

ON INSTRUMENTAL LEADERSHIP:
BEYOND TRANSACTIONS AND TRANSFORMATIONS

John Antonakis¹

Faculty of Economics and Business Administration

University of Lausanne

Robert J. House

The Wharton School of Management

University of Pennsylvania

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¹Corresponding author:
Faculty of Economics and Business Administration
University of Lausanne, BFSH-1
Lausanne, CH-1015
Switzerland
Tel: ++41 21 692-3452 or 692-3300
e-mail: john.antonakis@hec.unil.ch

ABSTRACT

We extend the full-range leadership model by adding “instrumental leadership.” We suggest that instrumental leadership represents the strategic and follower work-facilitation functions essential for sustainable organizational and follower performance. This highly proactive class of leadership is predicated neither on ideals or emotional appeals (i.e., transformational leadership) nor on quid pro quo approaches (i.e., transactional leadership). Instrumental leadership is authentic to the extent that it is vital for sustainable organizational performance and might actually help foster the transformational effect. Results of a confirmatory factor analysis show that instrumental leadership can be measured reliably. Furthermore, instrumental leadership explains unique variance in an effectiveness measure beyond the variance accounted for by transformational and transactional leadership (measured by the Multifactor Leadership Questionnaire). Finally, we demonstrate that the five factor personality model (measured by the NEO PI) can explain variance in the “extended” full-range leadership theory.

INTRODUCTION

Current notions of leadership—in particular, transformational leadership perspectives (see Hunt, 1999; Lowe & Gardner, 2000)—fail to address the strategic and task-oriented developmental functions of leaders (referred to as "instrumental leadership" by Antonakis and House, 2002; see also Yukl, 1999). Theoretically, these instrumental leader functions are essential for ensuring sustainable organizational and follower performance. Instrumental leadership is not included in transformational leadership theories (e.g., the full-range leadership theory, Avolio, 1999; Avolio & Bass, 1991; Bass, 1985; Bass & Avolio, 1994, 1997), an omission that might limit (a) the extent to which the full-range theory is able to predict effective leader functioning and (b) our understanding of the contexts in which different types of leadership are important.

Luthans and Avolio (2003) noted that transformational leadership must be authentic to ensure sustainable organizational performance. They suggested that leaders create an aura of confidence and optimism in their collectives, unleashing the positive psychological forces in individuals to ensure veritable organizational performance. We agree with this perspective as well as with the viewpoint that leadership must be morally based, an idea central to current definitions of authentic leadership (Antonakis, Cianciolo, & Sternberg, 2004; Bass, 1998; Luthans & Avolio, 2003). Extending these ideas, we believe that effective leaders, apart from being authentic transformational leaders, must also exhibit instrumental leadership. We believe that authentic leaders are confident and optimistic and that they transmit these states to others because they have the necessary knowledge and domain-relevant expertise concerning (a) the direction the organization takes and (b) how to maximize follower performance independent of moral or positive psychological appeals.

Our objectives are thus to broaden current thinking regarding authentic leadership by attempting to answer the following two questions: (a) Are the dimensions of instrumental leadership measurable? (b) Do the dimensions of instrumental leadership predict outcome measures beyond transformational, transactional, and laissez-faire leadership as measured by the Multifactor Leadership Questionnaire (MLQ 5X)? (See Appendix A for the scale descriptors constituting the theory.) Finally, given the current interest and encouraging findings regarding trait perspectives of leadership (see Zaccaro, Kemp, & Bader, 2004), we also sought to answer the following: (c) Can we predict the extended full-range leadership model using a personality inventory (i.e., the NEO-PI five-factor model; see Costa & McCrae, 1992)?

THEORETICAL BACKGROUND

Following the review and theoretically derived integration of transformational leader approaches recently undertaken by Antonakis and House (2002), we define instrumental leadership as a class of leader behaviors concerning the enactment of leader expert knowledge toward the fulfillment of organizational-level and follower task performance (see also Nadler & Tushman, 1990).

Instrumental leadership is distinct from transformational (i.e., ideals, inspirationally based, etc.) and transactional (i.e., exchange-based) leadership and encompasses two subclasses of leader behaviors. Each of these subclasses, in turn, consists of two factors (see Appendix B for example items): (a) *strategic leadership*—leader actions centered on environmental scanning and strategy formulation and (b) *follower work facilitation*—leader actions focused on facilitating follower performance.

