



Leadership theory and research in the new millennium: Current theoretical trends and changing perspectives

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ABSTRACT

Scholarly research on the topic of leadership has witnessed a dramatic increase over the last decade, resulting in the development of diverse leadership theories. To take stock of established and developing theories since the beginning of the new millennium, we conducted an extensive qualitative review of leadership theory across 10 top-tier academic publishing outlets that included *The Leadership Quarterly*, *Administrative Science Quarterly*, *American Psychologist*, *Journal of Management*, *Academy of Management Journal*, *Academy of Management Review*, *Journal of Applied Psychology*, *Organizational Behavior and Human Decision Processes*, *Organizational Science*, and *Personnel Psychology*. We then combined two existing frameworks (Gardner, Lowe, Moss, Mahoney, & Cogliser, 2010; Lord & Dinh, 2012) to provide a process-oriented framework that emphasizes both forms of emergence and levels of analysis as a means to integrate diverse leadership theories. We then describe the implications of the findings for future leadership research and theory.

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1. Introduction

Since its inception in 1988 (first issue in 1990), the mission of *The Leadership Quarterly* (*LQ*) has been to sustain and catalyze the development of innovative, multi-disciplinary research that advances the leadership field. Nearly 25 years later, this goal, along with many of the journal's other primary objectives, has been reached (Gardner, Lowe, Moss, Mahoney, & Cogliser, 2010). As Gardner and colleagues noted in their 20-year review of *LQ*, leadership research has grown exponentially in the last decade, attracting the interest of talented scholars and practitioners from around the globe who have revolutionized the way we understand leadership phenomena. As their review demonstrates, the number of new leadership theories has grown and the field has advanced from theory that focuses on understanding general leadership processes as they occur over indeterminate amounts of time to a phenomenon that evolves over different time spans depending on the hierarchical level at which leaders are investigated (Kaiser, Hogan, & Craig, 2008). Theories have also developed to understand how micro processes, such as perceptions, emotions, and cognitions (e.g., Bono & Ilies, 2006; Dinh & Lord, 2012; Lee, Aaker, & Gardner, 2000; Trichas & Schyns, 2012), and macro processes, such as the social-relational context (Chang & Johnson, 2010; DeRue & Ashford, 2010; Erdogan, Kraimer, & Liden, 2007; Gardner & Avolio, 1998; Liden, Sparrowe, & Wayne, 1997), dynamically affect follower and leader outcomes. Over the last two decades, leadership scholars have also developed theories to explain a leader's role within complex

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systems for instigating organizational change and managing dynamic social networks (Balkundi & Kilduff, 2006; Balkundi, Kilduff, & Harrison, 2011; Hannah, Lord, & Pearce, 2011; Marion & Uhl-Bien, 2002; Uhl-Bien & Marion, 2009).

Although the growing diversity of leadership theory has helped create an academic agenda for leadership research in the new millennium, we maintain that there are several challenges that accompany the rapid proliferation of new theoretical perspectives. In this article, we provide a critical review of leadership theory that has emerged since 2000, and we describe the challenges that scholars and practitioners must address to further advance the leadership field. Our search included theories from nine other top-tier journals in addition to *LQ*, allowing us to offer a broader and more comprehensive review of the topics that have captured the attention of leadership scholars. Rather than provide a detailed summary of the theories that have been identified, this article focuses on addressing one fundamental process-centered issue that is germane to all theories: *how has leadership theory and research contributed to our understanding of the processes by which antecedent elements affect outcomes pertaining to leaders, followers, or organizational phenomena?*

We believe that attention to processes is important for the following reasons. First, understanding leadership processes can help illustrate the limitations of current theory, and it can assist in the development of a more comprehensive agenda for leadership research in the new millennium with direct relevance to organizational practice (Langley, Smallman, Tsoukas, & Van de Ven, 2013). This is important because leadership is a complex phenomenon that operates across multiple levels of analysis (Cho & Dansereau, 2010; Wang & Howell, 2010), involves multiple mediating and moderating factors (e.g., DeRue, Nahrgang, Wellman, & Humphrey, 2011), and takes place over substantial periods of time (Day & Sin, 2011; Lord & Brown, 2004). However, leadership scholars have more often focused on the isolated effects of leaders or followers at one or another level of analysis and within short time intervals. Such a static approach is reflected in scholarly work on leadership, which has predominantly relied on cross-sectional retrospective survey methodologies (Gardner et al., 2010; Hunter, Bedell-Avers, & Mumford, 2007; Lowe & Gardner, 2000). This approach ignores the cumulated effects of transitory processes, such as emotions, thoughts, reactions, and embodied cognitions, which can fundamentally alter leader development and behavioral outcomes (Day & Sin, 2011; Lord, Hannah, & Jennings, 2011).

Second, leadership dynamics involve multiple levels and can produce both top-down and bottom-up emergent outcomes at higher and lower levels of analysis (Yammarino & Dansereau, 2011; Yammarino, Dionne, Chun, & Dansereau, 2005). For example, by shaping organizational climates and cultures, leaders can create ethical norms that guide the moral (or immoral) behavior of groups or collectives in a top-down direction (Mayer, Kuenzi, Greenbaum, Bardes, & Salvador, 2009; Schaubroeck, Hannah, Avolio, Kozlowski, Lord, et al., 2012). Simultaneously, leaders may also appeal directly to individuals by aligning followers' values and identities to those of the organization (Brown & Treviño, 2009), enforcing codes of conduct (Tyler & Blader, 2005), or by modeling ethical (or unethical) behavior (Brown & Treviño, 2006). Although these processes reflect top-down leadership influences, bottom-up processes, such as the influence of followers and intrapersonal dynamics, are also important in understanding how leaders influence organizations and how leadership outcomes are achieved (Dinh & Lord, 2012; Howell & Shamir, 2005; Marion & Uhl-Bien, 2002; Shamir, 2007). For example, research on meta-cognitive processes and self-complexity describes how dynamic intra-personal constructs can interact over time to increase intrapersonal complexity, which allows individuals to have greater behavioral adaptability in response to varying situations (Hannah, Woolfolk, & Lord, 2009; Lord et al., 2011). At higher levels of analysis, individual complexity allows a variety of social networks to develop into valuable organizational resources (Balkundi & Kilduff, 2006; Balkundi et al., 2011), and it can produce group complexity when team members interact, thereby creating more complex knowledge structures that guide group behavior (Hannah et al., 2011). At this level, group processes can also aggregate to create intangible organizational resources like social capital (Polyhart & Moliterno, 2011). As these examples show, leadership involves the contribution of multiple actors and bidirectional influence (top-down and bottom-up) that unfolds along different time scales (from minutes to years). Therefore, leadership theory that is narrowly confined to one level of analysis presents an overly restricted static understanding of leadership phenomena.

Third, prior research indicates that we know much less about how leaders make organizations effective than how leaders are perceived (Kaiser et al., 2008). We believe this dearth of knowledge on how leaders create effective organizations stems from a focus on leaders and their qualities rather than on how they change processes in other individuals, groups, or organizations. To address these issues in leadership research and theory, this article expands upon an existing classification scheme that was developed by Gardner et al. (2010) and the framework developed by Lord and Dinh (2012, described in Section 3), which maintains that a key aspect of leadership is to structure the way that the inputs of others are combined to produce organizational outputs. The advantage of these classification schemes is that they offer unique insight for organizing theory based on underlying leadership processes (Lord & Dinh, 2012) and have been successful in organizing leadership research (Gardner et al., 2010; Lowe & Gardner, 2000). By integrating these two classification schemes, we provide several additional contributions to the leadership literature.

Though abstract, addressing the nature of emergence provides a set of conceptual tools that can be used at any level of analysis, and it offers the potential for discovering leadership principles that apply at multiple levels. For example, focusing on each theory's underlying process enables us to organize the extant literature by identifying commonalities among theories. These commonalities may then suggest deeper principles that unite disparate leadership theories. In addition, a framework that can organize theory by levels of analysis is critical because leadership occurs within a social context created by individuals, groups, and larger organizational systems, and the nature of leadership processes may vary with each level. Hence, attention to both levels and process can promote a richer understanding of how simultaneously occurring phenomenon at different levels of analysis interact to influence leadership. Finally, such issues have practical as well as scholarly implications. Currently, practitioners wanting to use scientific research to improve organizational leadership processes must select from a bewildering array of theories that focus on

competing levels of analysis. Organizing these theories in terms of processes that produce individual, dyadic, group, and organizational outcomes may help practitioners focus on theories that fit with their organization's core technologies and social systems, and address pressing organizational concerns.

To accomplish our objectives, we partitioned this article into three major sections. In [Section 2](#), we provide an overview of the trends in leadership theory that have appeared since the beginning of the new millennium, a description of our data collection method, and conclusions regarding the theories that have remained at the forefront of research and theories that have (re)surfaced since 2000. In [Section 3](#), we provide a more thorough description of our organizing framework, which classifies theories based on each theory's level of analysis and underlying process, which we use to organize the leadership literature. In [Section 4](#), we offer our conclusions regarding the overall literature and make suggestions for the development of more integrative leadership theory and research, as well as address the practical and theoretical implications of this review to guide future research.

2. Content analysis methods

2.1. Sample

We began by searching the 10 journals identified in [Table 1](#) known for publishing leadership research that also have high impact factors and regularly appear at the top of journal ranking lists in the field of organizational behavior. We performed a manual search for leadership, restricting our search to articles published between 2000 and September 2012. This search yielded 989 total hits. We downloaded these articles and applied the following two selection criteria. First, the article had to be original research, whether qualitative, quantitative, theoretical, or methodological, thus eliminating such items as letters, editorials, and book reviews. Second, the abstract was reviewed to determine whether leadership was the primary, rather than peripheral focus of the article. Those that failed either or both of these two selection criteria (237 articles) were rejected from inclusion, leaving 752 articles. (A full list of the articles included is available upon request).

[Table 1](#) reports the number of articles found in each journal. *LQ*, as a specialty journal dedicated to the publication of leadership research, dominated our dataset (442 articles), which is to be expected. *Journal of Applied Psychology* ranked second (125 articles) in terms of the quantity of published leadership research, and amounted to notably more articles than the remainder of journals we examined. *Organizational Science* (7 articles) and *Academy of Management Review* (8 articles) published the fewest number of leadership articles of the journals we examined.

2.2. Coding procedure and categories

We coded these articles according to a strict protocol that had been agreed upon by the authors. We also used a Microsoft Access 2010 database that we designed to accommodate the specific fields that we coded. This eliminated common coding errors, such as typos and inconsistent nomenclature and provided for consistency between coders. For each article, our database contains: journal name, year of publication, title, keywords (if available), authors, abstract, type of article, data collection timing and research method, analytical method, leadership theory categorization, level of analysis, form of emergence, and emergence/theory match/mismatch. Our coding for *type of study* involved four categories: qualitative, quantitative, theoretical, or methodological. Our *data collection timing* categories included cross-sectional, cross-sectional with time lag intended to reduce common method variance (e.g., independent variables collected at time 1 and dependent variables collected at time 2), and longitudinal (where the same variables are collected at multiple time points). Our categorization of *research method* refines and expands the list of research strategies listed in [Gardner et al. \(2010\)](#). Specifically, we coded for qualitative (case study), content analysis (the counting of words or phrases in qualitative, interview, or verbatim response data to produce a quantitative dataset for analysis), diary or experiential sampling (which requires participants to answer questions at periodic or at random times determined by the researcher), computer simulation (in which real world conditions are modeled and artificial data produced), lab experiment (which involves the execution of tasks devoid of contextual realities), experimental simulation (similar to a lab experiment, but with an attempt to model or simulate a context), field experiment (conducting experimental tasks or applied

Table 1
Number of leadership research articles published in 10 top-tier journals (2000–2012).

Journal	Numbers of articles
<i>Academy of Management Journal</i>	45
<i>Academy of Management Review</i>	8
<i>Administrative Science Quarterly</i>	30
<i>American Psychologist</i>	13
<i>Journal of Applied Psychology</i>	125
<i>Journal of Management</i>	30
<i>Organizational Behavior & Human Decision Processes</i>	30
<i>Organizational Science</i>	7
<i>Personnel Psychology</i>	22
<i>The Leadership Quarterly</i>	442
Total number of articles	752

research), judgment task (which involves participants rating or judging the behavior of others), field survey-primary (data collected by the researcher directly from participants), field survey-secondary (data used in the study are from archival data), sample survey (which attempts to obtain a sample representative of the population of interest), meta-analytic quantitative review, non-meta-analytic qualitative review, and methodology study (in which new methods are described and tested, or existing methods refined). Our *analytical method* coding scheme followed Scandura and Williams (2000) and was also used by Gardner and colleagues (2010). Specifically, we coded for: 1) linear regression; 2) analysis of variance (ANOVA/MANOVA); 3) linear techniques for categorical dependent variables; 4) factor analysis (Exploratory Factor Analysis [EFA]/Confirmatory Factor Analysis [CFA]); 5) Structural Equation Modeling (SEM)/path analysis; 6) multiple-levels-of analysis techniques (e.g., hierarchical linear modeling [HLM]); 7) meta-analytic techniques (e.g., Hunter & Schmidt, 2004); 8) time series/event history techniques; 9) non-parametric techniques; and 10) computer simulation techniques.

