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# A meta-analytic review of authentic and transformational leadership: A test for redundancy☆

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ABSTRACT

While authentic leadership (AL) has seen a dramatic increase in scholarly attention over the last decade, its contribution relative to more established leadership constructs merits investigation. We employ meta-analytic techniques to compare AL and transformational leadership theories using 100 independent samples and 25,452 individuals. The findings reveal that (1) the relationship between authentic and transformational leadership is large in magnitude, suggesting construct redundancy ($\rho = .72$); (2) neither AL nor transformational leadership add noticeable incremental validity beyond the other construct; (3) AL has a lower relative weight than transformational leadership for the outcomes of follower satisfaction, follower satisfaction with the leader, task performance, and leader effectiveness; and (4) AL demonstrates dominance over transformational leadership when predicting group or organization performance and organizational citizenship behaviors. We recommend future research examine AL at the component level and its relationships with related ethical constructs to potentially differentiate it from transformational leadership.


## Introduction

Authenticity within the leadership context has received significant attention within the management literature as a standalone construct (e.g., Luthans & Avolio, 2003), perhaps as a response to the crisis of confidence in today's corporate and government leaders (Gardner, Cogliser, Davis, & Dickens, 2011). Since its introduction, authentic leadership (AL) has gained considerable practitioner (e.g. Cashman, 2003; George, 2003; George & Sims, 2007) and scholarly interest (e.g. Avolio, 2010; Gardner et al., 2011). During this time, the study of AL has benefitted from critical refinements of the theoretical models (Gardner, Avolio, Luthans, May, & Walumbwa, 2005; Ilies, Morgeson, & Nahrgang, 2005) and the development of multiple validated scales (e.g. Neider & Schriesheim, 2011; Walumbwa, Avolio, Gardner, Wernsing, & Peterson, 2008). As a result of these advancements, empirical work examining AL has increased quite dramatically over the past 10 years.

Despite the impressive advances made both theoretically and empirically, researchers have expressed concerns regarding the contribution of AL theory to the leadership literature (e.g. Cooper, Scandura, & Schriesheim, 2005; Yammarino, Dionne, Schriesheim, & Dansereau, 2008). For example, AL overlaps conceptually with many of the other positive theories of leadership (Avolio & Gardner, 2005). An application of Occam's razor would suggest that, all else being equal, two redundant constructs add unnecessary complexity to our understanding of leadership theory (Schmidt, 2010). Indeed, Avolio and Gardner (2005)

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suggest that AL can incorporate many theories of leadership including transformational, charismatic, servant, and spiritual, along with other forms of positive leadership. With such conceptual overlap, concerns have emerged about whether AL is sufficiently distinct from these theories (Avolio & Walumbwa, 2014). The issue of distinctiveness between these theories, both theoretically and empirically, is important since a lack of distinctiveness between AL and other positive leadership theories could suggest that AL theory may be "old wine in new bottles" (Spell, 2001). Hence, determining whether AL represents a case of construct redundancy and if AL accounts for unique variance in key outcomes will help to assess the value that AL adds to the leadership literature.

Our study offers three primary contributions to the literature. First, we take the initial steps toward addressing concerns about construct redundancy in the leadership literature by investigating the empirical distinction of AL from transformational leadership. To explore the potential empirical redundancy of AL in comparison to transformational leadership, we present and test the relationship between authentic and transformational leadership across multiple studies. We also report the incremental validity of AL over and above transformational leadership and vice versa, and we provide a test of the relative contribution of authentic and transformational leadership when predicting important work outcomes. Second, by completing the tests, we also offer the first meta-analytic review of the AL literature. While the number of AL studies pales in comparison to the number of transformational leadership studies, empirical work has demonstrated the importance of early meta-analytic reviews in providing critical guidance for fast-growing bodies of literature (e.g., Oh, Wang, & Mount, 2011). As Leavitt, Mitchell, and Peterson (2010) point out, despite the potential utility for doing so, meta-analysis is rarely used to compare theories and address concerns regarding theory proliferation. We seek to capitalize on this potential, as we believe meta-analysis provides an advantageous tool for exploring our research questions. Specifically, we selected meta-analysis to examine the discriminant validity of AL relative to transformational leadership, since these theories reflect a considerable amount of conceptual overlap (see Table 1 in Avolio & Gardner, 2005 for a complete overview of the theoretical convergence between these theories). Lastly, as our third contribution we present a roadmap for future AL theory development and empirical research.

### *AL theory*

Luthans and Avolio's (2003) conceptualization of AL ignited scholarly interest in the AL construct within the field of management and provided the foundation for current understandings of the construct. Building upon their work, several scholars (e.g. Avolio & Gardner, 2005; Gardner, Avolio, Luthans et al., 2005; Ilies et al., 2005; Walumbwa et al., 2008) have refined AL theory. Refinements such as those by Walumbwa et al. (2008) have resulted in the most generally accepted definition of AL within the literature. Thus, authentic leaders are described as being self-aware, showing openness and clarity regarding who they are, and consistently disclosing and acting in accordance with their personal values, beliefs, motives, and sentiments (Walumbwa et al., 2008). Based on this view, there are four components of AL: self-awareness, relational transparency, balanced processing, and an internalized moral perspective.

*Self-awareness* arises from an understanding of self-reflection regarding one's values, emotions, goals, knowledge, and talents (Gardner, Avolio, Luthans et al., 2005) and one's strengths and weaknesses (Ilies et al., 2005). Additionally, it refers to knowledge of the multifaceted nature of the self and one's meaning-making process in relation to the social world (Walumbwa et al., 2008). An *internalized moral perspective* is based on self-regulation, which is anchored by one's mission, deep-seeded values, or a desire to make a difference (Shamir & Eilam, 2005; Walumbwa et al., 2008). *Balanced processing* includes considering others' opinions and all available relevant information in decision-making while maintaining a relatively objective lens (Walumbwa et al., 2008). Finally, *relational transparency* refers to showing one's true self to others and openly, but appropriately, sharing information regarding one's true thoughts and emotions. Thus, authentic leaders welcome openness and self-disclosure in close relationships with others (Gardner, Avolio, & Walumbwa, 2005).

Past empirical evidence has linked AL to both attitudinal (e.g. Laschinger, Wong, & Grau, 2013; Leroy, Palanski, & Simons, 2012) and behavioral outcomes (e.g. Hannah, Walumbwa, & Fry, 2011a; Leroy, Anseel, Gardner, & Sels, 2012). For the purpose of examining the empirical redundancy of AL, we focus specifically on the following six outcomes: (1) follower job satisfaction, (2) follower satisfaction with the leader, (3) task performance, (4) organizational citizenship behaviors (OCB), (5) group or organization performance, and (6) rated leader effectiveness. These outcomes were selected because they have been explicitly identified by AL theory (Avolio, Gardner, Walumbwa, Luthans, & May, 2004; Gardner, Avolio, Luthans et al., 2005, 2011; Luthans & Avolio, 2003; Walumbwa et al., 2008) as consequences of the authentic leader–follower relationship, and they have been previously examined in meta-analytic studies on transformational leadership (e.g. Judge & Piccolo, 2004; Wang, Oh, Courtright, & Colbert, 2011). Such overlap in the outcomes between our study and prior transformational leadership meta-analyses was necessary in order to test the incremental validity and relative importance of AL compared to transformational leadership.

Empirical evidence suggests that when leaders are aware of their values and act upon such beliefs, they are more likely to achieve elevated levels of performance and help others accomplish the same (Ryan & Deci, 2001). Followers tend to express greater satisfaction with their leader when the leader engages in authentic behaviors and this satisfaction is likely to correspond to an increase in job satisfaction (Jensen & Luthans, 2006). Thus, leaders who are perceived to be more ethical and make principled decisions will be perceived as caring more about their followers (Brown & Treviño, 2006) and will likely inspire increased levels of OCBs.

Additionally, AL has seen a strong link to improved task performance (Leroy, Anseel et al., 2012) and performance at both the group and firm levels (Hannah et al., 2011a), in part, because individuals who are authentic are able to effectively use balanced processing of information and illustrate consistency between their words and deeds (Walumbwa et al., 2008). The result is that followers are more likely to receive the assistance, guidance, and resources that they need to perform their roles. In addition to

this direct effect of AL, there is likely to be an indirect effect on performance. This is because authentic leaders serve as role models who act with integrity and fairness (Avolio et al., 2004). Furthermore, given that AL has been linked to these important performance-related outcomes, it is likely that authentic leaders will also be rated as more effective (Illies, Curseu, Dimotakis, & Spitzmuller, 2013). Thus, we suggest the following:

**Hypothesis 1.** *AL will have positive, nonzero relationships with the following work outcomes: (a) follower job satisfaction, (b) follower satisfaction with the leader satisfaction, (c) task performance, (d) organizational citizenship behaviors, (e) group or organization performance, and (f) rated leader effectiveness.*

### *Transformational leadership theory*

Transformational leadership theory has received a tremendous amount of attention in the last three decades and has deservedly emerged as one of the most dominant leadership theories (Mhatre & Riggio, 2014). First proposed by Burns (1978), the theory was advanced by Bass (1985), who made critical revisions. Since that point the theory has received the benefits of both theoretical as well as meta-analytic reviews (Eagly, Johannesen-Schmidt, & van Engen, 2003; Judge & Piccolo, 2004; Lowe, Kroeck, & Sivasubramaniam, 1996; van Knippenberg & Sitkin, 2013), along with an in-depth theoretical and methodological critique (van Knippenberg & Sitkin, 2013).

Transformational leadership describes how a leader seeks to meet the higher-order needs of followers. Four dimensions of transformational leadership have been proposed. First, *idealized influence* characterizes the extent to which an individual engages in behaviors that encourage followers to identify with him or her (Judge & Piccolo, 2004). Second, *inspirational motivation* describes the extent to which an individual puts forth a vision meant to inspire followers. Third, *intellectual stimulation* characterizes the extent to which individuals challenge existing assumptions and encourage others to take risks. Finally, *individual consideration* describes the extent to which an individual seeks to meet the individual needs of his or her followers (Judge & Piccolo, 2004).

