Impact of authentic leadership on performance: Role of followers' positive psychological capital and relational processes

HUI WANG[1], YANG SUI[2], FRED LUTHANS[3], DANNI WANG[4]* AND YANHONG WU[5]

[1]*Guanghua School of Management, Peking University, Beijing, China*
[2]*School of Economics and Management, Tsinghua University, Beijing, China*
[3]*College of Business Administration, University of Nebraska, Lincoln, Nebraska, U.S.A.*
[4]*Department of Management, Arizona State University, Phoenix Arizona, U.S.A.*
[5]*Department of Psychology, Peking University, Beijing, China*

Summary   Authentic leadership has received considerable attention and research support over the past decade. Now the time has come to refine and better understand how it impacts performance. This study investigates the moderating role followers' positive psychological capital (PsyCap) and the mediating role that leader–member exchange (LMX) may play in influencing the relationship between authentic leadership and followers' performance. Specifically, we tested this mediated moderation model with matched data from 794 followers and their immediate leaders. We found that authentic leadership is positively related to LMX and consequently followers' performance, and to a larger degree, among followers who have low rather than high levels of PsyCap. Our discussion highlights the benefits of understanding the roles of relational processes and followers' positive psychological resources involved in the effectiveness of authentic leadership and how they can be practically implemented. Copyright © 2012 John Wiley & Sons, Ltd.

Keywords: authentic leadership; leader–member exchange; psychological capital; mediated moderation models

Introduction

A positive, genuine, transparent, ethical form of leadership, broadly termed authentic leadership (AL), is now recognized as a positive approach to organizational leadership that can help meet today's challenges (Avolio & Gardner, 2005; Avolio, Gardner, Walumbwa, Luthans, & May, 2004; George, 2003; Luthans & Avolio, 2003; Walumbwa, Avolio, Gardner, Wernsing, & Peterson, 2008). AL is characterized by a leader's self-awareness, openness, and clarity behaviors. Authentic leaders share the information needed to make decisions, accept others' inputs, and disclose their personal values, motives, and sentiments. Such characteristics enable followers to accurately assess the competence and morality of their authentic leader's actions (Walumbwa, Wang, Wang, Schaubroeck, & Avolio, 2010).

To date, theory building is in the process of formulating the underlying mechanisms of AL (e.g., see the special issue edited by Avolio & Gardner, 2005; also see Avolio & Walumbwa, 2012; Luthans & Avolio, 2003). For example, attention has been devoted to specifying the developmental dynamics between AL and follower attitudes and behaviors (Avolio et al., 2004; Gardner, Avolio, Luthans, May, & Walumbwa, 2005; George, 2003; Illies, Morgeson, & Nahrgang, 2005). In particular, Avolio et al. (2004) drew from positive organizational behavior (Luthans, 2002; Luthans & Avolio, 2009; Luthans & Youssef, 2007), trust, emotion, and identity theories to

---

*Correspondence to: Hui Wang, Guanghua School of Management, Peking University, China. E-mail: wanghui@gsm.pk.cn

describe the mechanisms by which authentic leaders exert their influence on followers' attitudes, behaviors, and performance. Recently, empirical studies have also been conducted to uncover some of the dynamics involved in the AL process (e.g., Walumbwa, Luthans, Avey, & Oke, 2011; Walumbwa et al., 2010). In general, this research supports that AL can motivate and influence follower effectiveness. However, better understanding of the followers' personal and contextual factors that may affect the impact of AL on follower performance is needed.

One suggestion is that authentic leaders develop and influence their followers by invigorating them with positive psychological states, which are conducive to their performance (Gardner & Schermerhorn, 2004). To the extent that employees may differ in the degree to which they are receptive to such influence, we would question whether AL can uniformly impact their followers' performance. This line of questioning stems from the perspective of complementary congruity (Grant, Gino, & Hofmann, 2011; Kiesler, 1983). This theory posits that an individual's (e.g., the leader) capabilities can fill a missing, but needed, component valued by another individual (e.g., the follower).

Drawing from complementary congruity theory for the present study would suggest that the authentic leader can effectively contribute to the development of and have an impact on the follower's performance. Specifically, the AL characteristics contribute and complement the needed capabilities of the follower for performing well. For example, in their initial model of AL development, Luthans and Avolio (2003) posited that authentic leaders draw from their own positive psychological resources to contribute and complement their followers' psychological capital in order to enhance their performance. This psychological capital, or simply PsyCap (see Luthans & Youssef, 2004; Luthans, Youssef, & Avolio, 2007), has now become the widely recognized core construct consisting of the positive psychological resources of hope, efficacy, resiliency, and optimism.

On the basis of the assumption of follower individual differences and drawing from the theory of complementary congruity, our first purpose is to explore if the relationship between AL and follower performance depends on the followers' level of PsyCap. The second purpose of this study is to explore a mechanism that may explain the contingent effect of PsyCap. In particular, we examine the relational processes (i.e., leader–member exchange or LMX) as a mechanism linking AL and follower performance.

We examine LMX as the process transmitting the impact of AL on follower performance for two reasons. First, leadership is arguably a relational process (e.g., Dasborough & Ashkanasy, 2005). It is known that a relationship of some type between the leader and follower emerges at different stages during this process (Graen & Uhl-Bien, 1995). In addition, the nature and quality of this relationship has been shown to be fundamental to leader behaviors impacting follower responses (Howell & Hall-Merenda, 1999). Second, in order to best understand the contingent effect of PsyCap on the AL–follower performance linkage, the process most relevant to that complementary congruity mechanism should be examined. Previous research has indicated that through the ongoing interaction and resultant exchange relationship, leaders may instill positive psychological states into followers (Ilies, Morgeson, & Nahrgang, 2005; Story, Youssef, Luthans, Barbuto, & Bovaird, in press). We would propose that authentic leaders provide complementary congruity to followers with resulting performance impact. However, yet to be answered is whether followers with different levels of PsyCap may benefit more or less from their exchange relationship with the leader. This dynamic of varying levels of follower PsyCap in the LMX may in turn account for the varied effect of AL on follower performance. Thus, we are interested in not only whether PsyCap moderates the LMX–follower performance relationship but also if LMX mediates the relationship between AL and follower performance.

Overall, this research aims to make needed theoretical and empirical contributions to both AL and PsyCap by offering a balanced and comprehensive perspective that recognizes the role that followers' positive psychological resources (i.e., PsyCap) play in making AL more or less effective. This perspective highlights the value of understanding AL through the theoretical lens of complementary congruity. In addition, by investigating how authentic leaders enhance follower performance via LMX relationships, which in turn accounts for the moderating effect of followers' PsyCap, we show the benefit of incorporating followers' psychological resources and relational processes into one integrated framework when examining the effectiveness of AL.

