| 2017 | 28 | 15 | 0 | 0 | 20 | 9 | 5 | 0 | 8 | 2 | 1 | 2 | 3 | 1 | 0 |
| 2018 | 29 | 19 | 0 | 10 | 24 | 10 | 4 | 1 | 8 | 0 | 6 | 1 | 2 | 0 | 0 |
| 2019 | 30 | 5 | 3 | 5 | 22 | 4 | 2 | 2 | 4 | 4 | 12 | 1 | 6 | 0 | 0 |
| Total | | 195 | 13 | 48 | 257 | 115 | 21 | 50 | 99 | 14 | 25 | 9 | 26 | 8 | 3 |
| Total % | | 32.6% | 2.2% | 8.0% | 43.0% | 19.2% | 3.5% | 8.4% | 16.6% | 2.3% | 4.2% | 1.5% | 4.3% | 1.3% | 0.5% |

**Table 13**
Sample type.

| Year | Vol | Private (company) | Public (govt/ municipal/edu) | Military | Health care | NGO | UG students (non-working) | Grad/MBA students (non-working) | UG students (working) | Grad/MBA students (working) | Purpose theoretical | Snowball | Mturk | Qualtrics panel | Other online 3rd party source | Sample not reported |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2010 | 21 | 14 | 15 | 4 | 4 | 5 | 15 | 1 | 4 | 5 | 3 | 4 | 0 | 0 | 0 | 0 |
| 2011 | 22 | 37 | 25 | 5 | 7 | 8 | 18 | 3 | 0 | 7 | 14 | 4 | 0 | 0 | 7 | 1 |
| 2012 | 23 | 27 | 15 | 2 | 9 | 2 | 15 | 1 | 2 | 4 | 1 | 2 | 0 | 0 | 3 | 0 |
| 2013 | 24 | 16 | 10 | 3 | 1 | 0 | 18 | 1 | 5 | 1 | 0 | 3 | 0 | 0 | 5 | 0 |
| 2014 | 25 | 22 | 8 | 0 | 3 | 0 | 18 | 3 | 5 | 3 | 1 | 1 | 6 | 0 | 5 | 4 |
| 2015 | 26 | 29 | 4 | 3 | 4 | 0 | 12 | 4 | 5 | 7 | 1 | 2 | 6 | 1 | 3 | 0 |
| 2016 | 27 | 19 | 6 | 2 | 2 | 0 | 11 | 3 | 0 | 1 | 0 | 2 | 3 | 0 | 1 | 0 |
| 2017 | 28 | 15 | 5 | 0 | 2 | 0 | 1 | 2 | 1 | 2 | 1 | 2 | 5 | 0 | 3 | 1 |
| 2018 | 29 | 12 | 4 | 1 | 2 | 0 | 11 | 1 | 2 | 2 | 4 | 1 | 11 | 1 | 2 | 0 |
| 2019 | 30 | 11 | 5 | 0 | 1 | 0 | 6 | 0 | 3 | 2 | 3 | 1 | 4 | 0 | 2 | 2 |
| Total | | 202 | 97 | 20 | 35 | 15 | 125 | 19 | 27 | 34 | 28 | 22 | 35 | 2 | 31 | 8 |
| Total % | | 31.1% | 14.9% | 3.1% | 5.4% | 2.3% | 19.3% | 2.9% | 4.2% | 5.2% | 4.3% | 3.4% | 5.4% | 0.3% | 4.8% | 1.2% |

**Table 14**
Sample information.

| Year | Vol | Sample sizes | | | | Source of data | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample size (L1) | Sample size (L2) | Meta-analysis N | Meta-analysis k | Self/focal | Peer of focal | Follower of focal | Leader/mgr/supervisor/direct report of focal | Family of focal | Customer of focal | Team of focal | Organization of focal | Rater provided | Archive (company data) | 3rd party (archive) | Other data source |
| 2010 68 | 21 | 27,952 | 1068 | 0 | 0 | 27 | 3 | 5 | 11 | 0 | 0 | 0 | 12 | 11 | 3 | 8 | 3 |
| 2011 79 | 22 | 46,423 | 2083 | 5113 | 31 | 44 | 4 | 11 | 52 | 1 | 0 | 6 | 13 | 10 | 9 | 2 | 7 |
| 2012 80 | 23 | 31,124 | 2409 | 3245 | 11 | 59 | 5 | 15 | 38 | 2 | 0 | 6 | 2 | 17 | 3 | 3 | 14 |
| 2013 61 | 24 | 21,432 | 2587 | 3763 | 14 | 56 | 4 | 7 | 36 | 1 | 0 | 3 | 5 | 5 | 3 | 8 | 2 |
| 2014 68 | 25 | 46,228 | 4584 | 3882 | 54 | 57 | 5 | 10 | 23 | 0 | 1 | 3 | 6 | 19 | 5 | 9 | 1 |
| 2015 70 | 26 | 59,546 | 7748 | 17,920 | 97 | 53 | 4 | 11 | 40 | 0 | 0 | 6 | 7 | 9 | 5 | 6 | 10 |
| 2016 55 | 27 | 19,816 | 3271 | 43,591 | 140 | 25 | 8 | 6 | 23 | 1 | 0 | 5 | 5 | 10 | 11 | 1 | 6 |
| 2017 45 | 28 | 12,387 | 2550 | 234,694 | 758 | 24 | 4 | 3 | 19 | 0 | 0 | 4 | 2 | 3 | 2 | 3 | 0 |
| 2018 48 | 29 | 12,087 | 3018 | 34,308 | 294 | 27 | 2 | 9 | 16 | 0 | 0 | 3 | 4 | 15 | 2 | 4 | 1 |
| 2019 41 | 30 | 69,819 | 3147 | 74,049 | 238 | 13 | 4 | 6 | 5 | 0 | 0 | 2 | 9 | 7 | 3 | 1 | 7 |
| Total | | 346,814 | 32,465 | 420,565 | 1637 | 385 | 43 | 83 | 263 | 5 | 1 | 38 | 65 | 106 | 46 | 45 | 51 |
| Total % | | | | | | 59.3% | 6.6% | 12.8% | 40.5% | 0.8% | 0.2% | 5.9% | 10.0% | 16.3% | 7.1% | 6.9% | 7.9% |

**Table 15**
Data source location.

| Country / Region | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | Total | Total % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Australia | 0 | 5 | 1 | 1 | 1 | 3 | 4 | 1 | 2 | 1 | 19 | 2.9% |
| Austria | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0.2% |
| Belgium | 0 | 0 | 0 | 1 | 5 | 1 | 0 | 0 | 1 | 0 | 8 | 1.2% |
| Brazil | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 0.3% |
| British | 0 | 0 | 0 | 0 | 1 | 2 | 3 | 0 | 0 | 0 | 6 | 0.9% |
| Canada | 3 | 1 | 2 | 0 | 4 | 1 | 1 | 0 | 2 | 0 | 14 | 2.2% |
| China | 2 | 6 | 2 | 5 | 6 | 10 | 3 | 3 | 0 | 2 | 39 | 6.0% |
| Cyprus | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 3 | 0.5% |
| Denmark | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 4 | 0.6% |
| Egypt | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0.2% |
| England | 0 | 0 | 1 | 2 | 1 | 0 | 2 | 0 | 0 | 0 | 6 | 0.9% |
| Finland | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 3 | 0.5% |
| Germany | 1 | 6 | 2 | 8 | 1 | 6 | 2 | 1 | 2 | 3 | 32 | 4.9% |
| Greece | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 2 | 0.3% |
| Hong Kong | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0.2% |
| India | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 2 | 0 | 5 | 0.8% |
| Israel | 1 | 2 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0.9% |
| Jordan | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0.2% |
| Lebanon | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0.2% |
| Macau | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 0.3% |
| Netherlands | 6 | 6 | 9 | 5 | 4 | 7 | 0 | 2 | 1 | 3 | 43 | 6.6% |
| New Zealand | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0.2% |
| Norway | 0 | 0 | 1 | 3 | 5 | 0 | 2 | 1 | 0 | 0 | 12 | 1.8% |
| Pakistan | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0.2% |
| Philippines | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0.3% |
| Portugal | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 5 | 0.8% |
| Romania | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0.2% |
| Singapore | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0.2% |
| South Korea | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 2 | 0 | 6 | 0.9% |
| Sweden | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 4 | 0.6% |
| Switzerland | 0 | 0 | 0 | 0 | 2 | 3 | 0 | 0 | 1 | 0 | 6 | 0.9% |
| Taiwan | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 4 | 0.6% |
| United Kingdom | 4 | 1 | 0 | 1 | 0 | 1 | 0 | 4 | 3 | 4 | 18 | 2.8% |
| United States | 38 | 39 | 29 | 24 | 27 | 15 | 25 | 7 | 13 | 10 | 227 | 35.0% |
| Multi-national | 1 | 6 | 2 | 3 | 8 | 11 | 5 | 3 | 3 | 5 | 47 | 7.2% |
| Not reported | 1 | 1 | 8 | 12 | 12 | 13 | 3 | 2 | 14 | 5 | 71 | 10.9% |
| United States | 38 | 39 | 29 | 24 | 27 | 15 | 25 | 7 | 13 | 10 | 227 | 35.0% |
| Europe | 12 | 15 | 16 | 21 | 21 | 20 | 6 | 10 | 8 | 12 | 141 | 21.7% |
| Australia/New Zealand | 0 | 5 | 1 | 1 | 1 | 4 | 4 | 1 | 2 | 1 | 20 | 3.1% |
| Asia | 3 | 7 | 6 | 7 | 7 | 13 | 6 | 4 | 6 | 2 | 61 | 9.4% |
| North America non-US | 3 | 1 | 2 | 0 | 4 | 1 | 1 | 0 | 2 | 0 | 14 | 2.2% |
| Middle East | 2 | 3 | 5 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 12 | 1.8% |
| Central/South America | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0.2% |
| Multi-national | 1 | 6 | 2 | 3 | 8 | 11 | 5 | 3 | 3 | 5 | 47 | 7.2% |
| Not reported | 1 | 1 | 8 | 12 | 12 | 13 | 3 | 2 | 14 | 5 | 71 | 10.9% |

**Table 16**
Measure information.

| Year | Vol | Measure type | | | | | | | Timing | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Existing measure(s) | Modified existing measure(s) | Created measure(s) | Scale development paper | Used different scores | Unobtrusive | Biometric | Cross sectional | Cross sectional time lag | Longitudinal |
| 2010 | 21 | 42 | 26 | 29 | 1 | 0 | 0 | 1 | 41 | 12 | 6 |
| 2011 | 22 | 57 | 17 | 35 | 18 | 0 | 0 | 3 | 41 | 15 | 15 |
| 2012 | 23 | 62 | 31 | 19 | 0 | 1 | 0 | 4 | 58 | 13 | 3 |
| 2013 | 24 | 57 | 25 | 17 | 7 | 3 | 2 | 6 | 53 | 15 | 2 |
| 2014 | 25 | 61 | 21 | 30 | 11 | 0 | 0 | 7 | 80 | 5 | 2 |
| 2015 | 26 | 59 | 26 | 19 | 4 | 0 | 1 | 3 | 54 | 20 | 7 |
| 2016 | 27 | 39 | 20 | 18 | 0 | 0 | 0 | 6 | 30 | 24 | 2 |
| 2017 | 28 | 24 | 7 | 2 | 1 | 0 | 0 | 0 | 22 | 6 | 4 |
| 2018 | 29 | 29 | 14 | 20 | 4 | 2 | 4 | 1 | 34 | 8 | 1 |
| 2019 | 30 | 28 | 9 | 18 | 0 | 0 | 0 | 2 | 22 | 5 | 7 |
| Total | | 458 | 196 | 207 | 46 | 6 | 7 | 33 | 435 | 123 | 49 |
| Total % | | 70.6% | 30.2% | 31.9% | 7.1% | 0.9% | 1.1% | 5.1% | 67.0% | 19.0% | 7.6% |

*Sample size and source of data*

During *LQ*'s third decade, researchers have primarily relied on data from companies (31.1% of empirical studies), non-working undergraduate students (19.3%), and public entities, such as government, municipalities, or education institutions (14.9%; see Table 13). Primary empirical leadership research published in *LQ* from 2010 to 2019 incorporates data (Table 14) from 346,814 respondents (at level 1 if multi-level) and 32,465 supervisors (in multi-level studies). The 21 examples of meta-analytic research published in *LQ* from 2010 to 2019