The *leadership theory categorization* scheme we employed to classify leadership theories was based on several factors. First, we applied the criteria for theory specified by Bacharach (1989) to guide our identification of theories. Second, we adopted as a starting point the classification scheme that Lowe and Gardner (2000) initially developed and Gardner et al. (2010) refined in their reviews of articles published in LQ's first and second decades, respectively. Note that Gardner et al. (2010) provide a detailed description of the development of this theory classification scheme (see pages 934–935 and the Appendix A). Third, we augmented the thematic leadership categories throughout the early stages of coding, as we encountered leadership approaches that did not fit the existing category scheme. Our final coding scheme can be found in the Appendix A. *Level of analysis and form of emergence* were coded using the scheme found in Lord and Dinh (2012) and described in Section 3. In brief, *form of emergence* describes whether the leadership theory implies that constituent sub-units combine to create higher-order unit-level properties in a way that preserves or alters their fundamental nature. Finally, *emergence/theory match/mismatch* was a Boolean field indicating if the methods used in the article corresponded to the level of analysis and the form of aggregation implied by the theory. In this test of theory, mismatches occurred most often when the underlying processes implied by theory were not examined at the appropriate level of analysis (e.g., a group-level phenomenon investigated by using individual scores, an event-level phenomenon investigated by aggregated individual scores), or when dynamic and/or longitudinal processes were examined using retrospective survey methods or when data sampling occurred at one point in time. It should be emphasized that theories found within empirical research articles were tested by examining whether the method for capturing the process leading to a particular leadership phenomenon was appropriate based on the underlying processes implied by the theory used, rather than whether the article included specific leadership outcomes. Additionally, it should be noted that across all coded fields, articles often fit more than one category within each coded field. For example, an article may involve meta-analytic and SEM techniques or involve two leadership theories. This was also the case with forms of emergence where articles described simultaneously occurring processes.

In order to code this extensive literature, coding was completed by two independent teams. All articles were coded for form of emergence and emergence/theory match/mismatch by the first or second author, and a random subsample of 14 was coded by both authors yielding an agreement of 86% percent. The remaining categories were coded by the remainder of the research team and a random sample of 10% of the coded articles was drawn for blind re-coding by a different member of the research team. We then computed inter-rater reliability agreement for our coded variables at 82.9%. As this exceeded the commonly accepted reliability threshold, we discussed and resolved differences in coding, and then proceeded with analysis.

2.3. The status of the established leadership theories

Table 2 contains the leadership theories that emerged from our coding process. We grouped them categorically under established and emergent theories and thematically within those broader categories. Neo-charismatic theories, which emerged historically from charismatic leadership theory, received the most attention from scholars in the new millennium (total 294 instances), with transformational leadership and charismatic leadership, respectively, representing the dominant forms of interest. Leadership and information processing received the second largest quantity of interest (total 194 instances), with leader and follower cognitions and implicit leadership, highlighted by House and Aditya (1997) as an emerging theory at the time, dominating that category. Together, this category takes into account the cognitive structures of leaders, followers, and decision-making. This thematic category also answers questions like “what do I think leadership means?” and “what do I think is important?” by suggesting that these mental structures are built up in part from experience. These research questions have been investigated since the late 1970s (e.g., Lord, Binning, Rush, & Thomas, 1978), and our findings suggest that this thematic category continues to capture the interest of researchers.

Social exchange/relational theories were also quite common (156 instances). Leader–member exchange (LMX), the archetypal social exchange leader–follower dyadic approach that investigates the quality of the relationship experienced within the dyad, appeared in 115 instances. An important LMX advancement during the present millennium can be found in the meta-analysis of Dulebohn, Bommer, Liden, Brouer, and Ferris (2012), which offers an antecedents and outcomes model of LMX, responding to the call of House and Aditya (1997) for just such a model. Dispositional/trait theories comprised another common thematic category (149 instances). Trait based leadership approaches are still of interest (117 instances) to researchers. However, it is noteworthy that only in 11 instances were traits solely investigated; the 106 remaining investigated traits in concert with at least one other leadership approach in our taxonomy. Judge, Piccolo, and Kosalka (2009) offer a thoughtful review of the trait based approach as well as a trait based model of leadership emergence and effectiveness, including mediators and moderators, which is an example of the advancements in the trait based approach that integrate with other leadership theories.

Table 2

Frequency, percentage, and overall rank of leadership theories grouped by thematic category (published in 10 top-tier journals, 2000 – 2012).

Established theories	Frequency	%	Rank	Emerging theories	Frequency	%	Rank
<i>Neo-charismatic theories</i>	294	39	1	<i>Strategic Leadership</i>	182	24	1
Transformational leadership	154	20	1	Strategic/top executive	92	12	6
Charismatic leadership	78	10	7	Upper echelons theory	70	9	8
Transactional leadership	35	5	17	Public leadership	20	3	26
Ideological/pragmatic, outstanding leadership	12	2	29				
Self-sacrificing leadership	8	1	33				
Pygmalion effects	5	<1	35				
Inspirational leadership	2	<1	38				
<i>Leadership and Information Processing</i>	194	26	2	<i>Team Leadership</i>	112	15	2
Leader and follower cognition	95	13	5	Leadership in team and decision groups	112	15	4
Implicit leadership	50	7	12				
Attribution theories of leadership	29	4	21				
Information processing and decision making	20	3	26				
<i>Social Exchange/Relational Leadership Theories</i>	156	21	3	<i>Contextual, Complexity and System Perspectives of Leadership</i>	110	15	3
Leader-member exchange (LMX)	115	15	3	Contextual theories of leadership	42	6	14
Relational leadership	32	4	18	Social network theories of leadership	31	4	19
Vertical dyadic linkage (VDL)	8	1	33	Complexity Theories of leadership	23	3	23
Individualized leadership	1	<1	39	Integrative leadership	14	2	28
<i>Dispositional/Trait Theories</i>	149	20	4	<i>Leader Emergence and Development</i>	102	14	4
Trait theories	117	16	2	Leadership development	67	9	9
Leadership skills/competence	30	4	20	Leadership emergence	35	5	17
Leader motive profile theory	2	<1	38				
<i>Leadership and Diversity; Cross-Cultural Leadership</i>	81	11	5	<i>Ethical/Moral Leadership Theories</i>	80	11	5
Leadership and diversity	49	7	13	Authentic leadership theory	31	4	19
Cross-cultural leadership	32	4	18	Ethical leadership theory	24	3	22
				Spiritual leadership theory	14	2	28
				Servant leadership theory	11	1	30
<i>Follower-Centric Leadership Theories</i>	69	9	6	<i>Leading for Creativity, Innovation and Change</i>	72	9	6
Followership theories	54	7	11	Leading for creativity and innovation	39	5	16
Romance of leadership	12	2	29	Leading organizational change	22	3	24
Aesthetic leadership	3	<1	37	Leading for organizational learning and knowledge	11	1	30
<i>Behavioral Theories</i>	64	8	7	<i>Identity-Based Leadership Theories</i>	60	8	7
Participative, shared leadership; delegation and empowerment	41	5	15	Social identity theory of leadership	31	4	19
Behavioral approaches (OSU/LBDQ)	17	2	27	Identity and identification process theories of leadership	29	4	21
Leadership reward and punishment behavior	6	1	34				
<i>Contingency Theories</i>	55	7	8	<i>Other Nascent Approaches</i>	101	13	8
Path-goal theory	10	1	31	Emotions and leadership	59	8	10
Situational leadership theory	10	1	31	Destructive/abusive/toxic leadership	22	3	24
Contingency leadership theory	9	1	32	Biological approaches to leadership	11	1	30
Leadership substitute theory	5	<1	35	E-leadership	4	<1	36
Adaptive leadership theory	5	<1	35	Leader error and recovery	3	<1	37
Normative decision model	5	<1	35	Entrepreneurial leadership	2	<1	37
Cognitive resource theory	4	<1	36				
Life cycle theory	3	<1	37				
Multiple linkage model	2	<1	38				
Flexible leadership theories	2	<1	38				
<i>Power and Influence of Leadership</i>	52	7	9				
Power and influence of leadership	31	4	19				
Political theory and influence tactics of leadership	21	3	25				

Notes:

1. The total frequency exceeds the number of articles because articles often employ multiple theoretical frameworks.
2. Percentage is calculated by using the frequency divided by the total number of articles, i.e., 752.
3. There is a summary frequency and percentage for each paradigm.

Reflecting a concern with greater social equality, there were many articles that addressed leadership and diversity, and cross-cultural issues (81 instances). Follower-centric leadership theories (69 instances) also reflect this trend, and a concern with shared leadership, though not an explicit coding category, seems to have flourished in the past decade (e.g., [Pearce, Conger, & Locke, 2008](#)).

There are some theories, however, which seem to have attracted less interest during our period of inquiry. While [Judge, Piccolo, and Iles \(2004\)](#) called for more research into the behavioral approach consisting of initiating structure and consideration, labeling these constructs “the forgotten ones,” researchers have not responded in force. We discovered a relatively modest 17 instances, but these were distributed consistently over our period of inquiry. Another area of dwindling research interest can be found in the classic contingency theory thematic category. Collectively, we found 55 instances investigating one or more of these theories, but as shown in [Table 2](#), these were distributed across ten theories ranging from two to ten articles. This is a notable finding as [House and Aditya \(1997\)](#) placed contingency theories among the dominant approaches in their comprehensive review of the leadership literature at the close of the last millennium. Further, we note that the reformulated path-goal theory, called the values-based leadership theory ([House, Shane, & Herold, 1996](#)), seems to have been neglected by researchers. However, the branch of path-goal theory that led to the charismatic leadership theory and the subsequent neo-charismatic thematic category has captured a great deal of interest. Indeed, [House and Aditya \(1997, p. 464\)](#), observed that “[p]ath-Goal Theory led to conceptualization of the 1976 Theory of Charismatic Leadership...”.

2.4. Emerging leadership theories

We note that while significant research is still occurring at the dyadic level, interest in strategic leadership approaches is the most prolific of the emerging leadership theories (182 instances) of any of the emerging thematic categories. This is a notable shift in research interest given that prior to the present millennium, this was an under-researched topic ([Finkelstein & Hambrick, 1996](#); [House & Aditya, 1997](#)). The team literature has been recognized as being relevant given that much strategy formation occurs within top management teams. Team leadership has seen a significant increase in the quantity of recent research (112 instances), and a team approach was often combined with more established theories (e.g., 11 with trait, 15 with LMX, and 30 with transformational leadership). This suggests that leadership researchers are beginning to appreciate the social context in which the leader operates and his or her effect on the team as a whole, addressing a global shortcoming of leadership research that often operates at the dyadic level ([House & Aditya, 1997](#)). The systems thematic category consists of contextual, complexity, social network and integrative approaches, each of which attempts to capture various aspects of the contextual features within which leadership phenomena unfold. The fact that this thematic category is the third most prolific of the emerging leadership approaches (110 instances, 15% of the total 752 articles coded) might indicate that context of leadership is no longer the “neglected side of leadership” ([Osborn, Hunt, & Jauch, 2002, p. 797](#)) and that the charge that a “void still exists in the research literature” ([Porter & McLaughlin, 2006, p. 560](#)) with regard to the role of context no longer applies, given the increased attention to contextual factors we identified. However, while progress has been made, we still consider this to be an under-researched topic, given the central importance of context to the emergence and manifestation of leadership processes. A related thematic category, leading for creativity, innovation, and change is another team- and systems-based approach that has seen significant research during our period of inquiry (72 instances). It elaborates on the processes by which teams and systems adjust over time to dynamic environments. Together, these findings are encouraging and suggest that leadership researchers are continuing to advance the study of leadership, addressing shortcomings of the research program identified at the close of the last millennium — e.g., the lack of attention to contextual, team, and overall organizational effects of leadership — and are doing so at all organizational levels.

The thoughtful review of leadership by [House and Aditya \(1997\)](#) at the close of the last millennium also identified leadership training and development as an opportunity for future research, and our findings suggest that researchers have answered this call as shown by extensive activity in the leader emergence and development thematic category (102 instances). Leadership development (67 instances), the study of methods by which an organization increases within its membership social capital resources necessary to engage in leadership activities ([McCauley, Moxley, & Van Velsor, 1998](#)), and leadership emergence (35 instances), the study of who, and under what conditions, will be recognized as a leader, have together seen an impressive quantity of research our period of inquiry. While leadership development is not a new concept ([Day, 2000](#)), research continues to explore its complexities, addressing questions such as who seeks out developmental opportunities ([Dragoni, Tesluk, Russell, & Oh, 2009](#)), why individuals who experience the same developmental opportunity emerge with different learning outcomes ([DeRue, Nahrgang, Hollenbeck, & Workman, 2012](#)), and the interaction between traits and experience ([Dinh & Lord, 2012](#); [Van Iddekinge, Ferris, & Heffner, 2009](#)) with regard to leadership development. [Day \(2000\)](#) noted that there had been a great amount of interest in charismatic and transformational leadership with respect to leadership development, and called for a broadening of leadership development beyond these two models. However, we found no articles during our period of inquiry that investigated leadership development with charismatic leadership and only five of the 67 articles that investigated transformational leadership, suggesting that Day’s call for a broadening of interest with respect to leadership development is being answered as the preponderance of leadership development research in our dataset (62 of 67) investigates other facets of leadership development.