Study Hypotheses

On the basis of the theoretical foundation discussed so far, we draw from the four categories of authentic leaders' behaviors that have been identified: balanced processing, internalized moral perspective, relational transparency, and self-awareness (Gardner et al., 2005; Illies et al., 2005; Walumbwa et al., 2008). Balanced processing refers to analyzing all relevant information objectively before making a final decision. Internalized moral perspective involves leadership behaviors with internal moral standards and values, rather than with external pressure such as that from peers, as well as organizational and societal pressures (Gardner et al., 2005). Relational transparency refers to personal disclosures, such as openly sharing information and expressing true thoughts and feelings with followers and relevant others (Walumbwa et al., 2010). Finally, self-awareness means the leaders are able to recognize how followers view their leadership, as well as understand their own motives, strengths and weaknesses. Leaders with high self-awareness enhance their authenticity and effectiveness using both self-knowledge and reflected self-image (Walumbwa et al., 2010). These four theoretically related dimensions have been empirically supported and serve as the basis of a validated measure of AL (Walumbwa et al., 2008; Walumbwa et al., 2010)

Authentic leadership and follower performance

We expect AL to have a positive effect on follower performance. Previous theory building has indicated that authentic leaders can influence follower performance (e.g., Lord & Brown, 2004). Authentic leaders behave in accordance with their values and strive to achieve openness and truthfulness in their relationships with followers (Gardner et al., 2005; Kernis, 2003). Authentic leaders can lead by example and demonstrate transparent decision making (Avolio & Gardner, 2005). Leading by example demonstrates a leader's commitment to his or her work and provides guidance to followers about how to remain emotionally and physically connected and cognitively vigilant during work performance. Walumbwa et al. (2010) argued that ethical behaviors of authentic leaders are likely to guide their followers because of their attractiveness and credibility as role models.

Followers under AL tend to attribute exceptionally strong positive qualities to the leaders, internalize their values and beliefs, and behave consistently with them. For example, according to Avolio et al. (2004), the behaviors of authentic leaders are viewed by followers as being guided by high moral standards and characterized by fairness, honesty, and integrity in dealing with followers. As a result, such leaders are able to stimulate values shared among their followers by means of transparency, positivity, and high ethical standards. The result is that followers are motivated to exhibit positive behaviors and have a sense of self-worth and obligation to reciprocate (e.g., Illies et al., 2005; Yukl, 2002).

In addition to this theoretical understanding of why authentic leaders have a positive impact on their followers' performance, empirical support is also emerging. For example, Walumbwa et al. (2008, 2011) and Walumbwa et al. (2010) have recently found that AL behavior is positively related to supervisor-rated job performance, organizational citizenship behavior, and work engagement. Also, in the management practitioner literature, George (2003) observed that authentic leaders motivate followers by means of modeling and transferring a deep sense of responsibility to deliver positive outcomes over an extended period. Drawing from this theoretical, empirical, and practical literature, we derive the following hypothesis:

Hypothesis 1: AL is positively related to followers' performance.

The moderating role of psychological capital

As indicated, complementary congruity theory refers to the match between leaders' behaviors or capabilities and the corresponding needs of their followers (e.g., Grant et al., 2011; Kiesler, 1983). We posit that when there is an

absence of complementarity between leaders' capabilities and characteristics of their followers, leaders may be less influential in that aspect because the need for their development is substantially reduced. On the other hand, when leaders' specific capabilities complement their followers' needs on such aspects, leaders may powerfully facilitate their followers' ability to perform in a certain domain. On the basis of this complementarity perspective, we propose that although AL enhances follower performance when followers are in need of positive psychological resources, this advantage decreases when they have a high level of PsyCap, that is, they are already hopeful, optimistic, resilient, and efficacious.

It should be noted that AL has a similar effect with PsyCap in terms of the extent to which it influences follower job performance by virtue of building positive psychological resources. Each of the four components of PsyCap (i.e., hope, efficacy, resilience, and optimism) represents the positive psychological resources that lead to desirable outcomes for organizations (see Luthans, Youssef et al., 2007). A recent meta-analysis indicated that PsyCap has a significant impact on desired employee attitudes, behaviors, and performance measured multiple ways (Avey, Reichard, Luthans, & Mhatre, 2011). As originally depicted by Luthans and Avolio (2003), authentic leaders' behaviors come from these positive psychological resources and in turn lead to the development of themselves and their followers (also see Avolio & Gardner, 2005; Yammarino, Dionne, Schriesheim, & Dansereau, 2008).

Authentic leadership is further suggested to result in followers' positive outcomes because it is able to foster followers' positive psychological capacities (Gardner & Schermerhorn, 2004). Specifically, authentic leaders have the ability to remain realistically hopeful and trustworthy, and can enhance followers' hope not only by establishing their willpower but also by including positive aspects of the pathways or directions to pursue which enhance followers' sense of self-efficacy (Avolio et al., 2004). Moreover, authentic leaders interpret information, exchanges, and interactions with followers from a positive perspective, thus evoking followers' positive emotions, and such emotions result in followers' optimism (Avolio et al., 2004; Avolio, Luthans, & Walumbwa, 2004; Luthans & Avolio, 2003). Empirical evidence also shows that AL is positively related to the leaders' and followers' PsyCap, thereby leading to enhanced follower performance (Avey, Avolio, & Luthans, 2011; Walumbwa et al., 2011; Woolley, Caza, & Levy, 2011). However, the moderating role that PsyCap may play in the relationship between AL and follower performance has yet to be tested.

From the complementarity perspective, we can explain the positive impact of AL on follower performance. The complementary congruity process helps explain the positive impact that authentic leaders have under conditions when followers lack positive psychological states, while this impact tends to fade when these followers' positive resources are already there. More specifically, high PsyCap followers are characterized as hopeful, optimistic, resilient, and confident, and these positive capacities per se motivate them to achieve high performance. As a result, they should perform at relatively high levels regardless of whether they are led by a more or less authentic leader. In contrast, low PsyCap followers depend more on the positive development provided by AL in order to have performance benefits than their high PsyCap counterparts. Stated another way, authentic leaders' positive behaviors and development of followers complement the lack of positive psychological capacities of low PsyCap followers and in turn facilitate their performance. On the basis of this background, we derive the following study hypothesis:

> *Hypothesis 2*: Followers' PsyCap moderates the relationship between AL and performance of followers, such that the relationship is stronger among followers with low rather than high levels of PsyCap.

Mediating role of leader–member exchange

Given that the effect of AL on follower performance is proposed to depend on followers' PsyCap, we now turn to the possible mediating process through which this overall moderated AL effect may be produced. Drawing from our introductory discussion of the role of relational processes, we expect LMX to mediate the relationship between AL

and followers' performance. Specifically, we noted that AL reflects an interactive and authentic relationship that develops between the leader and followers. This relationship can nourish positive social exchanges by virtue of building credibility and winning the respect and trust of followers (Avolio et al., 2004; Illies et al., 2005; Norman, Avolio, & Luthans, 2010). These exchange relationships seem to result in successful follower performance.

Authentic leadership may be able to influence the development and maintenance of exchange relationships with followers. The components of self-awareness, balanced processing, internalized moral perspective, and relational transparency together demonstrate the integrity, respectability, and trustworthiness of authentic leaders (Illies et al., 2005). These characteristics constitute the central elements of high-quality exchange relationships (e.g., Avolio et al., 2004; Blau, 1964; Illies et al., 2005). First, by eliciting diverse viewpoints from followers, authentic leaders are viewed as showing respect for and trust in each of their followers. This gesture is likely to be reciprocated by respect and trust on the part of followers (Avolio et al., 2004; Norman et al., 2010). Second, authentic leaders are true to themselves and display high levels of moral integrity. Such leaders are viewed by followers as honest and morally worthy, and therefore enhancing followers' trust in the leaders and willingness to cooperate with them (e.g., Clapp-Smith, Vogelgesang, & Avey, 2009; Gardner et al., 2005; Norman et al., 2010). Third, authentic leaders share information with their followers in an open and transparent manner, that is, they transparently convey their attributes, values, aspirations, and weakness to followers, and encourage them to do likewise, thus fostering trust and intimacy with followers (Avolio et al., 2004; Norman et al., 2010). Moreover, relational transparency also means accountability in the relationships with followers (Burke & Cooper, 2006; Illies et al., 2005). Such accountability facilitates a shared understanding about future actions and each party's responsibilities, thus leading to high quality of exchange relationships over time (Burke & Cooper, 2006; Graen & Uhl-Bien, 1995). Taken together, authentic leaders are likely to develop positive social exchanges with their followers. We thus propose the following hypothesis:

Hypothesis 3: AL is positively related to followers' LMX.

