RESEARCH ARTICLE

'Let's get real' … when we lead: A systematic review, critical assessment, and agenda for authentic leadership theory and research

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Abstract
Scholarly and practitioner interest in authentic leadership has grown at an accelerating rate over the last decade, resulting in a proliferation of publications across diverse social science disciplines. Accompanying this interest has been criticism of authentic leadership theory and the methods used to explore it. We conducted a systematic review of 303 scholarly articles published from 2010 to 2023 to critically assess the conceptual and empirical strengths and limitations of this literature and map the nomological network of the authentic leadership construct. Results indicate that much of the extant research does not follow best practices in terms of research design and analysis. Based on the findings obtained, an agenda for advancing authentic leadership theory and research that embraces a signaling theory perspective is proposed.

Keywords: authenticity; authentic leadership; signaling theory; systematic review

Introduction

Although occasional use of the terms 'authentic leadership' (AL) or 'leader authenticity' appeared in the leadership literature during the 1980s (e.g., Hoy & Henderson, 1983), interest in the topic and authenticity in general exploded during the new millennium (Cha et al., 2019). The best-selling books of former Medtronic CEO Bill George, *Authentic Leadership* (2003) and *True North* (George & Sims, 2007), fueled this growth, as they piqued the interest of practitioners for whom the construct resonated deeply. Scholarly interest was likewise stimulated by the 2004 and 2006 Gallup Leadership Institute summits, with the former producing a special issue of *The Leadership Quarterly* (2005) and Volume 3 of Elsevier's *Monographs in Leadership and Management* edited series (Gardner, Avolio, & Walumbwa, 2005) devoted to AL.

In the last comprehensive review of this literature, Gardner, Cogliser, Davis, and Dickens (2011) identified 91 articles; since then, we have witnessed a further expansion of AL publications. Along with this increase has been skepticism about current conceptualizations of AL and the methods used to test them (Algera & Lips-Wiersma, 2012; Helmuth, Cole, & Vendette, 2023; Iszatt-White & Kempster, 2018). Some of the harshest criticism was advanced by Alvesson and Einola (2019, p. 389)

in a scathing indictment of AL research by making the case that authenticity and leadership are inherently incompatible, should remain separate, and attempts to measure AL constitute 'mission impossible'.

Using a point–counterpoint format, Gardner, Karam, Alvesson, & Einola (2021) expanded on the arguments for and against AL through an exchange of letters. In making their case 'for' AL, Gardner and Karam examined the literature published over the last decade in search of supportive evidence. Without conducting an exhaustive or in-depth review, they identified 128 scholarly articles published since 2010, many of which appeared in well-respected outlets, which they interpreted as evidence of rigor in this research stream. On the 'against' side, Alvesson and Einola raised concerns about the conceptualization of AL and the feasibility of studying it using questionnaires. This debate has continued back and forth in subsequent publications (Alvesson & Einola, 2022; Einola & Alvesson, 2021; Gardner & McCauley, 2022a, 2022b). This ongoing exchange highlights a need for a new review to assess AL theory, explore critiques, and examine the rigor of empirical findings. Further, a review by Fisher and Sitkin (2023) that focused on eight positive (including AL) and two negative styles of leadership, revealed extensive value-based conflation of the intent, content, quality and effects of leader behavior that these styles purportedly capture, raising concerns about their conceptualization and operationalization.

The purpose of this manuscript is threefold. The first is to provide a systematic review of the AL literature published since Gardner et al.'s (2011) review. Our review is guided by the following research question: what are the conceptual underpinnings, empirical findings, and methodologies utilized to examine AL since 2011? In doing so, we examine the theoretical foundations of the dominant social psychology-based approach (Avolio & Gardner, 2005; Gardner, Avolio, Luthans, May, & Walumbwa, 2005; Walumbwa, Avolio, Gardner, Wernsing, & Peterson, 2008), as well as alternative philosophy-based perspectives (e.g., Algera & Lips-Wiersma, 2012), to identify opportunities for theoretical refinements. Additionally, we contribute to knowledge about AL via a presentation of data that highlights key findings and maps the nomological network. Second, as part of this review, we provide a critical assessment of extant AL theory and the methods employed to study it. Third, we advance an agenda for future AL theory and research. This agenda includes a recommendation to use signaling theory (Connelly, Certo, Ireland, & Reutzel, 2011) to deconflate the AL construct and its components, along the lines suggested by Lux and Lowe (2025) in their Editorial for this special issue. Additionally, our agenda includes recommendations for enhancing the rigor of future empirical research into AL.

Conceptual underpinnings of AL research

In their 2011 review, Gardner and colleagues traced the history of AL research back to the 1980s and the writings of Henderson and Hoy (1983) regarding leadership authenticity and inauthenticity. However, the 2011 review indicated that the genesis for the dominant social psychology-based conception of AL was provided by the 2004 and 2006 interdisciplinary summits hosted by the Gallup Leadership Institute of the University of Nebraska-Lincoln. Several theoretical perspectives emerging from these summits (e.g., Eigel & Kuhnert, 2005; Ilies, Morgeson, & Nahrang, 2005; Klenke, 2005; Michie & Gooty, 2005; Shamir & Eilam, 2005; Sparrowe, 2005), including a self-based model of authentic leader and follower development proposed by Gardner et al. (2005), provided the conceptual underpinnings for much of the empirical research that followed. The influence of this model grew with the development of the Authentic Leadership Questionnaire (Avolio, Gardner, & Walumbwa, 2007; Walumbwa et al., 2008), which has since become the most used tool for operationalizing AL.

Definition

Walumbwa and colleagues (2008, p. 94) defined AL as 'a pattern of leader behavior that draws upon and promotes both positive psychological capacities and a positive ethical climate, to foster

self-awareness, an internalized moral perspective, balanced processing of information, and relational transparency on the part of leaders working with followers, fostering positive self-development'. In their review, Gardner et al. (2011) identified and discussed a number of alternative definitions of AL. However, as our systematic review will reveal, the Walumbwa et al. (2008) definition is the one adopted most often. Nonetheless, this definition has also been criticized as being problematic for several reasons (Alvesson & Einola, 2019; Fischer & Sitkin, 2023; Sidani & Rowe, 2018). Chief among these is the fact that it includes both posited antecedents to AL (it draws upon 'both positive psychological capacities and a positive ethical climate') and effects of AL (it promotes 'both positive psychological capacities and a positive ethical climate' and fosters positive self-development). As Fischer and Sitkin (2023) explained in their critique of leadership style research, a definition that encompasses antecedents and/or effects of the construct muddies causal relationships and makes it impossible to test them. To address these concerns, we support the refined definition of AL that Lux and Lowe (2025) introduce in their Editorial and provide an expanded discussion of its underlying theoretical premise in the 'Revisiting and Updating an Agenda for AL Research' section of our manuscript. To set the stage for our review and our refined research agenda, we first discuss current conceptualizations of AL.

Four-component model

As the definition of AL proposed by Walumbwa et al. (2008) indicates, the four components of self-awareness, balanced processing of information, relational transparency, and an internalized moral perspective lie at the core of their social psychology-based view of AL. The theoretical roots of this perspective are provided by Kernis and Goldman's (2006) conceptualization of authenticity as cognitive and behavioral processes that highlight how people develop a core sense of self, and how this self is maintained across time and contexts. Further, they identified four components of authenticity: (1) awareness (i.e., knowledge and trust in one's values, thoughts, motives, and emotions); (2) unbiased processing (i.e., objectivity regarding and acceptance of one's positive and negative qualities); (3) behavior (i.e., acting on one's genuine values, preferences, and needs rather than merely acting to secure rewards, avoid punishments, or please others); and (4) relational orientation (i.e., achieving and valuing openness and truthfulness in one's close relationships).

   Kernis and Goldman's (2006) multicomponent notion of authenticity provided the conceptual foundations for early perspectives of AL (e.g., Ilies et al., 2005), including the four-component model (Walumbwa et al., 2008). However, although the latter drew from the multicomponent view of authenticity, it also modified the components in some respects to apply them to the leadership context. Specifically, the unbiased processing component was relabeled balanced processing out of recognition that no leader (or follower) is ever completely unbiased when processing information, while positing that more versus less authentic leaders (and followers) process information, including that of an ego-threatening variety, in a relatively balanced fashion. Additionally, inspired by Kernis and Goldman's (2006) conception of the behavior component of authenticity as reflecting a commitment to act upon one's true values, preferences and needs, the more descriptive label of internalized moral perspective was applied. Finally, they relabeled the relational orientation component as relational transparency to better emphasize the importance of transparency and a free exchange of information, without secrecy and obfuscation, within the context of leader–follower relationships.