**Table 17**
Reliability information.

| Year | Vol | Reliability technique | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Cronbach alpha | CFA | EFA | Convergent validity | Discriminant validity | Predictive/ criterion validity | Interrater reliability (IRR) | ICC(1) | ICC(2) | WABA |
| 2010 | 21 | 41 | 11 | 7 | 2 | 6 | 0 | 22 | 5 | 9 | 3 |
| 2011 | 22 | 56 | 26 | 17 | 10 | 17 | 6 | 17 | 15 | 11 | 3 |
| 2012 | 23 | 67 | 23 | 12 | 3 | 6 | 3 | 5 | 21 | 14 | 1 |
| 2013 | 24 | 53 | 24 | 2 | 6 | 17 | 3 | 4 | 20 | 13 | 1 |
| 2014 | 25 | 54 | 31 | 11 | 17 | 20 | 4 | 9 | 15 | 14 | 2 |
| 2015 | 26 | 66 | 26 | 4 | 18 | 15 | 1 | 4 | 18 | 14 | 1 |
| 2016 | 27 | 34 | 20 | 4 | 4 | 8 | 0 | 10 | 17 | 11 | 0 |
| 2017 | 28 | 23 | 11 | 1 | 3 | 1 | 1 | 8 | 9 | 5 | 2 |
| 2018 | 29 | 23 | 15 | 4 | 4 | 3 | 0 | 4 | 11 | 7 | 1 |
| 2019 | 30 | 19 | 3 | 0 | 0 | 2 | 3 | 2 | 2 | 5 | 0 |
| Total | | 436 | 190 | 62 | 67 | 95 | 21 | 85 | 133 | 103 | 14 |
| Total % | | 67.2% | 29.3% | 9.6% | 10.3% | 14.6% | 3.2% | 13.1% | 20.5% | 15.9% | 2.2% |

| Year | Reliability technique | | | | | | | Appropriate use of reliability | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Rwg | Test/retest | Split half | Cohen kappa | Face validity (only if authors discuss) | Consensus coding | Other validation | All applicable variables | Some applicable variables | No applicable variables | Not applicable for some variables |
| 2010 | 5 | 1 | 0 | 1 | 0 | 0 | 0 | 42 | 5 | 12 | 2 |
| 2011 | 9 | 1 | 2 | 2 | 0 | 2 | 0 | 51 | 10 | 3 | 0 |
| 2012 | 11 | 2 | 2 | 1 | 2 | 1 | 0 | 67 | 1 | 2 | 26 |
| 2013 | 11 | 1 | 1 | 3 | 1 | 2 | 0 | 57 | 0 | 11 | 20 |
| 2014 | 11 | 1 | 1 | 0 | 1 | 1 | 0 | 63 | 1 | 15 | 24 |
| 2015 | 11 | 1 | 1 | 4 | 0 | 3 | 0 | 63 | 5 | 11 | 23 |
| 2016 | 13 | 0 | 1 | 4 | 1 | 2 | 0 | 35 | 3 | 18 | 14 |
| 2017 | 6 | 0 | 0 | 2 | 1 | 0 | 0 | 19 | 2 | 4 | 3 |
| 2018 | 5 | 0 | 0 | 2 | 0 | 4 | 0 | 32 | 4 | 8 | 2 |
| 2019 | 2 | 0 | 2 | 2 | 0 | 2 | 0 | 21 | 0 | 15 | 1 |
| Total | 84 | 7 | 10 | 21 | 6 | 17 | 0 | 450 | 31 | 99 | 115 |
| Total % | 12.9% | 1.1% | 1.5% | 3.2% | 0.9% | 2.6% | 0.0% | 69.3% | 4.8% | 15.3% | 17.7% |

**Table 18**
Qualitative analysis.

| Year | Volume | Narrative | Phenomenological | Grounded theory | Ethnographic | Case study |
|---|---|---|---|---|---|---|
| 2010 | 21 | 3 | 1 | 1 | 0 | 8 |
| 2011 | 22 | 1 | 1 | 2 | 2 | 6 |
| 2012 | 23 | 1 | 0 | 0 | 0 | 1 |
| 2013 | 24 | 0 | 0 | 0 | 0 | 1 |
| 2014 | 25 | 2 | 1 | 3 | 0 | 1 |
| 2015 | 26 | 0 | 0 | 2 | 0 | 5 |
| 2016 | 27 | 3 | 0 | 1 | 0 | 0 |
| 2017 | 28 | 1 | 1 | 2 | 0 | 0 |
| 2018 | 29 | 0 | 2 | 1 | 0 | 0 |
| 2019 | 30 | 0 | 0 | 0 | 0 | 1 |
| Total | | 11 | 6 | 12 | 2 | 23 |
| Total % | | 21.2% | 11.5% | 23.1% | 3.8% | 44.2% |

incorporated data from 420,565 participants and 1637 studies. Studies employing self-report data (e.g., personality measures) accounted for 59.3% of studies, while 40.5% captured data about supervisors from followers and 12.8% capture data from leaders about followers. What our sample data do not reveal is the proportion of studies that collected data from dyads (e.g., both the leader and the follower rate the quality of their relationship; (Gooty & Yammarino, 2011). However, given the relatively small proportion of data collected by one half of the potential dyad–leaders–we suspect that such cases of matching data where both parties rate the same variable (e.g., LMX quality) continue to be relatively rare, as found in prior reviews (Gooty, Serban, Thomas, Gavin, & Yammarino, 2012). This supports concerns that leadership research is not adequately capturing the dyadic and reciprocal nature of the relationship. Likewise, researchers may not be adequately addressing the context within which leadership occurs, as team (5.9%) and organization (10.0%) data constitutes a small fraction of the data published in *LQ* between 2010 and 2019. Nearly absent are reports from peers, families, and customers/outside sources, representing an opportunity for expanding both theory and research designs. To further consider the concern that researchers may not be adequately addressing the context of leadership, we coded for the country from which study samples were drawn (Table 15). Most data were sampled from the United States (35.0% of studies) followed by Europe (21.7%) with the Netherlands (6.6%) being the largest contributor, and Asia (9.4%), with China (6.0%) being the largest contributor. Some data were truly multi-national (7.2%). Sample location was not reported in 10.9% of the empirical articles.

*Measure information*

We also examined measures employed in *LQ* empirical studies (Table 16). An examination of this table reveals that 70.6% studies that collected data using survey measures employed existing measures, while 30.2% used modified measures, and 31.9% created new measures. One point of concern we encountered involves these newly-created measures, where only 46 of the 207 studies (22.2%) employed standard scale development practices (e.g., DeVellis, 2017; Hinkin, 1998). This suggests a gap between best and actual practices in leadership research. We also noted reliability information was missing in some studies (20.0%; Table 17). Researchers publishing in *LQ* rarely employed unobtrusive (1.1%) and biometric measures (5.1%), continuing a trend found in the earlier *LQ* reviews. Thus, there remains an opportunity for novel research designs to explore leadership phenomena. We encountered few instances of the use of difference scores, which are generally seen as poor practice (Edwards, 2001). Regarding the timing of data collection, cross-sectional designs remain a staple of recent research (67.0%). Cross-sectional data collection with a time lag between independent and outcome variables ranks second (19.0%); true longitudinal research characterized by repeated measurement to assess change is still relatively rare (7.6%).

*Qualitative techniques*

Few studies during *LQ*'s third decade employed qualitative techniques (52 studies, 8.7% of empirical studies; Table 18). Qualitative studies were most common in 2010 (25.0%), followed by 2011 (23.1%), and 2014 and 2015 (13.5%), with the other years accounting for less than 10% of the qualitative studies individually and 28.8% together. Case studies were the most common form of qualitative enquiry (44.2% of qualitative studies), followed by grounded theory (23.1%), narrative (21.2%), phenomenological (11.5%), and ethnographic (3.8%) approaches. Given the complexity of the leadership phenomenon, the dearth of studies that employ these context-rich approaches represents an opportunity for future research. With quantitative inquiry alone, there is a risk of ignoring elements that are required for explaining relationships, as qualitative approaches can enhance understanding of the context of leadership relationships as well as the nature of the relationships themselves, thus generating more meaningful explanations (Sofaer, 1999).

## Strengths and limitations

One limitation of our design is the subjective (and error prone) nature of human coding. This limitation is mitigated somewhat by a strength of our design where we entered objective data into a database form, which reduces errors versus entering data into a MS Excel file. The very high degree of interrater agreement also suggests that the use of a coding manual and the evolution (expansion) of the coding manual as we learned from the coding process further reduced the chance of error. Indeed, a strength over prior decade reviews is the use of an expanded coding scheme, though this introduces the weakness of making direct comparisons between decade reviews more difficult. We believe that as the field evolves, the coding scheme used to describe the field must also expand. When entering author gender, we made our decision based on the first name of the author with further exploration using internet images. It is possible that ProQuest has errors in this field, our internet search was faulty, or that we intuited wrongly for some authors. We drew our citation information from SCOPUS on December 18, 2019. It is possible that SCOPUS has errors. This also does not account for the full citation record of 2019, which was not possible due to publication deadlines. Our author team includes early, mid, and later stage scholars allowing for the strength of a variety of viewpoints. One caveat to the reader: this review is by design and intent restricted to LQ's third decade only. As such, trends in the study of leadership that are not represented or proportionally represented in *LQ* publications between 2010 and 2019 are not captured in the present review.

## Future directions

In their review of *LQ*'s first decade of publications, Lowe and

**Table 19**
*LQ*10 review recommendations revisited in *LQ*20 and *LQ*30 reviews.

| *LQ*10 future directions identified | *LQ*10 future directions revisited in *LQ*20 | *LQ*10 future directions revisited in *LQ*30 |
|---|---|---|
| Strategic leadership | Received considerable attention | Receiving some attention, but more work is needed. Heightened awareness of importance of strategic leadership is apparent from a forthcoming special issue on the topic (Bonardi et al., 2018), as well as the inclusion of AEs with strategy disciplinary backgrounds. |
| Levels of analysis | Received the most attention | Level of awareness and attention to levels of analysis issues continues to increase. |
| Leadership development & leadership systems | Received little attention | Attention to leadership development has increased, as apparent from the publication of two special issues (Hannum & Craig, 2010; Riggio & Mumford, 2011), another forthcoming (Day et al., 2018), and appearance of the topic within the most cited articles. |
| Leadership context | Received considerable attention (in second half of decade) | Continues to receive moderate levels of attention. |
| Females as leaders | Received little attention | Increased attention to gender is apparent from the special issue on gender and diversity (Eagly & Heilman, 2016). In addition, our coding of articles that focus on "leadership & diversity." Indeed, even though conceptually this theoretical category includes ethnicity, race, etc., we observed while coding that the vast majority of articles coded focused exclusively on gender. |
| International leadership | Received little attention | Still receiving little attention, despite *LQ*'s AEs, Editorial Review Board, and authors becoming more international and culturally diverse. This is still an opportunity for future research. |
| Technology (impact on leadership) | Received little attention | Although our coding scheme did not include a category for technology and leadership per se, a search of technology as a keyword identified few articles. This remains an opportunity for future research. |
| Transformational/charismatic leadership | Received the most attention | Still receiving considerable attention as one of the most common focal leadership theories, and also among the most cited articles. |

Gardner (2000) clearly delineated eight content directions for future research. These were derived from their content analysis of *LQ* publications, interviews with the founding editors, and personal insights. In their review of *LQ*'s second decade of publications, Gardner et al. (2010) briefly revisited these recommended content directions to see how much progress had been made in pursuing them. After doing so, however, they noted the difficulty of preparing a similar set of content-oriented directions for future leadership research, given the "explosion of leadership theories and novelty of approaches to studying leadership that have emerged in the most recent decade" and hence "handicapping a short list of future topics is more speculative than at any time in recent decades" (p. 951). Instead, Gardner et al. (2010, p. 951) chose to "identify a few study design and methodological aspects that will move the science of the field forward in whatever content domains are revealed to be most in favor over the next decade."

For our review of *LQ*'s third decade, it is informative to revisit the content and methodological recommendations offered in past *LQ* reviews as a prelude for our discussion of future research directions. Toward that end, we provide a summary of Lowe and Gardner's (2000) recommended content directions in Table 19, along with Gardner et al.'s (2010) assessment of the extent that they were realized in *LQ*'s second decade, and our own assessment of the degree to which they were addressed in *LQ*'s third decade. In addition, we provide a summary of Gardner et al.'s (2010) methodological recommendations in Table 20, and include our evaluation of the extent to which these recommendations have been adopted in *LQ*'s third decade. Because we found that the content and methodological recommendations offered in the prior reviews remain timely, we base our suggestions for future research on the progress that has been made regarding their suggestions while identifying opportunities for further advancements.