Leadership emergence research, similar to research on leadership development, is also concerned with traits ([Foti & Hauenstein, 2007](#); [Wolff, Pescosolido, & Druskat, 2002](#)) and experiences ([Avolio, Rotundo, & Walumbwa, 2009](#)) that predispose a person to emerge as a leader. Encouragingly, scholars are even investigating this question using a systems approach ([Lichtenstein & Plowman, 2009](#)) and in novel team contexts, such as shared leadership ([Carson, Tesluk, & Marrone, 2007](#)) and virtual teams ([Balthazard, Waldman, & Warren, 2009](#)). Again, it is promising that researchers are taking a broader view of leadership emergence, investigating traits, behaviors, and experiences in a variety of contexts.

Several scholars have noted increased concern with regard to the ethical/moral values-based content of a leader’s behavior (80 instances). We noted four leadership theories, which together share common interest in positive, humanistic behaviors address another

shortcoming of leadership research identified at the close of the last millennium. Most extant theories, even transformational leadership, failed to (sufficiently) investigate altruistic leader behaviors (Bass, 1999; Brown, Treviño, & Harrison, 2005; Ciulla, 1998; Yukl, 2008). House and Aditya (1997) suggested that extant theories assumed a hedonistic leader, rather than an altruistic one. Research on altruistic and deontic theories has shown increased activity over the period reviewed. Authentic leadership (Avolio & Gardner, 2005; Gardner, Cogliser, Davis, & Dickens, 2011) describes leaders who are self-aware, process positive and negative ego-relevant information in a balanced fashion, achieve relational transparency with close others, and are guided in their actions by an internalized moral perspective (31 instances). Though honesty, trust, and integrity are not new concepts within the leadership domain, ethical leadership theory (Brown & Treviño, 2006) builds on social learning theory and highlights the importance of these behaviors embodied within the leader who reinforces these values through role modeling, rewards and punishments, and communications about ethics in order to set the organization's moral tone (Mayer, Aquino, Greenbaum, & Kuenzi, 2012). Servant leadership theory (Liden, Panaccio, Meuser, Hu, & Wayne, in press; Liden, Wayne, Zhao, & Henderson, 2008), while older than transformational leadership theory, did not attract researcher attention until the present millennium (see Graham, 1991, for one exception). Perhaps servant leadership was slow to attract researcher interest because the theory was introduced by Robert K. Greenleaf (1970), a retired AT&T manager, rather than a member of the research community. While there exist many multi-dimension taxonomies and corresponding measures for servant leadership, Van Dierendonck (2011) argued that Liden and colleagues (2008; Hu & Liden, 2011) and Van Dierendonck and Nuijten (2011) present the most promising measures for continued research in this area. Spiritual leadership (Fry, 2003) encompasses the notion that leaders embody a vision, practice altruistic love, and instill hope, faith, and perseverance in attaining organizational goals. Fry (2003) suggests that spiritual leaders convey an organizational vision that is deeply and personally motivating to followers and develop a nurturing organizational culture of care, appreciation, and support for coworkers that inspires a sense of belonging. Although introduced in the present millennium, these leadership theories have seen an impressive quantity of research within a short time frame.

Identity based perspectives are seeing an impressive increase in interest as the millennium progresses (60 instances). In part, this thematic category consists of the newly introduced social identity theory of leadership (Hogg, 2001), which describes the emergence of a leader as being based on a group member's resemblance to a prototypical leader as determined by other group members. Given the recent introduction of this theory, it is notable that we discovered 31 instances of this approach. An alternative stream of research stems from Brewer and Gardner's (1996) articulation of three identity levels (individual, relational, and collective) that can be emphasized by leaders influencing a variety of organizational outcomes (Chang & Johnson, 2010). This area of research has observed comparable growth with 29 identified instances.

We noted a number of other emerging approaches that we could not easily classify into a larger thematic category, as can be seen at the bottom of Table 2. Three of these deserve special recognition because of their increasing popularity. The emotions and leadership category encompasses research investigating the relationship between leader and follower emotions and the practice and experience of leadership. It is notable that of the 59 instances found, 40 occurred during the second half of our period of inquiry (i.e., following the year 2006). Research into "negative" supervisors, such as destructive or abusive supervision and toxic leadership, investigates leaders who, by their treatment of subordinates, discourage and do harm to the subordinate and the organization. It is notable that of the 22 instances that emerged from our search, 21 of them were found during the second half of our period of inquiry, suggesting that this is a very new, but a very strong area of emerging research. Finally, we noted a modest 11 instances of leadership using biological or neuroscience approaches, a trend in its infancy (Lee, Senior, & Butler, 2012). This line of research utilizes genetic, biological, or neurological (e.g., electroencephalography) data, asking questions about the inheritability of leadership or how brain activity is associated with the memory of, or exercising of leadership behaviors. Exemplifying the contribution of *LQ* to the advancement of leadership research, 10 of those 11 instances can be found in *LQ*, and seven of those are in a 2012 special issue dedicated to this topic. While assuming that all behavior can be explained using genetic and neurological data is a reductionist trap (Evans, 1977; Lee et al., 2012; Polanyi, 1959), it is important to recognize the complexity of human interaction in a social context, and the value that leveraging the advances in cognitive neuroscience can bring to the study of leadership.

2.5. Summary

Continuing from Gardner et al. (2010), leadership theory and research form an important cornerstone of organizational science, and this field has continued to grow in many top-tier publication outlets including *LQ* and others. Our review of the leadership literature shows that several theories continue to spark scholarly interest for understanding specific leadership phenomena (e.g., neo-charismatic leadership theories, leadership and information processing), while interest in other theoretical domains has waned in more recent years (e.g., contingency theory, behavioral approaches). We have also identified several research domains that have grown in popularity over the past five years, suggesting growth of new emergent theories (e.g., destructive leadership, leadership emergence). Together, our review demonstrates the enormity of the leadership field that has proliferated since the new millennium, which we foresee will continue to grow in the coming decades.

It is also important to recognize that there are critical voices examining both dominant theories and emerging theories. For example, Yukl (1999) critiqued the conceptual weaknesses of charismatic leadership theory, such as construct ambiguity and lack of description of explanatory process. In a more recent assessment, Van Knippenberg and Sitkin (2013) continued to question the ambiguity of the multi-dimensional definition of charismatic-transformational leadership, its construct validity, and the insufficient specification of causal processes. In an attempt to avoid these pitfalls of theory development and advancement, more vigilant efforts are needed to address these issues early on in the development of emerging theories. For instance, Cooper, Scandura, and Schriesheim (2005) and Gardner et al. (2011) provided comprehensive assessments of the construct development of authentic leadership and offered suggestions for future research. However, continued growth in theory and research also

increases urgency for a method of organizing the extant literature. In the following sections, we present a process framework that focuses on forms of emergence and levels of analysis as a means for organizing theories of leadership.

3. A process framework for organizing theories of leadership

Along with others, we believe that significant contributions to leadership theory can be realized when research jointly considers the levels of analysis and the underlying processes described by leadership theories (Dansereau, Alutto, & Yammarino, 1984; Klein, Dansereau, & Hall, 1994). With regards to levels of analysis, leadership scholars have traditionally explored the effects of leadership at the person, dyadic, group, and/or organizational levels. Although attention to these levels of analysis is most common to leadership research, recent arguments have also highlighted the importance of *events* as an additional level of analysis (Dinh & Lord, 2012; Hoffman & Lord, 2013). In general, events refer to time-bounded episodes that happen in a specific place and time, and can be characterized by features such as being ordinary or unique (e.g., Ballinger & Rockmann, 2010). We maintain that attention to this finer-grained level of analysis, in addition to more commonly researched levels, is important because it allows scholars to capture the impact that momentary details have on dynamic structures (e.g., the structure of personality) and systems. For example, event-level methodologies have enabled leadership researchers to understand how the manifestations of personality may vary in response to different events (Fleeson, 2001; Read, Monroe, Brownstein, Yang, Chopra, et al., 2010), and how specific, timely leadership actions can affect leadership ratings of performance (Morgeson, 2005) or the momentum of complex organizational change processes (Plowman, Baker, Beck, Kulkarni, Solansky, et al., 2007; Tushman & Romanelli, 1985).

However, leadership scholars have recognized that leaders can be organizational architects who can influence the way inputs are combined across different levels of analysis to produce unit outputs, often by influencing the actions of others (Lord & Brown, 2004). In this regard, Lord and Dinh (2012) developed a process approach that addresses the nature of emergent processes as a means to understand an important aspect of many leadership theories. Though originally conceived to explain how leaders influence the combination of inputs to produce outputs such as group performance, this system is much more general and can be applied to leadership processes at multiple levels, from explaining how traits are combined to explain leadership perceptions, to explaining how group member attitudes are combined to produce group climates, to understanding the combination of group structures to create organizational structure. Although there are many aspects of leadership and social processes as shown by these examples, we focused specifically on the implications associated with how aspects of lower-level units can be combined to produce higher-level unit qualities. We believe attention to this issue addresses the core of what is important about leadership in organizations, which involves systems for combining various forms of inputs to create outputs with higher value. Many leadership articles discuss such issues, but do not test them explicitly. When that was the case we classified articles by their underlying theory. For empirical articles, we focused primarily on the presented theory because data handling and statistical procedures often presented a confusing picture when researchers did not explicitly focus on level of analysis issues.

We maintain that there are three types of emergent processes relevant to leadership, and these are global, compositional, and compilational forms of emergence. Briefly, *global* characteristics describe processes that are static, level-specific in nature, and do not apply to lower levels (e.g., a group's size and demographic diversity are constructs that do not apply to individual group members). That is, they reflect a wholes level of analysis where the primary focus is between units. In contrast, theories classified as having compositional or compilational characteristics describe alternative effects of emergent processes. In level of analysis terms, this is a question of how a parts perspective at a lower level becomes a whole or unit level characteristic at a higher level. Specifically, *compositional* characteristics reflect an aggregation of individual components that does not change its fundamental aspect or quality as a result of aggregation (Kozlowski & Klein, 2000). That is, lower and higher-level constructs are isomorphic. For example, individual members' emotions in a group may aggregate to group-level affective tone in a manner that preserves but amplifies the same emotion. As noted by Whetten, Felin, and King (2009), such aggregation maintains the same function for the sub-unit at higher and lower levels. In contrast, *compilational* forms of emergence reflect a fundamental change in qualities and functions of the sub-unit as aggregation from lower to higher levels occurs (Kozlowski & Klein, 2000). For example, a synergistic aggregation of group member ideas may spark innovation, and as this occurs, relevant functions of individual contributions may change as the collective solutions emerge. Because many of the newer leadership theories described in the previous sections involve emergent processes, this compositional/compilational distinction is important because it distinguishes between two key potential consequences of leadership processes.

A description of emergent unit properties at each level of analysis is provided in Table 3. As this table shows, organizational phenomena can be classified as having global unit-level properties (ULP) at many levels of analysis. For example, affective events, individual traits, group demographics, and organizational structures, each describe global aspects of organizational units and each of these properties are relatively stable over time (Lord & Dinh, 2012). Additionally, organizational phenomena can be classified as having compositional ULP when individual factors function independently to produce additive or pooled outcomes at a higher level. For instance, the process of developing knowledge structures or self-efficacy through the gradual accumulation of facts and interpersonal experiences each can be classified as compositional (e.g., DeChurch & Mesmer-Magnus, 2010; Judge & Bono, 2001). Last, organizational outcomes that emerge from the interaction among different sub-units to produce new phenomena are classified as having compilational ULP. These may include the combined effects that cognitions and emotions have on perceivers when constructing their perceptions of a leader or the combination of divergent group members' ideas to create a new group output (e.g., Hannah, Uhl-Bien, Avolio, & Cavaretta, 2009; Hannah, et al., 2009; Hogue & Lord, 2007). Here, the composition versus compilation distinction is particularly important because it differentiates between emergent processes that involve complicated

Table 3
Basis for formulation of emergent Unit Level Properties (ULP) by level of analysis.