Alternative perspectives

Although the four-component model of AL has gained the most theoretical and empirical attention, it is important to recognize that there are alternative perspectives. Three of these appeared in the 2005 Special Issue of *The Leadership Quarterly* devoted to AL (Michie & Gooty, 2005; Shamir & Eilam, 2005; Sparrowe, 2005), and are discussed in the Gardner et al.'s (2011) review. Three additional promising alternative perspectives of AL that emerged in the wake of the initial surge of AL theory building have been advanced by Ladkin and Taylor (2010), Algera and Lips-Wiersma (2012), and

Sidani and Rowe (2018). Ladkin and Taylor (2010) asserted that although AL may be grounded in the concept of a 'true self', it is only through the embodiment of one's 'true self' that others come to view leaders as being authentic. To support this claim, they explained how one's somatic sense of self (emotional bodily reactions) promotes a felt sense of authenticity, and how through the engagement of somatic cues, leadership can be enacted in a way that both the leader and followers experience as authentic.

Algera and Lips-Wiersma (2012) criticized extant AL theory as being limited because insufficient effort was made to secure an understanding of the ontological roots of authenticity. After systematically addressing the 'paradoxes' and limitations of current AL theory, they proposed a perspective that draws on 'four existential authenticity themes: 1) inauthenticity is inevitable; 2) authenticity requires creating one's own meaning; 3) authenticity does not imply goal and value congruence; and 4) authenticity is not intrinsically ethical' (p. 118). The implications of these themes formed a basis for proposing a more radical form of AL whereby the emphasis shifts from the individual leader to focus on the conditions by which all organizational members can behave authentically.

Finally, Sidani and Rowe (2018) discussed challenges encountered within the extant study of AL that arise from how the construct is conceptualized and measured. They presented a model of AL that views it as a legitimation process, rather than a leadership style. They posited that AL constitutes legitimated follower perceptions of the authenticity of a leader that are invoked based on moral judgments. Specifically, they described how follower-centered assessments of the moral component of AL account for leadership dynamics in contexts involving ethical relativism, and in so doing, alleviate commonly expressed concerns about this presumed moral component. Further, they posited that the overlap between the value systems of leaders and followers elicits impressions of authenticity, even when there are no clear universal moral standards. Finally, they asserted that the behavior of an authentic person does not qualify as 'leadership' unless a follower embraces it and thereby grants moral legitimacy to the leader.

Although each of these alternative perspectives adds conceptual richness to the AL literature, they have received relatively little empirical attention, as documented by our systematic review. Nonetheless, they share a common theme that it is important to recognize the role that perceived authenticity of the leader plays in the development and continuance of the leader–follower relationship. Moreover, while these perspectives do not directly promote a signaling theory of AL, their common focus on AL perceptions is consistent with the signaling theory definition of AL proposed by Lux and Lowe (2025) in their Editorial and recommended in our future directions section as a promising direction for the refinement of AL theory.

Systematic literature review

To address our review goals, we followed best practice guidelines for systematic reviews (Siddaway, Wood, & Hedges, 2019). We established a list of keywords that comprised of 'authentic leadership', 'authentic leader', 'authentic leading', and 'authentic leaders'. These keywords were then used to conduct searches on the following databases: Web of Science, EBSCO (including Business Source Complete and PsycINFO), and ABI Inform. The time period of our search was from January 1, 2010 (the ending date of the Gardner et al., 2011, prior review) to December 31, 2023. Our search was limited to peer-reviewed journals in the English language and, after combining the results and removing duplicates, yielded 3,282 articles. We reviewed this initial set of articles to identify those to exclude and which ones to keep for eventual inclusion. As the first step, we removed documents that were not scholarly articles (e.g., books, book chapters, book reviews, letters) or were not relevant to AL. This resulted in 1,065 articles that were moved to the next step of screening.

With the rise in popularity of the AL construct, many articles have appeared in less-highly rated outlets that lack the standards for rigor of higher-rated journals, producing a proliferation of suspect findings. To devote sufficient attention to the theoretical issues and address the rigor of the research

published in more reputable outlets, we decided to limit our coding to articles that appear in higher-rated journals. To do so, we ranked the publication outlets of our initial set of 1,065 articles using the Chartered Association of Business Schools (CABS) (https://charteredabs.org) 2021 Academic Journal Guide (adapted from Harvey, Kelly, Morris, & Rowlinson, 2010), which rates business-related journals from higher to lower levels of quality, respectively, using the following scale: 4*, 4, 3, 2, and 1.[1] Three raters considered multiple indicators, including Impact Factor, CiteScores, and acceptance rates to rate unranked journals using the 5-point CABS journal quality scale. We then retained all articles published in journals that were ranked 4*, 4, or 3. This resulted in a sample of 326 articles that were retained for coding. Each article was coded by two members of the author team, who achieved an initial level of 88.4% agreement: all disagreements were reconciled until 100% agreement was reached. Any article that was deemed to be irrelevant during the coding stage was subsequently removed from the analysis. This resulted in a final sample of 303 articles that were included in the analysis.

To conduct our content analysis of AL articles, we coded many of the variables examined in Gardner et al.'s (2011) prior review of the AL literature, as well as several coded in other systematic reviews of the leadership literature (Dinh et al., 2014; Gardner et al., 2020), while adding some new features. A description of the coding scheme is provided in Appendix A of the online supplement (https://doi.org/10.1017/jmo.2024.68). Due to space constraints, some of the larger tables summarizing results for selected variables are included in an online supplement (https://doi.org/10.1017/jmo.2024.68) and labeled as Table S#.

Empirical findings

To provide a comprehensive review of the empirical findings, we explored study characteristics including article type, article purpose, AL definitions, theoretical foundations, and the number of studies in each article. We also explored author characteristics including author(s)'s country, affiliation, and discipline. Further, we examined data collection methodologies – both qualitative and quantitative – as well as sample characteristics; levels of analysis; data collection timing; endogeneity issues; AL measures utilized; and AL raters, sources, and targets. This detailed review and coding then allows us to present a comprehensive nomological net of research on AL.

Study characteristics: Article type

Because of the nascent nature of the AL literature in 2011, only 25 of the 91 articles were empirical at that time. In contrast, our coding reveals that 242 of the 303 articles examined are empirical, with 219 (72.28%) using quantitative methods and 23 (7.59%) using qualitative methods. Of the remaining articles, 34 (11.22%) provide reviews of the literature, 27 (8.91%) are theoretical, 19 (6.27%) are critiques, 3 (.99%) are pedagogical, 3 (.99%) are methods articles, and 2 (0.66%) are practitioner oriented.[2] It is worth noting that the 34 identified review articles did not necessarily provide a systematic review of AL research. Rather, they include articles that (a) review other constructs but also include a discussion of AL, (b) meta-analyses that examine AL's relationship with a focal construct, or (c) articles that review the leadership literature in general. Among the 34 review articles, only 6 articles exclusively focused AL. Among those, one article reviewed 38 empirical studies of AL in the context of health care (Alilyyani et al., 2018), one is a review of the use of AL in the discourse of British press during the 2015 labor party leadership election (Iszatt-White et al., 2019), one discussed how AL should be adopted in leading knowledge workers (Walumbwa et al., 2011), one is a meta-analysis of antecedents and outcomes of AL (Zhang et al., 2022), and one article reviewed 53 empirical works published between 2010 and April 2014 which had examined the relationship between follower-rated AL and follower outcome variables (Gill & Caza, 2018). The sixth article is the review by Gardner

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[1]For a description of the CABS journal rating methodology, see https://charteredabs.org/wp-content/uploads/2021/06/Academic_Journal_Guide_2021-Methodology.pdf.

[2]Because articles could be coded as more than one type, the total count for article types is 331, rather than 303.

et al. (2011) which sets the starting date of our review. These results show that in the years since the Gardner et al.'s (2011) review, there has not been any comprehensive review of the AL literature examining both conceptual and empirical strengths and limitations, while providing a critical assessment and mapping the nomological network of the AL construct.

We know from the early stages of our systematic review that AL remains an extremely popular topic in the popular press, a fact that necessitated our decision to exclude articles appearing in business journals rated as 1 or 2 on the CABS journal quality scale, due to concerns about a lack of rigor that too often produces suspect findings and/or highly speculative theory. Hence, there are a host of practitioner-focused AL publications that we intentionally omitted from our review. A list of the articles coded, the article reference number, the type of publication, and the research purpose is provided in Appendix B as an online supplement (https://doi.org/10.1017/jmo2024.68).

Gardner et al. (2011) considered AL research at the time to be in the nascent stage of theoretical progression as defined by Reichers and Schneider (1990). These stages are (1) concept introduction and elaboration; (2) concept evaluation and augmentation; and (3) concept consolidation and accommodation. Based on the types of articles identified in our review, we now consider AL scholarship to fit in the second stage of theoretical progression, characterized by concept evaluation through empirical research, and the emergence of critical reviews that identify problems related to the definition and operationalization of the construct. As is characteristic of this stage, concerns about the validity of empirical findings have been raised, mediators and moderators have been introduced to clarify the processes underlying AL, and debate about how to move the theory forward has emerged.