We suggest that when introducing a new leadership construct, such as AL, it is necessary to take stock of how this novel construct fares when predicting important outcomes relative to existing constructs, such as transformational leadership. If it is the case that AL does not illustrate incremental validity and a certain amount of importance relative to more established leadership constructs, its contribution to leadership research might be brought into question. Extensive reviews of the transformational leadership literature already exist (Avolio, Bass, & Jung, 1999; Eagly et al., 2003; Judge & Piccolo, 2004; van Knippenberg & Sitkin, 2013; Wang et al., 2011). Thus, in this section, we discuss the literature on transformational leadership as it relates to AL theory and research.

There are many differences and similarities between transformational leadership and AL. With regard to conceptual differences, transformational leadership focuses on developing followers for the purpose of performing leadership roles (Avolio, 1999), whereas AL is more concerned with developing followers' sense of self more generally (Avolio & Gardner, 2005). Additionally, authentic leaders are not necessarily charismatic or inspirational, yet transformational leaders by definition paint powerful visions and stimulate creativity among followers within an organization. Other key elements of AL theory that are distinct or absent from transformational leadership theory include (a) a reciprocal relationship between positive psychological capital and authentic leadership/followership, (b) open and transparent relationships with close others, (c) alignment between leader values and ethical conduct, (d) a positive, strengths-based perspective, and (e) follower authenticity and development (Avolio & Gardner, 2005). These differences reflect the core premise of AL that alignment between the leaders' values and behavior produces tangible benefits for the leader in the form of heightened levels of psychological well-being. Conversely, follower modeling of such authenticity contributes to elevated levels of follower engagement, trust in the leader, well-being, and performance. Hence, the explicit focus on the psychological health and well-being of both the leader and followers that accrues from the attainment of authenticity represents a unique feature of AL theory that is not present within the transformational leadership literature.

As for similarities, a review of the original definitions of transformational leadership by both Burns (1978) and Bass (Bass & Steidlmeier, 1999) suggests that it is a necessity that “true” as opposed to “pseudo” transformational leaders are authentic in their actions (Avolio & Gardner, 2005). Hence, AL is most likely highly related to genuine transformational leadership and may serve as a “root construct” of this and other forms of positive leadership (Avolio & Gardner, 2005). Moreover, Avolio and Gardner (2005) note that the underlying leadership processes described by both theories stress the importance of leader self-awareness, positive modeling, follower self-determination, positive social exchanges between leaders and followers, and a supportive and ethical organizational context, while positing positive effects on follower, group, and organizational performance. Finally, while transformational leadership theory does not explicitly discuss the role of positive psychological capital or follower and leader relational transparency, Avolio and Gardner (2005) point out that these elements of AL are implicit in scholarly discussions of transformational leadership. Thus, while there are notable differences been the posited elements of AL versus transformational leadership, there is also a considerable amount of conceptual overlap.

An examination of the tools used to measure these constructs further illustrates their distinctiveness. The items in the Multifactor Leadership Questionnaire (Bass & Avolio, 2004), which is the most extensively used measure of transformational leadership, suggest that the content of this measure differs from that in the Authentic Leadership Questionnaire (ALQ; Avolio, Gardner, & Walumbwa, 2007) or the Authentic Leadership Inventory (Neider & Schriesheim, 2011), which measure the four AL dimensions. Yet this does not mean there is not still conceptual overlap between the measures of AL and transformational leadership as

appears to be the case for the dimensions of idealized influence within transformational leadership theory and the internalized moral perspective within AL theory (Walumbwa et al., 2008). In the case of these two sub-dimensions, one would expect a leader to role model ideal behaviors that are meant to inspire followers in at least some capacity. Thus, from both a conceptual and measurement perspective, AL and transformational leadership appear to be related, yet distinct. If there is a very strong relationship between the measures of AL and transformational leadership, one might raise the issue of empirical redundancy. Based upon these arguments, we propose the following competing hypotheses:

**Hypothesis 2a.** *AL will reflect incremental validity and/or provide a greater relative contribution than transformational leadership when predicting important work outcomes.*

**Hypothesis 2b.** *AL will not reflect incremental validity and/or provide a greater relative contribution than transformational leadership when predicting important work outcomes.*

## Methods

### *Literature search*

A thorough search was conducted in order to identify published and unpublished samples that examined the antecedents, correlates, and consequences of AL. We employed a search strategy similar to that of Gardner et al. (2011). Samples were identified through electronic searches of EBSCO/Host databases (e.g., Academic Search Complete, Business Source Complete, Education Research Complete, ERIC, PsycArticles, and PsycINFO) and Google Scholar using specific keywords such as "authentic leadership" and "authenticity" paired with "leader," "follower," or "leadership." We conducted manual searches of the *Academy of Management*, *Society for Industrial/Organizational Psychology*, and *Southern Management Association* annual conference proceedings and programs. We also searched reference lists of key articles on AL (e.g., Gardner et al., 2011). A cutoff date was set for September 19, 2014. Finally, we issued a call for unpublished samples and in-press papers through the *Academy of Management*'s OB, HRDIV, and LDRNET listservs.

### *Inclusion and exclusion criteria*

To be included in the current meta-analytic review, primary samples had to meet several established criteria. First, only primary samples that explicitly measured AL were included. Second, to merit inclusion, primary samples had to measure AL and at least one of the variables identified in Table 1. Third, samples were included only if sufficient data were reported in order to calculate a correlation coefficient. When the necessary information was not reported, the authors were contacted and a request was made for the zero-order correlations not provided in the original study (e.g. Batchelor, 2011; Clapp-Smith, Vogelgesang, & Avey, 2009). It was decided to exclude the study by Hmieleski, Cole, and Baron (2012) as these authors applied a reference-shift composition model to their AL scale so as to characterize AL of entire teams instead of individual leaders. In total, this process resulted in 100 samples that were coded and the inclusion of 25,452 individuals. The primary input values (e.g., sample size, reliabilities, and correlations) from each sample are available in Appendix A.

### *Coding procedures*

Two authors independently coded a subsample of studies. Across 44 coding decisions (e.g., sample size, reliabilities, effect size, etc.), the interrater reliability was acceptable (Cohen's kappa = 1.0) (Cohen, 1960). Additionally, the lead author randomly examined approximately 20% of the primary samples and found no coding errors. When coding samples, if the sample included multiple time periods, Time 1 was coded in order to increase the comparability of longitudinal samples to samples that utilized a cross-sectional design. In some instances, a reliability estimate (e.g., coefficient alpha) was not reported, and an average reliability was computed using other reliabilities in that distribution. If a study did not report the reliability of the AL measure employed, we used Cronbach's alpha for the ALQ even if it was a unique scale. This most likely overestimates reliability and under corrects for any measurement error. However, as corrections boost the magnitude of the correlations, it was decided to use the more conservative approach. In a few cases proxies were coded. First, affective commitment was coded as a proxy for organizational commitment. Second, credibility was coded as a proxy for trust. Third, bullying was coded as a proxy for counterproductive work behaviors (CWB). In all other instances, the variables coded exactly matched the category for which the variable was assigned (e.g., the variable job satisfaction was coded as the criterion job satisfaction).

### *Meta-analytic procedures*

The psychometric meta-analysis approach was employed in order to synthesize the primary samples (Hunter & Schmidt, 2004). In a few instances, a composite correlation was used (the composites are reported in Appendix A). The variability of corrected effect size estimates was investigated by calculating 80% credibility intervals. Wide intervals or intervals that include zero can be interpreted as evidence of moderating effects. Additionally, the percentage of variability due to random-sampling and measurement error is described. Finally, 95% confidence intervals (95% CI) were reported.

*Incremental validity and relative weights analyses*

Historically, in management research, there has been a great deal of emphasis placed on the total predictive validity of a collection of theoretically important variables (Johnson & LeBreton, 2004). Additionally, techniques have been posited that allow one to compare the importance of one predictor variable to another. For example, it is not uncommon to see regression analyses, such as tests of incremental validities, included in meta-analytic studies (Geyskens, Krishnan, Steenkamp, & Cunha, 2009; Kepes, McDaniel, Brannick, & Banks, 2013). This approach can be useful as it allows one to see the extent to which various constructs provide predictive validity over and above related constructs. However, such approaches can also be limited when the correlations between predictor variables are quite large in magnitude. This is certainly true when considering authentic and transformational leadership (Copeland, 2009; Lelchook, 2012; Walumbwa et al., 2008).

Concerns about multicollinearity in regression equations suggest that a relative weights analysis is merited. The use of relative weights in meta-analyses has gained great popularity and acceptance in the management literature (Banks et al., 2014; Behson, 2012; Chiaburu, Munoz & Gardner, 2013; Chiaburu, Peng, Oh, Banks & Lomeli, 2013; Derue, Nahrgang, Wellman, & Humphrey, 2011; O'Boyle, Humphrey, Pollack, Hawver, & Story, 2011; O'Boyle, Forsyth, Banks, White, & Story, 2014; Tonidandel & LeBreton, 2011). Such an analysis can be completed using the epsilon weight technique advanced by Johnson (2001). This technique has received much attention over the past decade. This approach can be used to identify patterns of dominance among correlated predictor variables (LeBreton, Hargis, Griepentrog, Oswald, & Ployhart, 2007). Hence, its adoption is warranted when considering the high correlations of the leadership constructs of interest in this study. The resulting weights can be summed to $R^2$ and then compared via ratios. For example, an epsilon weight of 0.30 is three times as important as an epsilon weight of 0.10; the summed weights of 0.40 reflect the total variance explained.

*Sensitivity analyses*

Various sensitivity analyses were conducted to verify the robustness of the results. Unfortunately, a sufficient number of samples were not available to compare the operationalization of AL using the ALQ (Walumbwa et al., 2008) relative to the Authentic Leadership Inventory (ALI; Neider & Schriesheim, 2011).

*Outlier check*

A check for outliers was conducted using Huffcutt and Arthur's (1995) sample adjusted meta-analytic deviancy (SAMD) with corrections recommended by Beal, Corey, and Dunlap (2002). A critical value of .001 was used. When identified as a possible outlier, the primary samples were reexamined to rule out the possibility that there were coding or transcription errors. In all instances, analyses were conducted with and without the possible outliers to identify if there were any changes in the conclusions drawn. In no cases did a conclusion change, and thus, it was decided not to eliminate any potential outliers.

*One-sample-removed analysis*

To supplement the outlier check and to reduce any remaining concerns that the results may have been affected by influential samples, one-sample-removed analyses were computed and reported in the results section (Kepes et al., 2013). To accomplish this, the primary samples were removed one at a time from each distribution and the meta-analytic estimate was recalculated. The result is a range of estimates that illustrates the robustness of the meta-analytic estimate should any one sample be removed.