**Table 20**
*LQ*20 review recommendations revisited.

| *LQ*20 future directions identified | *LQ*20 future directions revisited in *LQ*30 |
|---|---|
| Expand set of measures | The number of measures employed has definitely expanded with the introduction of several new leadership scales. But, has the expansion come at the cost of rigor? Many articles modified scales and new measures failed to employ standard scale development and validation processes. |
| Studies within studies (e.g., Study 1, Study 2, Study 3) | We have seen an increase in studies within studies, particularly in the most recent full year of *LQ* articles, 2018, with an average of 1.35 studies per article, as opposed to a range from 0.78 to 1.24 in prior years. The extent to which this trend extends into future years merits attention. |
| Interdisciplinary teams | Though the second decade of *LQ* made progress toward a greater diversity of author disciplines, the third decade saw a reversion with over two thirds of contributing authors being affiliated with management departments and over 90% being affiliated with management or psychology departments. However, perhaps due to the recent increased diversity among the AE team and editorial review board, there is preliminary evidence in the final years of the decade that support an increased representation of authors from other fields. This trend and whether it is sustained should continue to be monitored over the next decade. |
| Multi-level phenomena | The adoption of multi-level techniques and examinations continued to increase in *LQ*'s third decade. Nonetheless, greater recognition of the multi-level nature of leadership phenomena is warranted, highlighting a need for more multi-level studies. |
| Controlled experiments | Empirical studies in *LQ*'s third decade included 20% that employed lab experiments, as compared to only 5% in the previous decade. This suggests that authors are responding to calls for more experimental designs, and particularly realistic experiments ((Antonakis, 2017, a, 2017, b)). |
| Alternative methodologies | Not enough has been done here. Over half of the *LQ* studies of the last decade employed one of two designs: field surveys and lab experiments. There is definitely room for a greater variety of research designs (e.g., quasi-experiments). |
| Test competing models | While we did not explicitly code the extent to which *LQ* studies tested competing models, our impression from coding is that such tests were infrequent. |
| Cognition studies | Greater attention is apparent from the special issue on leader cognition and neuroscience (Lee et al., 2012), as well as an increase in the occurrence of leader and follower cognitions as a focal leadership theory. |
| Technology (for studying leadership) | Not enough work has been done to expand the use of technology to study leadership. Relatively few studies employed unobtrusive/biometric measures. This represents an area of opportunity as evolving technology provides ever expanding methods for studying leadership. |

*Revisiting Lowe and Gardner's (2000) content direction recommendations*

Lowe and Gardner's (2000) recommended content directions for future leadership research called for increased attention to the topics of strategic leadership, levels of analysis, leadership development and leadership systems, leadership context, women as leaders, international leadership, technology (impact on leadership), and transformational/charismatic leadership (see Table 19). Gardner et al. (2010) concluded that the most attention was devoted to exploring levels-of-analysis issues and transformational/charismatic leadership. While our third decade review likewise revealed greater recognition and focus on studying leadership as a multi-level phenomenon as evidenced by the increased use of multi-level analytical techniques, we believe that heightened consideration of this fundamental quality of leadership (e.g., individuals, nested in teams, nested in organizations, nested in industries, nested in nations) is still needed. As for theory and research into transformational and charismatic leadership, the former continues to garner high levels of attention, though not as much as in prior decades on a proportional basis, while the latter has experienced a more precipitous decline in attention. Given recent critiques and reorientations of research into transformational (van Knippenberg & Sitkin, 2013) and charismatic (Antonakis et al., 2016) leadership, as well as an *LQ* special issue (Antonakis & Gardner, 2017) focused on novel and rigorous approaches toward studying the latter topic, we are optimistic that research into these forms of leadership will continue, but in a more productive and theoretically grounded manner that yields more meaningful findings and implications for leadership practice. We also note that alternative forms of inquiry such as qualitative methods might prove useful in enhancing understanding about the context of charismatic leadership events as well as meaningful explanations about the events themselves.

With regards to strategic leadership, Gardner et al. (2010) noted that this topic gained considerable interest during *LQ*'s second decade, as apparent from special issues on strategic leadership that appeared both within and outside *LQ* (e.g., *Academy of Management Journal*, *Strategic Management Journal*). *LQ*'s third decade saw a further increase in attention to strategic leadership, as it was the eighth most common focal theory, and a special issue was devoted to the topic (Bonardi, Hitt, Vera, & Withers, 2018). Nevertheless, given the importance of strategic leadership to key organizational outcomes including financial performance, innovation, corporate social responsibility, and sustainability (de Kluyver & Pearce, 2015; Yukl & Gardner, 2020), we strongly recommend that even more theoretical and empirical attention should be devoted to this topic.

Gardner et al. (2010) also observed an uptick in attention to contextual influences on leadership (5.6%) and the related topic of complexity perspectives of leadership (1.9%), particularly in the latter half of *LQ*'s second decade. However, we observed only modest interest in contextual/complexity/adaptive leadership perspectives, as these served as the focal theory in only 1.9% of the articles published in *LQ*'s third decade. We recommend that increased attention be devoted to studying the influence of context on leadership (Osborn, Uhl-Bien, & Milosevic, 2014). We consider complexity (Marion & Uhl-Bien, 2001; Uhl-Bien & Marion, 2009) and adaptive leadership (Uhl-Bien & Arena, 2018) theories to be well suited for studying the role of context in leadership processes. As mentioned above, qualitative methodologies may also be beneficial in advancing knowledge about leadership context.

As for their remaining content directions for leadership research, Gardner et al. (2010, p. 951) stated that, from their "viewpoint there was, relative to the need, a disappointing amount of attention paid to Females as Leaders, International leadership, Leadership Systems, and the impact of Technology on Leadership." For two of these topical areas–international leadership and the impact of technology on leadership—such disappointment continues, as these topics were infrequently examined in *LQ*'s third decade. Given the influence of culture on leadership as documented by the GLOBE study (Chokkar, Brodbeck, & House, 2007; Den Hartog, House, Hanges, Ruiz-Quintanilla, & Dorfman, 1999; Dorfman, Javidan, Hanges, Dastmalchian, & House, 2012; Hanges, Aiken, Park, & Su, 2016; House, Dorfman, Javidan, Hanges, & de Luque, 2014), greater attention to the manifestation and effectiveness of leadership within an international arena is clearly needed. Similarly, as more and more organizations embrace virtual teams (Charlier, Stewart, Greco, & Reeves, 2016) and other forms of technology that facilitates geographically-distributed decision-making or management, the importance of e-leadership (Avolio, Kahai, & Dodge, 2000) expands, warranting greater attention to the topic.

The good news is that the other two content topics recommended by Gardner et al. (2010) have received an upswing in research attention. Specifically, considerable attention has been devoted to leadership development in *LQ*'s third decade, as this served as the second most common focal theory (5.8%) for articles published in the most recent decade. Indeed, two special issues (Hannum & Craig, 2010; Riggio & Mumford, 2011) and another forthcoming (Day, Riggio, Conger, & Tan, 2018) indicate current and continuing research interest in this domain. Similarly, an increase in attention focused on leadership and diversity–the vast majority of which examines gender effects–is apparent from the rise in the number of articles published from 1.9% in *LQ*'s second decade to 4.9% in the third decade. This rise was, in part, aided by a special issue devoted to gender and leadership (Eagly & Heilman, 2016). While we find these trends encouraging, we recommend that greater attention be devoted to the study of leadership systems, as recommended by Lowe and Gardner (2000), as well as other forms of diversity (e.g., ethnicity, race, age, sexual orientation, personality, functional training, cultural background, ability, and religion).

*Revisiting Gardner et al.'s (2010) methodological recommendations*

A summary of Gardner et al.'s (2010) methodological recommendations is provided in Table 20. The first involved a move away from the field's reliance on a narrow set of retrospective survey measures [e.g., the Multifactor Leadership Questionnaire (Bass & Avolio, 1995) or the LMX-7 (Scandura & Graen, 1984)] as the definition of leadership by expanding the use of real-time measurement (e.g., public opinion polls) and more direct measures of leadership (e.g., content analysis of leader speeches such as those conducted by (Bligh, Kohles, & Meindl, 2004, a, 2004, b)).

Our review of *LQ*'s third decade revealed that retrospective surveys continue to be the dominant means of measuring leadership phenomena, as 46.8% of quantitative studies used such measures, which is an increase to that found in the prior decade (31%). Adding to concerns about this methodology are our findings that most of the studies that employed surveys also used convenience samples, raising concerns about the representativeness of the findings. Additionally, we found that it was common practice to introduce new survey measures, or modify existing survey measures, without following best practices for scale development and validation (DeVellis, 2017; Hinkin, 1998). Here, it is noteworthy the current editor of *LQ*, John Antonakis (2019), predicted that

> 10 years from now, the typical leadership design using questionnaire measures of leadership style to predict outcomes, whether objective or not, will be used less and less and there will be more of a focus on objectively measured behavior, real-time and archival. At this time overall the field in general does not yet fully recognize or appreciate that typical questionnaire-type designs do not have much to offer in terms of policy implications.

While alternative measures, such as content analysis (5.5%), diary studies, and event sampling (0.7%) continue to be under-utilized, new measures have been introduced to the field that may foreshadow this predicted replacement of survey-based research. These include implicit measures (Chong, Djurdjevic, & Johnson, 2017), facial expression coding (Trichas, 2017; Trichas, Schyns, Lord, & Hall, 2017), biosensor measures (Cook & Meyer, 2017; Dixon, Webb, & Chang, 2017), computer-assisted textual analysis (CATA; Davis & Gardner, 2012; Short, Broberg, Cogliser, & Brigham, 2010), and social network measures (Cullen-Lester & Yammarino, 2016). Given the availability and promise of such measures, the time is ripe for researchers to heed this call and wean themselves from their overreliance on retrospective surveys. We also expect that the editorial board and the journal's leadership would welcome methodological pieces that introduce why and how these types of novel approaches could advance leadership research.

A second methodological recommendation advanced by Gardner et al. (2010, p. 951) involves conducting more research using multiple studies (e.g., Study 1, Study 2, etc.) “that richly and methodologically demonstrate how a leadership phenomenon unfolds.” Our findings revealed progress in reaching this goal during *LQ*'s third decade, particularly during 2018, for which the average was 1.25 studies for every *LQ* article published. We are optimistic that this trend will continue, as reviewers and editors alike call for greater multi-study research to more fully flesh out leadership processes and rule out competing explanations for the relationships identified. This does not mean that we believe articles that answer “big” questions are not called for. Instead, we believe that multi-study work can answer big questions a piece at a time, yielding a stronger demonstration (perhaps even replicated ones) of the leadership phenomenon of interest.

A third recommendation offered by Gardner et al. (2010, p. 951) called for “research teams combining psychologists, sociologists, anthropologists, and cognitive scientists who can bring multiple perspectives and methodologies to the formation of research questions and tests of hypotheses.” In this review we coded author discipline, with the results summarized in Table 9. The findings revealed that roughly two-thirds of authors are affiliated with management departments, and 22.1% with psychology departments, leaving only 10% for other disciplines. While we did not code for interdisciplinary teams per se, it is clear that Gardner and colleagues' call for such teams has not been answered, given the over-representation of management and psychology faculty among *LQ* authors. On the one hand, given the increasing diversification of *LQ*'s editorial leadership and review board, it would not be surprising to find that some of these scholars partner to investigate leadership phenomena from a multi-disciplinary perspective in the future, or that authors from diverse disciplines respond to the signal sent by *LQ*'s increasingly diverse disciplinary editorial leadership and editorial board that such research would be welcome. On the other hand, given well-entrenched barriers that exist to discourage interdisciplinary and transdisciplinary research (Hadorn et al., 2008), we also would not be surprised if it remains relatively rare. Regardless of the level of interdisciplinary leadership research conducted, we echo Gardner et al.'s (2010) call for more interdisciplinary teams to produce novel perspectives and approaches to studying leadership.

Gardner et al.'s (2010, p. 951) fourth recommendation called for “the foci of cross-level studies to move toward understanding how leadership is enacted and evaluated at different levels simultaneously.” Indeed, Batistič, Černe, and Vogel (2017) found that the leadership field remains fragmented, with only certain leadership models (shared leadership, trust, complexity, context, and emotions/emotional intelligence) currently employing a levels-of-analysis approach for both their leadership conceptualizations and associated outcomes (while other models such as transformational leadership are declining in their multi-level study). Accordingly, while we have witnessed a continuing increase in multi-level research in our review, as our prior discussion of Lowe and Gardner's (2000) suggestions indicated, we believe it is time for the field to take Gardner et al.'s (2010, p. 951) recommendation to “treat cross-level understanding of the *phenomena* as foreground and thereby make partialing the *statistical variance* background when our goal is to understand the effects of leaders and leadership at different levels.” This charge to the field is further bolstered by a number of multi-level approach recommendations made more recently in Batistič et al. (2017).

The fifth recommendation made by Gardner et al. (2010) calls for greater use of controlled experiments to tease out causal relationships among the antecedents and consequences of leadership. As noted in our discussion of research methods, *LQ*'s third decade has been characterized by more extensive use of experimental methods, as the proportion of studies that employed such methods rose substantially in *LQ*'s third decade relative to the prior two. Perhaps this increase is in partial response to Antonakis et al.'s (2010) call at the beginning of the decade for more experimental research to address pervasive endogeneity concerns that have plagued the leadership field, as well as the social sciences in general. Nonetheless, we observed little use of the types of quasi-experimental research Antonakis et al. advocated. Given the diversity and the utility of quasi-experimental studies for ascertaining causal relations (Cook & Campbell, 1979), we echo the calls of Antonakis and others (Antonakis, 2017, b; Antonakis et al., 2010; Grant & Wall, 2009) for greater usage of this powerful methodology.

The sixth recommendation made by Gardner et al. (2010) called for the use of alternative methodologies from other fields of study, such as behavioral economics, narrative analytical techniques developed by sociologists, and computer simulations pioneered by psychologists. As we noted in our discussion of measures, the field of leadership has increasingly borrowed from other disciplines to introduce more novel approaches to studying leadership phenomena (Schyns, Hall, & Neves, 2017). In addition, the appointment of AEs from a wider array of disciplines including economics, evolutionary psychology, and political science, as well the publication of special issues that demonstrate the utility of methods from the fields of biology (van Vugt, 2018), neuroscience (Lee et al., 2012; van Vugt, 2018) and economics (Garretsen, Stoker, & Weber, 2016) for studying leadership, suggests that the field is poised to embrace a host of methods from other disciplines.

The seventh recommendation advanced by Gardner et al. (2010) involved a call to test competing models through data analysis. While our coding provides little insight into the extent to which this occurred, our impression from reading the 615 articles published during *LQ*'s third decade is that such comparisons remain rare. Nonetheless, recent meta-analyses by Banks, McCauley, Gardner, and Guler (2016) and Hoch, Bommer, Dulebohn, and Wu (2018) that compared the predictive utility of authentic, ethical, servant, and transformational leadership demonstrate the value of such comparative analyses. We encourage leadership researchers to follow these examples to conduct more extensive comparisons of leadership theories to assess their predictive power and their boundary conditions.