Study characteristics: Article purpose

The results reveal that the primary purpose of AL research is to extend and link current theories ($N = 257$; 84.82%), aligning with the conclusions from the earlier review (Gardner et al., 2011). The secondary purpose is to summarize and review existing theory ($N = 30$; 9.90%), emphasizing the importance of consolidating knowledge, evaluating the progress, and pinpointing directions for future research. The results also show that the proportion of articles aiming to develop new theories over the past 12 years declined from 9.8% ($N = 9$) to 6.93% ($N = 21$). Only a small number of publications focused on contradicting current theories ($N = 14$; 4.62%), and a minor portion ($N = 5$; 1.65%) fall under the 'other' category.

Study characteristics: AL definitions

Given the surge in research on AL during the past 13 years, we developed a coding scheme for AL definitions that used an unfolding process. We first coded whether a definition of AL was provided in the focal article. Although 86.14% ($N = 261$) of the articles provided a definition, the remaining 42 did not, which we consider very troubling for theory advancement. If a definition was provided, we coded whether the Walumbwa and colleagues' (2008) definition was used, finding that it was in 202 (66.67%) articles, demonstrating a convergence on a single conceptualization of AL. If an alternative definition was provided, we recorded this definition and its citation. Most commonly, alternative definitions referenced prior work by Avolio, Gardner, and colleagues (e.g., Avolio & Gardner, 2005; Gardner et al., 2005) although there were exceptions where authors crafted their own definition based on alternative perspectives.

Study characteristics: Theoretical foundations

Based on the theoretical foundations for AL described by Gardner et al. (2011), we coded the underlying theory for each article using nine conceptual categories (see Table 1). Reflecting an increasing convergence around the four-component model of AL, we note that this theory is foundational in 90.75% ($N = 275$) of articles. Authenticity (or other elements of the authentic self or authentic identity) is the second most-referenced frame, with 18.15% ($N = 55$) of the articles. The third

Table 1. Types of articles by theoretical foundation

Theory	Count	Percentage
Authentic leadership theory	232	89.92%
Authenticity/self/identity	51	19.77%
Ethics/values/ethical leadership	11	4.26%
Positive psychology/positive organizational behavior	8	3.10%
Philosophy	7	2.71%
Affective processes	1	.39%
Neo-charismatic leadership	1	.39%
Attribution theory/social perception	0	.00%
Well-being/vital engagement	0	.00%
Other	6	2.33%

N = 258. Examples of other include social identity theory, uncertainty-identity theory, conservation of resources theory, and social information processing theory.

most-frequent category is ethics/values/ethical leadership found in 4.62% (*N* = 14) of the articles reviewed. Concepts that were coded in the 'other' category include complementary congruity theory, a combination with servant leadership, and conservation of resources theory.

Study characteristics: Number of studies

Of the 242 empirical articles coded, only 24 reported multiple studies. The total number of studies is 285, and the number per given article ranged from one to 12, with a mean of 1.18 studies. For articles with more than one study, the mean was 2.79 studies.

Author characteristics: Country, affiliation, and discipline

In this section, we highlight key attributes of authors who published on AL, namely: the authors' country of affiliation, their affiliation, and their discipline based on the university/organization and department listed in the article bylines. In cases where this information was unclear or unavailable, we consulted additional sources, such as academic databases and official university websites at the time of publication. These results are critical given authenticity's roots in other disciplines and unique experience across contexts. Examining AL among a more diverse pool of researchers that spans multiple disciplines and cultural backgrounds would facilitate unique studies and findings that consider multiple perspectives of AL. Table S1 reveals that the top five countries where AL authors reside are the United States (*N* = 162; 21.57%), China (*N* = 100; 13.32%), Canada (*N* = 54; 7.19%), the United Kingdom (*N* = 51; 6.79%), and Australia (*N* = 48; 6.39%). This represents a significant uptick in non-US-based researchers since the Gardner et al. (2011) review of AL. Table S2 indicates that the authors who published the most AL articles are affiliated with Maastrich University (*N* = 10; 1.33%), the University of Queensland (*N* = 10; 1.33%), the University of Alberta (*N* = 9; 1.12%), Aston University (*N* = 8; 1.07%), and the University of Western Ontario (*N* = 8; 1.07%). The author disciplines most represented are business/management (*N* = 342; 52.86%), medicine (*N* = 100; 15.46%), and psychology (*N* = 85; 13.14%; see Table 2). We also observed that the fifth largest category, 'other' (*N* = 44; 6.8%), consists of authors affiliated with a variety of disciplines such as sports and exercise science, applied statistics and research methods, and hotel management. Again, these results indicate a broadening investigation of AL across disciplines since 2011. The popularity of AL across diverse countries and disciplines speaks to its potential for understanding how AL may manifest in different contexts.

Table 2. Types of articles by author discipline

Discipline	Count	Percentage
Business/Management	342	52.86%
Medical	100	15.46%
Psychology	85	13.14%
Other	44	6.80%
Business-Other	37	5.72%
Education	15	2.32%
Economics	14	2.16%
Sociology	4	.62%
Political science	3	.46%
Not reported	3	.46%
Engineering	2	.31%
Philosophy	1	.15%

Note: N = 650. Where authors had multiple discipline affiliations, all were recorded.

Methodologies utilized: Summary

A summary of the data collection methods used in AL research is provided in Table 3. Among all data collection methods, 74.12% ($N = 189$) adopted field surveys, demonstrating a consistent preference in alignment with the prior review (Gardner et al., 2011). An encouraging trend is an increase in lab experiments from 0 to 33 (12.94%). However, interviews ($N = 13$; 5.10%), archival studies ($N = 12$; 4.71%), field experiments ($N = 11$; 4.31%), meta-analyses ($N = 9$; 3.53%), content analysis ($N = 5$; 1.96%), observation ($N = 4$; 1.57%), quasi-experiments ($N = 2$; .78%), diary studies/experience sampling ($N = 2$; .78%), computer simulations ($N = 1$; .39%) and judgment tasks ($N = 1$; .39%) remained rare. The limited utilization of these data collection techniques indicates untapped opportunities for future research.

Methodologies utilized: Quantitative analyses

A summary of the analytical techniques employed in quantitative studies can be found in Table 4. By far, the most common was correlational analysis with descriptive statistics ($N = 208$; 94.98%). This is unsurprising given the standard data reporting expectation of a correlation matrix with descriptive statistics. This was followed by linear regression ($N = 118$; 53.88%), SEM/path analysis ($N = 84$; 38.36%), nonparametric techniques ($N = 51$; 23.29%), ANOVA/MANOVA ($N = 49$; 22.37%), and multilevel analysis ($N = 32$; 14.61%). These findings are mostly consistent with the results of the previous review (Gardner et al., 2011), which found the most common analytical techniques were correlational analysis, multilevel techniques, linear regression, and SEM/path analysis. Additionally, Gardner et al. (2011) expressed optimism because more sophisticated tools (e.g., HLM, ANOVA, linear regression) had been adopted in the later studies. Our results provide support for this optimism, as evidenced by the increase in studies utilizing more sophisticated techniques. Though progress has been made, opportunities for novel and more rigorous analytical techniques remain.

Methodologies utilized: Qualitative methods

Of our sample of 303 articles, only 23 employed a qualitative methodology (7.59%); this is a far lower proportion than that found in the 2011 review where 9 of 25 (36.00%) publications did so. This trend is consistent with Edmondson and McManus's (2007) framework that notes as research programs mature, the methods deployed tend to shift from qualitative to quantitative.

Table 3. Data collection methods

Type of data collection	Count	Percentage
Survey	189	74.12%
Lab experiment	33	12.94%
Interview	13	5.10%
Archival	12	4.71%
Field experiment	11	4.31%
Meta-analysis	9	3.53%
Review	9	3.53%
Content analysis	5	1.96%
Observation	4	1.57%
Diary study/experience sampling method	2	.78%
Experimental simulation	2	.78%
Quasi-experiment	2	.78%
Computer simulation	1	.39%
Judgment tasks (e.g., raters)	1	.39%
Other	2	.78%

Note: 255 of 303 studies reported a data collection method. $N = 255$.

Table 4. Types of quantitative analyses

Analysis type	Count	Percentage
Correlation/descriptive statistics	208	94.98%
Linear regression	118	53.88%
SEM/path analysis	84	38.35%
Nonparametric techniques (e.g., Bayesian, bootstrapping)	51	23.29%
ANOVA/MANOVA	49	22.37%
Multilevel analysis	32	14.61%
PLS (partial least squares)	7	3.19%
Techniques for categorical DVs	5	2.28%
Time series/event history/LGM	4	1.83%
Simulation	2	0.91%

$N = 219$.

Using Cresswell and Poth's (2018) typology of qualitative methods, the most common approaches included case studies ($N = 6$; 26.09%), grounded theory ($N = 6$; 26.09%), discourse analysis ($N = 4$; 17.39%), and other ($N = 7$; 30.43%). We commend researchers on the use of these context-rich techniques that afford greater access to elements that might otherwise be inaccessible. However, few of these studies took steps to assess confirmability ($N = 10$; 43.48%), credibility ($N = 8$; 34.78%), dependability ($N = 3$; 13.04%), and transferability ($N = 3$; 13.04%), as recommended by Lincoln and Guba (1985). Over one third of these studies ($N = 8$; 34.78%) took no steps to validate their findings. This continues a concerning trend to which Gardner and colleagues (2011) called for greater attention. Hence, we reiterate their call for the assessment of qualitative findings, as well as a call by Iszatt-White and Kempster (2018) for greater use of qualitative methods to surface indicators of AL.