*Publication bias check*

Publication bias is considered to be a potential threat to the robustness of meta-analytic results (Banks, Kepes, & McDaniel, 2012; Banks & McDaniel, 2011) and, consequently, evidence-based practice (Briner & Rousseau, 2011). Previous research has suggested that, conservatively speaking, publication bias analyses should only be interpreted when there are at least 15 samples, as publication bias tests are thought to be less accurate within smaller distributions (Kepes, Banks, & Oh, 2012). In the current study, there are four distributions with at least 15 or more samples (AL-transformational leadership; AL-OCB; AL-commitment; AL-job satisfaction). In order to triangulate the possibility of publication bias, we report the results of the trim and fill (Duval, 2005), moderate selection models (Vevea & Woods, 2005), and cumulative meta-analysis (Kepes, Banks, McDaniel, & Whetzel, 2012). For a complete review of these tests, see Banks, Kepes, and McDaniel (2015) as well as Kepes, Banks, McDaniel et al. (2012).

## Results

We began our analyses by considering the relationships between AL and its sub-dimensions. Past empirical studies have examined the construct validity of AL via factor analysis (e.g. Neider & Schriesheim, 2011; Walumbwa et al., 2008). Yet there are benefits to considering the relations between dimensions via meta-analysis because such results provide close approximation of parameter estimates free from random-sampling error (LePine, Erez, & Johnson, 2002). There appear to be strong relations among the AL dimensions. The correlations between relational transparency and balanced processing ($\widehat{\bar{\rho}} = .86$, $k = 23$, $N = 4425$), internalized moral perspective ($\widehat{\bar{\rho}} = .89$, $k = 24$, $N = 4{,}535$), and self-awareness ($\widehat{\bar{\rho}} = .88$, $k = 23$, $N = 4{,}457$) are all large in magnitude. The parameter estimates between balanced processing and self-awareness ($\widehat{\bar{\rho}} = .92$, $k = 24$, $N = 4{,}515$) and internalized moral

**Table 1**
Correlates and consequences of authentic leadership (AL).

| Variable | $k$ | $N$ | $\bar{r}$ | $SD_r$ | $\hat{\bar{\rho}}^a$ | $\hat{\bar{\rho}}^b$ | $SD_\rho$ | $CV_{LL}$ | $CV_{UL}$ | $CI_{LL}$ | $CI_{UL}$ | %Var | One sample removed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AL ← → Transformational | 23 | 5,414 | .70 | .20 | .72 | .85 | .27 | [.37 | 1.00] | [.60 | .83] | 2% | .69 to .77 |
| ALQ | 17 | 4,013 | .74 | .11 | .74 | .90 | .24 | [.43 | 1.00] | [.63 | .86] | 2% | .72 to .82 |
| Other measures | 6 | 1,401 | .58 | .31 | .63 | .70 | .32 | [.22 | 1.00] | [.38 | .89] | 2% | .52 to .79 |
| AL ← → Transactional | 10 | 1,812 | .44 | .35 | .55 | .58 | .43 | [.00 | 1.00] | [.29 | .82] | 3% | .48 to .69 |
| *AL → Employee behavioral and attitudinal outcomes* | | | | | | | | | | | | | |
| Task performance | 9 | 2,054 | .12 | .04 | .14 | .15 | .04 | [.08 | .19] | [.08 | .19] | 74% | .12 to .16 |
| Group or org performance | 4 | 333 | .35 | .07 | .40 | .43 | .08 | [.31 | .50] | [.28 | .52] | 69% | .33 to .49 |
| OCB | 10 | 2,309 | .42 | .24 | .48 | .52 | .24 | [.17 | .78] | [.33 | .63] | 7% | .40 to .52 |
| Voice | 6 | 1,530 | .29 | .10 | .31 | .36 | .11 | [.17 | .44] | [.21 | .41] | 25% | .27 to .36 |
| LMX | 6 | 2,083 | .60 | .22 | .65 | .75 | .22 | [.36 | .94] | [.47 | .83] | 3% | .55 to .73 |
| Satisfaction with leader | 6 | 1,318 | .60 | .11 | .66 | .72 | .11 | [.52 | .81] | [.57 | .76] | 16% | .64 to .72 |
| Trust in leader | 12 | 3,210 | .57 | .18 | .65 | .71 | .19 | [.41 | .89] | [.54 | .76] | 7% | .62 to .74 |
| Leader effectiveness | 7 | 1,431 | .54 | .35 | .58 | .64 | .37 | [.11 | .99] | [.30 | .85] | 2% | .49 to .73 |
| Job satisfaction | 16 | 4,084 | .48 | .15 | .53 | .59 | .16 | [.32 | .74] | [.45 | .61] | 10% | .50 to .55 |
| Org. commitment | 17 | 4,077 | .44 | .14 | .51 | .55 | .16 | [.30 | .71] | [.43 | .59] | 13% | .49 to .54 |
| Creativity | 4 | 859 | .29 | .21 | .33 | .39 | .23 | [.04 | .62] | [.10 | .56] | 9% | .21 to .41 |
| Engagement | 11 | 3,018 | .33 | .34 | .37 | .41 | .38 | [−.11 | .85] | [.14 | .59] | 3% | .29 to .49 |
| Empowerment | 5 | 1,394 | .45 | .07 | .51 | .54 | .07 | [.41 | .60] | [.43 | .58] | 35% | .47 to .53 |
| Psychological capital | 7 | 3,134 | .48 | .09 | .53 | .59 | .11 | [.40 | .67] | [.45 | .62] | 14% | .49 to .55 |
| CWB | 3 | 1,549 | −.28 | .11 | −.31 | −.33 | .12 | [−.47 | −.16] | [−.46 | −.17] | 13% | −.41 to −.17 |
| Turnover intentions | 5 | 1,149 | −.20 | .28 | −.21 | −.25 | .31 | [−.60 | .18] | [−.49 | .06] | 5% | −.42 to −.14 |
| Burnout/stress | 7 | 1,616 | −.24 | .00 | −.27 | −.30 | .00 | [−.27 | −.27] | [−.31 | −.22] | 100% | −.29 to −.25 |

*Note.* $k$ = number of independent samples; $N$ = total sample size; $\bar{r}$ = sample-size-weighted mean observed correlation; $SD_r$ = sample-size-weighted observed standard deviation of correlations; $\hat{\bar{\rho}}$ = mean true-score correlation (corrected for unreliability for both variables); $SD_\rho$ = standard deviation of corrected correlations; $CV_{LL}$ and $CV_{UL}$ = lower and upper bounds, respectively, of the 80% credibility interval; $CI_{LL}$ and $CI_{UL}$ = lower and upper bounds, respectively, of the 95% confidence interval around the mean true-score correlation; %Var = percentage of variance attributable to statistical artifacts; OCB = organizational citizenship behaviors; LMX = leader-member exchange; CWB = counterproductive work behaviors.

[a] Observed correlation corrected for measurement error using coefficient alpha.

[b] Observed correlation corrected for measurement error using inter-judge agreement.

perspective ($\hat{\bar{\rho}} = .84, k = 24, N = 4{,}516$) are also quite large in magnitude. Finally, the relation between internalized moral perspective and self-awareness ($\hat{\bar{\rho}} = .84, k = 23, N = 4{,}378$) was consistent with the other relations examined.

The correlates and outcomes of AL are illustrated in Table 1. In cases where the number of samples ($k$) and the overall sample size are small ($n$), greater caution should be used when interpreting the results. The results shown in Table 1 provide support for Hypothesis 1. AL is strongly correlated with job satisfaction ($\hat{\bar{\rho}} = .53, k = 16, N = 4{,}084$), follower satisfaction with the leader ($\hat{\bar{\rho}} = .66, k = 6, N = 1{,}318$), group or organization performance ($\hat{\bar{\rho}} = .40, k = 4, N = 333$), and leader-rated effectiveness ($\hat{\bar{\rho}} = .58, k = 7, N = 1{,}431$), as well as task performance ($\hat{\bar{\rho}} = .14, k = 9, N = 2{,}054$) and OCB of followers ($\hat{\bar{\rho}} = .48, k = 10, N = 2{,}309$). There were also strong true-score correlations between AL and other important behavioral and attitudinal outcomes, such as CWB ($\hat{\bar{\rho}} = -.31, k = 3, N = 1{,}549$), organizational commitment ($\hat{\bar{\rho}} = .51, k = 17, N = 4{,}077$), and turnover intentions ($\hat{\bar{\rho}} = -.21, k = 5, N = 1{,}149$). Hence, these results show that AL is related to both important attitudinal and behavioral outcomes. Also of note, AL displays a strong positive relationship with leader-member exchange (LMX; $\hat{\bar{\rho}} = .65, k = 6, N = 2{,}083$).

The estimate of the true-score correlation ($\hat{\bar{\rho}}$) between authentic and transformational leadership is .72 ($k = 23, N = 5{,}414$). These results indicate a strong overlap between authentic and transformational leadership, which raises concern that these are not stand-alone constructs. It should be noted that the authentic-transformational leadership parameter estimate exceeds the traditionally accepted minimum cutoff for acceptable internal consistency of .70 (LePine et al., 2002; Nunnally, 1978). This finding is contradictory to scale development studies that argue that authentic and transformational leadership are empirically distinct constructs (Neider & Schriesheim, 2011; Walumbwa et al., 2008).

### *Incremental validity and relative importance of AL*

As previously described, we propose that when introducing a new leadership construct, it is necessary to take stock of how this new construct fares when predicting important outcomes compared to existing constructs. In the case that AL fails to illustrate incremental validity and/or an appropriate amount of importance relative to existing leadership constructs, its contributions to the field of management could be brought into question. As previously mentioned, concerns exist that there is construct and theory proliferation in management research (Leavitt et al., 2010). Thus, we conducted both incremental validity and relative weights analyses with authentic and transformational leadership.

To construct the correlation matrix necessary for each incremental validity test and relative weights analysis, an attempt was made to identify the most up-to-date and accurate correlations between transformational leadership and important outcomes. Thus, we used the correlations from Judge and Piccolo (2004) as well as Wang et al. (2011) for our incremental validity and

relative weights analyses. The correlations from the current meta-analysis and those from the two previous studies were input into an SPSS matrix regression macro created by Johnson (2001) for the relative weights analyses.