Gardner et al.'s (2010) eighth recommendation is to devote greater attention to the cognitive aspects of leaders and leadership. It appears that progress has been made in this regard, as leader and follower cognitions, implicit leadership theories, identity and identification processes, social identity theory, and information processing and decision making–all focal theories that involve cognitive processes—combined to account for 11.3% of focal theories. Additionally, three special issues were dedicated to leadership and cognition (Foti, Hansbrough, Epitropaki, & Coyle, 2017; Lee et al., 2012; Mumford, Watts, & Partlow, 2015). Despite such progress, the fundamental importance of leader and follower cognitions to the perception, emergence, and enactment of leadership highlights the need for continuing research in this domain.

Finally, Gardner et al. (2010) recommended that researchers draw more extensively on technology to generate new insights into leadership phenomena. As previously noted, our findings suggest that while retrospective surveys continue to dominate as measures of leadership, new applications of technology are gaining traction that promise to expand our methodological tool chest including measures of facial expressions (Poutvaara, 2014; Trichas, 2017; Trichas et al., 2017), biosensors (Dixon et al., 2017), implicit measures (Chong et al., 2017), computer-assisted textual analysis (CATA; Davis & Gardner, 2012; Short et al., 2010), and social network measures (Cullen-Lester & Yammarino, 2016).

### *Editor interviews*

In addition to revisiting the content and methodological recommendations from prior reviews, we also interviewed, for purposes of this manuscript, Mike Mumford, Leanne Atwater, and John Antonakis, each of whom served as Editor-in-Chief during some portion of *The Leadership Quarterly*'s third decade. The editor interviews reinforced several of the themes discussed previously and also introduced new topics. While a full discussion of the rich insights provided is beyond the scope of this manuscript, we briefly highlight ten themes.

One theme raised by the editors involved the need to pay more attention to context (e.g. healthcare, education) as a boundary condition on our theories rather than searching for a single moderated mediation model that can explain it all. A second theme was the need to continue to reduce an overreliance on survey research utilizing measures that are underspecified for the richness of the phenomenon they seek to measure. A third theme, related to the preceding point, is the need to broaden the methods employed including increased usage of simulations, robust experimental designs, and qualitative research methods. A fourth theme was a general concern about construct proliferation in the field. The increase in construct proliferation was perceived to be at least, in part, driven by journals insisting on new theoretical development as normative. In contrast to pushing for the development of new theory, a general sentiment was that devoting similar effort to the development of better measurement of the constructs currently in place, and more robust research designs to tease out the nuances and boundary conditions of existing theories, would better serve the field at this juncture. A fifth theme involved a recognition that more needs to be done to understand how leadership demands are similar, and different, at upper-middle and upper echelons of the organization. The editors noted that our current knowledge, which has largely been obtained from middle level managers and lower level supervisors, is better suited to informing undergraduates and other early career workers. Related to this concern is that the reporting of leadership research findings generally ignores both responsibility level in the organization and the context in which leadership is practiced. This challenge is exacerbated by one-size-fits-all theories that provide relatively little guidance on the boundary conditions across contexts and responsibility levels.

A sixth theme was the need to better understand the implications of increasingly non-western samples in leadership research explored predominately through the lens of theory developed in first world, Anglocentric organizations. While the general feeling is that construct proliferation and consistent pushes for new theoretical development may not have served the field well, the need for theory development in non-western settings or from non-western lenses may be a needed exception. A seventh theme was the need to better integrate disciplinary perspectives on leadership. For example, psychology researchers typically frame leadership as an outcome variable, whereas organizational behavior researchers typically frame leadership as a predictor variable. An eighth theme was the need to better understand how technology, especially the role of social media and the potential to be constantly connected, is challenging how we define leadership and what is expected from leaders. The use of artificial intelligence and deep learning will also be on the uptake, challenging both our understanding of leadership and redefining the challenges leaders face. A ninth theme was to provide more attention to how changing social norms influence leadership challenges. As a recent example, the "#MeToo" movement both raised social awareness and challenged social norms of often quietly condoned behavior. At the same time the heightened attention gave rise to new forms of backlash in cross-gender relationships. Thus, gender and gendered dynamics specifically, and diversity in general, will continue to require more attention than the field has generally afforded the topics. Finally, a tenth theme reflected a need to better link effective leadership to organizational outcomes. Leadership is generally posited as one method for improving organizational-level performance. Yet most leadership research focuses on individual level (leader) performance or the relationship of leader behavior on group- (team-) level performance. As a field, we have little evidence that these individual- and group-level outcomes cumulatively increase organizational performance. Thus, developing theories and measures of how leadership systems impact the performance of organizational systems remains a challenge for the field.

## Conclusion

Since its founding in 1990, *The Leadership Quarterly* has provided three decades of leadership for theory and research into the study and practice of leadership phenomena. While our review of the content and methodological recommendations offered in the reviews of *LQ*'s first and second decades revealed areas where only limited progress had been made, it also revealed many encouraging developments. Based on our assessment of *LQ*'s third decade of publications, we conclude that it is fulfilling its mission to advance "our understanding of leadership as a phenomenon, how to study it, as well as its practical implications" while studying "leaders from all walks of social life" and publishing "scholarly research, theory, and developmental application from diverse fields of inquiry about leadership" (https://www.journals.elsevier.com/the-leadership-quarterly). We also find that *LQ*'s record of publishing rigorous and innovative research during its first three decades provides a basis for optimism that the journal, and the field, will continue to expand our knowledge of leaders and leadership into new frontiers. We look forward, with optimistic anticipation, to the story *LQ*'s fourth decade will tell about the evolution and study of leadership.

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Review

# Viva la evolution: Using dual-strategies theory to explain leadership in modern organizations

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ABSTRACT

Research from multiple fields suggests that throughout human history, leaders ascended the hierarchy through one of two strategies—dominance (using force or coercion to gain control) or prestige (demonstrating competence and generosity so others follow of their own volition). The dual-strategies theory of social rank suggests that these two strategies are still inherent in human psychology, and that consideration of dominance and prestige can help explain hierarchy and leadership in modern social groups. Thus far, research on dual-strategies theory has developed without significant cross-fertilization from the literature on leadership within organizational settings. In this review, I provide the first examination of dual-strategies theory within the context of broader leadership research, highlighting a) the unique contributions of dual-strategies theory, b) current workforce trends that make dual-strategies theory particularly applicable to modern organizations, and c) key limitations of dual-strategies theory that could be addressed by integrating leadership theory.

In the last two decades, evolutionary social psychologists have proposed a new framework for classifying and thinking about individuals' approaches to social hierarchy. This framework—the dual-strategies theory of social rank—suggests that attempts to gain and maintain positions of high social rank can be categorized as one of two strategies: dominance or prestige (Maner & Case, 2016). A dominant style is characterized by the use of force or coercion to claim social power. In contrast, a prestige-based approach typically involves demonstrating valued traits such as competence and generosity so others follow the leader of their own volition. This theory is gaining traction in social and evolutionary psychology, as evidenced by the number of papers in this area published in top psychology journals over the past decade (e.g., Case, Bae, & Maner, 2018; Case & Maner, 2014; Cheng & Tracy, 2013; Cheng, Tracy, Foulsham, Kingstone, & Henrich, 2013; Halevy, Chou, Cohen, & Livingston, 2012; Maner & Mead, 2010; Witkower, Tracy, Cheng, & Henrich, in press; see Case & Maner, 2016 and Maner, 2017 for reviews).

Despite asking similar questions, research on dual-strategies theory has thus far developed without significant cross-fertilization from the larger body of research on leadership in organizations. In the following, I address the divide between these two literatures by providing the first examination of the dual-strategies theory of social rank within the context of broader leadership theory. The aim of this review is to introduce dual-strategies theory to leadership researchers who may be unfamiliar with it, clarify the unique contributions of the dual-strategies theory of social rank, and describe the potential benefits of cross-fertilization from these two literatures. Finally, I argue that although dual-strategies theory has not been extensively studied in organizational settings, it is a particularly useful theory for understanding many modern employment contexts.

In order to situate the dual-strategies theory of social rank within the context of the broader leadership theory and research, I first define social rank, power, status, and leadership. Next, I briefly introduce the dual-strategies theory of social rank, including the intellectual traditions that gave birth to the theory. With this introduction complete, I take three steps to position this theory within the context of the organizational behavior literature on leadership. First, I describe a few of the most prominent leadership theories and compare and contrast these theories with dual-strategies theory. Second, I describe the unique focus and contributions of dual-strategies theory relative to organizational behavior literature on leadership and argue that this theory offers unique explanatory value that is increasingly pertinent to the modern workforce. Third, to demonstrate how principles from the broader research on literature can provide fertile theoretical ground for future research within dual-strategies theory, I take a few select concepts from the literature on leadership and describe how they can be applied to dual-strategies theory to generate and answer important empirical questions.

## Defining key terms

Definitions of leadership, social rank, power, and status are plentiful, varied, and seldom agreed upon (Bass & Bass, 2008; Blader & Chen, 2014; Northouse, 2018). Given that this review draws from literature in organizational behavior, social psychology, and evolutionary anthropology, all of whom use these terms differently, defining each of

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these key terms is a crucial first step in exploring how these two bodies of literature relate to each other.

### *Social rank*

The concept of social rank is central to dual-strategies theory and is defined as one's position within a hierarchy, where hierarchy is a "rank order of individuals or groups on a valued social dimension" (Magee & Galinsky, 2008, p. 354). A person with high social rank is a person with a position near the top of the hierarchy.

There are a few points worth clarifying about this conception of social rank. First, a person's social rank is relative: it depends on their immediate reference group. For example, in formal organizational hierarchies, many employees serve as both managers and subordinates—a manager might be in a position of high social rank when interfacing with her subordinates, but might have average or even low social rank when interacting with other managers in firm. Second, hierarchies can be either formal or informal: a job title conveys an individual's position within the organization's formal hierarchy, but certain individuals might also be informally deferred to more than others with the same job title, giving them a higher position within the informal hierarchy. Similarly, even in social groups where there is no formal hierarchy—for example, a book club—informal hierarchies often emerge: a book club member who makes insightful contributions to the discussion and has an outsized influence on book selection might be considered to have high social rank despite his/her lack of formal title. Third, within a given social group, multiple hierarchies can, and generally do, exist (Greer & van Kleef, 2010). In other words, individuals may be ranked on different dimensions. For example, one member of a work team might be considered a leader in technical expertise, while another is considered a leader in client engagement. Social rank can refer to one's location on one of these specific dimensions or the aggregate of all possible hierarchies. Finally, hierarchies can be characterized by power or status (Hays & Bendersky, 2015), a distinction described in more detail below.

#### *Power and status*

Theory and empirical research suggest that power and status represent distinct types of social rank and therefore are related but distinct constructs (Anicich, Fast, Halevy, & Galinsky, 2016; Bendersky & Hays, 2012; Fast, Halevy, & Galinsky, 2012). This distinction is important to understanding dual-strategies theory (Case, Bae, & Maner, 2018; Maner & Case, 2016).

Power is the asymmetric control of valued resources in social relationships (Galinsky, Rucker, & Magee, 2015; Magee & Galinsky, 2008). A key feature of power is the asymmetry between group members: because the powerful control important resources, group members with less power are dependent upon them (Galinsky et al., 2015). In contrast, the powerful remain less dependent on others to get what they want. Additionally, individuals can hold power by either controlling resources that are desirable (i.e., an individual has a resource that group members want access to) or that are undesirable (i.e., an individual controls negative outcomes, such as punishment or cost-inflicting tasks, that group members seek to avoid; Magee & Galinsky, 2008). Both of these reflect the asymmetric dependence and resource control that characterize power-based hierarchies.

In contrast to the control focus of power, status refers to "the respect, admiration, and voluntary deference an individual is afforded by others" (Anderson, Hildreth, & Howland, 2015, p. 575). Crucially, status is in the eye of the perceivers: one cannot "seize" status the way one could "seize" power, as it is only granted by other members of the group (Blader & Chen, 2014). Some organizational behavior research designates *status* as formal positions of power and *esteem* as the admiration and respect of others (cf. Bass & Bass, 2008), but this is inconsistent with how the term "status" is used in social psychology (and this review). Rather, research on social rank defines status as to something closer to what these researchers would call "esteem."

The distinction between power and status is important because there is significant evidence that power and status are conferred separately (Fast et al., 2012; Galinsky et al., 2015), that power and status hierarchies function differently (Bendersky & Hays, 2012; Hays & Bendersky, 2015), and that the experience of having power has fundamentally different psychological and behavioral consequences than having status (e.g., Anicich et al., 2016; Blader & Chen, 2012; Fast et al., 2012). This distinction is also important to dual-strategies theory, as several researchers have linked dominance with power and prestige with status (cf. Case et al., 2018; Maner & Case, 2016; Ronay, Maddux, & von Hippel, 2018). Nevertheless, power and status frequently co-occur (Blader & Chen, 2014). Unless specified, the term "social rank" is agnostic to the type of hierarchy: a person with high social rank can have power, status, or both.

### *Leadership*

While definitions of leadership are plentiful (Northouse, 2018), one consistently agreed upon theme is that leadership represents a complex, multi-faceted group process by which an individual influences the group toward their goals (Avolio, Walumbwa, & Weber, 2009; Bass & Bass, 2008; Hogan & Kaiser, 2005; Kantner, 2010; Lord, Day, Zaccaro, Avolio, & Eagly, 2017; Northouse, 2018). It is important to note that leadership does not refer to a position of high social rank: an individual with high social rank may be in a position to lead others, but that does not necessarily mean he or she will do so (Blader & Chen, 2014).