Besides the relationship between authentic leaders and their followers' LMX, the positive relationship between LMX and follower performance is premised on the notion that followers are obligated to reciprocate with good performance as a return for the treatment they derive from the exchange relationship with the leader (e.g., Blau, 1964; Law, Wang, & Hui, 2010; Liden, Sparrowe, & Wayne, 1997). More specifically, low quality of LMX results in standard or normal task performance because the exchanges underlying these relationships are quid pro quo and "contractual" (Wang, Law, Hackett, Wang, & Chen, 2005). High-quality of LMX, by contrast, leads to superior performance in that the relationship moves from economic to social exchange characterized by mutual trust, respect, and obligation (Graen & Uhl-Bien, 1995). A large body of empirical evidence for the favorable relationship between LMX and followers' work outcomes has been demonstrated over the last three decades (e.g., Gerstner & Day, 1997; Ilies, Nahrgang, & Morgeson, 2007). To sum up, AL is positively related with the quality of exchange relationships with followers, and LMX, in turn, predicts followers' task performance. Culminating from this discussion, we hypothesize the following:

Hypothesis 4: LMX mediates the relationship between AL and follower performance.

The mediated moderation relationship

Although the significant positive relationships between LMX and work outcomes have been well documented, LMX researchers have consistently called for the examination of moderators—in particular, individual difference moderators—of the LMX–performance relationship (e.g., Erdogan & Enders, 2007; Gerstner & Day, 1997; Ozer, 2008). More specifically, it has been suggested that although a high-quality exchange with a leader can be instrumental in supporting and motivating followers, they are dependent on it only to the extent that alternate forms

of support, guidance, and resources are lacking (Bauer, Erdogan, Liden, & Wayne, 2006). We agree but would also argue that followers with high levels of PsyCap may avail themselves of the benefits of their LMX relationships with the leader to a lesser degree than followers with low levels of PsyCap, and the LMX–performance relationship is thus likely to vary accordingly.

According to previous research (e.g., Bauer et al., 2006; Erdogan & Enders, 2007), the positive association between LMX and performance is due, in part, to the tangible and intangible benefits that followers can gain from a high quality of LMX. These benefits include leaders' behaviors of providing followers job feedback information (Graen & Scandura, 1987), defending them against negative impact and mobilizing task relevant resources for them (Kraimer, Wayne, & Jaworski, 2001). Other benefits of high-quality LMX to followers have been found to be exposing them to valuable social connections or favorable assignments (Sparrowe & Liden, 2005), protecting them from unfairness, encouraging them to take on challenging tasks, or providing them friendliness and affective intimacy (Graen & Uhl-Bien, 1995; Sparrowe & Liden, 1997). In other words, through high or low quality of exchange relationships, leaders create positive or less positive conditions (whether physical or psychological) for followers' functioning (Erdogan & Enders, 2007; Wang et al., 2005), which in turn results in high or low levels of individual performance.

As discussed earlier, PsyCap represents a set of positive psychological resources, which contribute to one's motivational propensity to accomplish tasks and goals. For example, both experimental (Luthans, Avey, Avolio, & Peterson, 2010) and longitudinal (Peterson, Luthans, Avolio, Walumbwa, & Zheng, 2011) studies have demonstrated a causal impact of PsyCap on performance (measured both objectively and subjectively). These findings suggest the support and resources conveyed by LMX may become less necessary. Therefore, for high PsyCap followers, LMX relationships would seem to play a less important role in determining their performance. On the other hand, without the support and resources derived from a high-LMX relationship, low PsyCap followers may find it difficult to persist in the face of difficult and adverse situations, to maintain a positive outcome outlook, and to be encouraged to pursue the path to success. As a result, low PsyCap followers should be more receptive to, and further seek out the benefits and favors conveyed by their exchange relationship with the leader, in order to accomplish their work. In summary, when followers have relatively low PsyCap, their performance is more likely to be affected by LMX than their higher PsyCap counterparts. Thus, the following hypothesis is derived:

Hypothesis 5a: PsyCap moderates the relationship between LMX and follower performance, such that the relationship between LMX and follower performance is stronger among followers with low rather than high levels of PsyCap.

Combining Hypothesis 2, 4, and 5a, we further propose a mediated moderation model shown in Figure 1. Specifically, the effect of AL on follower performance is moderated by follower PsyCap; and this moderating effect is due to the mediating effect of LMX on the AL–performance linkage, and the moderating effect of PsyCap on this LMX–performance relationship. Moreover, because authentic leaders' behaviors and the resultant LMX are more likely to complement the needs of low PsyCap followers (as opposed to high PsyCap followers), AL and LMX should contribute more to the low PsyCap followers' performance. By contrast, for high PsyCap followers, the relationship between AL (and LMX) and individual performance is weakened because they rely more on their
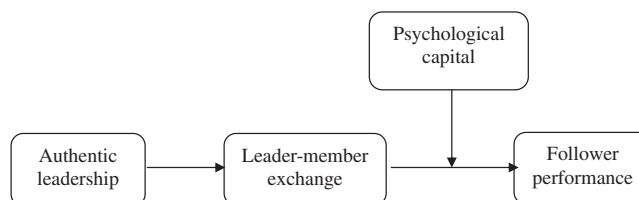

Figure 1. Conceptual model of the study

own psychological resources than on the leader and/or the LMX relationship to achieve high levels of performance. Thus, we propose our final study hypothesis as follows:

> *Hypothesis 5b:* The mediation of LMX underlies the overall moderating effect of PsyCap on the relationship between AL and follower performance in such a way that AL is positively related to LMX, and the relationship between LMX and follower performance is stronger among followers with low rather than high levels of PsyCap.

Method

Sample and procedure

A total of 801 followers and their immediate leaders from a Chinese logistics firm located in the capital city Beijing were invited to participate in our survey. The company has been established for 18 years, and its business is to collect and deliver parcels for customers. They were told about the objectives and procedures of the survey, and anonymity and confidentiality were assured. Leaders were given the link to get on the website and each received a randomly generated code. This code was used to match the responses of the leaders with their corresponding followers. All 49 leaders and 794 of their followers responded after several rounds of follow-up reminders, yielding very high response rates. In addition to the reminders, the high response rates also occurred because of company sponsorship and the use of work time to complete the survey.

Among the leaders, 69.2 percent of them were male. The mean age was 39 years (ranging from 25 to 54 years old). On average, leaders had 17 years of organizational tenure (ranging from 4 to 36 years). Among the followers, 71.3 percent were male and the mean age was 35 years (ranging from 18 to 56 years old). The average dyadic tenure with their current leaders was 3.3 years ($SD = 3.7$), and on average, they had 7 years of organizational tenure (ranging from 1 to 36 years).

In terms of procedures, the leaders were asked to rate their followers' job performance. Followers, on the other hand, were asked to confidentially rate their leader's AL, LMX, and their own PsyCap.

Measures

Authentic leadership
Authentic leadership was measured using the 16-item Authentic Leadership Questionnaire of Walumbwa et al. (2008), which has been further validated and translated by Walumbwa et al. (2010) for the Chinese context. These analyses confirmed four theoretically related substantive factors including balanced processing (three items), internalized moral perspective (four items), relational transparency (five items), and self-awareness (four items) and when combined indicate a core higher order AL construct. Sample items include "Solicits views that challenge his or her deeply held positions" (balanced processing), "Makes decisions based on his/her core beliefs" (internalized moral perspective), "Is willing to admit mistakes when they are made" (relational transparency), and "Is eager to receive feedback to improve interactions with others" (self-awareness). Responses were based on a 7-point scale ranging from 1 (*totally disagree*) to 7 (*totally agree*). The coefficient alpha for the current study was .88.