Strategic leadership: Having knowledge of the deficiencies and opportunities of the external environment and the organizational system is an essential element of leadership (see Katz & Kahn, 1978; Zaccaro, 2001). Strategic leadership can be conceptualized in terms of two distinct factors evident in the theories reviewed by Antonakis and House (2002): (a) environmental monitoring, as

articulated by Conger and Kanungo (1998) and by House and Shamir (1993) and (b) strategy formulation and implementation, as proposed by Sashkin (1988) and by Westley and Mintzberg (1988). Theoretically, strategic leadership directly influences and enhances organizational effectiveness. Strategic leadership might also facilitate the charismatic effect, because the identification of a deficiency in the status quo and the articulation of a vision that can project a better future is a function of a leader's ability to use strategic leadership skills.

Follower Work Facilitation: Following Bowers and Seashore (1966), we view follower work facilitation as the type of leadership that facilitates follower performance directly. Work facilitation includes elements of path-goal theory (House, 1971)—not addressed in contingent reward leadership (although Bass, 1985, suggested otherwise)—and an active-constructive outcome monitoring form of leadership (Antonakis & House, 2002). This class of leader behaviors includes both path-goal facilitation and outcome monitoring. Follower work facilitation leadership entails monitoring performance outcomes and providing feedback that is instrumental for goal attainment, compensating for followers' abilities and environmental conditions to ensure that followers reach their goals, and increasing the probability that follower valences are maximized. Leadership behavior that facilitates followers in these ways enhances followers' self-efficacy and motivation (cf. Bandura, 1977).

We hypothesize that the instrumental leader factors will correlate positively with the active/constructive factors and negatively with the passive/reactive factors of the full-range model. We also hypothesize that adding the instrumental leader factors will increase the predictive power of the full-range model beyond that obtained with its current factors.

Finally, following recent evidence regarding the relation between personality and leadership (see Bono & Judge, in press; Judge, Bono, Ilies, & Gerhardt, 2002), we hypothesize that

extraversion and openness, as measured by the NEO-PI, will be positively related to the transformational and instrumental scales and to contingent reward leadership, and that they will be negatively related to the passive-avoidant scales. Furthermore, given the fact that we used business samples, agreeableness should in general be unrelated to transformational and instrumental scales and to contingent reward leadership, and negatively related to the passive-avoidant scales.

Neuroticism should be negatively related to the transformational and instrumental scales and to contingent reward leadership.

METHOD

We developed 16 manifest indicators of the instrumental leader factors, which we pilot-tested with 22 students from an English-speaking international MBA class at a Swiss public university. Next, we asked a set of followers and peers ($n = 349$) to rate their respective leader ($n = 52$, who participated in a leader development workshop delivered by the first author). The leaders and their raters were employed in diverse multinational and domestic European business organizations. These data were used to determine the psychometric properties of the four instrumental leader scales and were analyzed at the individual level.

Next, 33 low- to mid-level leaders (nested in the above sample of 52) provided self-ratings of their personality using the NEO-PI. These 33 were leaders working in the insurance, banking, or financial planning industries in various European countries (predominantly the United Kingdom). The majority (83%) of the participants were male, and the average age of the participants was 36.88 ($SD = 6.48$). The subordinates and/or peers ($n = 197$) of these 33 leaders rated their leaders' respective leadership styles using the instrumental leader-extended version of the MLQ (5X) (Bass & Avolio, 1995). We also obtained data on an outcome measure of effectiveness included in the MLQ (5X) (refer to Antonakis, Avolio, and Sivasubramaniam, 2003, for a recent validation study

on the MLQ). On average, each leader was evaluated by almost 6 raters. To guarantee anonymity, demographic information were not recorded on any of the rater questionnaire measures, as requested by the participating organizations.