### *Dual strategies (not leadership styles)*

The dual-strategies theory of social rank focuses on the psychological and behavioral strategies that individuals employ to attain and maintain a position of high social rank, as well as the implications of these strategies for the group. In this way, the theory focuses on approaches to hierarchy, and not necessarily the complex, multifaceted, and reciprocal processes of leadership. For this reason, dominance and prestige are not leadership styles, but rather reflect strategies by which individuals attempt to gain and maintain positions of social rank. Some might assume from the word "strategy" that these behaviors are intentional, premediated, and/or Machiavellian, but this is not necessarily the case: individuals might engage in either of these strategies without even consciously considering their position within the hierarchy.

Although dual-strategies theory is not a theory of leadership per se, understanding how social hierarchies are formed, maintained, or disrupted is an important component of understanding leadership in organizations. Thus, dual-strategies theory can be used in conjunction with extant leadership theories to better explain leadership, followership, and hierarchies in modern organizations or social groups broadly. (I explore the potential integration of dual-strategies theory and leadership theory in more detail in the section entitled "Dual-strategies theory and classic leadership theories.") Additionally, many phenomena investigated by leadership researchers (for example, leadership emergence or how leaders and followers navigate compliance) are squarely within the domain of dual-strategies theory. Because of this, an integration of leadership research and dual-strategies theory is likely to enrich both lines of research and prevent unnecessary duplication of research efforts.

Finally, although "leadership" refers to a complex, multiparty process, in the social psychological and anthropological research on hierarchy, it is typical to use the word "leader" to mean a person with high social rank. Throughout this paper, I use the term leader to this effect (and do not intend to evoke or comment on the complexity of the process of *leadership* when using this term).

## Introduction to the dual-strategies theory of social rank

The dual-strategies theory of social rank is a theoretical perspective on hierarchy based in evolutionary psychology and anthropology.[1] Evolutionary psychology is a scientific line of inquiry that suggests that human psychology is (at least in part) a reflection of our ancestral history (Buss, 2005; Cosmides & Tooby, 1992). One key tenet of evolutionary psychology is that a comprehensive understanding of human psychology requires an investigation into the conditions and selection pressures to which humans evolved: by understanding the social environments to which our brains adapted, we gain additional insights into human psychology and behavior. An evolutionary approach to hierarchy and leadership specifically means considering the selective pressures and adaptive problems solved by groups and leaders during human evolution. Thus, insights into modern hierarchies can be gained by considering the groups and hierarchies of the human Environment of Evolutionary Adaptedness, or EEA.

The human EEA refers to the conditions to which we are humans evolved. While it is impossible to pinpoint a singular environment or time period that could reflect the complexity of human evolution, the EEA represents the “composite of environment properties” (Tooby & Cosmides, 1990, p. 388) that were present when humans evolved to their current form. It is hypothesized that most uniquely human traits evolved during the Pleistocene era, which spanned from approximately 2.5 million years ago to approximately 12,000 years ago (Symons, 1992). During this time period, human social groups were quite different from our modern context—they tended to be small, kin-based, and relatively egalitarian (van Vugt, Hogan, & Kaiser, 2008). Hierarchy tended to be informal, domain-specific, and marked by constant shifts (Henrich & Gil-White, 2001; van Vugt et al., 2008). An investigation into these groups, as well as human selection pressures and ancestral environments that evoked them, provides a variety of fascinating questions and potential insights for leadership research (see Garfield, von Rueden, & Hagen, 2019 or van Vugt et al., 2008 for reviews).

The dual-strategies theory of social rank, however, focuses on one interesting dichotomy that has been noted by the ethologists, biologists, and evolutionary anthropologists who study these groups. Specifically, they noted that, “leaders sometimes engage in dominant behaviors that often benefit themselves at the expense of the group, and sometimes provide information- and skill-based services that benefit both themselves and the group” (Garfield et al., 2019, p. 74). Dual-strategies theory suggests that this dichotomy between the use of force at the expense of the group (termed a dominant strategy) and the use of knowledge and skill to benefit the group (termed a prestige strategy) is at the core to understanding how individuals attain and maintain positions of influence in social groups.

### *Dominance*

Hierarchies characterized by dominance typically feature individuals who try to force and manipulate their way to positions at the top of the hierarchy (not unlike the hierarchies of most great apes; Maner, 2017; Tiger & Fox, 1972). The dominance approach is characterized by intimidation, coercion, and manipulation of group resources. Dominant individuals are primarily interested in acquiring and retaining positions of power (vs. status; Maner & Case, 2016), and often prioritize this interest above the interests of the group (Maner & Mead, 2010). Additionally, dominant leaders' preoccupation with their own standing within the group means they tend to be hyper-vigilant to other group members who might pose a threat to their aspirations of power (Case & Maner, 2014; Maner & Case, 2016). Dominant leaders are also more likely to subjugate their group members in order to increase the power differential between them and their followers. In other words, dominance is a hierarchy-enhancing strategy (Maner & Case, 2016).

Why might individuals allow a dominant individual to lead the group despite his/her selfish behavior? Scholars have identified at least four reasons why dominance hierarchies might emerge. First, a dominance hierarchy can prevent constant conflict over resources: a widely known and accepted pecking order provides clear rules and expectations for how resources will be distributed among group members (Drews, 1993). This can prevent constant in-fighting every time group resources need to be distributed. While being at the bottom of a dominance hierarchy may bear some cost, it can provide benefits to the group as a whole by preventing chaos.

Second, dominance can provide increased coordination among group members, making dominance particularly valuable in situations in which a high degree of coordination is necessary for the group to survive or flourish—one such context being times of intergroup conflict (King, Johnson, & van Vugt, 2009). Indeed, during times of intergroup conflict, dominant leaders subjugate their own interests for the good of the group (Fortunato & Gavrilets, 2014; Maner & Mead, 2010) and aggressively defend the group's welfare (Laustsen & Petersen, 2017). In these ways (or in these contexts), dominant leaders can provide important benefits to the group (Garfield et al., 2019).

Third, another function that leaders serve is keeping group members in line and punishing free-riders (those who fail to complete their duty to the group; De Cremer & van Vugt, 2002). That is, a leader is responsible for punishing potentially exploitative group members (Lukaszewski, Simmons, Anderson, & Roney, 2016), discouraging defection (von Rueden, 2014), and arbitrating conflict between group members (von Rueden & Gurven, 2012). Group members may see dominant leaders' willingness to use force as an asset in this regard: they may be seen as more capable of protecting the group from those who would undermine or exploit group cooperation.

A final explanation for the emergence of dominant leader is more pessimistic about the benefits of dominant leaders, but rather suggests that dominant leader is more likely to attain and retain a position of high social rank when group members have limited outside alternatives to the dominant leader (Hirschman, 1970; Price & van Vugt, 2014). That is, dominant leadership might flourish when group members are highly dependent on their leader, do not have good outside alternatives, or lack the ability to revolt (Ronay, Oostrom, & Maner, under review). In these contexts, the leader may have more leeway to engage in coercive, selfish behavior (Price & van Vugt, 2014) that would typically cause group members to reject the leader (Boehm, 1993).

### *Prestige*

In contrast to force-based dominance hierarchies, hierarchies can also be based on prestige—in our ancestral past, talented hunters or other skilled group members were deferred to because of their valued experience, skills, and ability to mentor and help others (Henrich & Gil-White, 2001). Thus, a prestige-based strategy typically involves attaining social rank by amassing the respect, admiration, and “freely conferred deference” of one's subordinates rather than through active subjugation of others (Henrich & Gil-White, 2001, p. 165). Prestige-oriented individuals tend to demonstrate competence and expertise, which other group members value and admire (Anderson & Kilduff,

[1] While dual-strategies theory has been championed by evolutionary psychologists in the last decade, it is important to note that this work has drawn heavily on the work of anthropologists, biologists, primatologists, and ethologists more broadly. Indeed, researchers in these areas had been discussing the evolutionary origins of human hierarchies for decades prior to the adoption of these ideas by evolutionary social psychologists. Anthropological research specifically spoke of dominance hierarchies in humans (Tiger & Fox, 1972), prestige as a form of hierarchy (Barkow, 1989) and/or a distinction between force-based and persuasion-based attempts at social rank (Kracke, 1978). Given this, the work on dual-strategies theory lead by evolutionary psychologists does not necessarily represent an innovative new idea, but rather a conciliation and advancement of ideas from several different intellectual domains.

2009). Importantly, however, demonstrating competence alone is generally not enough to elicit respect and deference—group members must also feel confident that the potential leader will use his or her skills to benefit the group (Anderson et al., 2015; Hardy & van Vugt, 2006). Thus, a prestige strategy is thought to involve demonstration of expertise *and* magnanimity, so that other group members willingly defer to the potential leader (Maner, 2017; Maner & Case, 2016; Willer, 2009). While dominant leaders tend to assert themselves and their will on other group members, prestige oriented leaders tend to display both prosocial behavior and knowledge and expertise in specific topic areas, increasing their trustworthiness and value in the eyes of others (Chudek & Henrich, 2011; Maner & Case, 2016). One other reason that followers might defer to prestige-oriented leaders is that prestige-based leaders tend to be relatively egalitarian (Henrich & Gil-White, 2001), which is thought to be preferable for most followers (Harms, Wood, Landay, Lester, & Lester, 2017; van Vugt et al., 2008).

Patterns of prestige-based deference generally benefitted both the leader and follower (Price & van Vugt, 2014). Followers were able to learn valuable information from successful individuals and also benefited from having a competent leader make group decisions (Hagen & Garfield, 2019). In turn, followers tended to offer deference and prestige to these successful individuals. Although a prestige-based strategy often required the leader to sacrifice for the good of the group (Price & van Vugt, 2014; Willer, 2009), the leader was generally repaid with high social rank, which translated into an increased ability to attain personal goals, control resources, and influence others (Maner & Case, 2016).

Although some scholars debate the precise mechanism by which dominance and prestige strategies were transmitted from generation to generation (be it psychological adaptation, cultural group selection, or a combination of both; see Chudek & Henrich, 2011; Maner, 2017; Richerson et al., 2016; Richerson & Henrich, 2012), there is abundant evidence that both strategies exists across a variety of contexts and cultures (Garfield et al., 2019; Kracke, 1978)[2] which is typically considered to be a major calling card of evolved human adaptations (Schmitt & Pilcher, 2004). Furthermore, it is clear that (at least in some contexts) both of these strategies provided benefits to both leaders and followers. Evolutionary psychologists suggest that when social interactions provide a net fitness benefit to the individuals within a group (in this case, both leaders and followers), these patterns of interaction are likely to persist and evolve (Tooby & Cosmides, 1992). At a high level, this explains how dominance and prestige-based hierarchies came to be widespread.

In short, the dual-strategies theory of social rank suggests that due to the pervasiveness of dominance and prestige in our evolutionary past, the proclivity toward these strategies is still inherent in our psychology. Consequently, the dual-strategies theory of social rank suggests that even today, attempts to both attain and maintain positions of high social rank can be categorized into one of two distinct strategies: dominance or prestige (Cheng & Tracy, 2014; Henrich & Gil-White, 2001; Maner, 2017; Maner & Case, 2016). Furthermore, while dominance and prestige are very different approaches to gaining and maintaining high social rank, dual-strategies theory suggests that both strategies are *effective* ways of attaining social rank, representing “two ways to the top” (Cheng et al., 2013).[3]

*Dominance and prestige as individual tendencies*

Dual-strategies theory suggests that while dominance and prestige are *strategies* for obtaining social rank, they can also reflect individual differences between individuals (Maner & Case, 2016). That is, while it would be feasible for a person to enact a dominant strategy at one time and a prestige-based strategy at another time, it is hypothesized that people tend to gravitate toward one strategy over the other. In this way, the terms “dominant” and “prestige-oriented” can also be applied to a person who consistently deploys one of the strategies.

Research on dominance and prestige from an evolutionary psychology perspective suggests that this individual difference can also be conceptualized as a difference in motives in addition to a difference in behavior (Maner & Case, 2016). Specifically, Maner and Case (2016) suggest that dominance is a reflection of the motivation for power, and prestige-orientation reflects a motivation for status.[4] This difference in motivation could explain a key difference in the psychology of dominance- and prestige-oriented individuals. Status is inherently other-focused—gaining status necessitates that you consider the needs of others, as you depend on them to give you status (Anderson et al., 2015). In contrast, power is something that can be taken—other group members can be managed or manipulated in pursuit of resources or control (Barkow, 1989). Given this, it follows that dominant leaders would be inherently less focused on how others view them.

[2] One common and related debate in the study of human evolution is whether a given characteristic is uniquely human. There is a myriad of evidence that dominance hierarchies predate humans and are found across a myriad of species and genera, so there is no doubt that dominance is not uniquely human. Researchers *have* debated whether *prestige* hierarchies are uniquely human. While this question does not significantly impact the application of dual-strategies theory to modern organizations, it may be of interest to note that some researchers argue that prestige-based hierarchies are present in non-human primates, because chimpanzees demonstrate social learning from higher ranking chimpanzees (Horner, Proctor, Bonnie, Whiten, & de Waal, 2010; Kendal et al., 2015). Indeed, many species rely on more informed group members to make decisions for the group, including elephants (Payne, 2003), whales (Brent et al., 2015), and birds (Flack et al., 2018). However, other researchers argue that prestige hierarchies in humans are distinct from the knowledge-based hierarchies of non-human animals. This argument is relies on the notion that a) prestige-based social learning in humans is far more complex than the basic info-copying seen in other mammals (Henrich & Gil-White, 2001) and b) prestige includes the learning of norms and culture passed down through generations (with culture transmission considered by many to be a uniquely human trait; Henrich et al., 2015), that prestige hierarchies in humans are distinct from the knowledge-based hierarchies of non-human animals.