Methodologies utilized: Sample characteristics

Table 5 presents our findings for the sampling designs employed. Nonprobability designs were used extensively ($N = 220$; 91.67%), with convenience samples being especially prevalent ($N = 193$; 81.43%). Probability sampling designs were used infrequently, with the most common, simple random sampling, adopted by only 4.64% ($N = 11$) of studies. Although such reliance is no doubt attributable to the difficulty of collecting random samples in the field, it nevertheless raises serious concerns about the representativeness of the findings.

To investigate the extent to which researchers addressed national context adequately, we coded the country from which the samples were taken (as shown in Table S3). Most of the data were collected from the United States ($N = 49$; 20.85%). Germany is second and has the highest percentage of contributions from Europe, making up 12.34% ($N = 29$) of the studies. China is next, and the largest Asian contributor, at 10.21% ($N = 24$). Note that 68 out of the 303 articles did not report the country from which the sample was collected. This is problematic because such studies omit a key element of the context and potential boundary conditions (Gardner, Gullifor et al., 2021; Oc, 2018). Future research should make the national context explicit and consider the role of societal level factors such as power distance (Maak, Pless, & Voegtlin, 2016).

A summary of the types of populations sampled is provided in Table 6. The most common were private companies ($N = 81$; 34.32%), followed by health-care organizations ($N = 44$; 18.64%). Undergraduate and graduate student samples accounted for a smaller number of studies than employees at 11.44% ($N = 27$). We view this as a strength of this literature, given the external validity concerns stemming from an overreliance on student samples found in other management research streams (Gordon, Slade, & Schmitt, 1986).

We also recorded the sample size per study. Empirical studies of AL at the individual level incorporated data from 81,814 respondents with an average sample size per study of 378.8. Sample size at this level ranged from 2 to 7,225 individuals. Studies at the event level incorporated 2,285 events with an average size of 326.4 and a range of 1–606 events. At the dyad level, a total of 2,051 dyads were examined with a range of 144–348 and an average of 227.9 dyads per study. At the team level, AL researchers studied a total of 2,933 teams, ranging from 13 to 433, and with an average of 83.8 teams per study.

Methodologies utilized: Level of analysis

The vast majority of studies focused on the individual level of analysis with 93.19% ($N = 219$), compared with 71.8% in the 2011 review. The team level of analysis was adopted in 14.89% ($N = 35$) of studies, compared with 11.5% in 2011. Dyadic studies were 3.83% ($N = 9$) and event level studies

Table 5. Types of sample designs

Method	Count	Percentage
Nonprobability: Convenience	167	81.07%
Nonprobability: Theoretical/purposive	16	7.77%
Probability: Simple random	10	4.85%
Nonprobability: Snowball	6	2.91%
Probability: Stratified random	5	2.43%
Probability: Cluster	2	.97%
Probability: Proportionate stratified	2	.97%
Nonprobability: Other	1	.49%
Nonprobability: Quota	0	.00%
Probability: Systematic	0	.00%

$N = 206$ studies that reported sample design information.

Table 6. Types of populations sampled in the review

Sample population	Count	Percentage
Private company	74	36.10%
Health care	38	18.54%
Public organization	30	14.63%
Qualtrics panel	17	8.29%
Other online third-party source	10	4.88%
Undergraduate students (work status unavailable) UG Students (work status not reported/nonworking)	9	4.39%
Graduate students (working)	7	3.41%
Graduate students (work status unavailable)	5	2.44%
Undergraduate students (working)	5	2.44%
Mturk	4	1.95%
Military	2	.98%
Snowball	2	.98%
Nongovernmental organizations	1	.49%
Other	16	7.80%
Not reported	12	5.85%

Note: N = 205. Public organizations include government, municipalities, and education.

only 2.98% ($N = 7$). Echoing the 2011 review and others (e.g., Yammarino, Dionne, Schriesheim, & Dansereau, 2008), more attention to the event, dyadic, team, and organization-levels is warranted.

Methodologies utilized: Data collection timing

In terms of data collection time, cross-sectional research was still widely used in current AL studies, at 60.43% ($N = 142$). The second most-used strategy collects cross-sectional data with a time lag in 26.81% ($N = 63$) of studies. Longitudinal research focused on changes over time was less common, representing only 12.77% ($N = 30$) of studies.

Methodologies utilized: Endogeneity issues

As Table 7 indicates, most AL studies were susceptible to numerous sources of endogeneity, with common method variance being the most common ($N = 162$; 81.00%). As Table 8 shows, few used any of the methods Antonakis and colleagues (2010) recommended for addressing endogeneity, other than control variables ($N = 123$; 61.19%). Even in such cases, the control variables selected were typically inadequate. Moreover, there is little evidence that guidelines for selecting control variables based on theory (Bernerth, Cole, Taylor, & Walker, 2018) were followed. Given the reliance on cross-sectional survey methods, the vulnerability to endogeneity is not surprising and highly concerning. Here again, we recommend the use of more rigorous designs such as laboratory experiments and quasi-experimental methods to minimize the confounding effects of endogeneity, as well as appropriate statistical tools for addressing them, such as difference-in-difference models and simultaneous equations.

Methodologies utilized: AL measures

We provide a preliminary analysis of the studies examined to ascertain how AL was measured. Existing survey measures including the Authentic Leadership Questionnaire (Walumbwa et al., 2008)

Table 7. Sources of endogeneity from studies in the review

Endogeneity source	Count	Percentage
Common-method variance	140	79.55%
Inconsistent inference	125	71.02%
Model misspecification	121	68.75%
Measurement error	157	89.20%
Omitted selection	142	80.68%
Omitted variables	154	87.50%
Simultaneity	139	78.98%

$N = 176$.

Table 8. Methods of addressing endogeneity from studies in the review

Method of addressing endogeneity	Count	Percentage
Control variables	110	61.45%
Difference-in-differences models	1	.56%
Propensity score analysis	5	2.79%
Regression discontinuity models	0	.00%
Selection models (Heckman models)	0	.00%
Simultaneous-equation models	1	.56%
Statistical adjustment	1	.56%
Other	9	5.03%
None	64	35.75%

$N = 180$. Note other includes randomized experimental design, parallel design, common method models, and Harman's one-factor test.

and the Authentic Leadership Inventory (Neider & Schriesheim, 2011) were used in 67.47% ($N = 197$) and 16.10% ($N = 47$) of studies, respectively. However, we find that existing measures were often modified ($N = 82$; 24.33%) with items dropped or changed, raising concerns about construct validity (Heggestad et al., 2019). Only eight (2.37%) studies manipulated AL in an experimental setting. Less than a quarter examined AL's dimensions ($N = 58$; 21.80%). For future research, we advocate examining AL as a higher order construct with the four lower-level dimensions, as conceptualized by the construct's developers (Avolio, Wernsing, & Gardner, 2018).

AL is most often modeled as an independent variable ($N = 209$; 61.11%) or a dependent variable ($N = 77$; 22.51%); examinations of AL as a mediator ($N = 24$; 7.02%) or moderator ($N = 17$; 4.97%) are less common. To obtain a more complete understanding of AL in the workplace, more research that explores how it mediates or moderates relationships between antecedents, such as situational variables (Oc, 2018), leader and follower personality attributes (Anderson & Sun, 2024), and work outcomes (e.g., organizational commitment, leader and follower well-being, work engagement; Cha et al., 2019; Gardner et al., 2011; Gill & Caza, 2018) is needed.

Construct validation

We coded the types of construct validation methods used in the studies that we examined (see Table 9). The most common was Cronbach's alpha ($N = 290$; 93.25%), followed by confirmatory factor analysis (CFA) ($N = 146$; 46.95%), discriminant validity ($N = 48$; 15.43%), and convergent validity ($N = 26$; 8.36%). As noted previously, a sizeable number of studies ($N = 82$; 24.33%) modified existing measures by dropping or changing items from validated scales, and some failed to

Table 9. Authentic leadership construct validation methods from studies in the review

Construction validation method	Count	Percentage
Cronbach's alpha	269	94.72%
CFA	131	46.13%
Discriminant validity	42	14.79%
CFA with higher order model	25	8.80%
r_{wg}/ICC(1)/ICC(2)	24	8.45%
Convergent validity	19	6.69%
EFA	14	4.93%
Manipulation check (experiments)	5	1.76%
Scale development paper	4	1.41%
Interrater reliability	3	1.06%
Other	3	1.06%
Face validity (only if they discuss it)	2	.70%
Predictive/criterion validity	2	.70%
Test/retest	1	.35%
Cohen kappa	0	.00%
Split-half	0	.00%

$N = 284$.

report reliability information of any kind ($N = 20$; 6.43%). Hence, the lack of demonstrated construct validity is a source of concern.