LMX
Leader–member exchange was measured by a 16-item scale initially developed by Liden and Maslyn (1998) and later adapted by Wang et al. (2005) for the Chinese context. Items include "I like my supervisor very much as a person" (affect); "My supervisor would come to my defense if I were 'attacked' by others" (loyalty); "I do not mind

working my hardest for my supervisor" (contribution); and "I admire my supervisor's professional skills" (professional respect). Responses were based on a 7-point scale ranging from 1 (*totally disagree*) to 7 (*totally agree*). The coefficient alpha for this study was .96.

PsyCap

The measure of PsyCap was the 24-item questionnaire or PCQ (Luthans, Avolio, Avey, & Norman, 2007; Luthans, Youssef et al., 2007). This PCQ draws from and adapted from widely recognized published standardized measures for each of the positive constructs that make up PsyCap as follows: (i) hope (Snyder et al., 1996); (ii) resiliency (Wagnild & Young, 1993); (iii) optimism (Scheier & Carver, 1985); and (iv) self-efficacy (Parker, 1998). This PCQ has been demonstrated to have reliability and construct validity (Luthans, Avolio et al., 2007), including translated and conducted in the Chinese context (Luthans, Avey, Clapp-Smith, & Li, 2008). Sample items include "At the present time, I am energetically pursuing my work goals" (hope); "I can get through difficult times at work because I've experienced difficulty before" (resiliency); "I feel confident contacting people outside the company (e.g., suppliers, customers) to discuss problems" (self-efficacy); and "When things are uncertain for me at work I usually expect the best" (optimism). Responses were based on a 6-point scale ranging from 1 (*totally disagree*) to 6 (*totally agree*). The coefficient alpha for this study was .95.

Job performance

We measured followers' job performance using the four items developed by Farh and Cheng (1997) for the Chinese context. To avoid same source bias, the leaders were asked to rate their followers' job performance. Sample items include "this employee makes a significant contribution to the overall performance of our work unit" and "this employee always completes job assignments on time." Responses were based on a 5-point scale ranging from 1 (*totally disagree*) to 5 (*totally agree*). The coefficient alpha for this study was .84.

Control variables

We also included individual demographic characteristics in the analysis because these variables may confound the relationships of interest. Gender was a categorical variable with 1 as *male* and 0 as *female*. Age, education, and organizational tenure were continuous variables measured in years.

Results

Confirmatory factor analysis

Table 1 presents the confirmatory factor analysis (CFA) results of the proposed model. As shown in Table 1, the results of the proposed four-factor structure (AL, LMX, PsyCap, and follower performance) demonstrated good fit with the data (χ^2(528.89, $N = 794$)/df(98) = 5.40, CFI = .95, $RMSEA$ = .07). Against this baseline four-factor model, we tested three alternative models: Model 1 was a three-factor model with LMX merged with AL to form a single factor; Model 2 was another three-factor model with LMX merged with PsyCap to form a single factor; and Model 3 was a two-factor model, with AL merged with LMX and PsyCap to form a single factor. As shown in Table 1, the fit indices support the proposed four-factor model, providing evidence for the construct distinctiveness between AL, LMX, PsyCap, and job performance.

Because individual respondents were nested within groups, we tested for possible statistical dependence in our data by computing the ICC(1) for AL, LMX, PsyCap, and job performance. The results showed the ICCs for all variables, except AL, to be non-significant, indicating that these variables vary much more within (under the same leader within a group) than between groups. The ICC(1) for AL was .11 ($p < .01$), indicating that the followers of a leader tended to converge in their assessment of the authenticity of that leader. Following Van der Vegt, Van de

Table 1. Comparison of measurement models.

Model	Factors	χ^2	df	$\Delta\chi^2$	RMSEA	CFI	TFI
Null		8551.91	120				
Baseline	Four factors	528.89	98		0.07	0.95	0.94
Alternatives							
Model 1	Three factors. Authentic leadership and LMX were combined into one factor	941.01	101	413.12**	0.10	0.90	0.88
Model 2	Three factors. LMX and PsyCap were combined into one factor	1312.13	101	783.24**	0.12	0.86	0.83
Model 3	Two factors. Authentic, LMX, and PsyCap were combined into one factor	1624.81	103	1095.92**	0.14	0.82	0.79

Note: **$p < .01$.
LMX, leader–member exchange; PsyCap, psychological capital.

Vliert, and Oosterhof (2003), we tested our hypotheses twice. First, we used regular regression analyses, and second, we used hierarchical linear modeling, to examine whether the statistical dependence in AL would affect our results. These analyses generated similar results. Because of space limitations, we only report the results of the regular regression analysis, but the HML data can be provided upon request from the first author.

Hypotheses testing

Table 2 presents the means and standard deviations for all study variables, as well as the inter-correlations between them. Most of the coefficients are moderate in magnitude and well below their reliabilities, providing supportive evidence for their discriminant validity. As shown in Table 2, AL is significantly and positively correlated with LMX (.78, $p < .01$) and performance (.11, $p < .01$), and LMX is significantly correlated with performance (.17, $p < .01$). PsyCap is significantly and positively correlated with AL (.48, $p < .01$), LMX (.48, $p < .01$), and performance (.12, $p < .01$).

We tested Hypothesis 1, 2, 3, and 5a using multiple regression. Table 3 summarizes the results of regression analysis for testing Hypothesis 1 (AL is positively related to follower performance), Hypothesis 2 (followers' PsyCap negatively moderates this relationship), Hypothesis 3 (AL is positively related to follower LMX), and Hypothesis 5a (followers' PsyCap negatively moderates the relationship between LMX and performance). We mean

Table 2. Means, standard deviations, and correlations[a].

Variable	M	SD	1	2	3	4	5	6	7	8
1. Gender	0.76	1.27	——							
2. Age	35.53	8.14	−.16**	——						
3. Education	2.14	0.91	.16**	−.31**	——					
4. Tenure	7.03	6.76	−.02	.52**	−.14**	——				
5. AL	5.68	0.95	−.09*	.02	−.07*	−.10**	(.95)			
6. LMX	5.58	1.05	−.07	.02	−.10**	−.08*	.78**	(.96)		
7. PsyCap	4.56	0.61	−.11**	.10**	.00	−.02	.48**	.43**	(.88)	
8. Performance	3.96	0.57	−.06	.10**	−.01	.10**	.11**	.17**	.12**	(.84)

Note: AL; authentic leadership; LMX, leader–member exchange; PsyCap, psychological capital.
[a]$n = 794$; reliability coefficients for the scales are in parentheses along the diagonal.
*$p < .05$; **$p < .01$.