[3] Yet another debate in this area revolves around how distinct dominance and prestige are. Despite early anthropological work noting the dichotomy of strategies in obtaining positions of social rank (Kracke, 1978), other anthropologists such as Sahlins (1963) did not differentiate between the strategies, suggesting that social rank in small-scale societies was attained through a combination of both of cunning aggression and prestige. Furthermore, Chapais (2015) argues that all social rank is attained through competence, and that dominance and prestige simply reflect competence in different domains. Chapais also argues that because chimpanzee hierarchies include both forced-based coercion and competence-based attraction to high-ranking individuals, the two strategies may have more overlap in terms of evolutionary origins than previously thought. Despite these claims, there is considerable evidence that dominance and prestige hierarchies result in distinct group processes (e.g., Garfield, Hubbard, & Hagen, 2019; Hays & Bendersky, 2015), and that dominant and prestige-based leaders have distinct psychologies and behavior (see Maner & Case, 2016 for a review). Despite this, it is worth noting that in at least some samples, self-reported dominance and prestige motivations are positively correlated (e.g., Case & Maner, 2014), though peer-reported prestige and dominance strategies tend not to be (Cheng et al., 2013). See the section on “Dominance and Prestige as Individual Tendencies” below for further discussion on this distinction.

[4] While motivation for power/status has been theorized to drive a tendency toward a dominance or prestige influence strategy, other work from evolutionary anthropology and evolutionary psychology points out that the strategy an individual employs is likely a reflection of their inherent resources and capabilities as well. (Lukaszewski et al., 2016; von Rueden, 2014, 2016). For example, if an individual does not have the resources to use force or control others, a dominant strategy is likely to be ineffective. If an individual does not possess relevant or valued skills or knowledge, a prestige strategy is unlikely to be effective (Brand & Mesoudi, 2019). Thus, in addition to underlying motives for status vs. power, individuals likely employ strategies that are more likely to be efficacious for them.

It should be noted, however, that the other-oriented focus of prestige leaders could be, but is not necessarily, a sign of prosocial *motives*—it is possible that prestige-oriented leaders are preoccupied with their own self-interest (gaining status), but are required to think about others and act prosocially in order to obtain this status. Indeed, there is much evidence that in many human contexts prosociality (or as least a lack of self-interest) is rewarded with social status (Bai, Ching, Ho, & Yan, 2019; Flynn, Reagans, Amanatullah, & Ames, 2006; Hardy & van Vugt, 2006; Willer, 2009; Willer, Youngreen, Troyer, & Lovaglia, 2012). Those who violate cooperative norms by displaying selfishness are punished (Peterson, 1993), ostracized (Feinberg, Willer, & Schultz, 2014), or suffer damaged reputations after being the target of gossip (Hess & Hagen, 2019; Wu, Balliet, & Van Lange, 2016). (This, of course, assumes that group members have the resources to overthrow a selfish leader; Woodburn, 2011.) Thus, prestige-focused individuals may (correctly) assume that they must focus on the needs of others in order to get what they want: status.

Consistent with this idea, there is some evidence that prestige-oriented leaders have a tendency to pander to the desires of other group members. When faced with making a popular choice which is not ideal for the group or an unpopular choice that would be good for the group, prestige- (but not dominance-) oriented leaders are likely to make a popular choice, even if it will negatively impact group performance (Case et al., 2018). It is not clear if this pandering is a reflection of prestige-oriented leaders' concerns about their own status or their desire to maintain positive relationships with others, but this does suggest that a) prosocial individuals care about what others think of them and b) that they sometimes let their own motives take precedence over what is best for the group (Case, Bae, & Maner, 2019). It is important to note that while dominance and prestige may seem like incompatible strategies, self-reports on dominance and prestige motivations are often positively correlated, though peer-ratings and objectively-coded measures of dominance and prestige tend not to be positively correlated in (Cheng et al., 2013). This is somewhat unsurprising, given that observers often rely on inaccurate markers of prestige (Jiménez & Mesoudi, 2019). However, it does indicate that while the same individual might be motivated by both dominance and prestige, others perceive their behavioral strategies to follow just one of the two strategies (at least at a given time). Adding to the complexity, the style an individual adopts (and how other group members respond to this style) is likely to be driven by contextual factors, including intergroup conflict (Laustsen & Petersen, 2015, 2017; Spisak, Blaker, Lefevre, Moore, & Krebbers, 2014), resource inequality (Ronay et al., 2018), or economic uncertainty (Kakkar & Sivanathan, 2017).

## Dual-strategies theory and classic leadership theories

While research on leadership is vast, much of it has revolved around common themes. How does a leader exact compliance from her subordinates? How important is a leader's socio-emotional intelligence? How can a leader balance task and relational concerns? Many of these questions are also at the heart of the dual-strategies theory of social rank. For this reason, it is important to consider the dual-strategies theory of social rank within the context of the leadership research. However, to this point, there have not been any systematic attempts to integrate the two bodies of research. Below, I conduct the first review of dual-strategies theory in the context of major theories about leadership with the aim of further elucidating what exactly dual-strategies theory is and how it differs from leadership research and theory. Defining the theory in terms of what it is *not* will hopefully shed more light on what precisely it adds to the literature.

I specifically examine how the dual-strategies theory relates to the following five leadership frameworks: a) Blake and Mouton's managerial grid, b) Leader-Member Exchange, c) transformational versus transactional leadership, d) servant leadership, and e) authoritarianism versus democratic leadership. While these five frameworks certainly do not represent the entirety of relevant leadership theory, they were selected because they represent some of the most prominent and studied theories in the leadership literature (Bass & Bass, 2008) and/or because of their thematic similarity to dominance or prestige. I briefly describe each of these theories, and then note some key ways in which they are similar to or different from dual-strategies theory. It should be noted that this review is intentionally brief—while it is possible to write at length about how the dual-strategies theory of social rank relates to each of these theories, I refrain from such an extensive comparison, as the goal is to provide a high-level picture of how dual-strategies theory of social rank relates to the field of leadership as a whole (rather than provide extensive integration with any specific theories).

### *Blake and Mouton's managerial grid*

In one of the landmark theories of leadership, Blake and Mouton (1964) conceptualized leadership styles in terms of a managerial grid. This grid classified leaders on two dimensions—their concern for the people they lead (relational orientation) and their concern for completing group goals (task orientation). Blake and Mouton specified that these concepts were orthogonal, and leaders could be high on one, both, or neither dimension. Thus, the managerial grid provides a convenient way of classifying leadership approaches.

Dual-strategies theory bears some important similarity to the work of Blake and Mouton. One reasonable integration of these theories is that relational orientation is one distinction between dominance and prestige-oriented strategies. That is, dominant individuals tend to demonstrate relatively low concern for others as they tend to be more preoccupied with their own desire to maintain or retain power (Case & Maner, 2014; Maner & Case, 2016; Maner & Mead, 2010). In contrast, prestige-based individuals tend to be more concerned about their relationships with group members than are dominant individuals (Case et al., 2018; Case & Maner, 2014; (Case, Bae, & Maner, 2018, 2019; Maner, 2017)). In fact, this is one of the key distinctions between the strategies.

The link between dominance/prestige and task orientation is less clear. Dominant individuals might be considered high on task orientation because they are more concerned with pushing their own agenda rather than being diplomatic (van Vugt et al., 2008) or because they may be seen as willing to punish those who do not pull their weight on accomplishing group goals (Lukaszewski et al., 2016; von Rueden, 2014). However, it is not clear if this agentic tendency translates to a focus on accomplishing broader group goals. There is some limited (unpublished) evidence that dominant leaders are, on average, more effective at coordinating tasks than prestige-oriented leaders, leading to better group performance when there is a need for a high degree of coordination (Cheng, Tracy, & Henrich, in prep). This out-performance might be a reflection of dominant leaders' focus on the completion of group tasks, but the mechanism and motives for augmented performance is mere speculation at this point. Additionally, tyrannical and authoritarian leadership (which share some similarity with dominance) have repeatedly been conceptually linked to a task orientation (Einarsen, Aasland, & Skogstad, 2007; Harms et al., 2017; Tepper, 2000), but empirical evidence confirming this does not appear to exist.

It is also not clear if prestige-orientated leaders are high on task orientation. Given that demonstrating competence is a hallmark of the prestige strategy, it follows that prestige-oriented leaders would need to focus on task performance in order for their strategy to be effective. Indeed, there is evidence that prestige-oriented leaders tend to work harder toward group goals than their dominance-oriented counterparts (Case et al., 2018). However, it is not clear if this is a reflection of their task orientation, or their desire to help or please their group members (reflecting a relational motivation).

In short, themes of Blake and Mouton's managerial grid can be seen in dual-strategies theory. In particular, the ‘concern for others’ dimension provides a great illustration of some of the differences between dominance and prestige as strategies. On the other hand, it is less clear how dominance and prestige might interact with task orientation, which may provide an interesting avenue for future research.

### Leader-member exchange

Leader member exchange theorizing (Graen, 1976; LMX) suggests that leaders and their individual followers interact in patterns of exchange that both incur costs (e.g., use resources) and create value. LMX has shifted focus since its conception and early work (Schriesheim, Castro, & Cogliser, 1999). In its early days, the theory revolved around the idea that the leader-follower relationship will be formed and maintained if the benefits for both the leader and the follower outweigh the costs (Bass & Bass, 2008, Graen, 1976, Sparrowe, 2018). Interestingly, this cost-benefit analysis is very much in line with evolutionary perspectives on how humans determine whether a relationship is beneficial (Sparrowe, 2018). However, in more recent research, LMX theorizing is generally used to evoke the idea that leaders enact different leader-follower relationships with each of their followers, and that these relationships vary in quality (Gerstner & Day, 1997; Henderson, Liden, Glibkowski, & Chaudhry, 2009; Martin, Guillaume, Thomas, Lee, & Epitropaki, 2016). For example, a leader might have a higher quality relationship with one of her five followers such that the quality of the relationship is significantly different than the leader's relationship with the other followers. This differential relationship quality among different leader-follower dyads is at the heart of current LMX research. The degree to which the leader-follower relationship quality varies from follower to follower (as opposed to being rather uniform across followers) is known as differentiation (Henderson et al., 2009).

LMX differs from the dual-strategies theory in that it does not focus on the effectiveness of a leader's strategies per se, but rather focuses on whether the leader-follow relationship is beneficial (or not) for the leader and follower and whether the relationship quality varies from individual to individual. This different focus means that these theories can be used in conjunction to generate new potentially interesting research questions and a more complete picture of hierarchy and leadership. For example, what might a follower see as the costs and benefits of having a dominant versus prestige-oriented leader? What types of follower characteristics predict high-quality relationships with a dominant or prestige-oriented leader? Are dominant or prestige-oriented leaders more likely to have high differentiation? In other words, dual-strategies theory suggests that our evolved psychology is inherently attuned to leader and follower capacity in terms of both dominance and prestige. Empirically investigating how these strategies are factored into LMX processes and relationships is likely to be an interesting and generative line of work.

Additionally, LMX and dual-strategies theory share an important similarity: both theories have an explanation for leadership *emergence* in addition to be relevant to in established hierarchies. (This stands in contrast to the majority of leadership theory and research, which has focused on the effectiveness or consequences of leader traits/behavior after the hierarchy has already been established; Bass & Bass, 2008.) Early work on LMX provides a theoretical explanation for leadership emergence: it suggests that a leader emerges when such an arrangement will provide more benefits to both the group and to the leader (Graen, 1976). While the subsequent empirical research on LMX has largely examined exchange in established, formalized leadership contexts and thus has lacked integration with research on leadership emergence (Zhang, Waldman, & Wang, 2012), leadership acquisition was a core focus of seminal work on this theory and thus represents a key similarity to dual-strategies theory.

### Transformational (versus transactional) leadership

A large body of leadership research has suggested that while many leaders adhere to a *transaction*-focused type of leadership style, some particularly inspired leaders move beyond this to a *transformational* leadership style. While a transactional leadership style is characterized by leaders attempting to maintain or increase efficiency within an existing set of processes, a transformational leader inspires and motivates followers through an improved or entirely new process (Bass, 1999; Burns, 1978). Thus, a transformational leader focuses on change (DeRue, Nahrgang, Wellman, & Humphrey, 2011)—they shift the current processes and relationship into something better or more fulfilling for their employees, whereas a transactional leader's focus is on ensuring that employees are fulfilling their roles. A transformational leadership style has consistently been associated with gains in group performance (Wang, Oh, Courtright, & Colbert, 2011).

While a focus on enacting change is not specifically addressed in dual-strategies theory, one could theorize how dominance or prestige strategies might be associated with transformational leadership. There are several reasons to think that dominant leaders would not be interested in exercising transformational leadership. First, transformational leadership is other-focused and generally prosocial in nature (Bass, 1999). This is the antithesis of dominant leaders, who are more likely to view their subordinates as potential threats to their position and therefore often act in ways that actually diminish their group members' ability to grow (Case & Maner, 2014; Maner & Mead, 2010). Concerned with keeping their own position of power, dominant leaders are more likely to try to maintain the power differential between themselves and their group—inspiring and transforming their subordinates goes against this goal. However, it should be noted that this does not necessarily mean that dominant leaders are precluded from engaging in the "large-scale change" aspect of transformational leadership—while the prosocial elements of transformational leadership are unlikely to be positively linked with dominance, changing processes or systems is not necessarily outside the purview of dominant leadership.