Methodologies utilized: AL rater, source, and target

For measures of AL, we coded the rater, source, and target (see Table 10). We coded rater as 'Self' or 'Other' to indicate if the respondent was rating characteristics or behaviors of themselves (e.g., 'How do I feel?') or another party (e.g., 'How does my leader/team/organization behave?'), respectively. Typically, raters were reporting on someone else's AL (e.g., a leader or a manager; $N = 264$; 90.10%). The 'Data Source' was coded to indicate the role of the respondent, as opposed to who the respondent was rating. Persons occupying a subordinate/follower role ($N = 237$; 80.89%) served as the most common data source, followed by leaders/managers/supervisors ($N = 30$; 10.24%). The data target is the referent of the variable/measure and was generally someone in a leadership, managerial, or supervisory position ($N = 282$; 96.25%). Given the emerging concerns regarding endogeneity in leadership research (Antonakis et al., 2010), future research should focus on mitigating common method variance (and other endogeneity concerns) by assessing the AL of leaders/managers/supervisors from more diverse sources such as peers, customers, and team members, or manipulating AL through experimental means.

Mapping the nomological net for AL

To map AL's nomological network, we coded AL hypotheses to indicate the independent variable, dependent variable, mediating variables (if applicable), and moderating variables (if applicable). For each hypothesis, we coded if the predicted relationship was posited to be positive, negative, contingent (for moderation hypotheses and mediation hypotheses where the direction of the predicted relationship varied across stages), nondirectional, or multiple. Finally, we recorded if the hypothesis was supported, partially supported, or not supported.

In total, 768 hypotheses were coded across 205 quantitative studies. Given the number of hypotheses, we were unable to graphically depict the nomological network of AL that included all

Table 10. Authentic leadership construct rater, source, and target

	Count	Percentage
Rater		
Other	264	90.10%
Self	29	9.90%
Data source		
Subordinate	237	80.89%
Leader/manager/supervisor	30	10.24%
Self	19	6.48%
Rater	6	2.05%
Team member	1	.34%
Data target		
Leader/manager/supervisor	282	96.25%
Subordinate	6	2.05%
Other (e.g., presidential candidates)	3	1.02%
Team	2	.68%

$N = 293$.

antecedent, mediator, moderator, and outcome variables. Instead, we created tables to summarize the following hypothesized relationships: (1) dependent variables predicted by AL (Table S4a); (2) mediating variables predicted by AL (Table S4b); (3) moderating variables for AL→dependent variable relationships (Table S4c); (4) independent variables related to AL as the dependent variable (Table S4d); (5) independent variables related to AL as a mediating variable (Table S4e); and (6) AL as a moderator of independent→dependent variable relationships (Table S4f). Because different names were often used for conceptually identical or similar variables across studies, it was necessary to assign common names to such variables. Online Appendix C (https://doi.org/10.1017/jmo2024.68) provides a list of the original and assigned variable names.

Dependent variables predicted by AL

Table S4a presents a summary of the dependent variables that AL is posited to predict, while tabulating the directions of the relationship and the number of times it was supported. In total 569 hypotheses predicted relationships between AL and a dependent variable. The most examined dependent variables were key work outcomes including performance ($N = 66$), creativity ($N = 40$), organizational citizenship behaviors ($N = 34$), job satisfaction ($N = 34$), trust ($N = 30$), psychological capital ($N = 26$), engagement ($N = 23$), turnover intentions ($N = 16$), commitment ($N = 15$), and well-being ($N = 14$). Other frequently examined dependent variables include stress ($N = 16$), leader–member exchange ($N = 15$), and transformational leadership ($N = 9$). Despite exceptions, 445 of the hypothesized relationships were supported, and 33 were partially supported, providing empirical support for AL theory. However, nearly all of these hypotheses are subject to endogeneity bias due to omitted variables (Antonakis et al., 2010), because antecedents of AL (e.g., leader personality) were typically not measured or controlled. Hence, the relationships identified must be interpreted with caution until they can be examined using more rigorous research designs.

Mediating variables predicted by AL

Table S4b shows the mediating variables associated with AL. The most common predicted mediator was trust ($N = 20$), followed by engagement ($N = 11$), psychological capital ($N = 10$), empowerment ($N = 9$), work–life balance ($N = 8$), leader–member exchange ($N = 7$), and person-job fit ($N = 6$).

Of the 209 hypotheses tested, 159 were supported, again providing tentative support for AL theory that should be tempered by endogeneity concerns.

Moderating variables for AL→dependent variable relationships

Table S4c presents a summary of the moderating variables that were posited to alter the relationships between AL and a dependent variable. Most common were interactions ($N = 7$), leader behaviors ($N = 6$), values ($N = 4$), identification ($N = 4$), and competency ($N = 4$). Of the 81 moderating hypotheses tested, 51 were supported, providing tentative support for the predicted relationships along with insight into potential boundary conditions (Gardner, Gullifor et al., 2021).

AL as the dependent variable

Table S4d provides a summary of the variables that have been examined as predictors of AL. Such studies are welcome for two reasons. First, in their 2011 review, Gardner and colleagues observed little research focused on antecedents to AL. Second, antecedents to AL could be useful in addressing endogeneity issues, if they serve as viable instrumental variables (Antonakis et al., 2010). The most studied predictors of AL were mindfulness ($N = 11$), leader gender ($N = 6$), and (rater) gender ($N = 6$). Unfortunately, these variables are unsuitable to qualify as instrumental variables because they are also likely to be endogenous variables that are correlated with the error term of the dependent variable.

AL as mediating and moderating variables

Tables S4e and S4f provide summaries of the hypotheses for which AL was a mediating and a moderating variable, respectively. Of the 24 mediating hypotheses tested, 18 were supported and three partially supported. Of the 27 moderating hypotheses tested, 8 provided support for posited contingent relationships and 9 for positive moderation. No critical mass or pattern of independent→dependent variable relationships for which AL serves as a mediator or moderator is discernable. Future research that explores such relationships is needed to fully map and add nuance to the nomological network for AL.

Revisiting and updating an agenda for AL research

In their review of the early AL literature, Gardner et al. (2011) concluded with an agenda for future AL research. For our review of subsequent AL research, it is informative to revisit their conceptual and methodological recommendations to assess the extent to which they have been followed. In the sections that follow, we recap their recommendations, provide an assessment of the extent to which progress has been made in following them, and offer our recommendations moving forward that are derived from our review. Table 11 provides a summary of the 2011 agenda and the extent to which it has been enacted.

Stronger theory building

In their review, Gardner et al. (2011) observed that the majority (59 out of 91) of AL publications were conceptual, with 55 reflecting a positivist, four an interpretive, and none a critical social science tradition (Neuman, 2015). Of the positivist-oriented publications, only 30 offered conceptual models and only 15 propositions – both of which are components of theory building that positivists recommend for making a theoretical contribution (Bacharach, 1989). Gardner et al. (2011) noted that articles appearing in *The Leadership Quarterly*, the top specialty journal in the field, were more likely to include models, propositions, and other key elements of theory. Not surprisingly, these features of theory were missing from most of the practitioner-oriented writings (Cashman, 1998, 2003, 2008;

Table 11. AL review (2011) future directions revisited

AL future directions identified (2011)	AL future directions revisited (2024)
Stronger theory building	The need for stronger theory building has arguably received the most consideration from researchers, including refinements to existing models, the development of alternative perspectives, scathing critiques, and exchanges between AL researchers. While much has been done in terms of identifying concerns over AL research, the opportunity for future researchers to shore up these concerns remains.
Expansion of the nomological network for AL	From a volume perspective, much progress has been made in the expansion of the nomological network. However, that volume has not always been accompanied by the theoretical/methodological rigor that would provide the confidence in the expanded network. As such, we advise researchers to consider many of these results as tentative, not conclusive, and in need of further study.
More rigorous and diverse methods	Arguably the least progress (and most disappointing) has been regarding the (lack of) rigor and diversity of methods employed in AL research. Just as in the 2011 review, AL research has relied heavily on surveys, cross-sectional designs, and single source data, resulting in endogeneity issues. We implore researchers to adopt more rigorous and innovative methods such as experimental designs, experience sampling methodologies, and non-survey operationalizations of AL.
Attention to authentic followership	Though our review identified several conceptual and empirical studies on authentic followership, nearly all of these studies either lack empirical support entirely or they suffer from methodological concerns (i.e., endogeneity) that weaken the confidence in their findings. As such, this topic remains understudied and an avenue worthy of continued exploration.
Focus on AL development	The focus on AL development continues to be limited. There have been several studies that examine AL development, but methodological limitations have left the findings inconclusive. Though assessing leadership development programs is challenging, recent advances are promising, and the results would have considerable theoretical and practical implications.

George, 2003; George & Sims, 2007; George, Sims, McLean, & Mayer, 2007; Goffee & Jones, 2005) that advanced lay theories of AL. Gardner et al. (2011) suggested that such mixed levels of conceptual rigor reflected the nascent state of AL research. They went on to argue that for AL theory and research to realize its 'potential, greater attention to the basic components of theory, including the boundary conditions reflected by underlying assumptions about values, time, and space (Bacharach, 1989), is required' (p. 1140).