RESULTS

The decision to analyze the data ($n = 349$) at the individual level was justified, as indicated by a WABA analysis (Dansereau, Alutto, & Yammarino, 1984).¹ Next, we used confirmatory factor analysis (CFA) (see Bollen, 1989) to provide a strong test of the implied model we specified (i.e., the four indicators of the respective instrumental factors were constrained to load only on their respective factors). Results indicated that the implied model fit the data satisfactorily according to indices of approximate fit, although not exactly according to the chi-square statistic: $\chi^2(df = 98, n = 349) = 165.81, p < .01; \chi^2/df = 1.69; CFI = .96; RMSEA = .05$ (90% CI .03 to .06). All λ 's were significant, and the mean standardized λ was .66. The λ of one item (item 3 in Appendix B) was below .40 (i.e., .31), suggesting that this item needs refinement. The means, standard deviations, alpha reliability coefficients, and interfactor correlations of the factors are presented in Table 1.

[Insert Table 1 about here]

To determine whether the factors discriminated sufficiently from each other, six nested structural equation model comparisons were undertaken. Each correlation between the latent factors was constrained to unity, and the fit of the constrained model then was compared to the baseline (i.e., unconstrained) model. Results indicated that in each case, the constrained model was significantly worse fitting than the baseline model.² These results provide empirical evidence for the discriminant validity of the factors. In all, the tests undertaken using the first sample indicated that the scales are psychometrically promising and can be tentatively used for further study.

Next, the follower/peer data gathered on the 33 leaders were examined to determine whether aggregation to the group level of analysis was justified. Because the leader samples were drawn from very homogenous environmental sets (resulting in range restriction), we did not expect to observe significant between-group variation, in contrast to the larger sample of 52 leaders that was less homogenous, thus justifying the use of WABA (cf. Schriesheim, 1995). We therefore opted to use James, Demaree, and Wolf's (1984) $r_{wg(j)}$ index of rater agreement to justify aggregation (see George & James, 1993; Schriesheim, 1995). We adopted the recommendations of Lindell and Brandt (1999, 2000; see also Lindell, Brandt, & Whitney, 1999) and assumed a maximum variance distribution (with a Spearman-Brown correction). The results indicated that the average $r_{wg(j)}$ index was .93 across scales. The $r_{wg(j)}$ results were further supported by adequate ICC(1) (average .14) and ICC(2) (average .45) results (11 F tests were significant, 1 was marginally significant, and 2 were nonsignificant). The ICC results were marginal but acceptable considering the expected similarity between groups (Bliese, 2000).

The means, standard deviations, and interfactor correlations of the aggregated MLQ (5X) and instrumental leader scales are reported in Table 2. Because of the small sample size, we report significance levels at $p < .10$ for this and other analyses.

[Insert Table 2 about here]

As expected, we found significant and positive correlations between the instrumental and active/constructive leader scales (i.e., transformational, contingent reward, and management-by-exception active leadership) and the outcome measure of effectiveness. Furthermore, we generally found significant negative correlations between the instrumental and passive/reactive leader scales (i.e., management-by-exception passive and laissez-faire leadership); however, 4 of the 12

correlations were not significant. The signs of the relations were in the hypothesized directions, and the nonsignificant results probably were due to the small sample size.

We estimated a series of hierarchical regression models to determine whether the instrumental leader scales added incremental variation beyond the MLQ (5X) scales in predicting the effectiveness measure. Because of the high interfactor relations among the scales, which would result in unstable estimates if all factors were used simultaneously, we first estimated a parsimonious model by aggregating theoretically similar factors into item parcels (i.e., indexes). This five-factor model was entered in the regression equation in the following order: (a) passive-avoidant leadership (i.e., the mean of laissez-faire and management-by-exception passive leadership; alpha reliability = .85), (b) management-by-exception active, (c) contingent-reward leadership, (d) transformational leadership (i.e., the mean of the transformational leadership scales; alpha reliability .91), and (e) instrumental leadership (i.e., the mean of the instrumental leadership scales; alpha reliability .90). The order of entry into the regression was theoretically justifiable in that the least active forms of leadership were entered first, followed by the active forms and then transformational leadership. Instrumental leadership was added last because its utility as a factor can be determined only if it is shown to predict unique variance in effectiveness beyond the variance predicted by the established scales.