There are a few reasons to think that prestige-leaders might be likely to exercise transformational leadership. First, prestige-oriented leaders tend to be more other-focused than dominant leaders (Case & Maner, 2014; Maner & Case, 2016), fitting with transformational leader's prosocial aims. Second, prestige-oriented leaders are thought to be interested in the respect and admiration of their followers, and they might see transformational leadership as a way to gain that respect and esteem: improving group processes might be one way to effectively demonstrate competence and selflessness, both characteristics that are likely to evoke admiration (Bai et al., 2019; Bendersky & Pai, 2018; Willer, 2009). This is particularly likely to be the case given that transformation leadership is more difficult to enact than transactional leadership styles (Bass, 1999). Successfully implementing a difficult change would very likely garner more respect and status in the eyes of others.

At the same time, some have theorized that part of the draw of prestige-oriented leaders is that their leadership style is generally not seen as commandeering or demanding, decreasing the likelihood that prestige-oriented leaders are seen as power-hungry upstarts (Maner & Case, 2016). Thus, a prestige-oriented leader might avoid making major changes to group processes as these changes might be seen as imposing their will on the group, offending egalitarian tendencies (Maner & Case, 2016). Prestige-oriented leaders may also struggle making changes if they are concerned that such changes will upset other group members (Case et al., 2018). Thus, the question of whether prestige would be correlated with transformational leadership remains unclear. What is clear at this point is that the constructs can, in principle, be orthogonal—it is easy to imagine a prestige-oriented leader who engaged in transformational leadership and one who did not.

The integration of these theories provides for new possible research avenues. For example, does transformational leadership increase perceptions of a leader's prestige (or dominance)? It may also be worthwhile to examine the motives of transformational leaders from a dual-strategies perspective—do leaders exercise this type of leadership solely out of prosocial motives? Or is transformational leadership a reflection of a prestige-like desire for the respect and admiration that this type of leadership might garner? Interesting questions also revolve around dominance and transformational leadership. For example, while transformational leadership refers to change orientation, this change is usually assumed to be prosocial. Yet there is some evidence that dominant leaders might be willing to implement changes to the group processes in ways that advantage themselves (relative to their group members). Could this change-orientation be viewed as a type of anti-social transformational leadership? Further exploration of this transformational vs. transactional leadership through the lens of dual strategies theory would likely be enlightening for both literatures. Finally, another opportunity for integration of these theories revolves around whether leaders change from transactional leadership to transformational leadership (or vice versa) over time or depending on the contexts. If such changes occur, perhaps dual-strategies theory could explain when and why a leader might employ one of these styles.

*Servant leadership*

Servant leadership is a leadership style in which leaders "combine their motivation to lead with a need to serve" (van Dierendonck, 2011, p. 1228). Servant leaders are thought to focus less on the benefits of their position, but instead on benefitting their group members (Greenleaf, 2004). As such, servant leaders are characterized by humility, empathy, and stewardship (Avolio et al., 2009) and the needs of followers are more likely to be at the forefront of their mind (Stone, Russell, & Patterson, 2004). Although the concept of servant leadership was introduced by Greenleaf in 1977, serious empirical study of servant leadership has just commenced recently (van Dierendonck, 2011).

Even the most cursory of comparisons between dominance and servant leadership would likely elicit the conclusion that dominant leaders are not likely to enact servant leadership—in general, dominance leaders are more likely to focus on their own gain rather than how they can serve their group. A prestige-based strategy, on the other hand, bears significant resemblance to the concept of servant leadership. Like servant leaders, prestige-based leaders are more likely to make significant sacrifices for the welfare of their groups and work hard to benefit other group members (Case et al., 2018; Price & van Vugt, 2014).

However, the theorizing on prestige diverges from theorizing on servant leadership in at least two key ways. First, servant leadership does not speak to competence, and demonstrating competence is likely to be one of the key ways in which prestige-oriented leaders gain status in social groups (Cheng & Tracy, 2014; Henrich, Chudek, & Boyd, 2015; Henrich & Gil-White, 2001). Second, the *motivation* proscribed for self-sacrifice is differs between these theories. Servant leadership theories suggest that servant leaderships sacrifice for their group members due to compassionate love (van Dierendonck & Patterson, 2015) and a focus on their followers (Stone et al., 2004). Servant leaders are attributed truly selfless motives: 'the needs of others…[are their]…highest priority" (Bass, 2000, p. 33). While prestige leaders are thought to be focused on the needs of their group members, the reason for this may ultimately be self-interested. Prestige leaders may make personal sacrifices for the group, but in return, they typically receive status (Halevy, Chou, & Livingston, 2012; Price & van Vugt, 2014; Willer, 2009). Status is inherently valuable as it brings them preferential treatment, increased influence, and a heightened ability to accomplish their goals (Price & van Vugt, 2014). In this way, the sacrificial nature of prestige-based leaders may be (at least in part) designed for their own benefit (i.e., garnering respect for themselves) rather than for truly selfless reasons. Supporting the idea that differing motives may be at play, servant leadership is negatively correlated with narcissism (Galvin, Lange, & Peterson, 2012), while prestige leadership is actually positively correlated with narcissism (though prestige leaders likely actively work to suppress this narcissism to retain the esteem of their followers; Cheng, Tracy, & Henrich, 2010).

This offers opportunities for empirical investigation. The first revolves around whether servant leadership actually reflects true altruism, or whether servant leadership is often prestige leadership in disguise—i.e., leaders reporting selfless motives because they know that doing so will grant them respect and admiration. Another avenue revolves around group members' abilities to distinguish between these two types of leadership. If truly altruistic servant leaders do exist, can group members differentiate between self-sacrificing leaders who are truly interested in the development of group members and those who are sacrificing to garner personal benefit or prestige? The ability to differentiate between these motives could be an important ability for followers, but at this point it is unclear whether people have the capacity to differentiate (or whether this capacity varies from individual to individual).

*Authoritarianism versus democratic leadership*

The degree to which leaders use force to induce compliance from their followers has long been a theme of leadership research (Bass & Bass, 2008). Specifically, authoritarian (or autocratic) leaders—who use strength and force to ensure the group accomplishes their goals—are often contrasted with democratic leaders who distribute the power to make decisions among group members and include other group members in their responsibilities(Harms et al., 2017). (This distinction is also referred to as directive versus participative leadership, with directive leaders commanding their subordinates and participative leaders inviting subordinates to participate in the decision-making process; Bass & Bass, 2008). Although authoritarianism has been neglected by the research in recent decades, recent political events have provoked a renewed interest in the topic (Harms et al., 2017).

Authoritarianism, with its emphasis on coercion and control, maps well onto the concept of dominance. However, although many scholars treat dominance as synonymous with having an orientation toward power (or the desire for power; Bass & Bass, 2008), it is not clear whether this "desire for power" is truly a motivation for power (i.e., control over valued resources) or whether it is a motivation for a position of high social rank more broadly. This distinction is important from the perspective of dual-strategies theory because the theory suggests that prestige-oriented leaders might be just as motivated as dominant individuals are for a position of social rank, but they may focus more on status hierarchies (whereas dominant individuals may be more focused on power; Maner & Case, 2016). Thus, it is unclear how prestige-oriented leaders who strongly desire high *status* might fit into this framework.

While prestige-oriented leaders tend to be more democratic in their leadership style (Maner, 2017; Maner & Case, 2016), a prestige strategy is not synonymous with democratic leadership. For one, competence is an important facet of a prestige-based approach, but it is not a key factor in the democratic leadership style. Furthermore, democratic leadership tends to be a description of how a leader behaves or a group interacts, whereas prestige provides an additional element: the leader's *motivation* when engaging in power sharing (the personal desire for status). Finally, democratic leadership generally refers to a leadership style employed after being put into a position of high social rank (rather than a strategy for attaining or maintaining social rank).

## The unique focus of dual-strategies theory

Although the dual-strategies theory of social rank touches on many of the same themes of leadership research (as detailed above), its evolutionary origins and focus on social rank give it a unique focus relative to most leadership research. Dual-strategies theory is unique in that it was devised by thinking about small, cohesive, constantly shifting groups that humans populated during the time of our evolutionary history (Boehm, 1999; van Vugt et al., 2008), as opposed to the typical formal organizational context where many leadership theories of the 20th and 21st century were conceived (von Rueden & van Vugt, 2015). This evolutionary background alone does not provide sufficient justification for the use of the theory. However, I argue that focusing on these small, informal hierarchies has given dual-strategies theory a unique and much needed perspective on leadership that would benefit the larger body of research on leadership. This new perspective is not intended to replace other leadership theories, but rather can add to their contribution to our understanding of leaders and followers in organizations. Below, I outline a few ways in which dual-strategies theory of social rank represents a departure from most research on leadership and describe why its unique foci make it particularly well-equipped to explain today's modern organizations and workforce. Specifically, I highlight how dual-strategies theory's emphasis on shifting power dynamics, its focus on informal hierarchies, and the introduction of prestige as a counterpoint to dominance is relevant to today's economy (yet are underrepresented in major leadership theory).

*Emphasis on acquiring social rank and shifts in power*

Much of the organizational behavior research on leadership focuses on a leader-follower relationship that is already in place. While research on leadership emergence is certainly still present (see Acton, Foti, Lord, & Gladfelter, 2019; Ensari, Riggio, Christian, & Carslaw, 2011; and Lakey et al., 2002 for reviews), it is somewhat removed from work examining formal leadership (Zhang et al., 2012; see Dinh et al., 2014 as a noteable excpetion). Furthermore, the research on leadership emergence has largely lacked theoretical underpinnings (again, Acton et al., 2019 and Wellman, 2017 represent notable exceptions), while leadership *theory* has primarily focused situations in which the leader has already attained their position of leadership (Bass & Bass, 2008).

Similarly, the majority of research in the field of organizational behavior on leadership assumes hierarchies to be rather static. The focus is on how leaders and followers each enact their roles, but there is not a lot of emphasis on how these roles might change or how the power dynamics might shift within a group. In short, most of the work on leadership acknowledges the power asymmetry between leader and follower, but beyond this, ignores any power dynamics in work groups and organizations.

In contrast, dual-strategies research has investigated both the acquisition of social rank and leadership behaviors in established hierarchies (e.g., Case & Maner, 2014; Cheng et al., 2013; Maner & Mead, 2010), and the theory itself provides a conceptual framework to explain both phenomena. It also focuses on how instabilities within the hierarchy can impact a leader's goals (Case & Maner, 2014). Integrating dual-strategies theory into leadership research might help reinvigorate an interest in the leadership emergence in more traditional leadership theory and provide a way of bringing the two bodies of literature together. Furthermore, dual-strategies theory assumes a world in which no leadership position is immutable and hierarchies are constantly changing, so the emphasis is on how people take advantage of or protect against power shifts.

This focus on shifting hierarchies and the acquisition of social rank is important given demographic trends in employment. Specifically, younger employees are far less likely to stay with the same company for their entire career than workers just a generation ago (Bureau of Labor Statistics, 2018). This means that in the future, the workforce is likely to be increasingly composed of employees who move from organization to organization more frequently than in the past (Harris, 2014). This increased mobility means that people are regularly entering and navigating new work groups and hierarchies, making the acquisition of social rank a crucially important factor in organizations. Furthermore, the decreased tenure of employees inherently makes hierarchies less stable—as employees leave, hierarchies need to be restructured to fill these gaps or accommodate external hires.

Beyond employees choosing to move organizations more frequently, there is more of a demand for temporary workers: short-term and contract work is representing an increasing proportion of work in the United States (Horowitz, 2015). In this so-called "gig economy" (Ashford, Caza, & Reid, 2018; Petriglieri, Ashford, & Wrzesniewski, 2018a), the constant flow of workers in and out of organizations (or with varied clients) is likely to contribute to constantly changing hierarchies.

Thus, the typical organizational hierarchies are likely less stable than they were when many of the classic leadership theories emerged, and theory that is able to explain and predict these power and status changes will be a boon to leadership researchers. Furthermore, this focus on how hierarchies develop and change over time answers calls to make leadership research more focused on process and changing dynamics (Acton, Foti, Lord, & Gladfelter, 2018; Avolio et al., 2009; Bendersky & Pai, 2018; Castillo & Trinh, 2018).

*Emphasis on informal hierarchy*

With the exception of the work on leadership emergence, the vast majority of the research on leadership in organizational behavior examines formal hierarchies (i.e., formal supervisors in an organization). There is certainly an acknowledgement that one does not need to have formal leadership position to demonstrate leadership, but most of the empirical work has focused on the formal organizational context (Northouse, 2018).

In contrast, in the small groups of our evolutionary past, there was no such thing as formal hierarchy dictated by a larger organization. Indeed, the vast majority of human history likely took place in relatively egalitarian contexts that lacked formal hierarchy (Kelly, 2007). For this reason, there remains in dual-strategies theory an emphasis on informal hierarchies (despite the fact that dominance and prestige are tactics that could be employed by both formal managers and informal leaders). While formal hierarchies still play a huge role in today's organizations, there are a few reasons to believe that informal hierarchies are increasingly of particular importance to organizations.

First, there is an increasing segment of the population that is opting out of employment in a traditional organization in favor of freelance work (an estimated 150 million workers in North America and Western Europe, many of whom are top knowledge workers, have already made this choice; Petriglieri, Ashford, & Wrzesniewski, 2018b). For these workers, formal organizational hierarchy may not be particularly relevant—rather than worrying about their interactions with their boss or their chances of getting promoted, they instead are focused on their performance in the eyes of their clientele and the way that they stack up relative to other freelance workers in their field. This employment reality, faced by an increasing number of workers, would likely be considered outside the wheelhouse of most traditional leadership theories. However, dual-strategy theory's emphasis on informal hierarchies makes it well-equipped to explain how leadership and hierarchy are relevant for gig and freelance workers.