When constructing meta-analytic correlation matrices, it is important to keep in mind that effect sizes from prior meta-analyses draw upon different samples from those included in the current meta-analysis. Thus, there is a possible limitation that the samples vary in important and unknown ways. Additionally, the number of samples included in previous transformational leadership meta-analytic research was larger than the number of samples included in this AL meta-analysis. Hence, the parameter estimates for transformational leadership are thought to be more stable as the literature has had more time to develop and become established. With these caveats in mind, the results of the current incremental validity and relative weights analyses do represent the best estimates of the population parameters and AL's contribution relative to transformational leadership.

The results of the incremental validity tests are illustrated in Table 2. In the upper half of the table, transformational leadership is entered into step one of the regression model, and AL is entered into step two. The results show that AL adds little incremental validity over and above transformational leadership except for the case of followers' OCB ($\Delta R^2 = .15$) and group or organization performance ($\Delta R^2 = .09$). Conversely, when AL is entered first into the regression model, transformational leadership appears to add the most incremental validity in the evaluation of leadership effectiveness ($\Delta R^2 = .10$), follower job satisfaction ($\Delta R^2 = .08$), and follower satisfaction with the leader ($\Delta R^2 = .11$). Neither construct appears to add much incremental validity over and above the other in general.

Next, we completed relative weights analyses. Epsilon weights can be used in such an analysis in order to estimate the sum of explained variance ($R^2$). Additionally, the epsilon weights can be judged through ratios (Johnson & LeBreton, 2004). The magnitude of the weights can be interpreted using the standards set by Cohen (1988) in which $R^2$ values of 0.01, 0.09, and 0.25 categorize the small, medium, and large effects, respectively. Yet these standards for evaluating bivariate relations can be considered conservative when used in the context of multivariate models such as in the case of a relative weights analysis. This is because partial and semi-partial correlations decrease as the number of predictors increases (except for in the case of suppressor effects).

Table 3 displays the results of the relative weights analyses. The percentage of relative weights shown in Table 3 is calculated by dividing the relative weights by total $R^2$ and subsequently multiplying by 100. The percentages then total to 100%. This information provides indices of the relative importance of these leadership constructs that are useful for interpretation of the results.

In general, the results of the comparison of AL to transformational leadership show mixed dominance by the two constructs. AL did not show greater dominance than transformational leadership for follower job satisfaction (42.3% vs. 57.7%), task performance (22.4% vs. 77.6%), follower satisfaction with the leader (43.8% vs. 56.2%), and leadership effectiveness (41.7% vs. 58.3%). Conversely, AL did show greater dominance in the cases of group or organization performance (78.6% vs. 21.4%) and OCB

**Table 2**
Results of the incremental validity tests.*

| | Follower job satisfaction | | | | Follower satisfaction with leader | | | | Task performance | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| The incremental validity of AL | | | | | | | | | | | | |
| | $\beta$ | SE | $\beta$ | SE | $\beta$ | SE | $\beta$ | SE | $\beta$ | SE | $\beta$ | SE |
| TL | 0.58** | 0.01 | 0.41** | 0.02 | 0.71** | 0.02 | 0.49** | 0.02 | 0.21** | 0.02 | 0.23** | 0.03 |
| AL | | | 0.23** | 0.02 | | | 0.31** | 0.02 | | | −0.02 | 0.03 |
| | $R^2 = 0.336$** | | $R^2 = 0.363$** | | $R^2 = 0.504$** | | $R^2 = 0.550$** | | $R^2 = 0.044$** | | $R^2 = 0.044$** | |
| | | | $\Delta R^2 = 0.027$** | | | | $\Delta R^2 = 0.046$** | | | | $\Delta R^2 = 0.000$ | |
| | Group or organization performance | | | | Leader effectiveness | | | | OCB | | | |
| TL | 0.26** | 0.04 | −0.06 | 0.05 | 0.64** | 0.02 | 0.46** | 0.02 | 0.30** | 0.01 | −0.10 | 0.02 |
| AL | | | 0.44** | 0.05 | | | 0.25** | 0.02 | | | 0.55** | 0.02 |
| | $R^2 = 0.068$** | | $R^2 = 0.162$** | | $R^2 = 0.410$** | | $R^2 = 0.439$** | | $R^2 = 0.090$** | | $R^2 = 0.235$** | |
| | | | $\Delta R^2 = 0.094$** | | | | $\Delta R^2 = 0.029$** | | | | $\Delta R^2 = 0.145$** | |
| The incremental validity of transformational leadership | | | | | | | | | | | | |
| | Follower job satisfaction | | | | Follower satisfaction with leader | | | | Task performance | | | |
| | $\beta$ | SE | $\beta$ | SE | $\beta$ | SE | $\beta$ | SE | $\beta$ | SE | $\beta$ | SE |
| AL | 0.53** | 0.01 | 0.23** | 0.02 | 0.66** | 0.02 | 0.31** | 0.02 | 0.14** | 0.02 | −0.02 | 0.03 |
| TL | | | 0.41** | 0.02 | | | 0.49** | 0.02 | | | 0.23** | 0.03 |
| | $R^2 = 0.281$** | | $R^2 = 0.363$** | | $R^2 = 0.436$** | | $R^2 = 0.550$** | | $R^2 = 0.020$** | | $R^2 = 0.044$** | |
| | | | $\Delta R^2 = 0.082$** | | | | $\Delta R^2 = 0.114$** | | | | $\Delta R^2 = 0.024$** | |
| | Group or organization performance | | | | Leader effectiveness | | | | OCB | | | |
| AL | 0.40** | 0.04 | 0.44** | 0.05 | 0.58** | 0.02 | 0.25** | 0.02 | 0.48** | 0.01 | 0.55** | 0.02 |
| TL | | | −0.06 | 0.05 | | | 0.46** | 0.02 | | | −0.10 | 0.02 |
| | $R^2 = 0.160$** | | $R^2 = 0.162$** | | $R^2 = 0.336$** | | $R^2 = 0.439$** | | $R^2 = 0.230$** | | $R^2 = 0.235$** | |
| | | | $\Delta R^2 = 0.002$** | | | | $\Delta R^2 = 0.103$** | | | | $\Delta R^2 = 0.005$** | |

*Note.* AL = authentic leadership; TL = transformational leadership.
* $p < .05$.
** $p < .01$.

**Table 3**
Relative importance of authentic and transformational leadership.

| | Follower job satisfaction | | Follower satisfaction with leader | | Group or organization performance | |
|---|---|---|---|---|---|---|
| | Raw relative weights | Relative weights as a % of $R^2$ | Raw relative weights | Relative weights as a % of $R^2$ | Raw relative weights | Relative weights as a % of $R^2$ |
| Authentic | 0.154 | 42.3 | 0.241 | 43.8 | 0.127 | 78.6 |
| Transformational | 0.209 | 57.7 | 0.309 | 56.2 | 0.035 | 21.4 |
| | $R^2 = 0.363$ | | $R^2 = 0.550$ | | $R^2 = 0.162$ | |
| | Task performance | | OCB | | Leadership effectiveness | |
| | Raw relative weights | Relative weights as a % of $R^2$ | Raw relative weights | Relative weights as a % of $R^2$ | Raw relative weights | Relative weights as a % of $R^2$ |
| Authentic | 0.010 | 22.4 | 0.188 | 79.9 | 0.183 | 41.7 |
| Transformational | 0.034 | 77.6 | 0.047 | 20.1 | 0.256 | 58.3 |
| | $R^2 = 0.044$ | | $R^2 = 0.235$ | | $R^2 = 0.439$ | |

(79.9% vs. 20.1%). The nature of the dominance by constructs varies and often by wide margins. In sum, it appears that across the six outcomes, transformational leadership shows greater relative weight in four of the cases, while AL shows greater dominance in another two.

*Sensitivity analyses*

*Contextual factors*

In order to consider the potential for contextual factors to influence the relations investigated in this study, we investigated several moderating variables. First, in cases where at least three samples were available by source, we reported multi-source (data came from multiple participants) or same source relations (data came from a single source). We also coded for the most common context, which was the healthcare industry and level of leader investigated (e.g., upper management and lower management). These findings are reported in Table 4. We briefly discuss the AL-transformational leadership relation as a case example. The AL-transformational leadership relation did not seem to vary much by source (e.g., $\rho = .75$ vs. $\rho = .81$). However, for the level of management for this relation, upper management differed significantly from lower management (e.g., $\rho = .86$ vs. $\rho = .42$). In general, the reporting of these categorical moderators allows for a more detailed look at the extant research on AL.

*One sample removed*

The one-sample-removed analyses are summarized in Table 1. These results illustrate the range of possible effect sizes if any one sample were removed from the analyses. As might be expected, the range of potential estimates is much smaller in nature when the number of samples ($k$) increases. There is no doubt that as the number of AL studies increases, more stability will emerge in the parameter estimates between the AL and the constructs in its nomological network. However, the range of potential estimates appears to be small in most cases, suggesting that the results are relatively robust. It appears that some of the distributions with fewer samples were less robust. For instance, the AL-CWB relation ($k = 3$) ranged from −.41 to −.17, and the AL-turnover intentions relation ($k = 5$) ranged from −.42 to −.14. Conversely, larger distributions, such as the AL-transformational relation ($k = 23$), showed a smaller range from .69 to .77. In general, the smaller ranges can be interpreted as illustrating more robust findings, while the larger ranges illustrate that greater caution should be exercised when interpreting the findings.

*Correction for measurement error*

Inter-judge agreement may be a more appropriate estimate of reliability than coefficient alphas in the context of the current study (LeBreton & Senter, 2007). However, the vast majority of the studies included in this meta-analysis did not report the necessary reliability estimate. Hence, we coded the requisite information for AL where available and then imputed the reliability estimate for the studies where the information was missing. As a sensitivity check, we report the observed correlations corrected for measurement error using inter-judge agreement in Table 1. By and large, the findings reported in Table 1 did not change regardless of the type of measurement error corrected.