In the ensuing 13 years, empirical research – most of which was grounded in the four-component model of AL – expanded dramatically, accompanied by heightened criticism of AL theory. Indeed, as indicated during our discussion of article type, 219 of the 303 articles (72.28%) reviewed used quantitative methods and 23 (7.59%) qualitative methods, whereas only 27 (8.91%) purely conceptual articles surfaced. Additionally, 19 (6.27%) articles were coded as critiques of AL theory.

Although some refinements of the four-component model of AL (Gardner et al., 2005) have been advanced (e.g., Karam, Gardner, Gullifor, Tribble, & Li, 2017), along with the alternative conceptualizations previously discussed, critiques of AL raised several concerns about the conceptual foundations of AL research (Alvesson & Einola, 2019; 2022; Einola & Alvesson, 2021; Fischer & Sitkin, 2023; Gardner, Karam et al., 2021; Lemoine, Hartnell, & Leroy, 2019; Sidani & Rowe, 2018). The first asserts that AL scholarship has demonstrated a lack of recognition of the fundamental philosophical assumption of existentialism (which has a much longer history and extensive theoretical grounding than the social psychology conceptions) that inauthenticity is unavoidable for humans, creating unrealistic expectations regarding the capacity for leaders (and followers) to achieve authenticity in organizational contexts (Algera & Lips-Wiersma, 2012; Alvesson & Einola, 2019; Gardner, Karam et al., 2021). The second pertains to the inclusion of a moral component that is inconsistent with

philosophical conceptions of authenticity (Algera & Lips-Wiersma, 2012; Alvesson & Einola, 2019; Iszatt-White & Kempster, 2018; Sidani & Rowe, 2018; Sparrowe, 2005). The third concern is that extant AL theory and research reflects an 'entity' rather than a process perspective that underappreciates the dynamic nature of leadership (Alvesson & Einola, 2019; 2022; Einola & Alvesson, 2021; Gardner, Karam et al., 2021). The fourth notes that by changing the label of the behavior dimension posited by Kernis and Goldman (2006), Walumbwa et al. (2008) diluted the focus on actions that they identified as a key theme of the authenticity literature by focusing instead on a 'perspective' (Helmuth et al., 2023). The fifth involves the previously noted observation that the most commonly adopted definition by Walumbwa et al. (2008, p. 94) is problematic because it includes both posited antecedents (e.g., positive psychological capacities) and effects (e.g., fosters positive self-development). These concerns have led to calls to either refine or abandon the four-component conceptualization of AL.

Because the first three concerns have been discussed in detail in the letter exchanges between Gardner, Karam, and McCauley with Alvesson and Einola (Alvesson & Einola, 2022; Einola & Alvesson, 2021; Gardner, Karam et al., 2021; Gardner & McCauley, 2022a; 2022b), we only briefly revisit them here. With respect to the first concern, we agree that it is unrealistic to assume that leaders and followers can be consistently authentic across time and organizational contexts. Indeed, that is why Gardner et al. (2005) adopted an aspirational perspective that assumes certain leaders and followers *strive for authenticity* in their interactions with others, even though they frequently fall short in doing so. Moreover, we agree that proponents of the four-component model of AL have given too little attention to the philosophical roots for the construct of authenticity. To address this shortcoming, alternative perspectives that build upon existentialistic views on authenticity have been proposed (Algera & Lips-Wiersma, 2012; Gardiner, 2016, 2023; Sparrowe, 2005). To date, however, these perspectives have garnered little empirical attention, as our coding of the theoretical foundations for AL research indicates. We encourage research that embraces these alternative approaches to enrich our understanding of AL. Indeed, given the emphasis that each places on understanding the implications of perceived AL, we think they may inform and complement future research that embraces a signaling theory perspective of AL, as we and Lux and Lowe (2025) propose.

The second point was addressed by Gardner and Karam in the first letter of their exchange with Alvesson and Einola (Gardner, Karam et al., 2021). Specifically, they justified the inclusion of a moral component of AL by invoking Ciulla's (2014) observation that because the actions of leaders have consequences (either good or bad) for others, ethics lies at the 'heart of leadership', including AL. Nonetheless, we also recognize that other scholars (e.g., Shamir & Eilam, 2005), and especially those informed by existential views on authenticity (Algera & Lips-Wiersma, 2012; Gardiner, 2016, 2023; Sparrowe, 2005), argue against a moral component of AL. From our point of view, such diversity in perspectives is not surprising and healthy, and not unlike those that characterize other leadership theories, such as Burns's (1978), Bass's (1985), Podsakoff et al.'s (1990), and most recently Stock et al.'s (2023) theories of transformational leadership. The key is for scholars to explicitly state the perspective and underlying assumptions of AL that guide their research.

With respect to the third point, we disagree that the four-component model of AL reflects an entity perspective, as the interactive process whereby leaders and followers form authentic relationships has been a key element of the theory since its inception (Gardner et al., 2005). Nevertheless, we agree with the spirit of this critique in that we think there is a need for greater recognition of AL as a process, which, like Lux and Lowe (2025), lead us to propose a signaling theory (Connelly et al., 2011) lens to explicate the processes whereby authentic leader and follower identities are claimed and granted (DeRue & Ashford, 2010). The convergence of Lux and Lowe's (2025) conclusion regarding the promise of signaling theory as a lens for studying AL with our own is hardly surprising given the emerging precedents for applying signaling theory to clarify charismatic (Antonakis, Bastardoz, Jacquart, & Shamir, 2016), ethical (Banks, Fischer, Gooty, & Stock, 2021; Banks et al., 2022), and transformational (Stock et al., 2023) leadership processes.

Regarding the fourth point, we agree with Helmuth and colleagues (2023) that Gardner et al. (2005) diluted Kernis and Goldman's (2006) focus on authentic actions. We think that adoption of

the signaling theory perspective of AL that we advocate along with Lowe and Lux (2025) addresses this issue by putting the focus on leader signaling behaviors as actions that leaders take to elicit attributions of authenticity.

Finally, we focus in particular on the issue of construct conflation raised by Fischer and Sitkin (2023), as we are in agreement with Lux and Lowe (2025) that this is one of the most important issues that AL scholars must address to move the field forward. In their assessment of the literature on eight positive and two negative styles of leadership, Fischer and Sitkin (2023) identified several conceptual shortcomings for all ten leadership styles, including AL, that contribute to valence-based conflation. Such conflation stems from the specification of leadership behaviors as inherently positive or negative and contributes to the intermingling of the behavioral content with the assessment of the leader's underlying intentions, quality of execution, and subsequent effects. Ultimately, such valence-based conflation results in causal indeterminacy for the empirically investigated relationships among the leadership styles with their antecedents, mediating processes, and behavioral effects.

Despite their concerns, Fischer and Sitkin (2023) do not call for the abandonment of AL research. Instead, they state that they 'find it plausible that authentic leadership causes positive outcomes because authenticity can improve credibility, which in turn can help in wielding social influence' (p. 342). To gain greater confidence in the evidence base for AL, they advocate deconflating the construct and its operationalization. We agree with Fischer and Sitkin (2023) that the conceptualization of AL requires refinement to avoid conflation with its antecedents and effects. To do so, we embrace signaling theory (Connelly et al., 2011) as a promising lens for explicating the dynamic influence process whereby leaders signal their authenticity to followers and offer a refined definition of AL.

A refined AL definition

To preface our discussion of the signaling theory perspective of AL, we *do not* recommend abandoning the four component conceptualization of AL, as it is grounded in social psychological research on authenticity (Kernis, 2003; Kernis & Goldman, 2006), and hence reflects important components of AL that we consider to be fundamental to the phenomenon. Instead, we adopt the Lux and Lowe's (2025, p. xx) refined definition of AL that removes the posited antecedents and effects and reflects a signaling theory and process perspective: AL is a 'concordant, values-based leader signaling of self-awareness, internalized moral perspective, balanced processing, and relational transparency'. Note that this definition removes all references to 'positive psychological capacities', 'a positive ethical climate', and 'positive self-development' which reflect values-based conflation.

Toward a signaling theory perspective of AL

In a review of applications of signaling theory in the management literature, Connelly and colleagues (2011, p. 42) 'focus on the role of signaling in understanding how parties resolve information asymmetries about latent and unobservable quality, which constitutes the majority of management studies that explicitly invoke signaling theory'. They define quality as 'the underlying, unobservable ability of the signaler to fulfill the needs or demands of an outsider observing the signal' (p. 43). Signaling theory identifies the actions that insiders (parties with private information) take to intentionally communicate positive, imperceptible attributes of the insider to outsiders. Effective signals possess two key qualities: (1) they must be observable such that outsiders notice the signal and (2) there must be costs associated with the signal such that it is difficult to fake, and some parties are better positioned to absorb these costs.