Table 3. Results of regressions.

| | | | | | | | | Performance | | LMX | |
| | β^a | Model 1 | | | | Model 2 | | | Model 3 | |
Independent variables	Step 1	Step 2	Step 3	Step 4	Step 1	Step 2	Step 3	Step 1	Step 2
Gender	−.12**	−.12**	−.12**	−.11**	−.11**	−.11**	−.10**	−.05	−.03
Age	.07	.06	.05	.05	.06	.05	.05	.04	−.01
Education	.02	.03	.02	.02	.04	.04	.04	−.11**	−.05*
Tenure	.06	.07†	.08†	.07†	.08†	.08†	.08*	−.11**	−.01
AL		.13**	.09*	.08*					.77**
PsyCap			.07	.07†					
AL * PsyCap				−.07*					
LMX					.18**	.16**	.14**		
PsyCap						.04	.05		
LMX * PsyCap							−.12**		
R^2	.03	.04	.04	.05	.06	.06	.07	.02	.61
ΔR^2	.03	.02	.00	.02	.06	.00	.02	.02**	.58**
ΔF	5.38**	12.55**	2.59	4.78*	9.77**	1.02	11.89**	4.78**	1164.61**

Note: [a]Standardized coefficients are reported. $^{\dagger}p < .10$; $*p < .05$; $**p < .01$.

centered the variables that consist of the interaction term in the moderation analysis (Aiken & West, 1996). We entered the control variables (gender, age, education, and organizational tenure) at Step 1, AL at Step 2, and the interaction term between AL and PsyCap at Step 3 in the regression equation with performance as the dependent variable. Model 1 in Table 3 indicates that the R^2 change associated with AL was significant (Step 2, $\beta = .13$, $p < .01$), showing support for Hypothesis 1. The R^2 change was also significant with the addition of the interaction term, indicating the presence of a significant interaction between AL and PsyCap (Step 4, $\beta = −.07$, $p < .05$). Figure 2 illustrates that the pattern of the two-way interaction was consistent with Hypothesis 2, that is, the relationship between AL and performance was stronger when PsyCap was low rather than high. Similarly, in Model 2, we entered the control variables at Step 1, PsyCap at Step 2, and the interaction between LMX and PsyCap at Step 3 with performance as the dependent variable. Model 2 in Table 3 indicates that the R^2 change associated
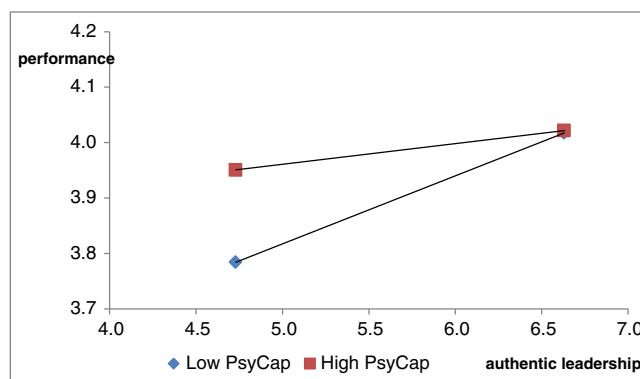

Figure 2. Moderating effect of PsyCap on AL–performance relationship

with the addition of the interaction term was significant (Step 3, $\beta = -.12$, $p < .01$), showing support for Hypothesis 5a, which hypothesizes that PsyCap moderates the relationship between LMX and performance. To test Hypothesis 3, we entered the control variables at Step 1 and AL at Step 2 with LMX as the dependent variable. Model 3 in Table 3 indicates that the R^2 change associated with AL was significant (Step 2, $\beta = .77$, $p < .01$), lending support to Hypothesis 3.

Second, we used a bootstrapping approach with the aid of SPSS macro developed by Preacher et al. to test Hypothesis 4 (Preacher & Hayes, 2008). Bootstrapping is a non-parametric method for assessing indirect effects without imposing the assumption of normality of the sampling distribution (MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002; MacKinnon, Lockwood, & Williams, 2004; Preacher, Rucker, & Hayes, 2007). Because we hypothesize that LMX mediates the effects of AL on performance, we ran the indirect macro with 5000 bootstrapped re-samples by using AL as the independent variable; LMX as the mediator; and gender, age, education, and organizational tenure as covariates. The result shows that the relationship between AL and performance was significantly mediated by LMX ($R^2 = .06$, $p < .01$). Specifically, both the path from AL to LMX ($.85$, $p < .01$) and the total effect of AL on performance ($.07$, $p < .01$) were significant. Moreover, the indirect effect of AL on performance via LMX was .10, and the 95 percent bias-corrected confidence interval around the bootstrapped indirect effect did not contain zero (bias-corrected $CI = [.04, .15]$). These results indicate that followers who perceived their leaders as authentic reported high LMX, which, in turn, was related to higher job performance. Thus, Hypothesis 4 is supported.

Finally, to test mediated moderation, we followed the steps suggested by Muller, Judd, and Yzerbyt (2005). We centered variables that are the components of the interaction term in the mediated moderation analysis. We summarized the statistical results for the mediated moderation analysis in Table 4. In Model 1 of Table 4, we regressed performance on control variables (gender, age, education, and organizational tenure), AL, PsyCap, and the interaction between AL and PsyCap. Both the coefficients of AL ($\beta = .08$, $p < .05$) and the interaction term ($\beta = -.07$, $p < .05$) were significant. In Model 2, the hypothesized mediator, LMX, was regressed on the same independent variables included in Model 1. Results show that AL had a significant effect on LMX ($\beta = .74$, $p < .01$), but the interaction term was not significant ($\beta = .03$, ns). In Model 3, we regressed the control variables, AL, LMX, PsyCap, the interaction between AL and PsyCap, and the interaction between LMX and PsyCap on performance. Results indicate that the interaction between LMX and PsyCap contributed significantly to performance ($\beta = -.15$, $p < .01$), and the interaction between AL and PsyCap became no more significant ($\beta = .04$, ns). We indicate the relationship between LMX and performance at high and low levels of PsyCap in Figure 3. As shown

Table 4. Test of mediated moderation.

Predictors	Model 1 Performance	Model 2 LMX β[a]	Model 3 Performance
Gender	−.11**	−.03	−.11**
Age	.05	−.00	.05
Education	.02	−.06*	.04
Tenure	.07[†]	.00	.08*
AL	.08*	.74**	−.01
PsyCap	.07[†]	.08**	.06
AL * PsyCap	−.07*	.03	.04
LMX			.17**
LMX * PsyCap			−.15**
R^2	.05*	.61**	.08**

Note: [a]Standardized coefficients are reported. [†]$p < .10$; *$p < .05$; **$p < .01$.
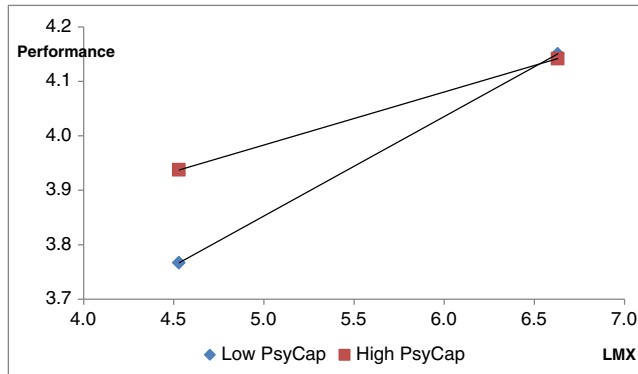
Figure 3. Moderating effect of PsyCap on LMX–performance relationship

in Figure 3, the relationship between LMX and performance increases as PsyCap decreases, as is hypothesized. Overall, these findings suggest that LMX mediated the relationship between AL and performance, that the relationship between LMX and performance was weakened by the followers' PsyCap, and thus resulted in the hypothesized mediated moderation pattern. In other words, Hypothesis 5b is supported.

As an aside, it should be noted that gender had a significant influence on performance, which is not consistent with previous results. After closely examining the sample in the study, a possible explanation for women getting higher performance evaluations may be because they represented a much smaller proportion (28.7 percent) and/or the women also had on average much longer tenure than their male counterparts.