*Publication bias analyses*

As previously stated, we followed past precedence and only interpreted distributions with at least 15 samples for the publication bias analyses (Kepes, Banks, & Oh, 2012). To begin, we examined the relationship between authentic and transformational leadership. The moderate ($\Delta r = .002$) and severe ($\Delta r = .004$) one-tailed selection model tests show that the original meta-analytic estimate is only marginally adjusted downward. Next, a cumulative meta-analysis was calculated and the difference between the point estimate after the 10% most precise samples in the distribution and the final meta-analytic estimate was compared. The results show that the correlation is adjusted downward, which is counter to what would be expected if publication bias were present. Finally, when considering the potential for missing negative or near-zero correlations, the trim and fill analysis supported the results of the previous two analyses as findings suggested that publication bias is not present in the distribution.

**Table 4**
Categorical moderators of Authentic Leadership (AL) relations.

| Variable | $k$ | $N$ | $\bar{r}$ | $SD_r$ | $\hat{\bar{\rho}}$ | $SD_\rho$ | $CV_{LL}$ | $CV_{UL}$ | $CI_{LL}$ | $CI_{UL}$ | %Var |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *AL ← →Transformational* | | | | | | | | | | | |
| Multi-source | 5 | 1,068 | .66 | .16 | .75 | .17 | [.53 | .97] | [.59 | .90] | 6.5% |
| Same source | 16 | 3,393 | .73 | .23 | .81 | .25 | [.49 | .99] | [.69 | .93] | 2.2% |
| Upper management | 9 | 1,948 | .75 | .10 | .86 | .12 | [.71 | .99] | [.78 | .94] | 8.3% |
| Lower management | 4 | 639 | .38 | .32 | .42 | .34 | [−.02 | .86] | [.08 | .76] | 5.2% |
| *Task performance* | | | | | | | | | | | |
| Multi-source | 6 | 1,439 | .13 | .00 | .14 | .01 | [.14 | .15] | [.09 | .20] | 99.2% |
| Same source | 3 | 615 | .10 | .07 | .11 | .07 | [.02 | .21] | [−.00 | .23] | 52.4% |
| Healthcare context | 3 | 534 | .07 | .09 | .08 | .10 | [−.05 | .20] | [−.06 | .22] | 42.3% |
| *OCB* | | | | | | | | | | | |
| Multi-source | 5 | 1,145 | .29 | .08 | .33 | .10 | [.21 | .46] | [.23 | .44] | 32.0% |
| Same source | 4 | 917 | .56 | .29 | .62 | .27 | [.28 | .96] | [.35 | .89] | 3.8% |
| Upper management | 3 | 796 | .60 | .30 | .65 | .29 | [.27 | .99] | [.31 | .98] | 2.3% |
| *Trust in leader* | | | | | | | | | | | |
| Healthcare context | 3 | 658 | .58 | .08 | .66 | .08 | [.56 | .76] | [.56 | .76] | 30.1% |
| Upper management | 4 | 1,495 | .46 | .17 | .52 | .18 | [.29 | .75] | [.34 | .70] | 7.1% |
| *Job satisfaction* | | | | | | | | | | | |
| Multi-source | 4 | 787 | .43 | .00 | .46 | .00 | [.46 | .46] | [.40 | .52] | 99.9% |
| Same source | 11 | 3,159 | .49 | .17 | .55 | .19 | [.31 | .79] | [.44 | .66] | 7.3% |
| Healthcare context | 5 | 1,227 | .51 | .18 | .56 | .21 | [.29 | .83] | [.37 | .75] | 5.7% |
| Upper management | 3 | 520 | .30 | .13 | .35 | .11 | [.22 | .49] | [.21 | .49] | 40.1% |
| Lower management | 5 | 1,122 | .41 | .05 | .45 | .07 | [.36 | .53] | [.37 | .52] | 45.4% |
| *Org. commitment* | | | | | | | | | | | |
| Multi-source | 6 | 1,207 | .47 | .11 | .52 | .12 | [.37 | .68] | [.42 | .63] | 19.6% |
| Same source | 10 | 2,732 | .43 | .15 | .50 | .17 | [.28 | .72] | [.39 | .61] | 10.0% |
| Upper management | 3 | 520 | .46 | .00 | .63 | .12 | [.48 | .77] | [.48 | .77] | 32.1% |
| Lower management | 3 | 572 | .37 | .11 | .40 | .12 | [.25 | .55] | [.25 | .55] | 25.4% |
| *Engagement* | | | | | | | | | | | |
| Healthcare context | 3 | 557 | .29 | .05 | .32 | .05 | [.25 | .38] | [.22 | .41] | 68.8% |
| *Psychological capital* | | | | | | | | | | | |
| Multi-source | 3 | 938 | .45 | .07 | .49 | .05 | [.42 | .56] | [.41 | .57] | 49.6% |
| Same source | 4 | 2,196 | .49 | .10 | .55 | .12 | [.40 | .70] | [.43 | .67] | 8.6% |
| Upper management | 4 | 1,932 | .48 | .08 | .54 | .09 | [.42 | .66] | [.45 | .64] | 16.5% |
| *Burnout/stress* | | | | | | | | | | | |
| Healthcare context | 4 | 1,075 | −.23 | .00 | −.26 | .00 | [−.26 | −.26] | [−.31 | −.20] | 99.9% |
| Lower management | 3 | 822 | −.22 | .00 | −.24 | .00 | [−.24 | −.24] | [−.31 | −.18] | 99.9% |

*Note.* $k$ = number of independent samples; $N$ = total sample size; $\bar{r}$ = sample-size-weighted mean observed correlation; $SD_r$ = sample-size-weighted observed standard deviation of correlations; $\hat{\bar{\rho}}$ = mean true-score correlation (corrected for unreliability for both variables); $SD_\rho$ = standard deviation of corrected correlations; $CV_{LL}$ and $CV_{UL}$ = lower and upper bounds, respectively, of the 80% credibility interval; $CI_{LL}$ and $CI_{UL}$ = lower and upper bounds, respectively, of the 95% confidence interval around the mean true-score correlation; %Var = percentage of variance attributable to statistical artifacts; OCB = organizational citizenship behaviors.

The same analyses were repeated with the AL→organizational commitment and AL→job satisfaction relationships. These analyses also provided no evidence of publication bias. In sum, this preliminary evidence shows no support for concerns of publication bias. However, the analyses should be updated in the future once more samples have emerged.

## Discussion

The primary objective of this study is to consider the potential for empirical redundancy among the authentic and transformational leadership constructs. Despite recent advancements in the theoretical understanding of AL, only a few years ago there was a dearth of empirical studies necessary to conduct a meta-analytic review (e.g., Gardner et al., 2011) and consider the contribution of the construct. However, due to the dramatic increase in AL studies, a critical mass has been reached allowing for a meta-analytic review on the topic. Thus, this study is the first to consider the empirical redundancy of AL using a meta-analysis. This objective was completed first by examining the magnitude of the correlation between AL and transformational leadership. We then conducted two additional analyses to consider the incremental validity of the constructs as well as their relative importance.

Interestingly, the findings of this study are somewhat inconsistent with previous empirical work. While individual scale development studies have provided evidence that the AL and transformational leadership constructs are related, yet distinct (Neider & Schriesheim, 2011; Walumbwa et al., 2008), the current study finds at least some evidence to the contrary. More specifically, AL was strongly and positively correlated with transformational leadership. The very large correlation between AL and transformational

leadership suggests the possibility of empirical redundancy as the correlation approached 1.0. This was particularly true when AL was measured using the ALQ where the parameter estimate was .74. Given that conceptual arguments have been made for the distinction between AL and transformational leadership, it is curious that the two constructs were so highly correlated. It is possible that further refinement to the ALQ as well as continued application of the ALI would improve our understanding of the AL and transformational leadership relationship. Further, given the .72 correlation between AL and transformational leadership, it is not surprising that neither AL nor transformational leadership seemed to add much incremental validity over and above the other.

Perhaps most notably, transformational leadership seemed to outperform AL in predicting four of the six examined attitudinal and performance-related outcomes. Yet AL outperformed transformational leadership when predicting group- or firm-level performance (a proxy for leadership effectiveness in some research areas) and followers' OCB. Thus, the relative importance analyses suggest that AL and transformational leadership may show dominance over the other in predicting varying outcomes. However, given the small number of samples and total sample sizes in some cases, such as when considering group or organization performance, caution should be exercised when expressing the robustness of the findings. Still in total, while the magnitude of the correlation between authentic and transformational leadership and the incremental validity results suggest the possibility of empirical redundancy, the findings of the relative weights analyses indicate that AL is deserving of future attention given the mixed results.

With this caution in mind, we found it useful to revisit AL and transformational leadership theory to speculate on possible explanations for the differences in the relative levels of dominance observed for these theories. In doing so, we were struck by the extent to which the outcomes that are more strongly related to transformational leadership (task performance, leader effectiveness, follower job satisfaction, and follower satisfaction with the leader) reflect an individual level focus, whereas those more strongly related to AL (OCB's and group and organizational performance) reflect a collective focus. One possible explanation for the former set of findings is provided by the subtitle of Bass' (1985) seminal treatise on transformational leadership—*Performance Beyond Expectations*. Clearly, the focal outcome of transformational leadership is performance. As such, in retrospect, perhaps it is not surprising that it has a stronger relationship with task performance and leader effectiveness. Moreover, achievement of elevated levels of leadership effectiveness and follower performance may explain the strong relationships with job satisfaction and follower satisfaction. Specifically, by inspiring followers to pursue and attain exceptional levels of performance, transformational leadership accrues very high levels of follower satisfaction with their jobs and the leader.

By contrast, the central focus of AL on enabling both leaders and their followers to stay true to their values, identity, emotions, motives, and goals (Gardner, Avolio, Luthans et al., 2005) reflects a more diffuse focus beyond performance. Indeed, the internalized moral perspective component of AL suggests that both leaders and their followers have a clear moral duty to respect the interests of the collective. While this responsibility is also implied by transformational leadership (Bass & Steidlmeier, 1999), it is more explicit and central to AL. This focus may in turn explain the stronger relationship of AL with citizenship behaviors that are directed toward supporting collective interests, even though such behaviors may not always produce tangible individual rewards (LePine et al., 2002). Moreover, this focus on not only one's self-interests but also the interests of the collective may explain why AL is more strongly associated with elevated levels of group and organizational performance. While this post hoc explanation is admittedly speculative, it is also a plausible explanation for these differential results that is compatible with both AL and transformational leadership theory. Hence, we consider assessments of the merits of this explanation to be a promising avenue for future research into authentic and transformational leadership and the differences between them.