Levels analysis	Global ULP: Descriptive characteristic of unit does not apply to lower levels.	Compositional ULP: Property emerges from composition of lower-level unit properties.	Compilational ULP: Property emerges from compilation of lower-level unit properties.
Event	<ol style="list-style-type: none"> 1. Affective events theory 2. Adaptive response to events 3. Event-related motivational processing 	<ol style="list-style-type: none"> 1. Knowledge structures expanded by accumulation of facts 2. Perfecting skills & abilities by learning from previous errors 	<ol style="list-style-type: none"> 1. Conscious understanding emerges from interaction of different events 2. Self-complexity increases by self-reflective processing of emotional events
Individual	<ol style="list-style-type: none"> 1. Trait theory 2. Chronic self-regulatory processes & leadership behavioral styles 3. Genetic determinants of leadership 	<ol style="list-style-type: none"> 1. Global self-efficacy 	<ol style="list-style-type: none"> 1. Increased self-complexity via CAPS & hot/cool networks 2. Self-regulation from hierarchically organized motivational elements 3. Effects of default & affective networks on use of cognitive resources
Dyad	<ol style="list-style-type: none"> 1. Leader–follower relationship quality 	<ol style="list-style-type: none"> 1. Development of mutual affective and cognitive trust from repeated interpersonal experiences 	<ol style="list-style-type: none"> 1. Affective and cognitive trust 2. Affective construal of an interactional partner's emotional expressions and behavior 3. Leadership and followership perception due to implicit leadership or followership schema activation
Group	<ol style="list-style-type: none"> 1. Group demographic diversity as resources for leadership complexity 	<ol style="list-style-type: none"> 1. Team mental models & team performance through addition of individual skills, actions & thoughts 2. Group affective tone, task knowledge, & motivation 	<ol style="list-style-type: none"> 1. Team transactive memory & specialized group-member functions that require frequent member-to-member interaction 2. Strong collective identities result in emergent group processes via cooperation (e.g., team efficiency)
Organization	<ol style="list-style-type: none"> 1. Punctuated equilibrium (e.g., mergers, spinoffs, strategic choices made by leaders) 2. Theory of organizational structure & culture 	<ol style="list-style-type: none"> 1. Attraction–selection–attrition models of organizational climate 2. Collective values, goals & human resources 	<ol style="list-style-type: none"> 1. Development of organizational ethical culture 2. Organizational complexity & identity development
Common thread among theory	Stable attributes are important antecedents to processes at each level	Individuals function independently; individuals fulfill similar functions.	Outcomes emerge from interactions of different units; individuals & groups perform different functions

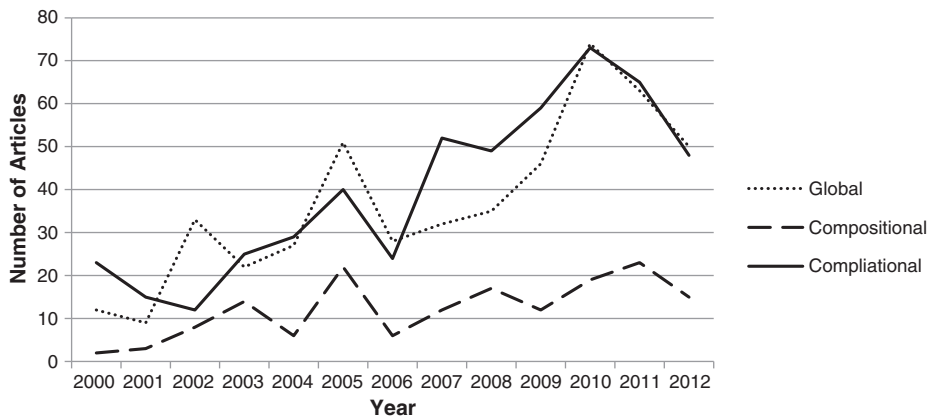
Notes: Replicated from Lord and Dinh (2012).

systems with many relatively independent units that are functionally similar (compositional aggregation) to those that involve complex systems, where the many interdependent units interact as outputs are created (compilational aggregation; Page, 2007). Increasing complexity is widely believed to increase the capacity of the higher level system to adapt to changing unit environments, so we expect that compilational aggregation offers adaptive advantages compared to compositional aggregation or stable global unit qualities.

These three emergence forms provide one way to group and link theories with potentially similar consequences. For example, the development of mental models and homogeneous organizational identities may involve similar compositional processes that are gradual and strengthen over time with employee experience and development (Day, 2011; Day, Harrison, & Halpin, 2009). In contrast, the processes that enable leader flexibility and shared leadership may be more dynamic and compilational, changing from one instance to the next as individuals experience different affective states and cognitive cues (DeRue & Ashford, 2010; Lord et al., 2011). An intriguing possibility is that different leadership skill sets and systems may be needed to effectively manage these different processes. As these examples show, attention to underlying processes is important because it demonstrates the potential diversity in requirements within specific levels of analysis as well as the continuity of phenomena occurring across different organizational levels.

3.1. Forms of emergence reflected in leadership theory and research

To shed more light on these forms of emergence, we examine the leadership literature to ascertain the forms of emergence for which leadership processes have been conceptualized and operationalized in this section. Specifically, we apply the framework described in Table 3 to indicate those theories that have most frequently been conceptualized using global, compositional, and compilational forms of emergence, and we apply this distinction across multiple levels ranging from events to organizations. Fig. 1 presents a graphical depiction of the trends over time regarding the form of emergence reflected in leadership theories. As Fig. 1 indicates, each form of emergence has shown an overall increase in terms of representation within the literature, although compositional processes have not dramatically increased in recent years. This reflects a trend toward increasingly complex theories of leadership that may overshadow the potential for using relatively simple rules and principles to explain complex behavior (Yammarino & Dansereau, 2011).



Notes: Data collection ended in September of 2012, resulting in a proportionally smaller number of coded articles. This is represented in the decline observed for 2012.

Fig. 1. Trends in form of emergence between the years 2000 and 2012.

Our findings from the application of our categorization scheme to leadership research are summarized further in Tables 4 and 5. The empirical results indicate that leadership theories have been predominantly conceptualized using global and compilational forms of emergence, whereas prior theoretical work (Lord & Dinh, 2012) also emphasized compositional forms of emergence. Additionally, we identify the level of analysis that is commonly associated with each theory within each table. It is important to recognize that different researchers may conceptualize a theory differently and so a specific theoretical category, such as trait theories of leadership, might be classified as being global for one article but compositional or compilational for another. In addition, researchers may focus on different levels of analysis for different articles. Nevertheless, there are some clear trends. First, a significant number of thematic leadership theory categories have been conceptualized using global properties. In fact, out of the 66 disparate leadership theory categories that had been identified, 29 (approximately 44%) emphasized a global ULP (see Table 4 for the top 20 global-oriented theories). Interestingly, an overwhelming majority of thematic leadership theory categories with a global ULP were also conceptualized at the individual, rather than event, dyad, group, or organizational level of analysis.

Table 4

Percentage of global leadership theories at event (E), individual (I), dyad (D), group (G), and organizational (O) level of analysis.

Theory (percent coded as global)	% at each level of analysis				
	E	I	D	G	O
1. Normative decision model (100)	100	0	0	0	0
2. Multiple linkage model (100)	0	100	0	0	0
3. Inspirational leadership (100)	33	67	0	0	0
4. Entrepreneurial (100)	0	50	0	0	50
5. Idiosyncratic leadership theory (100)	0	100	0	0	0
6. Leader motive profile theory (100)	0	67	0	0	33
7. Pygmalion effect (86)	0	80	20	0	0
8. Aesthetic leadership (83)	50	50	0	0	0
9. Destructive/abusive supervision (80)	5	53	21	5	16
10. Neuro-biological theory (63)	20	70	0	10	0
11. Ideological and pragmatic leadership (58)	29	57	14	0	0
12. Cross-cultural leadership (56)	5	50	9	0	36
13. Self-sacrificing leadership theory (55)	20	80	0	0	0
14. Trait (dispositional) theories (52)	11	68	7	5	9
15. Behavioral approaches (52)	8	59	8	0	25
16. Leadership reward and punishment behavior (50)	0	60	20	0	20
17. Servant leadership theory (50)	0	60	10	20	10
18. Leadership skills/competence (49)	10	70	0	10	10
19. Public leadership (48)	14	57	0	0	29
20. Political theory of leadership influence (48)	0	72	0	7	21

^aTheories appearing in this table were predominantly conceptualized using global, rather than compositional or compilational forms of emergence. However, each theory varied with respect to level of analysis used in research and theory. Percentages in bold indicate the level of analysis that was predominantly used for each theory.

Table 5

Percentage of compilational leadership theories at event (E), individual (I), dyad (D), group (G), and organizational (O) level of analysis.

Theory (percent coded as compilational)	% at each level of analysis ^a				
	E	I	D	G	O
Adaptive leadership (100)	27	27	10	18	18
Outstanding leadership (100)	100	0	0	0	0
Complexity theory of leadership (90)	19	28	16	23	14
E-leadership (87)	29	14	14	43	0
Leadership flexibility (86)	16	33	17	17	17
Leadership for organizational learning and knowledge (82)	0	33	23	33	11
Vertical dyad linkage (VDL) (78)	18	14	23	27	18
Cognitive resource theory (68)	17	33	17	33	0
Integrative leadership (67)	6	6	19	38	31
Situational leadership theory (63)	10	30	20	30	10
Implicit leadership (62)	19	41	22	18	0
Path-goal theory (61)	23	15	8	31	23
Attribution theories of leadership (60)	12	44	20	24	0
Leading for creativity and innovation (60)	10	27	12	32	19
Decision process theory (60)	34	0	0	33	33
Leader error and recovery (59)	0	34	0	33	33
Participative, shared leadership (58)	10	22	17	44	7
Followership theory (57)	22	23	32	19	4
Life cycle theory (57)	13	32	26	26	3
Identity and identification process theory (55)	50	25	0	25	0

^a Percentages in bold indicate the level of analysis that was predominantly used for each theory.

The literature's emphasis on individual levels is not surprising, as leaders are often understood as having direct influences on important individual and organizational level outcomes, such as performance (Lord & Dinh, *in press*). In contrast, thematic leadership theory categories that emphasize compilational processes are shown in Table 5. Although leadership theories with a compilational ULP are not often investigated at organizational levels of analysis, they are widely represented at event, individual, dyad, and group levels of analysis. As Tables 4 and 5 show, theories with a global or compilational ULP differ with regard to the underlying process used to explain a particular leadership phenomena. Whereas theories with a global ULP are often understood at a single level of analysis as processes are considered to be stable (see Table 4), theories with a compilational ULP are more likely multi-level, as processes are viewed to be dynamic and fluid across time (see Table 5). Indeed several theories in Table 5 are frequently conceptualized at many different levels of analysis, such as complexity theory, integrative leadership, and leading for creativity and innovation.

Rather than describe each theory in Tables 4 and 5, we show how describing the underlying processes associated with the form of emergence for a thematic theory category can help us understand how certain leadership processes emerge. We also use a finer grained analysis, which separates quantitative and theoretical works in Table 6. Often this distinction produced surprising results. For example, 60% of the quantitative studies of trait theories reflect global conceptualizations of leadership traits, whereas 61% of the analogous theoretical articles reflected compilational approaches to leadership traits. Thus, quantitative approaches seemed to be a bit less sophisticated than theoretical analysis with respect to trait theory. Further, this quantitative/theoretical difference is common in Table 6, with the percentage of theoretical articles reflecting compilational aggregation processes being higher than the corresponding percentage for quantitative articles for every comparison in Table 6. Attention to potential differences in how theoretical domains are conceptualized and investigated can help ascertain whether the methods used to test theory are appropriate for examining underlying processes.

3.1.1. Thematic leadership theory categories reflecting global forms of emergence

A vast majority of thematic leadership theory categories identified from Gardner et al. (2010) emphasize global forms of emergence, which also concentrate primarily on the individual level of analysis. Importantly, these theories describe leadership phenomena as using stable processes, such as dispositional factors to predict leadership outcomes. As shown in Table 4, they include trait theories, research on leadership skills and competence, and leadership style (e.g., transformational/transactional leadership, destructive leadership and ethical leadership), which identify specific leadership traits, behaviors, and characteristics that generally predict leader perceptions and effectiveness across many different contexts. Dispositional factors may be emphasized in other theories, such as entrepreneurial and cross-cultural leadership when they focus on individual factors (e.g., intelligence) to influence interpersonal outcomes. This perspective suggests that in order for leaders to influence individual and organizational outcomes, they must possess, or can influence, many of the characteristics described by these theories. Consequently, thematic theory categories with a global ULP are descriptive and offer parsimonious explanations of leadership (Lord & Dinh, 2012); however, they offer limited insight into the processes by which leaders affect organizational outcomes and they create difficulties for understanding how different thematic theory categories relate or affect one another.

Table 6

Form of emergence implied by theoretical and quantitative leadership research in top-tier publications, 2000–2012.