The results indicated that in the final step, the regression model was significant, $F(5, 26; \underline{n} = 32) = 10.63, p < .001$, explaining 61% (adjusted R^2) of the variance in the effectiveness scale. Importantly, instrumental leadership added a significant percentage (F change $p < .05$) of variance in the final step (i.e., .06).

We then compared each instrumental scale with the MLQ (5X) scales to determine the incremental validity of the instrumental scales. In each regression model, the established MLQ (5X)

scales were added first in the regression equation, followed by each of the instrumental scales. We also tested the instrumental scales against each other. The results of these regression models are reported in Table 3.

[Insert Table 3 about here]

The results in Table 3 suggest that the instrumental factors generally predicted significant and unique variance in the effectiveness scale beyond the variance predicted by the respective MLQ (5X) factors. In most cases, the additional variance predicted was substantial. Furthermore, the instrumental scales generally augmented each other. Thus, there is evidence that the instrumental scales are not redundant and are useful in predicting outcome measures beyond transformational, transactional, and laissez-faire leadership.

Finally, we estimated a series of regression models using the NEO-PI factors as predictors and the leadership factors and the effectiveness outcome as dependent variables ($n = 30$ leaders validly completed NEO-PI questionnaires; see Table 4 for the NEO-PI/extended MLQ interfactor correlations). The results in Table 4 suggest that the NEO-PI five-factor model can be useful in predicting certain factors of the extended full-range theory, in particular the item parcels (i.e., the instrumental, transformational, and passive-avoidant indexes).

[Insert Tables 4 and 5 about here]

The results, though, were surprising in that the neuroticism scale was a consistent *positive* predictor of the active-developmental leader measures. Extraversion was generally a significant positive predictor of these measures. The results concerning openness were in the expected directions but generally nonsignificant (probably because of the small sample size). As expected, agreeableness played an important role as a negative predictor of passive-avoidant leadership;

however, it was unrelated to active/constructive forms of leadership. Conscientiousness was significantly predictive of the effectiveness measure only.

DISCUSSION

The results of this study imply that there is more to leadership than that which is measured by the current version of the MLQ (5X). Our evidence suggests that instrumental leadership can be measured reliably and that it goes beyond current conceptions of transformational and transactional leadership. Theoretical arguments alluding to our findings have been made in the extant literature; however, to our knowledge, our study is the first to demonstrate that extending the full-range model with instrumental leadership might be a fruitful endeavor.

We thus encourage researchers to measure instrumental leadership and to determine the contexts in which the respective factors constituting the extended full-range theory are required for sustainable organizational performance. Waldman, Ramirez, House, and Puranam (2001) noted, for example, that charismatic leadership might actually be unnecessary in times of organizational stability. Furthermore, if situations are not conducive to making appeals to followers' ideals, it is likely that elements of charismatic/transformational leadership might not emerge or may be ineffective (cf. Antonakis & House, 2002). In such situations, instrumental and active-constructive transactional leadership might continue to be related to effectiveness. Furthermore, we speculate that in the absence of instrumental leadership by the CEO or at least the top management team, transformational leadership might even be detrimental to organizational performance (i.e., the perennial cases of influential charismatic leaders leading their organizations up the garden path).

Our results also suggest that the five-factor model of personality (NEO-PI) could be useful in predicting leader behaviors and effectiveness, which has important implications for leader selection. The results indicated that a similar profile of traits predicted the instrumental and

transformational leader factors (i.e., generally high neuroticism and extraversion). Furthermore, the results indicate that individuals high on openness and agreeableness are less likely to be passive-avoidant leaders.

Our findings diverged with the extant literature primarily due to the surprising results concerning neuroticism. A possible explanation is that previous literature did not fully examine the relationships between the NEO-PI and the MLQ (5X) per se. For example, the study by Bono and Judge (in press) integrated factors using the “big five” personality framework and did not rely exclusively on studies that used the NEO-PI. Furthermore, those authors did not rely exclusively on studies that used the MLQ and used scales from other leadership models (e.g., LPI of Kouzes and Posner, 1987). Thus, it is possible that certain facets of neuroticism (e.g., anger-hostility—the results in our case) correlate positively with effectiveness (cf. Tiedens, 2001, in which anger was associated with leadership status; Izard, 1993, who argues that anger is a potent motivation force useful for leadership functions). Whether anger would be effective could depend on whether it is authentically and positively enacted and directed (i.e., anger directed at changing the status quo instead of anger directed at followers for making mistakes). This assertion warrants further investigation. Also, the differential relations between the personality facets and leadership factors must be determined using large samples.