While the focus of this research has been to assess AL relative to the more established construct of transformational leadership, it should be noted that the conceptual underpinnings and empirical support for charismatic-transformational leadership has been drawn into question. In a highly critical review of this literature, van Knippenberg and Sitkin (2013) concluded that the field suffers from serious theoretical and measurement deficiencies. In particular, they argued that (1) a clear definition of charismatic-transformational leadership is lacking, in that current multidimensional conceptions of charismatic-transformational leadership do not specify how these dimensions combine to form charismatic-transformational leadership, or how these dimensions were selected for inclusion; (2) the distinct influence of the leadership dimensions on mediating processes and outcomes are not specified; (3) conceptualization and operationalization of these constructs confounds them with their effects; and (4) the validity of the most commonly used measures is suspect because they fail to reproduce the posited dimensional structure or achieve empirical distinctiveness from other aspects of leadership. Hence, despite three decades of conceptual and empirical scholarly attention being devoted to explicating the construct of transformational leadership, conceptual and empirical ambiguity remains.

In light of these limitations, it is possible that the redundancy between AL and transformational leadership stems from limitations of the later, as opposed to the former, theory. Nonetheless, it should also be noted that the extant AL theory and research to date is subject to many of the same criticisms that van Knippenberg and Sitkin (2013) level against transformational leadership theory. These include a lack of distinctiveness among the components (as the high correlations observed in this study demonstrate) and the absence of theory regarding differential effects. These limitations have important implications for future AL research, as described below.

### *Limitations and implications for future research*

As AL is a new construct that is drawing considerable attention in the academic (Gardner et al., 2011), and practitioner literature (George & Sims, 2007), the results of this meta-analytic review are critical to direct future research. There are three primary points that we wish to emphasize in order to guide future research. First, perhaps one of the most obvious findings of this research is the strong correlation between AL and transformational leadership. In fact, AL has fairly strong correlations across the

range of measures that we presume to reflect outcomes of good leadership. Some of the issues we see in the ALQ measure may be due to an overall reliance on single-source methods. It was not uncommon for AL studies to rely largely upon followers to rate the authenticity of leadership, the degree to which a leader was transformational, and other outcomes. Such an approach could certainly lead to correlations that are inflated by common-method bias (Podsakoff, MacKenzie, & Podsakoff, 2012). In other words, the potential for correlated method variance may inflate the relations between AL and transformational leadership as well as important outcomes.

Second, there was an overreliance on studies that collected data at one time point. Again, this is not unique in primary studies in leadership (Gardner, Lowe, Moss, Mahoney, & Cogliser, 2010; Lowe & Gardner, 2000), but the collection of data at multiple time points would do much to reduce concerns regarding the inflating influence of common-method bias (Podsakoff et al., 2012; Podsakoff, MacKenzie, Podsakoff, & Lee, 2003; Podsakoff & Organ, 1986). What is redeeming is the fact that AL performed reasonably well when predicting performance-related outcomes not dependent on a single source (e.g., supervisor-rated task performance; group or firm-level performance). This latter finding is intriguing. It is possible that the finding is due to chance when looking at group or firm-level performance as the overall sample size was rather small ($n = 333$). However, in the case of supervisor-rated task performance, there was a relatively large overall sample size ($n = 1{,}439$), indicating less potential for a chance finding. In the case of supervisor-rated task performance, we can have greater confidence in the robustness of the results. Third, we point out that the results of the incremental validity and relative weights analyses are dependent upon the quality and type of criteria used. In the event that criteria quality is poor, or the types of criteria matter (i.e., there are moderating variables), the results of these analyses might change.

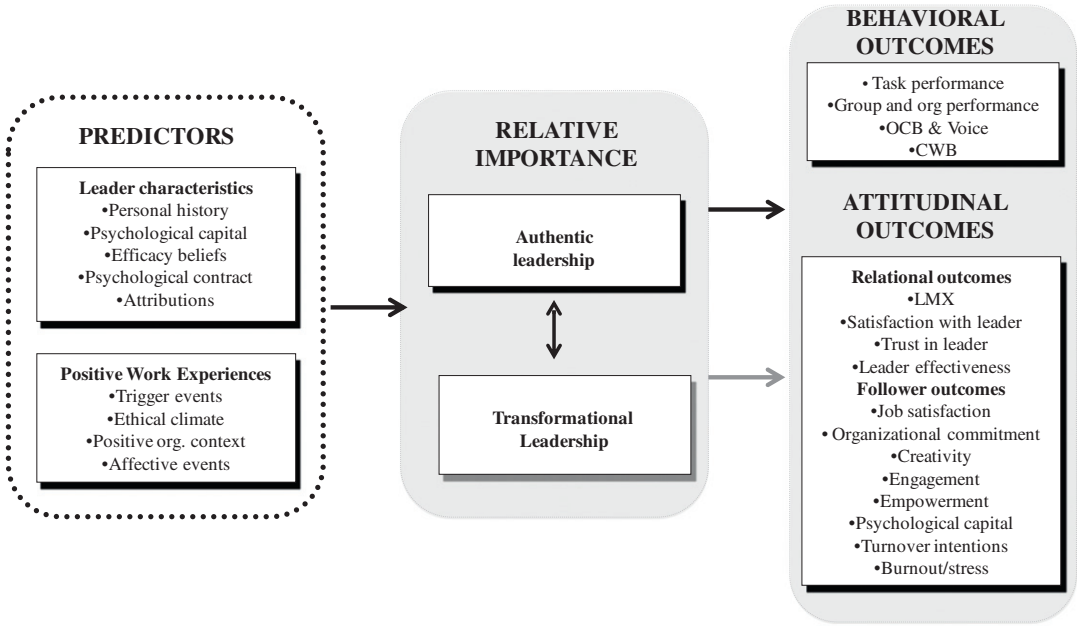
To help further distinguish AL and transformational leadership, more work should be done to consider the relationships between the underlying dimensions of the two constructs. As noted above, the lack of articulation of how the dimensions combine, as well as their differential effects, is a limitation of transformational leadership research (van Knippenberg & Sitkin, 2013) that is so far shared by AL theory and research (Gardner et al., 2011). As such, an insufficient amount of empirical work was available to permit us to explore dimensional analyses in the current meta-analytic review. However, a more specific consideration of the redundancy of the two constructs at the facet level would be insightful. The advantages of using a meta-analytic comparison of sub-facets has been illustrated when examining the dimensions of potentially redundant personality models, such as the five-factor model and the dark triad model (e.g., O'Boyle et al., 2014).

The subscales of AL were highly correlated in these analyses, suggesting weak discriminant and structural validity (Messick, 1995). However, part of the problem may stem from current definitions of the AL components, which fail to clearly demarcate their differences. For example, a sharper conceptualization of how relational transparency differs from balanced processing would enable researchers to generate new items to better operationalize these differences. Conceptually, relational transparency is more focused on being open in one's relationships with close others and willing to engage in self-disclosure, whereas balanced processing is focused on a relatively objective and non-defensive interpretation of ego-relevant information, regardless of its source (Gardner, Avolio, Luthans et al., 2005). At present, the items of the ALQ and the ALI do not fully capture these distinctions. As such, it is not surprising that these dimensions are highly correlated. Sharpening the conceptual distinctions among the AL components and developing associated measures that reflect these differences would also facilitate the generation of differential hypotheses for focal work outcomes and appropriate tools for exploring these hypotheses.

For example, the aforementioned difference between relational transparency and balanced processing suggests that the former will be more strongly related to measures of self-disclosure (Jourad & Lasakow, 1958), whereas the latter would be a better predictor of distributive and procedural justice (Greenberg, 1987). Hence, while it is of critical importance that future research considers the possibility that a general factor underlies the four components of AL and all observed relationships, it is also important that greater conceptual and empirical work be conducted to determine the utility of refining the definitions and operationalization of these components. Such work could be completed with both the ALQ and the ALI scales, as well as new measures that may better differentiate the AL components and hence establish greater discriminant validity among these dimensions and with other measures of positive leadership. Thus, we recommend that researchers continue to explore the relations between AL and its components with other leadership theories (e.g., LMX, servant leadership, and ethical leadership) as more data become available (Brown & Treviño, 2006; Liden & Maslyn, 1998; Liden, Panaccio, Meuser, Hu, & Wayne, 2014).

Fig. 1 illustrates both theoretical antecedents and outcomes of AL discussed in the literature.[1] Interestingly, antecedents of AL have not yet received adequate research attention, although they have been theoretically argued to be relevant to AL. Studies on AL have focused largely upon the relations between AL and important work outcomes (e.g., job performance, job satisfaction). Hence, this was the focus of our meta-analysis. Yet it is worth noting that another approach to distinguishing authentic and transformational leadership would be to consider antecedents related to ethical factors, such as the organizational ethical climate and the values of the leader, as well as ethical outcomes. Unlike transformational leadership, AL was explicitly developed to answer calls to improve the ethical conduct of today's leaders (Gardner et al., 2011), which may explain its stonger association with collective outcomes, as suggested above. This distinction may be important when attempting to discriminate between authentic and transformational leadership. Yet there were no sufficient studies with a focus on how AL might decrease unethical behaviors (e.g., Cianci, Hannah, Roberts, & Tsakumis, 2014) available to explore these effects in this study. Consequently, the lack of research that considers ethical antecedents and outcomes is a shortcoming of the existing AL research and an opportunity for future research. The contribution of AL compared to transformational leadership might be different if ethical antecedents and

[1] Enough data exist to test individual differences as antecedents (e.g., gender, age, etc.). However, individual differences have not been theorized to be meaningful antecedents to AL, thus, we do not include such tests (Gardner et al., 2011).




*Note*. Theoretically relevant predictor variables of authentic leadership have not received sufficient empirical attention necessary for inclusion in the current meta-analytic study.

**Fig. 1.** Predictors and work outcomes of authentic leadership. *Note.* Theoretically relevant predictor variables of authentic leadership have not received sufficient empirical attention necessary for inclusion in the current meta-analytic study.

outcomes were considered. Additionally, greater research at the component level could assess the discriminant validity of the internalized moral perspective component since, theoretically, it should be most strongly related to ethical behavior and outcomes (Walumbwa et al., 2008).