Established Leadership Theories	Type of research			
	Quantitative only	%	Theoretical only	%
Dispositional (Trait) Theories				
Trait (dispositional) theories – traits & attributes	Global	60	Compilational	61
Leadership skills/competence	Global	61	Compilational	58
Leader motive profile theory	Global	100	Global	100
Behavioral Theories				
Behavioral approaches (OSU/LBDQ)	Global	63	Compilational	100
Participative, shared leadership, delegation and empowerment	Compilational	51	Compilational	94
Leadership reward and punishment behavior	Global	50	-	-
Contingency Theories				
Leadership for organizational learning and knowledge	Compilational	67	Compilational	90
Contingency leadership theory	Compilational	50	Compilational	57
Situational leadership theory	Global	75	Compilational	82
Path-goal theory	Global	50	Compilational	62
Cognitive resource theory	Global	50	Compilational	100
Normative decision model	-	-	Global	100
Life cycle theory	Compilational	100	Global	100
Leadership substitute theory	Global	86	-	-
Social Exchange (Relational) Leadership Theories				
Vertical dyad linkage (VDL)	Compilational	75	Compilational	100
Leader–member exchange (LMX)	Global	52	Compilational	54
Relational leadership	Global	44	Compilational	69
Individualized leadership	-	-	-	-
Leadership and Informational Processing				
Leader and follower cognitions	Global	46	Compilational	65
Implicit leadership	Global	47	Compilational	82
Information processing and decision making theories of leadership	Global	47	Compilational	82
Attribution theories of leadership	Compilational	54	Compilational	72
Neo-Charismatic Theories				
Transformational leadership theory	Global	50	Compilational	60
Transactional leadership	Global	100	Compilational	81
Charismatic leadership	Global	52	Compilational	64
Inspirational leadership	Global	100	Global	100
Self-sacrificial leadership theory ^a	Global	62	Compilational	100
Ideological and pragmatic leadership	Global	67	-	-
Power and Influence Theories				
Power and influence of leadership	Global	69	-	-
Political theory of leadership/influence tactics of leadership	Global	53	Global	50
Follower-Centric Theories				
Followership theory	Global	53	Compilational	77
Romance of leadership	Compilational	50	-	-
Idiosyncratic leadership theory	-	-	Global	100
Leadership of Diverse and Cross-Cultural Relationships				
Leadership and diversity [gender (dis)advantages]	Global	63	Compilational	75
Cross-cultural leadership (GLOBE)	Global	61	Compilational	70
Team Leadership				
Leadership in teams and decision groups	Compilational	42	Compilational	73
Strategic Leadership				
Strategic/top executive leadership	Global	53	Compilational	73
Upper echelons theory	Global	51	Compilational	86
Public leadership (e.g., presidential, professional politician)	Global	75	Global	50
Ethical/Moral Leadership Theories				
Authentic leadership	Global	22	Compilational	54
Ethical leadership theory	Global	38	Global	58
Servant leadership theory	Global	64	Compilational	50
Spiritual leadership theory	Compilational	33	Compilational	48
Leadership Emergence and Development				
Leadership development	Global	43	Compilational	59
Leadership emergence	Global	61	Compilational	80
Identity-Based Perspectives				
Social identity theory of leadership	Global	41	Compilational	61
Identity and identification process theory of leadership	Compilational	43	Compilational	68
Contextual, Complexity, and Systems Perspectives of Leadership				
Contextual theory of leadership	Global	46	Compilational	47
Complexity theory of leadership	Compilational	86	Compilational	94
Social network approaches to leadership	Global	43	Compilational	67
Integrative leadership	Global	100	Compilational	69
Adaptive leadership	-	-	Compilational	100
Multiple linkage model ^b	Global	100	-	-

(continued on next page)

Table 6 (continued)

Established Leadership Theories	Type of research			
	Quantitative only	%	Theoretical only	%
Leading for Creativity, Innovation, and Change				
Leading for creativity and innovation	Compilational	54	Compilational	63
Leading change in organizations/change	Compilational	46	Compilational	100
Other Established Theories				
Pygmalian effect	Global	80	Global	100
Leadership flexibility	–	–	Compilational	86
Emotions and leadership	Compilational	48	Compositional	61
Destructive/abusive supervision/toxic leadership	Global	67	Global	50
Neuro-biological approaches	Global	73	Global	67
E-leadership (effects of task, technology, distance and virtuality)	Compilational	75	Compilational	100
Aesthetic leadership	–	–	Global	80
Leader error and recovery	Global	100	Compilational	100
Decision process theory	Global	40	–	–
Entrepreneurial leadership	Global	100	Global	80
Outstanding leadership	Compositional	100	–	–
Cumulative Percentages Across Theories				
Global	66		24	
Compositional	7		2	
Compilational	27		74	

Notes: Percentages were computed for quantitative and theoretical articles separately. Indicated form of emergence was predominantly used for quantitative and theoretical articles. Dashes indicate that no articles were identified for a theory. OSU = Ohio State University; LBDQ = leader behavior description questionnaire.

^a Indicates an emergent theory classified under a larger group of established perspectives.

^b Indicates an established theory classified under a larger grouping of nascent perspectives.

3.1.2. Thematic leadership theory categories reflecting compositional forms of emergence

Theories with a compositional ULP are those that emphasize the aggregation of units that preserve the same lower level aspect or quality at higher levels of analysis. Although we coded compositional forms of emergence, and found 159 leadership articles emphasizing this form of emergence, there were no levels of analysis or specific thematic categories for which this form of emergence predominated. Consequently, it seemed inappropriate to classify any theory as compositional when either global or compilational forms of emergence were more commonly discussed. For this reason, we do not present a separate table for leadership theories with a compositional ULP, although we do discuss compositional forms of emergence at various points in this review, frequently contrasting it to compilational forms of emergence. We also discuss theoretical and methodological implications associated with the general absence of compositional forms of emergence in Section 4.2.

3.1.3. Thematic leadership theory categories reflecting compilational forms of emergence

An examination of Table 5 reveals that theories with a compilational ULP are well represented at each level of analysis. This is not surprising, given that a key characteristic of compilational forms of emergence is that phenomena at one level of analysis affects another level of analysis in such a way that a fundamental change in the nature of the phenomenon occurs (Lord & Dinh, 2012). In this way, leadership theories with a compilational ULP are inherently multi-level and reflect dynamic system processes. It is also informative to see that attention has been fairly evenly divided across the various levels of analysis among thematic theory categories with a compilational ULP.

An examination of Table 5 indicates that many thematic theory categories, including adaptive leadership (Hannah, Uhl-Bien, et al., 2009), complexity theory of leadership (Marion & Uhl-Bien, 2002), e-leadership (including leadership within virtual teams; Avolio, Kahai & Dodge, 2001; Purvanova & Bono, 2009), and leadership for organizational learning and knowledge (Berson, Nemanich, Waldman, Galvin, & Keller, 2006) address interactive compilational processes that operate across multiple levels of analysis. Therefore, thematic theory categories that adopt a compilational perspective on emergence go much further than traditional perspectives by acknowledging the complexity that realistically defines modern organizations.

To illustrate the types of insights that accrue from adopting compilational perspectives, we focus on two streams of research that exemplify these approaches: the complexity theory of leadership (Marion & Uhl-Bien, 2002), and leadership for organizational learning and knowledge (Berson et al., 2006; Vera & Crossan, 2004). With respect to the complexity theory of leadership, the focus on emergent processes within complex systems (Lichtenstein & Plowman, 2009; Plowman et al., 2007) casts the leader's role as one of enabling rather controlling the organization's future. Indeed, a central assertion of complexity leadership approaches is "that leadership is multi-level, processual, contextual and interactive" (Uhl-Bien & Marion, 2009, p. 631), reflecting compilational rather than compositional types of processes. Moreover, Uhl-Bien and Marion assert that event-level activities produce emergent innovations and learning that are introduced into complex adaptive systems and become entangled with formal structures. Within such a system, leaders perform administrative, enabling, and adaptive functions to facilitate the emergence of organizational processes that lead to goal attainment. However, the effects of leadership are never certain as they are continuously affected by evolving social–environmental constraints (Lord, Dinh, & Hoffman, in review). Thus, micro- and macro-level factors converge to impact leadership, and this presents a more complex view that is ignored by more simplistic perspectives.

Compilational forms of emergence are also evident in thematic leadership theory categories that describe the emergence of organizational learning (Berson et al., 2006). This is because organizational learning can occur compilationally when it results from interactive multi-level processes. For example, Hannah and Lester (2009, p. 34) advance a multilevel model that proposes “organizational learning is an interdependent system where effective leaders enact intervention strategies at the individual (micro), network (meso), and systems (macro) levels.” Their central argument is that leaders support organizational learning by establishing the structure and conditions for learning to accrue, while shielding organizational members from interference with creative processes. In the process of enhancing the developmental readiness of followers, leaders can raise their follower’s motivation, ability to learn, and refine their mental models. Leaders also engage in system-level activities to facilitate the diffusion and institutionalization of knowledge across the organization. However, the direct effects of leadership on organizational learning are complicated by additional factors, such as the influence of followers and social–relational networks. In fact, followers’ positioning within networks allow certain individuals to catalyze information and influence resource diffusion within and across social networks (Balkundi & Kilduff, 2006), and this affects collective learning. Additionally, organizational learning may be affected by temporal factors, such as employee absenteeism and social network reconfigurations, which impact the types of resources that are available to organizational members (Smith-Jentsch, Kraiger, Cannon-Bowers, & Salas, 2009; Zaheer & Soda, 2009).

3.2. Strengths and limitations of theory with global, compositional, and compilational ULPs

Our review of the leadership literature shows that leadership theories can be classified by form of emergence and by level of analysis. In this framework, attention to process is important and reveals possible limitations of a theory based on how processes are conceptualized. As we have described, theories with a global ULP are descriptive and parsimonious. However, by emphasizing stable aspects of leaders and organizational units, such theories may oversimplify and romanticize leadership, and they may draw too heavily on naïve, common-sense understanding of processes that are encoded into natural language (Uher, 2013).

Typically, theory provides a foundation that guides research methods. Therefore, another issue with focusing on global processes is that it may perpetuate methods that stress stability in phenomenon by aggregating over many events. Indeed, the use of cross-sectional methods that include retrospective questionnaires and field surveys, was common in empirical works across top-tier journal outlets, making up roughly 62% (334 cases) of the coded research (see Table 7). Such operationalization can also introduce a variety of rating errors (e.g., primacy or recency effects, an overemphasis on salient behaviors and outcomes, halo or liking effects, etc.; Brown & Keeping, 2005; Shondrick, Dinh, & Lord, 2010), as well as create difficulty for understanding how different theoretical domains relate or affect one another. In fact, one common problem is that theories with a global ULP ignore event-level processes that provide insight into the observed variability that occurs in leader and follower decision-making and behavior (e.g., Johnson, Venus, Lanaj, Mao, & Chang, 2012; Kuppens, Oravecz, & Tuerlinckx, 2010). Indeed, research using experience sampling has shown that people experience a wide range of affective experiences and trait behaviors during a normal day (Fleeson, 2001; Kuppens et al., 2010). Also, seemingly stable intrapersonal constructs, such as semantic schemas for personal and team work routines (Dionysiou & Tsoukas, 2013) and self-perceptions (Slotter, Lucas, Jakubiak, & Lasslet, 2013), can change in response to interpersonal social cues, thereby affecting subsequent decisions and choices. At higher levels, event-level variability is also reflected in interpersonal team dynamics (Crawford & LePine, 2013; Smith-Jentsch et al., 2009), group processes (Klein, Ziegert, Knight, & Xiao, 2006; Morgeson, 2005), and organizational systems (Gulati, Sytch, & Tatarynowicz, 2012; MacKay

Table 7
Summary of methodology for quantitative articles.

	Frequency	%
Time		
Cross-sectional	334	62
Cross-sectional w/CMV time lag	37	7
Longitudinal	206	38
Data source		
Field survey (primary data)	365	67
Field survey (secondary data)	122	23
Laboratory experiment	98	18
Content analysis	74	14
Review (non-meta-analytical review)	53	10
Field experiment	23	4
Meta-analysis (quantitative review)	15	3
Sample survey	9	2
Observation	6	1
Diary study/experiential sampling	5	<1
Experimental simulation	5	<1
Computer simulation	4	<1
Judgment task	3	<1
Methodology study (e.g., psychometric methods)	3	<1

Notes: 1. The total frequency exceeds the number of quantitative articles because articles often employ multiple studies and data sources.

2. Percentage is calculated by using the total quantitative article count, 542, as denominator.

& Chia, 2013) that require leaders (and followers) to continuously adjust to environmental uncertainty. Hence, narrowly focusing on global forms of emergence runs the risk of codifying lay theories that overemphasize the stability in processes by using language that masks the dynamics of organizational phenomenon.

Specific to individual global perspectives of leadership, which dominated the literature, these types of theories assume away both the influence of the event-level and contextual influences to produce a more simplistic, outcome-oriented perspective of leadership. By positing direct relationships between leadership and outcomes, such as performance (i.e., $L \rightarrow P$), these leader-centric theories overemphasize the role of leaders by attributing the success and failure of organizations to the agency of specific individuals as depicted by fundamental attribution theories (Kelley, 1973).

In contrast, theories that conceptualize leadership processes as compilational are better able to address the nonlinear dynamics that characterize organizational phenomenon through which higher-level outcomes emerge from the cyclical interaction of lower-level units. In fact, theories with a compilational ULP are inherently multi-level and evolve over many temporal orders. As such, leadership theories with this ULP advance an understanding of leadership that is much more consonant with the complexity that defines real people and organizations by considering the importance of time (Bluedorn & Jaussi, 2008; Langley et al., 2013; Sonnentag, 2012), the interactive nature of social-relational systems (Kahn, Barton, & Fellows, 2013; Valcea, Hamdani, Buckley, & Novicevic, 2011), and how environmental contexts shape leadership (MacKay & Chia, 2013). This perspective invites scholars to consider how seemingly independent processes may operate together to affect leadership and organizational outcomes, and so it offers a way to unify multiple thematic theory categories by encouraging the development of more integrative leadership theory.

Critically, leadership theories that stress compilational forms of emergence help scholars to see leadership as operating with social-relational systems that define modern organizations (Kahn et al., 2013). Within this context, leaders may achieve their goals indirectly through followers (Lord & Dinh, *in press*), and followers may have reciprocal effects on leadership and leader development (Day et al., 2009; Hoyt, Price, & Poatsy, 2013). Additionally, because the influence of leadership may require weeks, months, to years to fully manifest, it cannot be evaluated within short spans of time (Jaques, 1990; Kaiser et al., 2008). Hence, theories with a compilational ULP invite scholars to step outside of leader-centric perspectives by considering the impact that simultaneously occurring processes operating at higher and lower levels, such as followership (Valcea et al., 2011; Van Knippenberg, van Knippenberg, De Cremer, & Hogg, 2004) and group and system dynamics (Crawford & LePine, 2013; Gulati et al., 2012; Polyhart & Moliterno, 2011), have on the emergence of leadership phenomena.