Information asymmetry operates in two directions: receivers desire information about senders, but senders likewise seek information from receivers so they can assess what signals are most reliable, receive attention, and how they are interpreted. Antonakis and associates (2016, p. 304) explain that, through signaling, 'leaders can win selection tournaments or be accorded status by followers, whether they are formal or informal leaders'. As for followers, leaders signal to them the types of behaviors they

should engage in via role modeling and/or the value systems they advocate, as well as their support for authentic follower self-expression (Dufour, Maoret, & Montani, 2020; Leroy, Anseel, Gardner, & Sels, 2015). To enhance the efficiency of the information signaled, followers in turn use countersignals (Connelly et al., 2011) to provide feedback on how leaders are perceived through their enthusiasm for the leader's message and the extent to which they enact it.

When applied to charismatic and ethical leadership, signaling theory identifies charisma (Antonakis et al., 2016) and ethical values/principles (Banks et al., 2021, 2022), respectively, as leader attributes that are costly to acquire and hence not available to all parties. We likewise suggest that leader authenticity is costly to signal and difficult to fake for a sustained period of time. That is, because authenticity is an attribute that is not possessed equally by all persons, including leaders, it is valuable as a signal that can secure support from others. Viewing AL from a signaling theory perspective implies that leaders (senders) who strive for authenticity (intentions) seek to communicate their authenticity to followers (receivers) through signals that accurately reflect personal attributes (e.g., values, motives, emotions, strengths, weaknesses) to effectively (quality) reduce information asymmetries about the leader and secure status and support from followers (effects). The implications for AL theory are clear: (1) behavioral signals of leader authenticity must be observable; (2) there are costs associated with authenticity signals such that more versus less authentic leaders are in a better position to signal authenticity without experiencing debilitating costs; and (3) the countersignals sent by potential and actual followers provide feedback regarding the extent to which they attribute authenticity to the leader. Moreover, leader signals of the authenticity of espoused values and behavioral intentions lessen information asymmetry and thereby reduce moral hazards for followers.

To further explain why we view authenticity as a costly signal, we draw on Hahl and Ha's (2020) argument that authenticity is an identity characteristic of an entity (individual, leader, organization) that indicates it is what it claims to be. Audiences attribute authenticity to actors who fulfill their commitments, especially when such commitments threaten short-term gains. To further explain this perspective of authenticity, they rely on Goffman's (1959) frontstage versus backstage metaphor. The frontstage is where the desired identity of an actor is presented and meant to be seen. In contrast, the backstage reflects the true intentions and character of the actor. An actor is authentic when the frontstage and backstage are aligned. However, because the backstage cannot be seen, opportunities arise to present a frontstage that is inconsistent with the backstage to secure rewards associated with the desired identity. In contrast, when an actor expresses 'disinterest' in these extrinsic rewards, the audience can infer that the backstage and frontstage are aligned.

This argument for a 'disinterested' signal of an authentic leader identity is consistent with AL theory, which posits that more authentic leaders are less interested in extrinsic rewards, and are instead motivated intrinsically to follow their values (Gardner et al., 2005). In contrast, less authentic leaders with less defined moral values are more easily tempted by external rewards. Consequently, they must engage in a greater degree of self-regulation to resist indulgences, leading to self-control fatigue (Forestier, de Chanaleilles, Boisgontier, & Chalabaev, 2022). An authentic leader identity is signaled to address commitment concerns of followers that the leader is willing to behave consistently even if doing so is costly because it requires forgoing short-term benefits.

We concur with Lux and Lowe (2025) that signaling theory constitutes a promising lens for mapping out the underlying intentions, behavioral signals, effectiveness in execution, and effects of AL and its four components. Although a complete reconceptualization of AL from a signaling theory perspective is beyond the scope of this review, we encourage scholars to embrace Lux and Lowe's (2025) revised definition and recommendation to apply signaling theory to flesh out the processes whereby leaders signal, and followers attribute, authenticity to the leader.

Expansion of the nomological net for AL

Given the paucity of empirical investigations into AL at the time of their review, it is not surprising that Gardner et al. (2011) called for further mapping of the nomological network for AL. Specifically,

they called for research focused on the posited antecedents, mediators, and moderators of AL, including individual differences and contextual variables. As our discussion of the expanded nomological network for AL indicates, progress has been made along these lines, with the identification of several antecedents (see Tables S4d and S4e), mediators (see Table S4b), and moderators (see Table S4c) of authentic leader–follower relationships.

Nevertheless, caution should be exercised in interpreting the expanded network for several reasons. First, in many cases, the theoretical rationale for the posited relationships was weak, as researchers too often substituted 'references, data, diagrams, variables, and hypotheses' – all elements that Sutton and Staw (1995, p. 371) astutely point out 'theory is *not*' – for an explanation of *why* the focal variables are related, which is the essence of theory. Second, given the weak research methods that reflect a reliance on survey measures, cross-sectional designs, convenience samples, inadequate or missing controls, and limited assessments of construct validity, endogeneity issues are rampant in AL research, undermining confidence in the relationships identified. Third, the research models examined are typically very simplistic, as they often include only one or two independent variables, one or two dependent variables, zero to few mediating variables, and zero to few moderating variables. As such, endogeneity arising from omitted variables (Antonakis et al., 2010) is a major concern, especially given the high correlations among many of the variables. Indeed, given that AL is highly correlated with other forms of leadership including ethical, servant, transformational, and leader–member exchange, as well as positive affect toward the leader (Hoch et al., 2018; Martinko et al., 2018), the fact that measures of these variables are commonly omitted and rarely controlled for raises concerns that the variables identified in the nomological network may be only spuriously related to AL. Further, all leadership styles are endogenous because antecedents (e.g., personality, organizational culture) precede them; hence, the common place omission of such antecedents and/or instrumental variables renders it impossible to make confident inferences about causal relationships (Antonakis et al., 2010). Similarly, the high correlations among the mediators of AL relationships including trust, empowerment, engagement, leader–member exchange, and psychological capital makes the fact that they are typically examined in isolation problematic, in that it is impossible to determine which of the identified mediating relationships are operative and which may be spurious.

For these reasons, we view the relationships reflected in the updated nomological network as tentative and in need of stronger theorizing and further study before any definitive conclusions about the nature and causal directions of these relationships can be made. We are hopeful that a signaling theory perspective of AL would provide greater guidance in identifying focal antecedents, outcomes, mediators, and moderators to examine in mapping the nomological network for AL. Additionally, stronger research methods that address endogeneity concerns and make it possible to draw causal inferences are essential to distinguish between variables that belong in AL's nomological network and those that are only spuriously related.

More rigorous and diverse methods

'Our content analysis revealed an overreliance on survey measures, cross-sectional designs, and single source data among the quantitative empirical studies' (Gardner et al., 2011, p. 1140). Although this quotation is taken from the 2011 AL review, it sadly remains applicable today. The lack of attention to endogeneity issues reinforces the need for more rigorous research designs. Moreover, the lack of diversity of methods and scarcity of articles with multiple studies and complementary methods indicate there is much room for improvement. In this section we discuss innovative research designs and measures that have promising potential for studying AL.

An article that is moving in the right direction in terms of addressing conceptual and endogeneity issues is Appels' (2023) application of signaling theory to explore how CEO sociopolitical activism signals AL to prospective employees. Specifically, he posited that CEO sociopolitical activism, which he defined as public and costly expressions of personal political values by a firm's most visible and highest-ranking leader, serves as an effective signal that job seekers can use to make attributions of

leader authenticity. To investigate these leader signaling predictions, three field experiments and one field study were conducted.

To appreciate the rigor of Appels (2023) research, consider his first field experiment. A parallel design for assessing the causal accuracy of the proposed independent, mediating, and dependent variables was used as participants reacted to a CEO's support for women's abortion rights. Half of the participants were randomly assigned to a measurement-of-mediation design where the posited mediator, AL, was measured (and thus endogenous). In parallel, the other half were assigned to a concurrent double randomization manipulation-of-mediator design where AL is manipulated (and thus exogenous) using vignettes developed by Cianci and colleagues (2014). Only the CEO sociopolitical activism (activism vs. neutral) treatment was manipulated in the measurement-of-mediation design group, while the mediator, AL attributions, was measured by the Authentic Leadership Inventory (Neider & Schriesheim, 2011). A measure of participants' assessment of the attractiveness of the CEO's firm as a prospective employer served as the dependent variable. The extent to which the participants' political values (conservative vs. liberal) were congruent with those expressed by the CEO was examined as a moderator; it was hypothesized that more versus less congruent political values would elicit higher levels of attributed AL. The online labor platform Prolific Academic was used to recruit study participants. Results supported the hypotheses that CEO sociopolitical activism is positively associated with job seekers' evaluations of employer attractiveness as mediated by AL attributions and moderated by political incongruence. The other three studies shared similar strengths, particularly as used in combination to triangulate the findings.