On a related note, we wish to emphasize that there was a general lack of identified antecedents that could predict the emergence of AL. Some researchers have suggested that trigger events, positive psychological capacities, personal histories, and a positive organizational context could lead to AL behaviors (Gardner, Avolio, Luthans et al., 2005; Luthans & Avolio, 2003). However, there were insufficient empirical data to test such assertions. Moreover, we echo calls from other scholars suggesting that greater emphasis should be placed on the development of authentic followers (Cianci et al., 2014; Gardner et al., 2011; Leroy, Anseel et al., 2012). The need for a greater focus on followers when studying leadership is true of most leadership theories (Avolio, 2007), and the AL literature is certainly not unique in this aspect.

Additionally, the number of primary samples did not allow for the testing of several important moderating variables. For example, the ALQ is the most commonly used measure of AL (Walumbwa et al., 2008). However, other measures have been developed and used, such as the ALI (Neider & Schriesheim, 2011). Yet at this juncture it was not possible to compare the magnitude of the parameter estimates between these scales when predicting attitudinal and behavioral outcomes due to the limited number of available samples that employ the ALI. Similarly, it was not possible to test for contextual or methodological moderators, such as industry, use of multi-source designs, experimental versus observational designs, or longitudinal versus cross-sectional designs. Future research will need to consider these potentially meaningful moderators, as well as their causal relationships with AL components, after the number of primary samples has grown even further.

Finally, it is important to note that while our meta-analysis focused on the most prevalent version of AL theory advanced by Avolio, Gardner, Luthans, Walumbwa, and colleagues (Avolio & Gardner, 2005; Gardner, Avolio, Luthans et al., 2005; Walumbwa et al., 2008), which is deeply rooted in the social psychology literature, there are alternative perspectives (Algera & Lips-Wiersma, 2012; Ladkin & Spiller, 2013; Ladkin & Taylor, 2010; Liu, 2010; Pittinsky & Tyson, 2005; Shamir & Eilam, 2005; Sparrowe, 2005). For instance, Algera and Lips-Wiersma (2012) draw from philosophy to advance four existential authenticity themes (inauthenticity is inevitable, authenticity requires creating one's own meaning, authenticity does not imply goal and value congruence, and authenticity is not intrinsically ethical) that provide very different implications for AL than those generated from a social psychology perspective. However, because these alternative approaches are either purely conceptual or rely exclusively on qualitative methods (Liu, 2010; Pittinsky & Tyson, 2005; Shamir & Eilam, 2005), it was impossible to incorporate them in this meta-analysis. Nevertheless, it is important to not only acknowledge these alternative approaches but also consider their utility in refining the prevailing conceptions of AL and their potential for enhancing the operationalization of the construct and the explication of its nomological network (Neuman, 2002). Enhanced dialog along these lines may serve to provide a broader perspective of AL, stimulating more diverse avenues for future research, and thereby enriching both the study and practice of authentic leadership.

## Conclusions

AL is a new leadership construct that is attracting a great deal of empirical attention and excitement in an attempt to address the crisis of confidence in today's government and corporate leaders (Gardner et al., 2011). At the foundation of AL is the belief that leaders can express their natural selves in an open and honest manner and that this will lead to positive and ethical work outcomes. The current meta-analytic review considered the empirical redundancy of AL by computing its correlation with transformational leadership while mitigating the influences of random-sampling error and measurement error. Next, we considered the incremental validity and relative importance of AL in comparison to transformational leadership. Most notably, AL showed some dominance over transformational leadership when predicting selected outcomes. Yet our review ultimately shows that much work is needed to better distinguish AL from transformational leadership. This can be accomplished by improving the methodological design of studies as well as by focusing on antecedents and outcomes with ethical implications. In sum, AL is a new leadership construct that shows promise; however, theoretical, measurement, and validity issues must be considered for this new construct to reach its full potential.

## Appendix A

Main codes and input values of each primary study/sample included in the meta-analysis. Not included are the authentic leadership dimension level correlations (these correlations are available upon request).

| Author | Year | Published | $n$ | $r$ | $r_{xx}$ | $r_{yy}$ | Variable |
|---|---|---|---|---|---|---|---|
| Abid et al. | (2012) | Yes | 210 | .48 | .71 | .53 | Commitment |
| Abid et al. | (2012) | Yes | 210 | .12 | .71 | .62 | Job satisfaction |
| Alok and Israel | (2012) | Yes | 117 | .47 | .95 | .88 | Engagement |
| Amadeo | (2008) | No | 313 | .80 | .93 | .86 | Job satisfaction |
| Azanza et al. | (2013) | Yes | 571 | .35 | .88 | .90 | Job satisfaction |
| Bamford et al. | (2013) | Yes | 280 | .28 | .97 | .90 | Engagement |
| Batchelor | (2011) | No | 138 | .42 | .90 | .88 | Commitment |
| Batchelor | (2011) | No | 138 | .44 | .90 | .63 | Job satisfaction |
| Batchelor | (2011) | No | 138 | −.42 | .90 | .94 | Turnover intentions |
| Batchelor | (2011) | No | 138 | .25 | .90 | .86 | Group and organization performance |
| Batchelor | (2011) | No | 138 | .59 | .90 | .82 | OCB |
| Batchelor | (2011) | No | 138 | .66 | .90 | .88 | Transformational |
| Bird et al. | (2012) | Yes | 633 | .61 | .95 | .86 | Engagement |
| Bezeau | (2010) | No | 104 | .27 | .60 | .84 | Transactional |
| Bezeau | (2010) | No | 104 | .37 | .60 | .82 | Transformational |
| Brennan | (2010) | No | 806 | .64 | .81 | .87 | Transformational |
| Burris | (2013) | Yes | 187 | .86 | .92 | .94 | Transformational |
| Cameron | (2007) | No | 95 | .84 | .96 | .96 | Trust in leader |
| Caza et al. | (2010) | Yes | 960 | .56 | .90 | .82 | Psy Cap |
| Černe et al. | (2014) | Yes | 171 | .36 | .94 | .90 | Job satisfaction |
| Černe et al. | (2014) | Yes | 171 | .61 | .94 | .80 | LMX |
| Černe et al. | (2014) | Yes | 171 | .32 | .94 | .75 | Engagement |
| Černe et al. | (2013) | Yes | 201 | .65 | .91 | .90 | Creativity |
| Chen | (2010) | No | 351 | .59 | .97 | .87 | Commitment |
| Chiaburu et al. | (2011) | Yes | 165 | .63 | .96 | .84 | Transactional |
| Chiaburu et al. | (2011) | Yes | 165 | .44 | .96 | .86 | Job satisfaction |
| Clapp-Smith et al. | (2009) | Yes | 82 | .30 | .70 | .87 | Psy Cap |
| Clapp-Smith et al. | (2009) | Yes | 82 | .41 | .70 | .73 | Trust in leader |
| Clapp-Smith et al. | (2009) | Yes | 51 | .27 | .70 | 1.00 | Task performance |
| Copeland | (2009) | No | 175 | .89 | .97 | .95 | Leader effectiveness |
| Copeland. | (2009) | No | 175 | .90 | .97 | .95 | Transformational |
| Cottrill | (2012) | No | 80 | .36 | .96 | .85 | OCB |
| Eberly | (2011) | No | 97 | .46 | .94 | .95 | Leader effectiveness |
| Emuwa et al. | (2013) | Yes | 152 | .21 | .77 | .81 | Empowerment |
| Epitropaki et al. | (2013) | No | 207 | .26 | .96 | .90 | Psy Cap |
| Epitropaki et al. | (2013) | No | 207 | −.21 | .96 | .72 | Burnout/stress |
| Erkutlu and Chafra | (2013) | Yes | 848 | .33 | .89 | .86 | Trust in leader |
| Erkutlu and Chafra | (2013) | Yes | 848 | −.38 | .89 | .89 | CWB |
| Giallondardo et al. | (2010) | Yes | 170 | .21 | .91 | .86 | Engagement |
| Giallondardo et al. | (2010) | Yes | 170 | .29 | .91 | .90 | Job satisfaction |
| Guerrero et al. | (2014) | Yes | 606 | .27 | .94 | .78 | Commitment |
| Hannah et al. | (2011b) | Yes | 47 | .27 | .76 | .82 | Group and organization performance |
| Hassan and Ahmed | (2011) | Yes | 395 | .53 | .90 | .90 | Engagement |
| Hassan and Ahmed | (2011) | Yes | 395 | .71 | .90 | .83 | Trust in leader |
| Houghton et al. | (2013) | No | 262 | .16 | .92 | .85 | OCB |
| Hsiung | (2012) | Yes | 404 | .66 | .96 | .87 | LMX |
| Hsiung | (2012) | Yes | 404 | .40 | .96 | .92 | Voice |