Second, there is some evidence that egalitarianism is increasingly promoted as a management strategy (Levering, 2016; Marschan, Welch, & Welch, 1996): self-managing teams are increasingly common (Kirkman, 2001); knowledge work—which is inherently less suited to authority and hierarchy (Adler, 1999)—is representing an increasingly proportion of work (Karoly & Panis, 2004); and the majority of firms now use agile project management, which emphasizes collaborative workflows in which egalitarianism is valued (Project Management Institute, 2017). While there is likely a great deal of variation in the degree to which organizations actually adopt egalitarian ideals, decentralization of decision-making power appears to be increasingly common even among large, multi-national corporations (Marschan et al., 1996). Because humans appear to have natural tendencies toward hierarchy of some kind (van Berkel, Crandall, Eidelman, & Blanchar, 2015), a decreasing reliance on formal hierarchies is likely result in increasingly important status and informal hierarchies (Marschan et al., 1996; Tiedens, Unzueta, & Young, 2007), a focus for dual-strategies theory. Furthermore, if egalitarianism is widely valued, group members are likely to punish "upstarts" who try to claim power through force (Boehm, 1999). Understanding how potential leaders can obtain influence in such contexts is therefore key to understanding influence in today's organizations. Dual-strategies theory articulates a strategy (prestige) that fits these parameters.

Third, it is becoming more readily apparent that even organizations with steep, formal hierarchies are shaped by the informal hierarchies of their employees. For example, there is evidence that group performance appears to be determined in part by the informal hierarchies among group members (Bendersky & Hays, 2017; Joshi & Knight, 2014; Zhang et al., 2012). Additionally, one's informal social landscape can impact promotion in the formal organization hierarchy (Podolny & Baron, 1997). Thus, even in traditionally hierarchical firms, dual-strategy theory's emphasis on informal hierarchies is worth considering.

*Prestige as a counterpart to dominance*

One of the major contributions of the dual-strategies theory of social rank is the introduction of the prestige strategy as a counterpart to dominance. As noted above, dominance—or similar variants such as authoritarianism, autocratic, or directive leadership—have long been a subject of leadership research. Many of these theories have described alterative leadership strategies that do not use force or coercion (e.g., democratic leadership, servant leadership, transformational leadership). However, prestige differs from these strategies in a few key ways. First, as articulated earlier, demonstrating competence is a key element to a prestige strategy. Second, a prestige-oriented strategy may not inherently be prosocial: while prestige-oriented leaders act in extremely prosocial ways, their own personal desire for status is thought to underlie much of their group-oriented behavior. This represents a unique combination of traits, strategies, and motives that has not been reflected in the leadership literature up to this point.

There are several reasons why investigating prestige makes sense in the modern work context. First, with the dawn of the information age, having unique, complicated skillsets and competencies is increasingly important for employees (Stewart, 1998). In the past, when employees were more likely to be in menial or non-technical jobs, seniority or tenure were much larger factors in determining promotion (Rosenfeld, 2014). However, in today's knowledge economy (Adler, 1999), employee knowledge and skills are more important than ever, bringing competence to the forefront of decisions as to who will attain positions at the top of the hierarchy. Prestige's focus on demonstrating skills as a basis for deference is particularly relevant in this employment climate.

Additionally, as mentioned above, organizations are increasingly characterized by informal and shifting hierarchies. Interestingly, these hierarchies often lead to more social-rank related conflicts (Hays & Bendersky, 2015), and may make status a more valued commodity. Because prestige is thought to reflect a desire for status, it may be a particularly informative construct to investigate in this modern context.

## How leadership research can enhance dual-strategies theory

Just as introducing the dual-strategies theory of social rank into the broader leadership research can provide unique insights into the study of leadership in organizations, insights from the rich body of leadership theory and research can increase the viability and veracity of the dual-strategies theory of social rank. Below, I describe three ways in which leadership theory and research can (and should) be integrated into the work dual-strategies theory in order to provide a more robust field of inquiry. Specifically, I describe how an increased focused on the group, the impact of contextual factors on the effectiveness of dominance and prestige, and more consideration of organizational factors such as formal hierarchy, diversity, and technology are important areas in which to expand this are of research.

*Stronger focus on the group*

A central focus of leadership research has been the leader's impact on the group. Indeed, leadership research continues to shift from a focus on leadership traits to a process and group focus (Avolio et al., 2009). Dual-strategies theory, on the other hand, has largely focused on the psychology of the leader, with relatively few studies looking at the experience of the group or the effectiveness of the group. It should be noted that this reflects a disconnect between theory and actual research—while dual-strategies *theory* has a heavy focus on the actual group context, the empirical *research* on dual-strategies theory has maintained a rather consistent focus on the individual employing the strategy. For example, up to this point, "effectiveness" from a dual-strategies perspective has referred to whether the leader is able to attain a position of social rank, not whether the group is successful in accomplishing their goals (see, for example, Cheng et al., 2013). The effects of each of these strategies on group performance is likely to be one of the primary questions with which organizations and practitioners are concerned, so this certainly represents an important area for future research.

There has also been very little research that considers the perspective of the followers, an area of research that is experiencing a revival in organizational behavior research (Avolio et al., 2009; Bastardoz & van Vugt, 2019; Robert G Lord et al., 2017; Van Vugt et al., 2008). The extant literature suggests that other group members tend to dislike dominant individuals (Cheng et al., 2013; Redhead, O'Gorman, Cheng, Driver, & Foulsham, 2019), except in instances such as economic uncertainty or intergroup conflict (Kakkar & Sivanathan, 2017; Laustsen & Petersen, 2017; van Vugt & Grabo, 2015), but beyond this, dual-strategies theory cannot speak to how followers perceive dominant or prestige-oriented leaders.

There is likely a high degree of individual variation in how a subordinate may respond to dominant or prestige-based leader. Research from LMX suggests that leaders have distinct relationships with each of their followers, and that the quality of the leader-follower relationship is a function of both the leader and the follower (Gerstner & Day, 1997). Yet, leader-follower fit has not been discussed in the work on dominance and prestige, despite conjectures that follower traits are likely an important factor in understanding how controlling leaders in particular attain positions of influence (Harms et al., 2017).

Beyond follower's perceptions of or desire for dominant and prestige-oriented leadership, it is also worth considering how fellow group members influence whether an individual employs a dominance or prestige-based strategy. Leadership theory suggests that the effectiveness of a leadership style is impacted by the traits of the followers (Bass, 1960), and it is easy to imagine that leaders would shift their strategies depending on the qualities and behavior of group members. A further discussion of dominance and prestige as strategies that include input from group members would be a boon to this area of research.

*An investigation of context*

Researchers as early as the 1940s have suggested that it is fruitless to study the effectiveness of any given leadership strategy without information about context (Stogdill, 1948). That is, a leadership strategy that might be wildly effective in a group of 14-year-old boys may not be efficacious in a team of research scientists. Thus, it is widely accepted in general leadership research that the effectiveness of leadership traits or strategies are contingent on the situation (Anderson, Spataro, & Flynn, 2008; Bass, 1960; Bass & Bass, 2008; Hersey, 1985; Hersey, Blanchard, & Natemeyer, 1979; Oc, 2018). However, to this point, dual-strategies theory has paid little attention to how contextual factors impact dominance and prestige as strategies. This represents a serious limitation to this area of research and also a great opportunity for further work.

There has been some discussion of contextual factors that impact the *behavior* of dominant or prestige-oriented leaders, including intergroup competition, stability of the hierarchy, and the anonymity of decision making (Case & Maner, 2014; Maner & Mead, 2010). However, research on how contextual factors impact on the effectiveness of dominance and prestige as strategies for attaining social rank and leading groups has been minimal. Thus far, research has indicated that the viability of dominance as a strategy increases with economic instability, group status threat, and intergroup conflict (Fortunato & Gavrilets, 2014; Kakkar & Sivanathan, 2017; Laustsen & Petersen, 2017; Van Vugt & Grabo, 2015). There is also some evidence that dominance might be more effective in short-term contexts (McClanahan, Cheng, Carswell, & Craig, 2019; Redhead et al., 2019), in situations where it is challenging for group members to revolt (Ronay et al., 2019), or in situations where a leader is expected to punish free-riders (Lukaszewski et al., 2016; von Rueden, 2014). There has been some theorizing that prestige might be a better strategy for prompting creativity, while dominance might be better effective for tasks requiring coordination (Maner, 2016), but this lacks empirical evidence. Indeed, others argue that *prestige*-based leaders might possess superior coordination abilities due to their increased knowledge and presumed ability to intelligently solve complex tasks (Hagen & Garfield, 2019). In short, our empirical understanding of how the effectiveness of dominance and prestige varies from situation to situation is extremely limited.

The lack of attention to context is a surprising oversight in dual-strategies theory, as it is hard to imagine that the efficacy of these strategies would not vary widely depending on the nature and purpose of the group or the broader organization. For example, the effectiveness of dominance or prestige is likely to be impacted by components of the group task such as domain, degree of interdependence required, time pressure, and performance pressure. Expectations of the leader's role are also worth considering: is the leader's primary responsibility coordinating tasks? Motivating subordinates? Mentoring them? Advocating for the group? These distinct purposes are likely to impact the type of leader desired. Finally, broader contextual factors such as group size, the formality and complexity of the organizational structure, organizational culture, and even firm performance are likely to impact who is promoted and which leaders are deemed successful, ultimately shaping whether a dominance or prestige strategy is effective. In short, there are likely dozens of contextual factors that impact the effectiveness of dominance and prestige (see Oc, 2018 for a comprehensive overview of important contextual factors in organizationals). A serious examination of these factors is an important next step for the application of dual-strategies theory to modern organizations.

### *More attention to modern organizational facets*

While the focus on informal authority, small groups, and shifting hierarchies is likely to shed important insights into modern organizations (as outlined above), there are some facets of modern organizations that dual-strategies theory has not yet explicitly addressed. In particular, dual-strategies theory could provide a more complete portrait for dominance and prestige in modern organizations with more explicit consideration of factors such as a) formal hierarchy, b) demographic diversity, and c) technology.

First, despite the argument above that many of today's employees work in increasingly egalitarian contexts, many people still work in large, bureaucratic organizations. Dual-strategies theory was initially devised to describe contexts in which positions of social rank were determined solely by an individual's ability to garner followers, not on his/her ability to navigate preexisting institutional hierarchies (Henrich et al., 2015). Indeed, much of the empirical research on dual-strategies theory has focused on this context. Additionally, much research on leadership emergence broadly and dual-strategies theory specifically assumes that fellow group members elect a leader. However, the reality of most organizations is that a leader is put into place by people *above* them in the organization (or by an external hiring group). How might leadership selection vary when the person selecting the leader will not be his/her subordinate? To my knowledge, this question remains unanswered.

Another area for advancement involves issues of race, gender, and diversity, which are dramatically different in a modern organization than they were in the small-scale societies of our evolutionary past. For example, in small-scale societies thought to characterize the EEA, groups typically did not have mixed-gender hierarchies (not to say that women did not have leadership roles, but rather that these leadership roles tended to be in different domains than men; Garfield et al., 2019). Similarly, it was uncommon for these groups to have contact with groups of other races (Cosmides, Tooby, & Kurzban, 2003). It is therefore unsurprising that dual-strategies theory does not explicitly theorize about how these strategies interact with gender or race in organizations. However, gender and race relations in the workplace are important and salient hierarchies in organizations (Carli & Eagly, 2001; Sidanius & Pratto, 1999) and these hierarchies are likely navigated using dominance or prestige-based strategies (Maner & Case, 2016). Beyond this, however, gender and racial hierarchies are complicated, nuanced, and distinct from other hierarchies. For example, there is evidence that dominance is perceived differently based on the leader's gender (Williams & Tiedens, 2016), race (Livingston & Pearce, 2010), sexual orientation (Wilson, Remedios, & Rule, 2017), or intersectionality (Livingston, Rosette, & Washington, 2012). Thus, research on how demographic characteristics such as race, gender, sexual orientation, as well as the intersection of these factors, is likely to provide important insights beyond the purview of dual-strategies theory.

In a similar vein, the pervasiveness of modern technology can dramatically change the dynamics of a work group—for example, how might dominance and/or prestige manifest themselves in work groups that primarily work remotely? Dual-strategies theory was developed with the assumption that groups were co-located and communicated face-to-face. Given that much of today's work does not follow this pattern, considering how and when technology impacts these strategies may be an important next step in the application of dual-strategies theory to the modern workplace.

## Conclusion

While most leadership theories were developed by looking at the large, stagnant, and bureaucratic organizations of the 20th Century, the dual-strategies theory of social rank focuses on the informal leader-follower dynamics that characterize most of human history (Garfield et al., 2019). Because of its evolutionary origins, the dual-strategies theory of social rank provides a unique perspective on leadership that is also surprisingly well-equipped for application to modern workplace environments. The aim of this review was to provide a guide to understanding dual-strategies theory in the context of leadership theory and research and to demonstrate the efficacy of dual-strategies theory in answering important questions about leadership and hierarchy in modern organizations. One main conclusion of this review is that future research that integrates ideas from broader leadership theory into dual-strategies theory (and/or that explores dual-strategies theory in the organizational context more explicitly) is likely to improve dual-strategies theory and provide unique insight into today's evolving organizations.

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