Discussion

This study examined the role that followers' positive psychological resources (i.e., PsyCap) and relational processes (i.e., LMX), through an integrative, mediated moderation model, may play in the relationship between AL and follower performance. We found that the positive relationship between AL and job performance is moderated by followers' PsyCap. Specifically, the relationship between AL and follower performance is greater among followers with low rather than high levels of PsyCap. Examining the role of relational processes, we further tease apart this overall moderating effect by showing that AL is positively related to LMX, and LMX contributes to follower performance contingent upon the followers' PsyCap. These findings have both theoretical and practical implications.

Theoretical implications

The primary contribution of this research is uncovering an important contingency for the performance effect of AL, and thereby empirically supporting and advancing the original theoretical integration of AL and PsyCap (see Avolio & Luthans, 2006; Luthans & Avolio, 2003). Our findings suggest that the complementary congruity between leadership behaviors and follower psychological resources contributes to follower performance. Specifically, we found that a higher level of incremental follower performance was achieved when a lack of positive PsyCap was complemented with a more AL approach than when followers had high levels of PsyCap.

These findings not only answer the call for an integrative approach to AL and PsyCap research (e.g., Avolio & Walumbwa, 2012; Luthans & Avolio, 2003; Yammarino et al., 2008) but also highlight the potential importance of adopting a complementarity perspective to leadership research in general. In contrast with the common

supplementarity approach, wherein the influence of leadership is often potentiated by followers' characteristics, the complementarity perspective offers a neglected insight into the function of leadership and its effectiveness. In addition to personal characteristics such as the PsyCap of followers, future research needs to examine whether work tasks and organizational context may also complement or supplement AL. Such contingency variables should be integrated into AL research (Avolio & Walumbwa, 2012; Klenke, 2005; Luthans & Avolio, 2003). Moreover, AL was originally conceptualized as being multilevel (Luthans & Avolio, 2003). Recently, PsyCap has been extended to the group/team (i.e., collective PsyCap, see Walumbwa et al., 2011) and organizational (i.e., organizational PsyCap, see McKenny, Short, & Payne, 2012) levels of analysis. Thus, future research needs to integrate AL with collective and organizational PsyCap to examine the meso, multilevel implications (Yammarino et al., 2008).

Another contribution is theoretically formulating and empirically examining the relational processes (i.e., LMX) as a mechanism that mediates the relationship between AL and follower performance. This study adds to our knowledge of the effectiveness of AL and supports the importance of adopting a relationship-based perspective in (authentic) leadership research (Graen & Uhl-Bien, 1995; Illies et al., 2005; Wang et al., 2005). In particular, the results show that the moderated relationship between AL and follower performance is due to AL contributing to LMX, and LMX being more related to performance for followers with low rather than high levels of PsyCap. This study uncovered a mechanism through which AL achieves complementarity with followers' needs in terms of positive psychological resources (i.e., PsyCap), and this in turn results in their performance. By formulating a mediated moderation model, this research accentuates the value of incorporating potential moderators and mediators into one theoretical framework in order to help disentangle the complexity and contribute to the better understanding of AL.

Finally, our findings provide further support for the classic substitutes for leadership. This well known, but under-researched, conceptualization of leadership posits that some of subordinate, task, and organizational characteristics can substitute for, or neutralize, leadership, thereby negating a leader's ability to influence subordinate effectiveness (Kerr & Jermier, 1978). For example, Bauer et al. (2006) found that for introverted managers, a high-LMX relationship seems essential for their successful performance, but extraverts' ability to seek social interaction, resources, and support make a high-LMX relationship unnecessary, suggesting extraversion as a substitute for leadership. According to recent analytical advances suggested for the substitutes for leadership model, five possible conditions should be tested to identify a substitute for leadership: (i) a leadership main effects model, (ii) a substitute main effect model, (iii) an interactive or joint effects model, (iv) a mediation model, wherein the substitutes mediate leadership impact versus moderate, and (v) the originally proposed moderated model (Dionne, Yammarino, Howell, & Villa, 2005). We conducted a supplemental analysis to test whether PsyCap meets these criteria. Results show that follower PsyCap could indeed be viewed as a substitute for AL (These results can be obtained from the lead author). This means that PsyCap makes AL and LMX significantly less impactful (i.e., serve as a leadership substitute) for followers' performance.

Limitations

Before getting into the practical implications of our findings, some possible limitations must be noted. First, we cannot substantiate causal conclusions with this study's cross-sectional data. A second potential limitation concerns common method bias. Although we obtained information about AL (from followers) and followers' performance (from leaders) from separate sources, data about AL and LMX are from the same source (i.e., followers), and this may contribute to the relatively high correlation between them. However, the CFA of the measurement models at least provides partial support for the distinctiveness of AL and LMX. To provide further evidence for the distinctiveness of AL and LMX, we entered AL into a regression model as predicting performance at the first step, and then entered LMX at the second step, looking for a significant change in the variance explained. We found that the change in R^2 after LMX was entered was significant ($F = 14.44$, $p < .01$), implying that

LMX explained additional variance in the dependent variable, beyond what AL explained. Nevertheless, future research could benefit from a longitudinal design and collecting data from multiple sources (e.g., peers or 360-degree feedback).

Another potential limitation is the use of followers' subjective performance ratings obtained from their immediate leaders. For example, Gerstner and Day (1997) reported meta-analytically derived average correlations of .31 between LMX and supervisory ratings of performance, and .11 between LMX and objective measures of employee performance. However, the recent meta-analysis of PsyCap (Avey et al., 2011) did not find a significant difference between supervisor evaluations of performance (.35) and objective performance (.27). Nevertheless, it is recommended for future studies to use objective performance- or other-source rated performance.

A final potential limitation concerns the generalizability of the findings. The sample is from one firm in China. The authenticity of leaders' conduct and decision making is rooted in and reinforced by the culture of this organization, which in turn is susceptible to the overall values of the societal and cultural context. Whether the participants in this study confer the same meaning on "authenticity" with their counterparts in other organizations or countries may impact the relationships found. Therefore, we caution making over-generalizations from our findings. Future research needs to be conducted in different organizational and societal cultures in order to cross-validate and help generalize the findings.

Practical implications

This study contributes to the integration of two important and interrelated recently emerging topics with recognized practical applications (i.e., AL and PsyCap). The current challenges facing organizational leaders and their followers revolving around competitive pressures and ethics point to the need for better understanding and application of AL (Avolio & Walumbwa, 2012; Avolio et al., 2004). In a similar vein, positive psychological resources are also particularly relevant to today's turbulent workplace in that they provide individuals, teams, and organizations with a largely unrecognized potential source of competitive advantage (Luthans & Youssef, 2007). Specifically, PsyCap not only has been repeatedly found to be related to desired attitudes, behaviors, and performance (see the recent meta-analysis by Avey, Avolio, & Luthans, 2011; Avey et al., 2011) but also has been empirically demonstrated to be malleable and statelike (Luthans, Avolio et al., 2007; Peterson et al., 2011). It is also open to development through short training interventions (including delivered online; Luthans, Avey, & Patera, 2008; Luthans et al., 2010) with causal impact on performance (Luthans et al., 2010).

As the results suggest that AL has a positive impact on follower performance, organizations may wish to develop their managers to be authentic leaders. As indicated, specific guidelines of AL development have been offered by Avolio and colleagues (e.g., Avolio, 2009; Avolio & Luthans, 2006; Avolio & Walumbwa, 2012). However, they suggest that not all followers are receptive to AL and the resultant exchange relationship to the same degree in terms of their implications for job performance. Our findings verify this observation by indicating that more leverage for performance improvement may be gained among followers with low levels of PsyCap.