Interestingly, research that emphasizes compilational processes is more common to theoretical rather than quantitative articles, which concentrate on global processes. Theoretical and quantitative articles were compared separately for each thematic theory category in Table 6. This table shows that approximately 66% of theories examined by quantitative research emphasized global forms of emergence, whereas 27% focused on compilational processes. In contrast, 74% of purely theoretical research stressed compilational forms of emergence, while 24% focused on global processes. These findings illustrate a fundamental difference between quantitative and theoretical articles with respect to their attention to processes and outcomes. Because quantitative research stresses global, stable processes, this type of research may be more focused on understanding outcomes. However, theoretical articles are more process oriented as they explicate how underlying processes contribute to emergent leadership phenomena. We discuss this implication in greater detail in Section 4.1.

We should also comment on the tendency for compositional forms of emergence to be underemphasized in the literature. They were not the predominant focus for any thematic theory category, with the percentage of compositional theories ranging between 0 and 40% across all theories. However, this result does not mean that compositional theories are unimportant. They still characterized 159 articles in the leadership field and help describe how complex multi-level processes unfold over time (Ashforth, Rogers, & Corley, 2011). In addition, compositional processes were part of the data we used to calculate the percentages in Tables 4–6.

We suspect that the under-emphasis of compositional theories reflects a general bias in the leadership literature to focus on issues with closer relations to compilational forms of emergence such as adaptation and change, which are associated with the most popular research stream, transformational leadership theory. In contrast, efficiency issues, that may be more closely related to transactional leadership theories and may be more reflective of compositional forms of emergence, tend to be underemphasized in the leadership literature. It should also be recognized that each article reflects the authors' own interpretation of theory and processes, and there may be a bias toward noticing and discussing compilational forms of emergence rather than compositional forms of emergence, even though many organizational phenomena have both compositional and compilational aspects.

There was also another curious aspect related to compositional forms of emergence that is discussed in the following section. Specifically, many empirical articles started with theory that emphasizes compilational forms of emergence, but treated the data as having a global or compositional ULP where individual responses and variables were aggregated to a group level or were combined linearly using multiple regression without concern for potential interactions among variables. Yet, dynamic interactive processes are a fundamental feature of compilational theories. Consequently, in many instances we found that theory and measurement or analytic procedures were mismatched.

3.3. Form of emergence emphasized by journal and emergence match/mismatch

After describing the forms of emergence that have been predominantly implied by theory, we examined whether certain forms of emergence were emphasized across the 10 journals as shown in Table 8. This table shows that of the three forms of emergence, global processes were commonly emphasized in half of the journals. However, compilational processes were investigated at a frequency that equally or exceeded global processes in the remaining journals. In addition, compositional

Table 8
Frequency (instance) and percentage of form of emergence emphasized by journal.

Journal	Form of emergence					
	Global	%	Compositional	%	Compilational	%
<i>Academy of Management Journal</i>	31	61	8	16	12	23
<i>Academy of Management Review</i>	4	44	1	11	4	44
<i>Administrative Science Quarterly</i>	14	36	10	26	15	38
<i>American Psychologist</i>	4	33	1	8	7	58
<i>Journal of Applied Psychology</i>	61	45	25	19	49	36
<i>Journal of Management</i>	9	29	4	13	18	58
<i>Organizational Behavior and Human Decision Processes</i>	18	45	6	15	16	40
<i>Organizational Science</i>	1	10	3	30	6	60
<i>Personnel Psychology</i>	12	50	4	17	8	33
<i>The Leadership Quarterly</i>	244	46	62	12	219	42

Note: Articles can have more than one form of emergence. As such, data reflects the number of instances a form of emergence was implied.

processes were not commonly addressed by theory and research in any of the 10 top-tier publication outlets. Interestingly, the form of emergence emphasized by a journal can reflect the journal's focus or interest. For example, nearly half of the research published in *Personnel Psychology* investigated leadership phenomenon as global processes, which may reflect the journal's emphasis on individual dispositions, strategy, and behaviors. In contrast, 58% of the research published in *American Psychologist* emphasized compilational processes, and this may be due to the fact that articles in this journal are theoretical, rather than quantitative, and examined dynamic multilevel processes.

We also examined the types of leadership theories that had the highest percentage of studies with matches or mismatches in terms of correspondence between form of emergence/level of analysis and methods *within a specific study*. As described previously, matches occurred when processes implied by the theory of an article were investigated at the theorized level of analysis and used methods that appropriately captured the process described by theory. Using a 25% cut-off score, we identified those theories with the highest mismatches in Table 9. This table shows that mismatches were common in research investigating certain theories, and especially for the leading for the creativity and innovation thematic category. In fact, the use of cross-sectional field surveys that aggregated within-person processes was common to research investigating this leadership phenomenon (57%), which may be inappropriate for investigating dynamic intrapersonal and interpersonal processes responsible for creative insight as implied by theory. Mismatches also occurred in research on relational leadership, ethical leadership, and transformational leadership theory that predominantly used cross-sectional field surveys at one point in time (41–65%) to understand leadership phenomena that likely involve multi-level compilational processes (Crawford & LePine, 2013; Schaubroeck et al., 2012).

4. General discussion

Our critical review of the leadership literature that included *LQ* and nine other top-tier publication outlets demonstrates the continued growth and interest in leadership theory and research in the new millennium. In this review, we have identified 752 articles that focused on the topic of leadership, which include and extend beyond the 353 articles that had been identified by Gardner et al. (2010) in *LQ* alone between the years 2000–2009. Moving forward, leadership scholars and practitioners now face

Table 9
Frequency and percentage of match/mis-matched quantitative research to form of emergence within established theories.

Theory	Emergence-LoA/theory (mis)-match		
	Match	Mis-match	% mis-match
Behavioral approaches (OSU/LBDQ)	9	3	25%
Leadership skills/competence	15	7	32%
Transformational leadership theory	80	32	29%
Transactional leadership	17	8	32%
Authentic leadership	8	4	33%
Contextual theory of leadership	18	9	33%
Emotions and leadership	27	9	25%
Ethical leadership theory	8	5	38%
Leader and follower cognitions	51	18	26%
Leadership in teams and decision groups	64	22	26%
Leading change in organizations/change	12	5	29%
Leading for creativity and innovation	13	13	50%
Relational leadership	10	6	37%
Social identity theory of leadership	13	6	32%

Note: OSU = Ohio State University; LBDQ = leader behavior description questionnaire.

the challenge of integrating this diverse body of knowledge to explain how leaders shape organizational processes and systems. In this article, we argued that this challenge can be approached by focusing on the forms of emergence that influence, or are influenced by, leaders. Specifically, by classifying leadership theory into broad thematic categories using a framework advanced by Gardner et al. (2010), with a process framework proposed by Lord and Dinh (2012), we provide a structure that organizes the leadership literature based on how leadership phenomena occur at different levels of analysis can combine to influence the emergence of phenomena at higher or lower levels.

Although there are many other useful frameworks that can organize leadership theory (e.g., Hernandez, Eberly, Avolio, & Johnson, 2011), this framework stands apart by emphasizing the continuity among disparate leadership phenomenon by focusing on process. In doing so, this framework can facilitate the development of more integrative research agendas that explore how leaders, followers, and larger social systems jointly influence the unfolding of organizational events. In many instances, it is the combined effects of intrapersonal and interpersonal processes that produce emergent phenomena in organizations. For example, cognitions, emotions, and aspects of physical embodiment simultaneously operate within individuals (Damasio, 1994; Dinh, Lord, & Hoffman, 2013) to produce emergent phenomenon such as decisions. Similarly, social obligations and contractual norms operating at more interpersonal levels (Crawford & LePine, 2013; Kahn et al., 2013) work together to influence the emergence of collective resources, knowledge, and skill that constrain an organization's adaptive potential (Gulati et al., 2012; Zaheer & Soda, 2009). However, this dynamic systems perspective is largely unexplored in leadership theory and research that tends to be cross-sectional rather than longitudinal, as shown in Table 7. Yet skilled practitioners must address these intertwined processes when they are leading.

In addition, this framework has an advantage over traditional narrative reviews of the literature in that it provides an empirically based approach that groups theories using a particular form of emergence. This helps to identify a common process-related thread linking otherwise divergent theories. For example, a common thread among global theories is that they emphasize stable processes that exist at the level of wholes. That is, theories such as inspirational leadership, leader motive profile theory, aesthetic leadership, neuro-biological theory, and destructive/abusive leadership are those that emphasize enduring aspects of individuals. Perhaps leadership theory could be advanced by consolidating or integrating such theories. Other global theories, although framed as wholes in terms of the level of analysis, seem to reflect differences in contexts (entrepreneurial, cross-cultural leadership, public leadership, political influence), even though they are conceptualized at the individual wholes level.

In contrast, theories that adopt a parts perspective and describe emergent processes may differ depending on whether they emphasize compositional or compilational forms of emergence. For example, theories that emphasize compositional processes share a common thread that focuses at the unit level (e.g., events, individuals, dyads, groups, organizations) and assumes that each unit fulfills a similar function across relevant levels. Although this approach reflects a parts perspective, the fundamental characteristics of units do not change as processes emerge to higher relevant levels. Therefore, it suggests that theories operating at different levels use the same functional processes. For instance, theories focusing on transformational leadership theory, leadership in teams and decision groups, and top management team leadership, sometimes emphasize compositional forms of emergence.

Finally, theories that emphasize compilational processes are similar in that they focus on how processes occurring at one level of analysis can create an emergent construct at the next highest level. These theories show considerable heterogeneity in terms of the level at which they are formulated. For example, complexity theories are fairly evenly distributed across events, individual, dyad, group, and organizational levels of analysis, but at each level they imply that lower level constructs interact (across time or across units) as they are combined to create higher-level constructs. That is, events may interact as they are remembered and combined to create leadership skills or identities, and individual contributions interact as they are combined to create group products. Importantly, this form of emergence emphasizes the cross-level aspects of leadership, and it suggests that the leadership processes that span multiple levels may operate in a different fashion for lower and higher level constructs even though they may not explicitly address such differences. A more careful specification as to how leadership influences such integrative processes might help advance theories such as adaptive leadership, outstanding leadership, and complexity leadership theories.

Organizing leadership research by the nature of emergent processes also signifies the need to understand how leadership occurs within social systems that continually change. Importantly, emergent processes are not bounded within a particular level of analysis as our framework has shown. Additionally, aggregation processes take time, such that processes can have cascading effects that extend into the future (Wickham & Knee, 2013). These findings have important implications for advancing leadership theory in the new millennium in a manner that is both context and time sensitive. To provide a guide for the development of future research, we discuss several notable findings that have been obtained from this extensive review.

4.1. Implications for theory and practice

We argue that advancing leadership theory and research will require that scholars critically examine several foundational assumptions that have defined leadership and organizational research in the last century. As our review has shown, global processes, which emphasize stability in seemingly stable structures (e.g., personality, semantic knowledge, social networks) provided the thrust for much of the theory. As a reviewer astutely noted, the emphasis on global processes may have been perpetuated by early authoritative reviews in the literature (e.g., Mann, 1959), thereby blocking efforts to reconceptualize leadership theory to consider more dynamic processes. However, changing perspectives in the recent literature have shown that changing contexts (Ryan, Haslam, Hersby, & Bongiorno, 2011; Sy, Shore, Strauss, Shore, Tram, et al., 2010), and the temporal dynamics that occur within individuals (e.g., Kuppens et al., 2010; Read et al., 2010), teams (Crawford & LePine, 2013;

Smith-Jentsch et al., 2009), and social systems (Zaheer & Soda, 2009) vary over time. This perspective differs from leader-centric approaches that instill a false sense of certainty for understanding how leaders affect the performance of individuals and organizations. At a minimum, this perspective suggests that leadership theory that is built on retrospective constructs and data tends to overestimate the direct effects of leadership. In addition, it raises concerns related to the utility of retrospective measures that use past judgments or events to predict future outcomes if the underlying goal is to understand *how* leaders influence (or are influenced) by environments that are complex, variable, and continually changing (Langley et al., 2013; MacKay & Chia, 2013; Uhl-Bien & Marion, 2009). Instead, this perspective highlights the need for theory and research to consider how the dynamics among multi-level processes lead to outcomes of interest by imposing constraints on the manifestation of leadership. Here a critical issue is that leadership, particularly top-level leadership, may be a relatively distal cause of organizational adaptation or change as a leader's influence is affected by intermediate social–environmental processes. As such, future leadership theory needs to better link aspects of leadership with intervening processes that ultimately create outcomes of interest, and it needs to do this in a manner that does not confuse leadership perceptions with the effects of leaders or unit performance (Kaiser et al., 2008; Lord & Dinh, *in press*).