We consider Appels (2023) work to be encouraging for several reasons. The first is his use of signaling theory, which provides a strong theoretical basis for the hypotheses, and reinforces our and Lux and Lowe's (2025) enthusiasm for a signaling conception of AL. The second stems from the combination of field experiments and a field survey, along with varied experimental manipulations and construct measures, to triangulate the findings. Here, it is important to recognize that the use of Cianci et al's (2014) hypothetical vignettes to manipulate AL is not ideal, because they are rather artificial. To address this concern in future research, we echo Lonati et al.'s (2018, p. 22) recommendation to employ 'non-traditional stimulus material, which can enhance the psychological realism and immersion in hypothetical experimental environments (video-based vignettes rather than written ones, virtual reality interactions)'. Nonetheless, as Appels (2023) noted, the combination of field experiment and field survey designs addressed potential endogeneity issues (Antonakis et al., 2010). The third strength stems from the use of Prolific Academic to secure a sample of actual jobseekers as participants. Appels (2023, p. 10) argued that such platforms serve 'as field settings for job-seeking behavior in particular, as platforms' users are observed in a natural setting in which they actively search for employment … without compromising internal validity or ethical principles'.

Innovative methods from other disciplines suggest promising alternatives to survey methods for exploring and deconflating operationalizations of AL. For instance, applications of experience sampling in social psychology to track relationship trajectories (Eastwick, Finkel, & Simpson, 2019; Gable, Reis, & Downey, 2003), suggest that such methods have the potential to deconflate the intent, content, execution, and effects of AL signaling behavior. Despite some exceptions (e.g., Weiss, Razinskas, Backmann, & Hoegl, 2018), our review identified few studies that adopted experience sampling. The potential utility of combining qualitative and experimental methods to study AL is apparent from Hahl and colleagues' application of mixed methods to explore the role of authenticity in diverse settings including Major League Baseball (Hahl, 2016), U.S. presidential elections (Hahl, Kim, & Sivan, 2018), 'lowbrow culture' (Hahl, Zuckerman, & Kim, 2017), and corporate diversification (Hahl & Ha, 2020). Implicit measures also show promise for studying AL. For instance, Randolph-Seng & Gardner (2013) used implicit measures of self-esteem including signature size (Dijksterhuis, 2004) and the attractiveness of one's initials (Stapel & Blanton, 2004) to obtain partial support for Kernis' (2003) prediction that authenticity (in this case AL) is positively related to optimal self-esteem.

Finally, we speculate that other alternatives to traditional survey methods (e.g., Likert-based measures) may have utility in operationalizing AL. For example, the Implicit Association Test (IAT; Greenwald, McGhee, & Schwartz, 1998) employs a stimulus-sorting task (e.g., valanced associations with gender, race, etc.) to predict affect, cognitions, and behavior (Greenwald & Banaji, 2017). We suggest that the IAT could be applied to measure leader authenticity. Consider, for example, two leaders who both profess to value corporate social responsibility initiatives over profits. However, an application of the IAT to measure such values reveals that, although social responsibilities are indeed central and profit objectives peripheral for one leader, the opposite pattern is revealed for the second. Such a pattern of results would suggest that the first leader is more authentic in the values signaled than the second. As a second example, consider the research on displayed emotions, which indicates that microexpressions as opposed to macroexpressions of emotions are often more accurate (Ekman, 2009). Coders can be trained using the Micro Expression Training Tool (Ekman, 2002). This technology could be applied by training coders to use the Micro Expression Training Tool to detect microexpressions exhibited by leaders either in person or on video that reflect deception, providing an indicator of inauthenticity. Other physiological measures (Heaphy & Dutton, 2008) likewise have promise.

As Gardner et al. (2021) observed, many theories from scientific fields as diverse as physics, biology, chemistry, astronomy, psychology, and sociology, could not initially be tested because the requisite measures were lacking. Eventually, however, the methods caught up to the theories as tools for operationalizing the core constructs were developed, making it possible to either support or reject them. Our review indicates that despite exceptions such as Appels's (2023) four-study article, the criticisms that AL research suffers from issues of conflation and endogeneity are well founded. We encourage AL scholars to consider the merits of the proposed signaling perspective while experimenting with innovative methods for operationalizing the construct.

Greater attention to authentic followership and AL development

The final two future research recommendations made by Gardner et al. (2011) called for more extensive research into authentic followership and AL development. Our review identified some conceptual (e.g., Hinojosa, Davis Mccauley, Randolph-Seng, & Gardner, 2014) and empirical (e.g., Biermeier-Hanson, Wynne, Thrasher, & Lyons, 2021; Leroy et al., 2015; Tak, Seo, & Roh, 2019) articles focused on authentic followership. Similarly, we found some theoretical (Hinojosa et al., 2014; Wilson, 2013) and empirical (Baron, 2016; Baron & Parent, 2015; Liang, 2017; Martínez-Martínez et al., 2021) articles focused on AL development. Nonetheless, these remain understudied topics. Hinojosa and colleagues (2014) adopted an attachment theory lens to advance a model of authentic leader–follower relationships and proposed interventions to promote the development of AL and followership. As such, empirical tests of their propositions could yield insights into both topics. Using self-determination theory (Deci & Ryan, 2000) as a guiding framework, Leroy and colleagues (2015) found that AL, authentic followership, and their interactions were positively associated with follower basic need satisfaction, which is, in turn, was positively associated with follower work role performance. Similarly, Tak et al. (2019) obtained support for their hypotheses that AL is positively related to follower's psychological capital and project performance, as mediated by authentic followership. However, because both studies relied exclusively on survey measures of the focal variables and cross-sectional data collection methods, they are susceptible to endogeneity issues (Antonakis et al., 2010) that muddy interpretation of the findings.

Two studies by Baron (2016, 2015) highlight the potential utility and challenges of studying AL development. Using semi-structured interviews with 24 mid-level managers, Baron and Parent (2015) explored the process of AL development within a training context. They applied the Gioia, Corley, and Hamilton (2012) method for theory building to advance a process model for developing AL skills. The model includes five sequential steps: (1) developing self-awareness; (2) identifying possible behaviors; (3) trying out new behaviors; (4) the trigger – recognizing the benefits of change; and

(5) transfer. Quotations from leader participants on their growth and development throughout the training process attested to the promise of this model. At the same time, it is important to recognize that the interviews were conducted following years 1-, 2-, or 3 of a 3-year training program, and hence susceptible to retrospective bias (Demiray, Mehl, & Martin, 2018).

To address limitations of the Baron and Parent (2015) study, Baron (2016) used a mixed-methods design to assess AL and mindfulness development for the same training program. A quasi-experimental sequential cohort design with a comparison group was used to collect self-evaluations from 143 participants up to six times over the duration of the 3-year program. Qualitative data were collected through semi-structured interviews with the same 24 managers who participated in the Baron and Parent (2015) study. Baron (2016, p. 296) concluded that all 'participants evolved through the leadership development program' because their 'self-reports of AL and mindfulness increased significantly and linearly'.

There are many commendable aspects of the Baron and Parent (2015) and Baron (2016) studies. Collecting qualitative and quantitative data in the field using a sample of leaders participating in a leadership development program allows for triangulation and contributes to the ecological validity of this research (Neuman, 2015). Moreover, the use of mixed-methods and the inclusion of a comparison group by Baron (2016) addresses some of the limitations of the Baron and Parent (2015) study. At the same time, the simultaneous inclusion of multiple forms of training (e.g., mindfulness and AL) and the reliance on retrospective data coupled with the susceptibility to demand characteristics (Orne, 1969), make it impossible to draw causal inferences about the efficacy of the training. Together, these studies highlight the challenges of assessing leadership development programs (Day, 2000), which are certainly not unique to those focused on AL development (Avolio, 2010). Still, advances in leadership development (Day & Dragoni, 2015; Day, Riggio, Tan, & Conger, 2021) and its assessment hold promise for future research that yields more definitive conclusions regarding its effectiveness. Estimates of the return on development investment (Richard, Holton, & Katsioloudes, 2014) suggest that such leadership development and its assessment are well worth the effort.

Conclusion

AL is a construct that resonates with practitioners, as many report that they have witnessed and/or strive to exhibit this form of leadership at work. The extant research provides tentative evidence that AL is related to a variety of work outcomes for followers (e.g., work engagement, job performance, job satisfaction, organizational citizenship behaviors), leaders (e.g., well-being, positive modeling), and their organizations (e.g., financial performance). Despite such promise, the literature suffers from a host of conceptual and empirical limitations. These limitations are certainly not unique to the study of AL, as similar deficiencies have been observed for other positive approaches to leadership (Alvesson & Einola, 2019; Banks et al., 2021, 2022; Fischer & Sitkin, 2023; Stock et al., 2023). In this review, we address the pitfalls of the current AL research, while recommending more rigorous research practices and innovative methods that could serve to benefit other positive approaches to leadership as well. Moreover, based on the promising insights that have been generated by signaling theory perspectives of ethical (Banks et al., 2021, 2022) and transformational (Stock et al., 2023) leadership, we share Lux & Lowe's (2025) optimism that applying a signaling theory lens to AL will serve to clarify and deconflate the AL construct, and ultimately generate valuable knowledge that can help leaders and followers to be their best selves at work.

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