According to our findings, it would be more impactful if authentic leaders expend more effort on developing followers with less positive PsyCap because they could achieve complementarity congruity leading to improved performance. In addition, low PsyCap followers, depending more on AL in order for them to perform well, could be targeted for development. This could also help alleviate the pressure for close, time-consuming attention from authentic leaders on high PsyCap followers. In other words, as was indicated, PsyCap may be an effective substitute for leadership. However, the complementarity between PsyCap development and AL development becomes a win–win for overall effective performance. The results also indicate that effective leaders express their authentic behaviors within a dynamic relational exchange context, that is, an effective AL style exerts its influence on follower performance through open communication and mutual exchange.

In conclusion, by combining leadership (both AL and LMX) and PsyCap, this study found the relationship between AL and followers' performance contingent on followers' PsyCap. In addition, the results of mediated

moderation analysis showed that AL is positively related to LMX, and consequently followers' performance, to a larger degree among followers who have low rather than high levels of PsyCap. These findings deepen our understanding on the complexities of AL and on how it can be more effectively implemented for followers' improved performance.

Acknowledgements

Author biographies

Hui Wang is a professor in the Guanghua School of Management, Peking University. He received his PhD from Hong Kong University of Science and Technology. His research interests include leadership behaviors, leader-member exchange, organizational culture, and other topics especially in the Chinese context.

Yang Sui is currently a post-doctoral fellow in the School of Economics and Management, Tsinghua University. She received her PhD in Management (specialization in Organizational Behavior) from the Guanghua School of Management, Peking University. Her research focuses on leadership, culture, innovation, and teams.

Fred Luthans is Distinguished Professor of Management, University of Nebraska. A former president of the Academy of Management and editor of three journals, his theory building and research has been devoted to positive psychological capital since he formatted the construct over a decade ago.

Danni Wang is a doctoral student of management at W. P. Carey School of Business, Arizona State University. Her research interests include leadership, teams, and turnover.

Yanghong Wu is a professor in the Department of Psychology, Peking University. She received her PhD from Peking University. Her research interests mainly focus on culture and self from a social cognition perspective.

References

Aiken, L. S., & West, S. G. (1996). *Multiple regression: Testing and interpreting interactions*. Newbury Park, CA: Sage.

Avey, J. B., Avolio, B. J., & Luthans, F. (2011). Experimentally analyzing the impact of leader positivity on follower positivity and performance. *The Leadership Quarterly*, *22*, 282–294.

Avey, J. B., Reichard, R. J., Luthans, F., & Mhatre, K. H. (2011). Meta-analysis of the impact of positive psychological capital on employee attitudes, behaviors, and performance. *Human Resource Development Quarterly*, *22*, 127–152.

Avolio, B. J., & Gardner, W. L. (2005). Authentic leadership development: Getting to the root of positive forms of leadership. *The Leadership Quarterly*, *16*, 315–338.

Avolio, B. J., & Luthans, F. (2006). *The high impact leader: Moments matter in accelerating authentic leadership development*. New York, NY: McGraw-Hill.

Avolio, B. J., & Walumbwa, F. O. (2012). Authentic leadership theory, research and practice: Steps taken and steps that remain. In D. V. Day (Ed.), *Oxford handbook of leadership and organizations*. New York, NY: Oxford University Press.

Avolio, B. J., Gardner, W. L., Walumbwa, F. O., Luthans, F., & May, D. R. (2004). Unlocking the mask: A look at the process by which authentic leaders impact follower attitudes and behaviors. *The Leadership Quarterly*, *15*, 801–823.

Bauer, T. N., Erdogan, B., Liden, R. C., & Wayne, S. J. (2006). A longitudinal study of the moderating role of extraversion: Leader–member exchange, performance, and turnover during new executive development. *Journal of Applied Psychology*, *91*, 298–310.

Blau, P. M. (1964). *Exchange and power in social life*. New York, NY: Academic Press.

Burke, R. J., & Cooper, C. L. (2006). *The human resources revolution*. Oxford: Elsevier.

Clapp-Smith, R., Vogelgesang, G. R., & Avey, J. B. (2009). Authentic leadership and positive psychological capital: The mediating role of trust at the group level of analysis. *Journal of Leadership and Organizational Studies*, *15*, 227–240.

Dasborough, M. T., & Ashkanasy, N. M. (2005). Follower emotional reactions to authentic and inauthentic leadership influence. In W. L. Gardner, B. J. Avolio, & F. Walumbwa (Eds.), *Authentic leadership theory and practice: Origins, effects and development* (pp. 281–300). Oxford: Elsevier Science.

Dionne, S. D., Yammarino, F. J., Howell, J. P., & Villa, J. (2005). Substitutes for leadership, or not. *The Leadership Quarterly*, *16*, 169–193.

Erdogan, B., & Enders, J. (2007). Support from the top: Supervisors' perceived organizational support as a moderator of leader-member exchange to satisfaction and performance relationships. *Journal of Applied Psychology*, *92*, 321–330.

Farh, J. L., & Cheng, B. S. (1997). Modesty bias in self-ratings in Taiwan: Impact of item wording, modesty value, and self-esteem. *Chinese Journal of Psychology*, *39*, 103–118.

Gardner, W. L., & Schermerhorn, J. R. (2004). Unleashing individual potential: Performance gains through positive organizational behavior and authentic leadership. *Organizational Dynamics*, *33*, 270–281.

Gardner, W. L., Avolio, B. J., Luthans, F., May, D. R., & Walumbwa, F. O. (2005). "Can you see the real me?" A self-based model of authentic leader and follower development. *The Leadership Quarterly*, *16*, 343–372.

George, B. (2003). *Authentic leadership: Rediscovering the secrets to creating lasting value*. San Francisco, CA: Jossey-Bass.

Gerstner, C. R., & Day, D. V. (1997). Meta-analytic review of leader–member exchange theory: Correlates and construct issues. *Journal of Applied Psychology*, *82*, 827–844.

Graen, G. B., & Scandura, T. A. (1987). Toward a psychology of dyadic organizing. *Research in Organizational Behavior*, *9*, 175–208.

Graen, G. B., & Uhl-Bien, M. (1995). Relationship-based approach to leadership: Development of leader–member exchange (LMX) theory of leadership over 25 years: Applying a multi-level multi-domain perspective. *The Leadership Quarterly*, *6*, 219–247.

Grant, M. A., Gino, F., & Hofmann, A. D. (2011). Reversing the extraverted leadership advantage: The role of employee proactivity. *Academy of Management Journal*, *54*, 528–550.

Howell, J. M., & Hall-Merenda, K. E. (1999). The ties that bind: The impact of leader–member exchange, transformational leadership and transactional leadership, and distance on predicting follower performance. *Journal of Applied Psychology*, *84*, 680–694.

Ilies, R., Nahrgang, J. D., & Morgeson, F. P. (2007). Leader–member exchange and citizenship behaviors: A meta-analysis. *Journal of Applied Psychology*, *92*, 269–277.

Ilies, R., Morgeson, F. P., & Nahrgang, J. D. (2005). Authentic leadership and eudaemonic well being: Understanding leader–follower outcomes. *The Leadership Quarterly*, *16*, 373–394.

Kernis, M. H. (2003). Toward a conceptualization of optimal self-esteem. *Psychological Inquiry*, *14*, 1–26.

Kerr, S., & Jermier, J. M. (1978). Substitutes for leadership: Their meaning and measurement. *Organizational Behavior and Human Performance*, *22*, 375–403.

Kiesler, D. J. (1983). The 1982 interpersonal circle: A taxonomy for complementarity in human transactions. *Psychological Review*, *90*, 185–214.