Organizational processes also operate on multiple levels and time scales (i.e., some occurring faster or slower than others), making it difficult for leaders to foresee how processes may interact and evolve over varying periods of time (Kaiser et al., 2008). Further, leadership may be qualitatively different at different organizational levels, requiring multiple ways to think about leadership processes. As research on leadership and teams has shown, the duration of leadership processes and the temporal ordering for when and how leadership occurs affects leadership effectiveness (DeChurch et al., 2011; Morgeson, 2005). Organizational scholars have also noted that individual, group, and organizational processes unfold differently across time spans of seconds, minutes, days, months, and years (Bluedorn & Jaussi, 2008; Langley et al., 2013; Sonnentag, 2012). In fact, research on self-managing teams (Klein et al., 2006; Morgeson, 2005) and organizational change (Klarner & Raisch, 2013) have identified distinct temporal phases, each with specific kinds of leadership interventions and behaviors that would help optimize group and organizational performance outcomes. For example, leaders can control the pace and speed at which organizational processes occur; the synchrony among similar or different work activities (entrainment); worker's temporal focus (attending to the past, present, and future); and the duration of work processes (Bluedorn & Jaussi, 2008; Sonnentag, 2012). In addition, leaders can influence others instantaneously (within seconds) through processes of emotional contagion (Bono & Ilies, 2006; Sy, C té, & Saavedra, 2005), or after a period of months or years as leadership actions cascade downwards in hierarchically structured organizations (Jaques, 1990). Hence, continuously evolving intra- and interpersonal processes can exhibit non-linear change when the consequences of leadership (or external processes) are combined over time (MacKay & Chia, 2013; Plowman et al., 2007). This perspective presents a critical examination of cross-situational methods for investigating leadership, and it suggests that attention to time and level of analysis are needed for the development of compositional and compilational leadership theory.

4.2. *Advances in methodological approaches*

Attention to process is important as it affects how leadership is researched. For instance, conceptualizing leadership phenomenon as reflecting stable, global processes invites the use of methods (e.g., questionnaires, surveys) that are event non-specific as measures aggregate within person and across different contexts and situations. While the use of retrospective questionnaires and surveys offer a summary evaluation of leadership outcomes, these types of measures also overlook the significance of dynamic event-level processes that create the uncertainty and variability that characterize leadership behavior and organizational phenomenon (Dinh & Lord, 2012; MacKay & Chia, 2013; Plowman et al., 2007). As findings from our review had shown (Table 6), there is an important disconnect between quantitative and theoretical research. Quantitative research typically conceptualizes leadership processes globally and so investigates leadership cross-situationally and within a single level of analysis. However, theoretical frameworks more often advance compilational forms of emergence that consider how different leadership phenomenon evolve as a result of dynamic interactive social processes that span multiple levels of analysis. Hence, quantitative research frequently tests leadership phenomenon in a piece-meal fashion, and it often does so without attention to the importance of temporal ordering or the effect that time has on leadership and organizations (Lord et al., 2013; Langley et al., 2013; Sonnentag, 2012).

We also suspect that this issue reflects the way science progresses, such that the pace at which theory and methodological approaches are developed can occur asynchronously depending on the perspectives and technology that are available at the time. But it is also likely that for most researchers, taken-for-granted methodological approaches reflecting common practices receives far less scrutiny than the theoretical issues guiding hypotheses and interpretations of results. We should stress, however, that there can be substantial gains from adopting methods that better align with theory. For example, categorization theories of leadership perception were developed in the 1980s (Lord, Foti, & De Vader, 1984) and posited that perceivers responded to patterns of characteristics, yet it took 15 years to empirically investigate the effects of actual patterns (Smith & Foti, 1998). Recent research shows that including patterns increased the ability to predict leadership perception from an R^2 of .21 to an R^2 of .38 (Foti & Hauenstein, 2007). As we described, discrepancies between theory and methods have also occurred in several areas of research such as leading for creativity and innovation. Thus, we would encourage researchers to think more carefully about whether their methodological approach adequately reflects underlying theory and to explore alternative methodological approaches.

Table 6 also shows that very few quantitative and theoretical articles were characterized with a compositional ULP, which describe processes that emerge isomorphically from lower to higher organizational levels (e.g., the emergence of shared team mental models from individual procedural knowledge; see Table 3). However, the absence of compositional forms of emergence is perhaps unsurprising given that isomorphic forms of aggregation occur gradually over time. For example, the emergence of unethical

organizational climates from the actions of “bad apples” (Ashforth, Gioia, Robinson, & Treviño 2008) may take months and years to emerge, where isomorphic changes from individual to group to organizational level practices appear gradually, and thereby, are imperceptible to observers (Gino & Bazerman, 2009). Similarly, the emergence of organizational climates and cultures may involve compositional processes that emerge through socialization processes (Morrison, 2002), repeated enactment of leadership behaviors (Dragoni, 2005), collective sensemaking (Balogun & Johnson, 2004), and the sharing of stories and narratives within larger social networks (Zohar & Tenne-Gazit, 2008). As these examples show, compositional processes require time and may not be easily captured by research that ignores the longitudinal, multi-level processes that are inherent within leadership.

In light of these findings, efforts to advance leadership theory and research by moving from global to compositional and computational perspectives will require methodological approaches that enable the testing of dynamic processes that span multiple levels of analysis and over different periods of time. As Weinhardt and Vancouver (2012) suggest, one viable approach to understanding dynamic multi-level processes associated with leadership and organizational systems is to use computational modeling, which are mathematical models that can be specified to simulate the evolution of complex, non-linear systems. Computational models have been employed to understand how interactive processes among intrapersonal variables affect the dynamics of person construal (Freeman & Ambady, 2011), personality (Read et al., 2010), and leadership perception (Dinh & Lord, 2013). Computational modeling has also been used to investigate the emergence of leadership learning and development (Black, Oliver, Howell, & King, 2006) and a leader's role in facilitating team dynamics (Dionne & Dionne, 2008; Dionne, Sayama, Hao, & Bush, 2010). Because computational modeling can simulate the changing dynamics among simultaneously occurring processes in real time, it can account for the uncertainty that characterizes real organizational systems (MacKay & Chia, 2013), and thereby, explain how leadership processes and contexts interact to create unintended consequences in the present and future (Lord et al., *in review*). In this way, computational modeling offers a means to incorporate context into leadership theory and its analytical capacities can advance findings offered by event-level methodological approaches and more typical statistical analyses.

Additionally, the use event-level methodologies (e.g., Fleeson, 2001; see also Dinh & Lord, 2012; Morgeson, 2005) and network analysis (e.g., Balkundi et al., 2011; Fowler & Christakis, 2008; Zohar & Tenne-Gazit, 2008) can offer additional technologies for understanding dynamic individual and group processes. In fact, by sampling specific points in time, scholars can clarify how specific contexts, events, and processes that occur internally (e.g., emotions, embodiment) and interpersonally (e.g., emotional contagion) impact how leadership relates to phenomena like leader flexibility (Lord et al., 2011), leader perception and influence (Giessner & Schubert, 2007; Sy et al., 2005, 2010), and performance in dynamic team and organizational contexts (Crawford & LePine, 2013; Klein et al., 2006; Plowman et al., 2007). Examining event-level processes may help separate leadership performance and leadership perception processes, which have heretofore been confounded in much leadership research (Kaiser et al., 2008). Although these methodological approaches depend on measures that are assessed explicitly or reflectively, recent leadership research has employed implicit measures that capture processes occurring automatically, operating below the level of conscious awareness (e.g., Johnson & Lord, 2010; Leavitt, Reynolds, Barnes, Schilpzand, & Hannah, 2012; Randolph-Seng & Gardner, 2013). Importantly, the use of implicit and explicit measures can provide insight on how interactive processes occurring within relatively short temporal time scales (milliseconds to minutes) affect leadership decision-making and organizational behavior (e.g., Kleiman & Hassin, 2011; Verplanken & Holland, 2002).

Researchers can implement techniques more common in neurological and social-cognitive studies to explore how rapidly occurring individual and interpersonal processes can create cascading effects on leadership outcomes. For example, visualization techniques have been employed to explore how affective experiences affect memory and cognition (Naidoo, Kohari, Lord, & DuBois, 2010); verbal patterns and voice quality have been analyzed using computer technology, predicting historians' ratings of U.S. presidents and Canadian prime ministers (DeGroot, Aime, Johnson, & Kluemper, 2011); and research that creatively manipulates subtle environmental cues (e.g., Ashton-James, van Baaren, Chartrand, Decety, & Karremans, 2007; Giessner & Schubert, 2007) has begun to explore how physical embodiment affects leadership emergence and social influence. Other methodological approaches might include neuroimaging technology, which has unraveled the neurological basis for leadership complexity in decision-making and influence (Hannah, Balthazard, Waldman, Jennings, & Thatcher, 2013). It is also likely that greater use of EEG and fMRI technologies will allow future research to test theories in more sophisticated ways. Neuroscience has made impressive progress in understanding emotional and self-relevant circuits, and it may be possible to understand reactions to leadership in terms of relevance to such circuits.

Despite our recommendations for dynamic research designs that capture events occurring across time, we do not intend to argue that well-designed cross-sectional research should be abandoned. Such designs, especially at initial stages of inquiry on specific research topics, may be very beneficial. Indeed, before pursuing refined longitudinal research on a topic of interest, it is useful to determine if a specific research topic offers promise for better understanding leadership. For example, if a new approach to leadership is found to explain no incremental variance in outcomes beyond existing approaches, it may not be worth pursuing. Cross-sectional research employing multiple sources of data and adequately controlling for established leadership approaches could certainly serve such purposes. If such research does in fact reveal potential for a new approach to leadership via the discovery of non-redundant relationships to salient outcomes, then longitudinal research methods using varying time intervals advocated in the current article may be employed. Indeed, the use of multiple methods for testing hypotheses is a hallmark of solid scientific research. Additionally, it is not within the realm of possibility to test entire theories in a single investigation. Although doing so may be valuable for addressing some hypotheses, it certainly should not be a requirement for all leadership research. Thus, our recommendations for creative new research designs for the study of leadership are not meant to suggest that there no longer remains value in cross-sectional field research. Instead, we contend that the methods recommended complement cross-sectional designs by providing an enhanced level of detail and incorporation of contextual variables.

4.3. Limitations

In this article, we developed a framework that emphasizes the importance of process, which we used to organize and describe a vast array of leadership theories. Although the framework's underlying structure could be applied towards the classification of any leadership theory, there are several limitations that apply to how this framework was described and applied within the context of this article. First, due to the extensive reach of the leadership literature, it is impossible to thoroughly describe how this framework could be applied to each leadership theory. As such, we note that the select leadership theories that we used to illustrate each form of emergence represent areas of research that are especially familiar to the authors and serve only to illustrate the application of our framework rather than to signify the relative importance of one theory to the next.

Another limitation worthy of mention is that we focused on classifying leadership theories in top-tier research outlets, which may have excluded theory and research on leadership domains that are flourishing in other publication journals. For example, leadership research can also be found in many educational journals and those that focus on management in the public sector (e.g., *Human Relations*, *Journal of Management Studies*). Hence, although our review makes an effort towards unifying leadership theory and offers general conclusions on the state of the field, we note that a far more comprehensive understanding of the field and its development can be obtained by including perspectives provided by both academic and organizational practitioners. This approach can offer a more balanced perspective for understanding the kinds of processes that impact leaders or are used by leaders to affect organizations, organizational members, and societies.

One final limitation of our approach is that we often compare the recent growth of leadership research to trends identified by prior scholars who utilized a traditional non-quantitative review approach (e.g., House & Aditya, 1997), rather than our data driven approach. It may be the case that some different conclusions would be drawn if we employed a comparison using a data driven approach over a longer period of time, rather than comparing traditional reviews to our data driven review method.

5. Conclusion

As Kaiser et al. (2008) acknowledged in their review, leaders are influential in determining the fate of their organizations through their decisions, strategies, and influence on others. This sentiment has been shared by many scholars across multiple disciplinary fields, which has contributed to the rapid proliferation of leadership research over the last decade. As our review of the leadership field has shown, leadership theory and research, while primarily published in *LQ* (59% of the coded articles), has extended beyond *LQ* and into the purview of other top-tier publication outlets over the last decade. Our review has also shown that since the start of the new millennium, we have witnessed the growth of emerging leadership theories such as neurological perspectives on leadership, and the continued proliferation of theories relating to leading for creativity and innovation, toxic/dark leadership, and strategic leadership. Several established leadership theories continue to capture the interest of the field including neo-charismatic, information processing, trait, and leader-follower exchange theories. However, other leadership theories have not witnessed significant growth, including behavioral approaches, contingency theory, and path-goal theory. Overall, the growth and development of the leadership field presents both exciting new possibilities and challenges that confront scholars as they navigate the complexities of a field that has become increasingly diverse and rich in theoretical insight.

Our review also shows how much the leadership field has developed in recent decades. To date, we have identified a total of 66 different leadership theory domains. Although this diversity has brought forth novel perspectives that enrich our knowledge of leadership, it also presents several challenges that future research must address. Notably, future research needs to develop integrative perspectives that consider how disparate leadership theories relate or operate simultaneously to influence the emergence of leadership phenomena. We have argued that attention to these dynamic processes as they unfold over time and across different levels of analysis is critical because it helps capture the complexity that defines real individual, group, and organizational systems. However, efforts to advance leadership theory and research will require that we pay attention to the processes that underlie phenomenon and occur at multiple levels of analysis. By understanding *how leaders influence underlying processes that lead to organizational outcomes*, scholars can also develop integrative perspectives that unify diverse theories and stimulate novel leadership research in the new millennium. Yet, attention to non-linear forms of emergence may also require that our technologies and methodologies advance in order to capture or simulate the dynamics postulated by compositional and compilational theories.