Our findings have important implications for leadership development and selection. An obvious implication is that development efforts need to be centered on the growth of domain-specific expertise (see Cianciolo, Antonakis, & Sternberg, 2004). Thus, providing learning experiences for leaders to develop rich causal schemata and condition-action frameworks (i.e., tacit knowledge) regarding leader functions seems to be an essential and possibly overlooked element of leader development. Current leader programs seem to place a strong emphasis on the “human side

of enterprise,” ignoring task and organizational functions essential for organizational effectiveness. This type of leader expertise might require substantial time to develop and is mostly experientially based (e.g., in the absence of guided experiential learning, how do we teach a leader to better monitor the external and internal environment or to provide domain-relevant expertise to followers regarding task outcomes?). Finally, our results suggest that the NEO-PI could be a promising leader selection tool. Research efforts should further explore personality and other individual-difference antecedents of leadership, which are currently enjoying a renaissance (Lowe & Gardner, 2000).

LIMITATIONS

Two limitations should temper the conclusions drawn from this study. First, the leader measures and outcomes were gathered from the same source at the same time, which probably inflated the resulting correlations between the variables. Although this limitation is important, all the scales “benefited” equally from common-methods variance, which suggests that the incremental validity tests were unaffected. Future research should avoid this potential problem by gathering outcomes at different times, by using objective dependent outcomes, or by using longitudinal data. The second limitation is the small sample size and homogeneity of the sample, which limit the generalizability of our findings.

NOTES

¹The average eta ratio for the scales was .61, $F(297, 51) = .45$, n/s (similar results were evident in all scales), suggesting that individual differences accounted for the responses.

²The baseline model, $\chi^2(df = 98) = 165.81$ was compared to the models where the correlations were constrained as follows: (a) Environmental Monitoring and Strategy Formulation were constrained to unity, resulting in $\chi^2(df = 99) = 197.57$ ($\Delta\chi^2 = 31.78$, $\Delta df = 1$, $p < .001$); (b) Environmental Monitoring and Path-Goal Facilitation were constrained to unity, resulting in $\chi^2(df = 99) = 208.99$ ($\Delta\chi^2 = 43.18$, $\Delta df = 1$, $p < .001$); (c) Environmental Monitoring and Outcome Monitoring were constrained to unity, resulting in $\chi^2(df = 99) = 264.70$ ($\Delta\chi^2 = 98.89$, $\Delta df = 1$, $p < .001$); (d) Strategy Formulation and Path-Goal Facilitation were constrained to unity, resulting in $\chi^2(df = 99) = 252.46$ ($\Delta\chi^2 = 86.65$, $\Delta df = 1$, $p < .001$); (e) Strategy Formulation and Outcome Monitoring were constrained to unity, resulting in $\chi^2(df = 99) = 332.61$ ($\Delta\chi^2 = 166.80$, $\Delta df = 1$, $p < .001$); and finally, (f) Path-Goal Facilitation and Outcome Monitoring were constrained to unity, resulting in a $\chi^2(df = 99) = 249.36$ ($\Delta\chi^2 = 83.55$, $\Delta df = 1$, $p < .001$).

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TABLE 1

Means, Standard Deviations, Reliability Coefficients, and Interfactor Correlations of Instrumental Leader Scales

<i>Factor</i>	<i>Mean</i>	<i>SD</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>
1. Environmental monitoring	2.96	.58	.65			
2. Strategy formulation	2.84	.65	.54	.68		
3. Outcome monitoring	2.45	.81	.42	.34	.81	
4. Path-goal facilitation	2.55	.79	.54	.51	.66	.83

Note. Cronbach alpha reliability coefficients are reported on the diagonal (bolded). All correlations between factors significant at $p < .001$; $n = 349$.