**Appendix A** (*continued*)

| Author | Year | Published | *n* | *r* | $r_{xx}$ | $r_{yy}$ | Variable |
|---|---|---|---|---|---|---|---|
| Huang and Luthans | (2013) | No | 286 | .11 | .89 | .84 | LMX |
| Huang and Luthans | (2013) | No | 286 | .21 | .89 | .94 | Voice |
| Illies et al. | (2013) | Yes | 198 | .16 | .79 | .73 | Leader effectiveness |
| Jensen | (2003) | No | 62 | .21 | .91 | .82 | Psy Cap |
| Jensen | (2003) | No | 62 | .40 | .91 | 1.00 | Group and organization performance |
| Jensen and Luthans | (2006) | Yes | 172 | .41 | .95 | .93 | Job satisfaction |
| Jensen and Luthans | (2006) | Yes | 172 | .48 | .95 | .82 | Commitment |
| Joo | (2014) | Yes | 427 | .90 | .85 | .88 | Transformational |
| Kiersch et al. | (2012) | No | 187 | −.21 | .96 | .78 | Burnout/stress |
| Kiersch et al. | (2012) | No | 187 | −.56 | .96 | .92 | Turnover intentions |
| Kiersch et al. | (2012) | No | 187 | .65 | .96 | .88 | Commitment |
| Kiyani et al. | (2013) | Yes | 283 | .98 | .96 | .99 | OCB |
| Lagan et al. | (2007) | No | 215 | .71 | .92 | .88 | Transformational |
| Lagan et al. | (2007) | No | 215 | .23 | .92 | .84 | Commitment |
| Laschinger and Fida | (2014) | Yes | 342 | −.18 | .94 | .92 | Burnout/stress |
| Laschinger and Fida | (2014) | Yes | 342 | −.29 | .94 | .88 | Turnover intentions |
| Laschinger and Smith | (2013) | Yes | 194 | .42 | .96 | .84 | Empowerment |
| Laschinger et al. | (2013) | Yes | 273 | −.28 | .97 | .93 | Burnout/stress |
| Lelchook | (2012) | No | 327 | .91 | .79 | .97 | Transformational |
| Lelchook | (2012) | No | 327 | .77 | .79 | .97 | Transactional |
| Lelchook | (2012) | No | 327 | .21 | .79 | .96 | Engagement |
| Leroy | (2013) | No | 225 | .32 | .93 | .85 | Voice |
| Leroy et al. | (2012a) | Yes | 252 | .48 | .95 | .92 | Job satisfaction |
| Leroy et al. | (2012b) | Yes | 225 | .25 | .95 | .90 | Commitment |
| Leroy et al. | (2012b) | Yes | 118 | .22 | .95 | .87 | Task performance |
| Lewis | (2010) | No | 190 | .78 | .92 | .84 | Trust in leader |
| Lewis | (2010) | No | 190 | .64 | .92 | .90 | LMX |
| Lewis | (2010) | No | 190 | .74 | .92 | .89 | Leader effectiveness |
| Li et al. | (2014) | Yes | 199 | .14 | .89 | .86 | Task performance |
| Li et al. | (2014) | Yes | 199 | .23 | .89 | .94 | OCB |
| Li et al. | (2014) | Yes | 199 | .21 | .89 | .88 | Creativity |
| Li et al. | (2014) | Yes | 170 | .50 | .92 | .86 | Transformational |
| Li et al. | (2014) | Yes | 170 | .20 | .92 | .90 | Task performance |
| Li et al. | (2014) | Yes | 170 | .01 | .92 | .94 | Creativity |
| Liu | (2012) | No | 107 | .46 | .93 | .95 | Engagement |
| Liu | (2012) | No | 107 | −.03 | .93 | .96 | Task performance |
| Liu | (2012) | No | 107 | .80 | .93 | .96 | Transformational |
| Liu | (2012) | No | 107 | −.23 | .93 | .91 | CWB |
| Lusin | (2014) | No | 200 | .44 | .90 | .80 | Commitment |
| McClellan | (2007) | No | 149 | .23 | .90 | .86 | Commitment |
| McElrath | (2013) | No | 231 | .51 | .90 | .87 | Trust in leader |
| Men | (2012) | No | 402 | .85 | .96 | .90 | Transformational |
| Men | (2012) | No | 402 | .62 | .96 | .86 | Commitment |
| Men | (2012) | No | 402 | .70 | .96 | .88 | Job satisfaction |
| Men | (2012) | No | 402 | .53 | .96 | .85 | Empowerment |
| Milad | (2012) | No | 530 | .60 | .95 | .92 | Commitment |
| Neider and Schriesheim | (2011) | Yes | 228 | .50 | .90 | .88 | Job satisfaction |
| Neider and Schriesheim | (2011) | Yes | 228 | .72 | .90 | .89 | Satisfaction with lead |
| Neider and Schriesheim | (2011) | Yes | 228 | .36 | .90 | .86 | Commitment |
| Nichols | (2012) | No | 116 | .30 | .78 | .55 | Trust in leader |
| Nielsen | (2013) | Yes | 594 | .71 | .89 | .86 | Transformational |
| Nielsen | (2013) | Yes | 594 | −.14 | .89 | .85 | CWB |
| Norman | (2006) | No | 304 | .73 | .96 | .82 | Trust in leader |
| Norman | (2006) | No | 304 | .84 | .96 | .92 | Leader effectiveness |
| Norris | (2013) | No | 433 | .35 | .90 | .88 | Job satisfaction |
| Norris | (2013) | No | 433 | .49 | .90 | .89 | Satisfaction with lead |
| Ozkan and Ceylan | (2012) | Yes | 304 | .51 | .92 | .94 | Commitment |
| Peus et al. | (2012) | Yes | 157 | .65 | .94 | .91 | Commitment |
| Peus et al. | (2012) | Yes | 157 | .81 | .94 | .94 | Satisfaction with lead |
| Peus et al. | (2012) | Yes | 86 | .59 | .88 | .89 | Satisfaction with lead |
| Peus et al. | (2012) | Yes | 86 | .53 | .88 | .84 | Group and organization performance |
| Rahimnia and Sharifirad | (2015) | Yes | 272 | .52 | .91 | .84 | Job satisfaction |
| Rahimnia and Sharifirad | (2015) | Yes | 272 | −.24 | .91 | .87 | Burnout/stress |
| Rego et al. | (2012) | Yes | 201 | .65 | .91 | .90 | Psy Cap |
| Rego et al. | (2012) | Yes | 201 | .65 | .91 | .90 | Creativity |
| Riggio et al. | (2010) | Yes | 172 | .87 | .97 | .97 | Transformational |
| Riggio et al. | (2010) | Yes | 172 | .84 | .97 | .69 | Transactional |
| Schabram | (2009) | No | 26 | .61 | .72 | .72 | Transformational |
| Seco and Lopes | (2013) | Yes | 326 | −.57 | .89 | .94 | Engagement |
| Shapira-Lischinsky and Tsemach | (2014) | Yes | 366 | .46 | .83 | .86 | Empowerment |
| Shapira-Lischinsky and Tsemach | (2014) | Yes | 366 | .30 | .83 | .88 | OCB |

(*continued on next page*)

**Appendix A** (*continued*)

| Author | Year | Published | *n* | *r* | $r_{xx}$ | $r_{yy}$ | Variable |
|---|---|---|---|---|---|---|---|
| Shapira-Lischinsky and Tsemach | (2014) | Yes | 366 | .20 | .83 | .94 | Turnover intentions |
| Sosik et al. | (2011) | Yes | 184 | .63 | .82 | .82 | Transformational |
| Spitmuller and Illies | (2010) | Yes | 91 | .26 | .93 | .88 | Transformational |
| Stearns | (2012) | No | 192 | .42 | .96 | .94 | Job satisfaction |
| Tuttle | (2009) | No | 285 | .87 | .94 | .96 | Transformational |
| Tuttle | (2009) | No | 285 | .00 | .94 | .47 | Transactional |
| Tuttle | (2009) | No | 132 | .90 | .97 | .92 | Leader effectiveness |
| Valsania et al. | (2012) | Yes | 220 | .47 | .90 | .85 | OCB |
| Walumbwa et al. | (2008) | Yes | 178 | .22 | .90 | .72 | OCB |
| Walumbwa et al. | (2008) | Yes | 178 | .36 | .90 | .92 | Commitment |
| Walumbwa et al. | (2008) | Yes | 178 | .48 | .90 | .88 | Satisfaction with lead |
| Walumbwa et al. | (2008) | Yes | 236 | .39 | .90 | .70 | OCB |
| Walumbwa et al. | (2008) | Yes | 236 | .54 | .90 | .92 | Commitment |
| Walumbwa et al. | (2008) | Yes | 236 | .62 | .90 | .85 | Satisfaction with lead |
| Walumbwa et al. | (2008) | Yes | 236 | .68 | .90 | .88 | Transformational |
| Wang et al. | (2014) | Yes | 794 | .78 | .95 | .96 | LMX |
| Wang et al. | (2014) | Yes | 794 | .48 | .95 | .88 | Psy Cap |
| Wang et al. | (2014) | Yes | 794 | .11 | .95 | .84 | Task performance |
| Wang et al. | (2013) | Yes | 386 | .58 | .95 | .94 | Engagement |
| Weischer et al. | (2013) | Yes | 334 | .76 | .90 | .92 | Trust in leader |
| Wherry | (2012) | No | 238 | .47 | .93 | .89 | LMX |
| Wherry | (2012) | No | 238 | .46 | .93 | .82 | OCB |
| Williams | (2014) | Yes | 115 | .41 | .97 | .77 | Job satisfaction |
| Wilson | (2013) | No | 106 | .28 | .91 | .90 | Engagement |
| Wong and Cummings | (2009) | Yes | 147 | .29 | .90 | .92 | Voice |
| Wong and Cummings | (2009) | Yes | 147 | .25 | .90 | .89 | Task performance |
| Wong and Cummings | (2009) | Yes | 147 | −.34 | .90 | .81 | Burnout/stress |
| Wong and Cummings | (2009) | Yes | 147 | .49 | .90 | .83 | Trust in leader |
| Wong and Cummings | (2009) | Yes | 188 | .40 | .90 | .92 | Voice |
| Wong and Cummings | (2009) | Yes | 188 | .12 | .90 | .89 | Task performance |
| Wong and Cummings | (2009) | Yes | 188 | −.25 | .90 | .81 | Burnout/stress |
| Wong and Cummings | (2009) | Yes | 188 | .53 | .90 | .83 | Trust in leader |
| Wong and Laschinger | (2012) | Yes | 280 | .46 | .97 | .88 | Empowerment |
| Wong and Laschinger | (2012) | Yes | 280 | .35 | .97 | .95 | Job satisfaction |
| Wong and Laschinger | (2012) | Yes | 280 | .01 | .97 | .76 | Task performance |
| Wong et al. | (2010) | Yes | 280 | .69 | .97 | .83 | Trust in leader |
| Wong et al. | (2010) | Yes | 280 | .10 | .97 | .92 | Voice |
| Wood | (2007) | No | 335 | .45 | .90 | .88 | Transformational |
| Wood | (2007) | No | 335 | .13 | .90 | .69 | Transactional |
| Wood | (2007) | No | 335 | .06 | .90 | .89 | Leader effectiveness |
| Woolley et al. | (2011) | Yes | 828 | .43 | .94 | .88 | Psy Cap |
| Yemi-Sofumade | (2012) | No | 116 | −.35 | .97 | .71 | Turnover intentions |
| Zhu | (2006) | No | 55 | .85 | .72 | .80 | Transformational |
| Zhu. | (2006) | No | 55 | .58 | .72 | .67 | Transactional |
| Zhu | (2006) | No | 81 | .59 | .78 | .84 | Transformational |
| Zhu | (2006) | No | 81 | .71 | .78 | .60 | Transactional |
| Zhu | (2006) | No | 73 | .69 | .70 | .89 | Transformational |
| Zhu | (2006) | No | 73 | .70 | .70 | .60 | Transactional |
| Zhu | (2006) | No | 215 | .68 | .90 | .88 | Transformational |
| Zhu | (2006) | No | 215 | .68 | .90 | .69 | Transactional |

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