As a field, we have amassed an extensive body of research and theory that has solidified the importance of leadership in organizational science. However, we also know much more about the outcomes of leadership than the processes that affect the emergence of these outcomes. For example, these processes include followers, as well as momentary (e.g., active identities) and more enduring structures (e.g., goal orientation climate, ethical culture), that are influenced by leaders. Additionally, leaders are embedded within organizational systems that are continually evolving, creating a more complex picture for understanding how individuals *think, feel, and behave* in response to changing events. Leadership may also involve collaborative team processes, bottom-up follower-based processes, as well as more typical hierarchical, top-down influences. This view challenges the stability and certainty that is typically found within the dominant leader-centric, global, trait-oriented thematic category that have defined the field. By inviting scholars to consider how processes change and evolve as they are influenced by context, as well as by leadership occurring from multiple sources within organizations, leadership theory can move closer to the outcomes we seek to explain. Linking processes to outcomes can advance theory, and it will also provide a firmer basis for leadership interventions.

Finally, it is important to recognize the reasons no unified theory of leadership currently exist. Leadership theory emphasizes many outcomes, from how leaders are perceived to how leaders affect unit performance; it involves actions of group members

(Day, 2000) as well as those of formal leaders; it has been applied to levels that include events, individuals, dyads, groups, organizations, and political systems; it has focused on immediate and delayed effects; and it often incorporates contextual differences. Thus, it is not surprising that leadership involves 66 different theoretical domains and a wide variety of methodological approaches. A unique aspect of *LQ* is that it welcomes this diversity in conceptualization and approaches to leadership, helping to create a vibrant, developing, and relevant scientific domain. We have provided a summary of the field in the first 12 years of this millennium, along with a variety of assessments and recommendations. We hope that it will provide a useful cornerstone for future developments in leadership in the years to come.

Appendix A. Leadership theory coding scheme

Thematic category number	Thematic category title	Leadership theories & content within thematic category
1	Neo-charismatic theories	These articles discussed transformational and/or charismatic leadership topics, e.g., concepts of charisma, consequences of charismatic leadership. Sometimes the focus was on transformational leadership; at other times the only focus was charismatic leadership. Frequently, both transformational and charismatic leadership were mentioned, resulting in a category that combined these two. This thematic category also includes inspirational, Pygmalion effects, visionary, self-sacrificing and ideological/pragmatic, full-range and outstanding leadership theories. (Representative articles: Antonakis, Avolio, & Sivasubramaniam, 2003; Bono & Judge, 2004; Judge et al., 2004; Mumford, Antes, Caughron, & Friedrich, 2008)
2	Information processing theories	This thematic category includes articles which pertained to cognitive approaches to information processing and decision making processes in leadership including attribution theories, leader and follower cognitions (e.g., perceptions), the connectionist approach, and implicit leadership theories. (Representative articles: Lord & Hall, 2005; Lord & Shondrick, 2011; Martinko, Harvey, & Douglas, 2007)
3	Social exchange/relational leadership theories	This thematic category includes leadership theories with a relational focus, including Leader–Member Exchange Theory (LMX), individualized leadership, vertical dyad linkage and related relational leadership theories. (Representative articles: Uhl-Bien, 2006; Brower, Schoorman, & Tan, 2000; Shin & Zhou, 2003)
4	Dispositional/trait theories	This thematic category includes articles that looked at individual differences in leaders and investigated specific traits, abilities or clusters of abilities that contribute to leadership effectiveness. It includes the traditional trait approach, as well as other newer approaches, i.e., nature of managerial traits, managerial attributes, skills and competence, situational relevance of skills, and leader motive profile theory (LMP). (Representative articles: Judge & Bono, 2000; Zaccaro, 2007)
5	Diversity & cross-cultural leadership theories	The focus of this thematic category is on domestic and cross-cultural issues of leadership. Diversity theories investigate the experiences of women and minorities in leadership positions, and of diverse followers within domestic borders, e.g., the benefits of more women leaders, the challenges facing women in leadership roles. The cross-cultural thematic category includes articles comparing the leadership processes of one culture to another, or looking at leadership in non-US populations to discern if European/US leadership theories applied in such settings/culture, country & attributes of leadership, universality, cultural & institutional changes, differences in Leadership across cultures, leadership in the multinational firm, and the GLOBE Project. (Representative articles: Eagly & Chin, 2010; Kirkman, Chen, Farh, Chen, & Lowe, 2009; Walumbwa, Lawler, & Avolio, 2007)
6	Follower centric theories	Theories that prioritize the follower in the leader–follower pairing comprised this thematic category. Specifically, it includes articles investigated follower attributes related to the leadership process (e.g., identity, motivation, and values), the active roles follower play in leader–follower dynamics, romance of leadership (RoL), and follower outcomes. Articles with aesthetic perspectives in leadership that investigated follower's subjective evaluation of leader qualities through aesthetic senses were included in this category. (Representative articles: Bligh, 2011; Hansen, Ropo, & Sauer, 2007; Howell & Shamir, 2005)
7	Behavioral theories	This thematic category focuses on research using the leadership behavior frameworks of The Ohio State University Leadership Studies (OSU/LBDQ), and Michigan Leadership Studies, nature and consequences of participative, shared leadership, delegation, empowerment of leadership, studies on task-oriented behavior and initiating structure, and people or relations-oriented and individualized consideration behavior, critical incidents, the high-high leader, leadership behavior taxonomies, and specific task behaviors. Studies that focused on leadership punishment or reward behaviors were included as well. (Representative articles: Carson et al., 2007; Podsakoff, Bommer, Podsakoff, & MacKenzie, 2006)
8	Contingency theories	This thematic category includes articles where the leader adjusted to the situation, or adjusted the situation to fit him- or herself. This included the Least Preferred Coworker (LPC) contingency model, path-goal theory of leadership, leadership substitution theory, situational leadership theory, multiple linkage model, cognitive resources theory, applications for adaptive leadership, life cycle theory of leadership, and normative decision model, and flexible leadership theory. (Representative articles: Keller, 2006; Vroom & Jago, 2007; Yukl, 2008)
9	Power and influence theories	The focus of this thematic category is on the concepts of power and influence, power types and sources, consequences of position and personal power, impression management and influence

Appendix A (continued)

Thematic category number	Thematic category title	Leadership theories & content within thematic category
		tactics, and political skills. The focal level of analysis for these influence and political tactics is dyadic, group and organizational as opposed to institutional, regional, and societal. (Representative articles: Ammeter, Douglas, Gardner, Hochwarter, & Ferris, 2002; Treadway, Hochwarter, Ferris, Kacmar, Douglas, et al., 2004)
10	Strategic leadership	This thematic category addresses leadership phenomena at the highest levels of organizations and how executive leaders influence organizational performance. The focal level of analysis involves CEO or other top leader and/or top-management teams (TMT) at the upper echelon levels of the organization. Topics include constraints on executives, top management teams and leadership succession, upper echelon theory, conditions affecting the need for strategic leadership, and effects of CEO leadership. This category also includes research on public leadership, e.g., president, professional politicians, as these individuals direct large bureaucracies, determine strategy, and are commonly viewed as reasons for success or failure of public initiatives in parallel with their corporate counterparts. (Representative articles: Boal & Hooijberg, 2001; Vera & Crossan, 2004)
11	Contextual leadership theories	This thematic category addresses leadership in specific arenas, such as the military or education setting and how leadership practices often are constrained by contextual variables (i.e., period of time in organizational processes), or environmental characteristics (i.e., whether conflict pervades). Articles dealing with the contextual theory of Osborn et al. (2002) were also placed in this category. To contribute to this thematic category, authors must explicitly indicate that the primary article focus is on contextual factors. (Representative articles: Osborn et al., 2002; Porter & McLaughlin, 2006)
12	Complexity and systems leadership theories	Articles in this thematic category encompass catastrophe or complexity theory, with the concept of complex adaptive systems (CAS) and encompassed how complexity theory was useful in describing how leaders can be successful in turbulent environments. Social network and integrative perspectives of leadership were also included. (Representative articles: Avolio, 2007; Balkundi & Kilduff, 2006; Marion & Uhl-Bien, 2002; Schneider & Somers, 2006; Uhl-Bien, Marion, & McKelvey, 2007)
13	Team leadership	This thematic category includes articles where teams were the primary focus, or the articles attempted to apply one or more leadership theories to team settings in a novel fashion. The focal level of analysis involves teams and groups at the mid- and lower-level echelons of the organization. Topics include the nature of leadership in different types of teams, determinants of team performance, procedures for facilitating team learning, guidelines for team building, and leadership function in decision making in groups. (Representative articles: Mehra, Smith, Dixon, & Robertson, 2006; Zaccaro, Rittman, & Marks, 2002)
14	Leadership emergence & development	Articles that prescribed or described pathways or processes by which leaders came to possess leadership capacity, follower recognition of leadership status, and a systems perspective of leadership development defined this thematic category. Specific topics include leadership training programs, designing effective training, specific techniques of leadership training, learning from experience, developmental activities, self-help activities, facilitating conditions for leadership development, development and identification of leaders, and leadership assessment, appraisal and selection. (Representative articles: Day, 2001; Wolff et al., 2002)
15	Ethical/moral leadership theories	This thematic category encompasses leadership theories that have in common a core focus on altruistic behaviors. These theories of ethical leadership investigate leader moral priorities, including how an ethical orientation toward leadership is developed; how an ethical approach to leadership is important; the consequences of ethical leadership and how it can be sustained. Authentic servant and spiritual leadership theories are also classified in this thematic category. (Representative articles: Avolio & Gardner, 2005; Brown et al., 2005; Fry, 2003; Liden et al., 2008)
16	Leading for creativity & change	Articles in this thematic category investigated creative leadership processes from a variety of perspectives, covering topics like innovation and organizational learning. Articles in this thematic category also dealt with leader's roles in organizational change, or larger social changes in society or government, e.g., developing a vision, implementing changes, and influencing organizational culture. These changes were spurred by direct or indirect actions of leaders. (Representative articles: Denis, Lamothe, & Langley, 2001; Jaussi & Dionne, 2003; Mumford, Scott, Gaddis, & Strange, 2002)
17	Identity-based leadership theories	This thematic category includes self-concept and social identity approaches to leadership, i.e., studies adopting the work of Hogg and colleagues on leader categorization theory and studies adopting other social identity and self-concept frameworks. (Representative articles: Hogg, 2001; Van Knippenberg et al., 2004)
18	Emotions and leadership	Articles in this thematic category encompass leaders' and followers' affect, and a variety of influences that emotions, positive and negative, have at all levels of leadership both on the leader and follower. (Representative articles: Bono & Ilies, 2006; Dasborough & Ashkanasy, 2002; Humphrey, 2002)
19	Destructive leadership	This thematic category encompasses cases where leaders misbehaved, acted in ways contrary to the well-being of followers and/or the organization, and the setting where they were leaders, including abusive leadership, toxic leadership, and followers' susceptibility and

(continued on next page)

Appendix A (continued)

Thematic category number	Thematic category title	Leadership theories & content within thematic category
20	Biological approaches to leadership	destructive followership as well. (Representative articles: Einarsen, Aasland, & Skogstad, 2007; Padilla, Hogan, & Kaiser, 2007) This thematic category includes articles using a biological approach to examine the genetic and environmental impacts on leadership emergence, development and effectiveness such as articles using behavioral genetics work with twin designs. This category also includes articles investigated leader quality and behaviors using applications of social cognitive neuroscience to study the mechanisms of human brain in cognition, emotion and behavior such as studies with EEG, fMRI or somatic marker detection designs. (Representative articles: Boyatzis et al., 2012; Lee et al., 2012; Waldman, Balthazard, & Peterson, 2011)
21	E-leadership theories	This thematic category encompasses the study of leadership effects of task, technology and distance in virtual space. Specifically, leadership in a technology-enabled working environment, leader's competence and the requirements of tasks, important dimensions and effects of type of tasks, sociotechnical systems, interaction potential, leadership and physical space and distance, leadership and psychosocial space, networks, electronic communication networking, e-leadership, and leadership in experimental communication networks. (Representative articles: Avolio et al., 2001; Golden, Veiga, & Dino, 2008).
22	Leader error and recovery	This thematic category encompasses investigation of the nature (e.g., action or inaction) and antecedents of leader errors. Topics also include error taxonomy, and effects of leader errors. (Representative articles: Hunter, Tate, Dziewieczynski, & Bedell-Avers, 2011).
23	Entrepreneurial leadership	This thematic category encompasses the convergence and intersection between the leadership and entrepreneurship literature and how each stream of research can inform the other. It also includes the articles exploring specific components of entrepreneurial leadership process, e.g., entrepreneurial leadership vision and behaviors. (Representative articles: Coglisser & Brigham, 2004; Ruvio, Rosenblatt, & Hertz-Lazarowitz, 2010).

Notes: The coding scheme is adapted and expanded from Gardner et al. (2010). The category that was not included in that scheme was marked with its respective sources. There categories are not mutually exclusive. Articles often employed multiple theoretical frameworks while investigated the phenomena of interest.

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