TABLE 2

Means, Standard Deviations, and Interfactor Correlations of MLQ and Instrumental Leader Scales

	<i>Mean</i>	<i>SD</i>	<i>IIA</i>	<i>IIB</i>	<i>IM</i>	<i>IS</i>	<i>IC</i>	<i>EM</i>	<i>SF</i>	<i>PG</i>	<i>OM</i>	<i>CR</i>	<i>MBA</i>	<i>MBP</i>	<i>LF</i>	<i>EFF</i>
1. IIA	2.87	0.43	.80													
2. IIB	2.72	0.36	.73**	.65												
3. IM	2.82	0.37	.67**	.60**	.78											
4. IS	2.82	0.34	.76**	.64**	.67**	.86										
5. IC	2.72	0.29	.56**	.45**	.25	.54**	.74¹									
6. EM	3.00	0.30	.71**	.59**	.70**	.81**	.33‡	.70								
7. SF	2.82	0.33	.75**	.68**	.63**	.68**	.38*	.75**	.74							
8. PG	2.57	0.40	.60**	.59**	.54**	.54**	.40*	.38*	.59**	.80						
9. OM	2.42	0.41	.67**	.62**	.67**	.61**	.62**	.43**	.52**	.64**	.84					
10. CR	2.85	0.27	.53**	.48*	.28**	.21‡	.42*	.32‡	.53**	.43*	.42*	.71¹				
11. MBA	2.16	0.46	.36*	.50**	.46**	.28	.17	.27	.34‡	.52**	.63**	.07	.80			
12. MBP	1.11	0.47	-.43*	-.36*	-.19	-.34‡	-.08	-.34*	-.25	-.15	-.09	-.38‡	.08	.81		
13. LF	0.73	0.42	-.58**	-.43*	-.38*	-.34‡	-.18	-.39*	-.51**	-.55**	.27	-.60**	-.22	.62**	.72	
14. EFF	2.90	0.37	.58**	.55**	.58**	.58**	.44**	.57**	.70**	.60**	.59**	.53*	.36*	-.18	-.50**	.82

Note. Alpha reliabilities are reported on the diagonal. IIA = attributed idealized influence; IIB = behavioral idealized influence; IM = inspirational motivation; IS = intellectual stimulation; IC = individualized consideration; EM = environmental monitoring; SF = strategy formulation; PG = path-goal facilitation; OM = outcome monitoring; CR = contingent rewards; MBA = active management-by-exception; MBP = passive management-by-exception; LF = laissez-faire leadership; EFF = effectiveness. $N = 33$. ‡ $p < .10$; * $p < .05$; ** $p < .01$.

¹Two items that exhibited low item-total correlations, thus reducing the alpha reliability coefficient, were deleted from the scale. The resulting alpha for the scale was corrected with the Spearman-Brown prophecy formula. The very small sample size used ($n < 400$) could result in imprecise estimates of the alpha reliability (see Charter, 2003); thus, the reliabilities reported should not be considered indicative of the true reliabilities of the scales.

TABLE 3
Incremental Regression Tests

<i>First Factor¹</i>	<i>Environmental Monitoring</i>				<i>Strategy Formulation</i>				<i>Outcome Monitoring</i>				<i>Path-Goal Facilitation</i>			
	R ^{2A}	ΔR ^{2B}	β _a	β _{IL}	R ^{2A}	ΔR ^{2B}	β _a	β _{IL}	R ^{2A}	ΔR ^{2B}	β _a	β _{IL}	R ^{2A}	ΔR ^{2B}	β _a	β _{IL}
IIA	.34**	.05	.36‡	.31	.34**	.17**	.13	.61**	.34**	.07‡	.34‡	.36‡	.34**	.10*	.34‡	.39*
IIB	.30**	.09*	.33‡	.37*	.30**	.20**	.13	.61**	.30**	.10*	.30	.40*	.30**	.12*	.30‡	.42*
IM	.33**	.05	.35	.32	.33**	.19**	.23	.56**	.33**	.08‡	.33‡	.37‡	.33**	.12*	.36*	.41*
IS	.34**	.03	.36	.28	.34**	.18**	.19	.57**	.34**	.09*	.36*	.37*	.34**	.11**	.36*	.40*
IC	.24**	.14*	.28‡	.43*	.24*	.32**	.27*	.61**	.24*	.16*	.26	.46**	.24*	.21**	.32*	.49**
CR	.49*	.06*	.55**	.29*	.49*	.11**	.42*	.43**	.49*	.05‡	.54**	.27‡	.49*	.06*	.53**	.30*
MBA	.13*	.24**	.22	.51**	.13*	.38**	.13	.66**	.13*	.22**	-.02	.60**	.13*	.23**	-.06	.57**
MBP	.03	.29**	.02	.57**	.03	.46**	-.01	.70**	.03	.33**	-.13	.58**	.03	.34**	-.09	.59**
LF	.25**	.17**	-.32*	.44**	.25**	.28**	-.19	.61**	.25**	.23**	-.37*	.49**	.25**	.15**	-.24	.47**
EM	-	-	-	-	.32**	.18**	.09	.64**	.32**	.15*	.39*	.42*	.32**	.17**	.40**	.45**
SF	.50**	.00	.6**	.09	-	-	-	-	.50**	.07*	.55**	.31*	.50**	.05‡	.54**	.29‡
OM	.35**	.12**	.42**	.39*	.35**	.22**	.31*	.55**	-	-	-	-	.35**	.08*	.35‡	.38*
PG	.36**	.13**	.45**	.40**	.36**	.19**	.29‡	.54**	.36**	.07‡	.38*	.35‡	-	-	-	-