Klenke, K. (2005). The internal theater of authentic leader: Integrating cognitive, affective, conative and spiritual facets of authentic leadership. In W. L. Gardner, B. J. Avolio, & F. O. Walumbwa (Eds.), *Authentic leadership theory and practice: Origins, effects and development* (pp. 55–183). Oxford: Elsevier Science.

Kraimer, M. L., Wayne, S. J., & Jaworski, R. A. (2001). Sources of support and expatriate performance: The mediating role of expatriate adjustment. *Personnel Psychology*, *54*, 71–100.

Law, S. K., Wang, H., & Hui, C. (2010). Currencies of exchange and global LMX: How they affect employee task performance and extra-role performance. *Asia Pacific Journal of Management*, *27*, 625–646.

Liden, R. C., & Maslyn, J. M. (1998). Multi-dimensionality of leader–member exchange: An empirical assessment through scale development. *Journal of Management*, *24*, 43–72.

Liden, R. C., Sparrowe, R. T., & Wayne, S. J. (1997). Leader–member exchange theory: The past and potential for the future. *Research in Personnel and Human Resources Management*, *15*, 47–119.

Lord, R. G., & Brown, D. J. (2004). *Leadership processes and follower self-identity*. Mahwah, NJ: Erlbaum.

Luthans, F. (2002). The need for and meaning of positive organizational behavior. *Journal of Organizational Behavior*, *23*, 695–706.

Luthans, F., Avey, J. B., Clapp-Smith, R. C., & Li, W. (2008). More evidence on the value of Chinese workers' psychological capital: A potentially unlimited competitive resource? *International Journal of Human Resource Management*, *19*, 818–827.

Luthans, F., Avey, J. B., & Patera, J. (2008). Experimental analysis of a Web-based intervention to develop positive psychological capital. *The Academy of Management Learning and Education*, *7*, 209–221.

Luthans, F., & Avolio, B. J. (2003). Authentic leadership development. In K. S. Cameron, J. E. Dutton, & R. E. Quinn (Eds.), *Positive organizational scholarship* (pp. 241–258). San Francisco, CA: Berrett-Koehler.

Luthans, F., & Avolio, B. J. (2009). The point of positive organizational behavior. *Journal of Organizational Behavior*, *30*, 291–307.

Luthans, F., & Youssef, C. M. (2004). Human, social, and now positive psychological capital management: Investing in people for competitive advantage. *Organizational Dynamics*, *33*, 143–160.

Luthans, F., & Youssef, C. M. (2007). Emerging positive organizational behavior. *Journal of Management*, *33*, 321–349.

Luthans, F., Avey, J. B., Avolio, B. J., & Peterson, S. J. (2010). The development and resulting performance impact of positive psychological capital. *Human Resource Development Quarterly*, *21*, 41–67.

Luthans, F., Avolio, B. J., Avey, J. B., & Norman, S. M. (2007). Psychological capital: Measurement and relationship with performance and satisfaction. *Personnel Psychology*, *60*, 541–572.

Luthans, F., Youssef, C. M., & Avolio, B. J. (2007). *Psychological capital*. Oxford: Oxford University Press.

McKenny, A. F., Short, J. C., & Payne, G. T. (2012). Using computer-aided text analysis to elevate constructs: An illustration using psychological capital. *Organizational Research Methods*. doi: 10.1177/1094428112459910

MacKinnon, D. P., Lockwood, C. M., Hoffman, J. M., West, S. G., & Sheets, V. (2002). A comparison of methods to test mediation and other intervening variable effects. *Psychological Methods*, *7*, 83–104.

MacKinnon, D. P., Lockwood, C. M., & Williams, J. (2004). Confidence limits for the indirect effect: Distribution of the product and resampling methods. *Multivariate Behavioral Research*, *39*, 99–128.

Muller, D., Judd, C. M., & Yzerbyt, V. Y. (2005). When moderation is mediated and mediation is moderated. *Journal of Personality and Social Psychology*, *89*, 852–863.

Norman, S. M., Avolio, B. J., & Luthans, F. (2010). The impact of positivity and transparency on trust in leaders and their perceived effectiveness. *The Leadership Quarterly*, *21*, 350–364.

Ozer, M. (2008). Personal and task-related moderators of leader-member exchange among software developers. *Journal of Applied Psychology*, *93*, 1174.

Parker, S. (1998). Enhancing role breadth self-efficacy: The roles of job enrichment and other organizational interventions. *Journal of Applied Psychology*, *6*, 835–852.

Peterson, S. J., Luthans, F., Avolio, B. J., Walumbwa, F. O., & Zheng, Z. (2011). Psychological capital and employee performance: A latent growth modeling approach. *Personnel Psychology*, *64*, 427–450.

Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods*, *40*, 879–891.

Preacher, K. J., Rucker, D. D., & Hayes, A. F. (2007). Addressing moderated mediation hypotheses: Theory, methods, and prescriptions. *Multivariate Behavioral Research*, *42*, 185–227.

Scheier, M., & Carver, C. (1985). Optimism, coping, and health: Assessment and implications of generalized outcome expectancies. *Health Psychology*, *4*, 219–247.

Snyder, C. R., Sympson, S. C., Ybasco, F. C., Borders, T. F., Babyak, M. A., & Higgins, R. L. (1996). Development and validation of the state hope scale. *Journal of Personality and Social Psychology*, *70*, 321–335.

Sparrowe, R. T., & Liden, R. C. (2005). Two routes to influence: Integrating leader-member exchange and social network perspectives. *Administrative Science Quarterly*, *50*, 505–535.

Story, J. S., Youssef, C. M., Luthans, F., Barbuto, J. E., & Bovaird, J. (in press). Contagion effect of global leaders' positive psychological capital on followers. *International Journal of Human Resource Management*.

Van der Vegt, G. S., Van de Vliert, E., & Oosterhof, A. (2003). Informational dissimilarity and organizational citizenship behavior: The role of intra-team interdependence and team identification. *Academy of Management Journal*, *46*, 715–727.

Wagnild, G., & Young, H. (1993). Development and psychometric evaluation of the resiliency scale. *Journal of Nursing Measurement*, *1*, 165–178.

Walumbwa, F. O., Avolio, B. J., Gardner, W. L., Wernsing, T. S., & Peterson, S. J. (2008). Authentic leadership: Development and validation of a theory-based measure. *Journal of Management*, *34*, 89–126.

Walumbwa, F., Luthans, F., Avey, J. B., & Oke, A. (2011). Authentically leading groups: The mediating role of collective psychological capital and trust. *Journal of Organizational Behavior*, *32*, 4–24.

Walumbwa, F., Wang, P., Wang, H., Schaubroeck, J., & Avolio, B. (2010). Psychological processes linking authentic leadership to follower behaviors. *The Leadership Quarterly*, *21*, 901–914.

Wang, H., Law, K. S., Hackett, R. D., Wang, D., & Chen, Z. X. (2005). Leader–member exchange as a mediator of the relationship between transformational leadership and followers' performance and organizational citizenship behavior. *Academy of Management Journal*, *48*, 420–432.

Woolley, L., Caza, A., & Levy, L. (2011). Authentic leadership and follower development: Psychological capital, positive work climate, and gender. *Journal of Leadership and Organizational Studies*, *18*, 438–448.

Yammarino, F. J., Dionne, S. D., Schriesheim, C. A., & Dansereau, F. (2008). Authentic leadership and positive organizational behavior: A meso, multi-level perspective. *The Leadership Quarterly*, *19*, 693–707.

Yukl, G. (2002). *Leadership in organizations* (5th ed.). Upper Saddle River, NJ: Prentice-Hall.