Note: R^{2A} = percentage of variance (unadjusted) accounted for in the first step (i.e., the introduction of the respective MLQ factor or instrumental factor); ΔR^{2B} = change in the percentage of variance (unadjusted) accounted for in effectiveness due to the introduction of the respective instrumental leader factor in the second step; β_a = standardized beta coefficient of first column factor in the second step; β_{IL} = standardized beta coefficient of respective instrumental leader factor in the second step. IIA = attributed idealized influence; IIB = behavioral idealized influence; IM = inspirational motivation; IS = intellectual stimulation; IC = individualized consideration; EM = environmental monitoring; SF = strategy formulation; PG = path-goal facilitation; OM = outcome monitoring; CR = contingent rewards; MBA = active management-by-exception; MBP = passive management-by-exception; LF = laissez-faire leadership. ‡*p* < .10; **p* < .05; ***p* < .01. *n* = 33.

¹ The factors in this column were entered first in the regression equation and the corresponding factors in the following columns were entered second.

TABLE 4

Correlations Between NEO-PI Personality Factors and Extended Full-Range Leadership Model Factors

<i>Factor</i>	<i>Neuroticism</i>	<i>Extraversion</i>	<i>Openness</i>	<i>Agreeable- ness</i>	<i>Conscientious- ness</i>		
Idealized influence (behav.)	.12	.40*	.43*	-.15	.02		
Idealized influence (attrib.)	-.02	.43**	.43*	-.05	.01		
Inspirational motivation	.16	.41*	.32‡	-.13	.04		
Intellectual stimulation	.24	.18	.40*	-.21	-.13		
Individualized consideration	.02	.06	.33‡	-.15	-.06		
Environmental monitoring	.29	.23	.39*	-.05	-.14		
Strategy formulation	.25	.27	.32‡	-.10	-.06		
Path-goal facilitation	-.03	.33‡	.21	.12	.18		
Outcome monitoring	.18	.22	.34‡	-.16	.03		
Contingent rewards	-.13	.21	.32‡	-.05	.13		
Management-by-exc. (active)	.21	.23	.11	.12	.04		
Management-by-exc. (passive)	.01	-.15	-.45*	-.24	.10		
Laissez-faire leadership	.19	-.26	-.39*	-.25	-.09		
Instrumental leadership	.20	.32‡	.37*	-.04	.02		
Transformational leadership	.10	.40*	.43*	-.15	.02		
Passive-avoidant leadership	.11	-.22	-.46**	-.27	.01		
Effectiveness	.14	.10	.16	.12	.28		
NEO-PI Interfactor Correlations							
	<i>Mean</i>	<i>SD</i>	<i>Neuroticism</i>	<i>Extraversion</i>	<i>Openness</i>	<i>Agreeable- ness</i>	<i>Conscientious- ness</i>
Neuroticism	44.20	23.34	.89				
Extraversion	61.37	17.08	-.54**	.76			
Openness	61.26	19.39	.03	.44**	.78		
Agreeableness	40.23	18.66	-.16	-.13	-.31‡	.69¹	
Conscientiousness	56.80	17.62	-.59**	.34‡	-.08	.10	.66¹

Note: ‡ $p < .10$; * $p < .05$; ** $p < .01$. $n = 30$. The correlations, means, and *sd*'s of NEO-PI scales are based on mean standardized scores of the facets. Alpha reliabilities of NEO-PI scales are reported on the diagonal.

¹Two items (C2 and A6) that exhibited low item-total correlations, thus reducing the alpha reliability coefficient, were deleted from the scale.

TABLE 5

Predicting Leadership with the NEO-PI Personality Inventory

<i>Factor</i>	<i>Adjusted R-Square</i>	<i>Neuroticism</i> β	<i>Extraversion</i> β	<i>Openness</i> B	<i>Agreeableness</i> β	<i>Conscientiousness</i> β
IIA	.24*	.51*	.52*	.25	.06	.16
IIB	.15‡	.27	.46‡	.28	.14	.02
IM	.27*	.63**	.65**	.09	.07	.18
IS	.10	.40	.24	.30	-.02	.05
IC	.00	-.05	-.16	.40‡	-.06	.18
EM	.24*	.62*	.43‡	.28	.19	.08
SF	.18‡	.61*	.49*	.17	.10	.14
PG	.08	.39	.43‡	.13	.26	.25
OM	.08	.49‡	.30	.26	.07	.23
CR	.00	-.04	.00	.34	.04	.13
MBA	.18‡	.69*	.57*	-.01	.28	.22
MBP	.24*	-.02	.02	-.59**	-.43*	.08
LF	.15	-.02	-.08	-.48*	-.39*	-.13
PA	.28*	.02	-.02	-.60**	-.46**	-.03
IL	.24*	.63*	.50*	.25	.19	.22
TF	.21‡	.46‡	.49*	.26	.06	.13
EFF	.21*	.62*	.16	.25	.26	.59**

Note: IIA = attributed idealized influence; IIB = behavioral idealized influence; IM = inspirational motivation; IS = intellectual stimulation; IC = individualized consideration; EM = environmental monitoring; SF = strategy formulation; PG = path-goal facilitation; OM = outcome monitoring; CR = contingent rewards; MBA = active management-by-exception; MBP = passive management-by-exception; LF = laissez-faire leadership; EFF=effectiveness; PA = passive-avoidant leadership; IL = instrumental leadership; TF = transformational leadership. ‡ $p < .10$; * $p < .05$; ** $p < .01$. $n = 30$.

APPENDIX A: SCALES CONSTITUTING THE FULL-RANGE LEADERSHIP THEORY

Transformational Leadership

1. *Idealized influence (attributed)*—refers to how idealized the leader is and whether leader is perceived as confident and powerful in his or her abilities.
2. *Idealized influence (behavior)*—refers to actions centered on values, beliefs, and sense of mission.
3. *Inspirational motivation*—is about energizing followers by viewing the future with optimism, stressing ambitious goals, and communicating that the vision is achievable.
4. *Intellectual stimulation*—centers on appealing to followers' sense of logic and analysis as well as challenging followers to think creatively and to look at problems differently.
5. *Individualized consideration*—represents a considerate leader who advises, supports, and coaches others, paying attention to their individual needs and helping them to develop and to self-actualize.

Transactional Leadership

1. *Contingent-reward leadership*—refers to providing followers with material and psychological rewards contingent on the fulfillment of transactional obligations.
2. *Management-by-exception active*—is a corrective form of leadership in which the leader is actively vigilant in ensuring that standards are met.
3. *Management-by-exception passive*—represents the reactive leader who intervenes only after failures have occurred.

Laissez-Faire Leadership

1. *Laissez-faire leadership*—refers to the avoidance of decision-making and the abdication of responsibility.

APPENDIX B: EXAMPLE INSTRUMENTAL LEADERSHIP ITEMS

Four items were developed to serve as manifest indicators of the theoretical constructs. Following the instructions of the MLQ, raters were asked to judge how frequently each item (i.e., statement) fits the person they are describing using the following rating scale: “not at all,” “once in a while,” “sometimes,” “fairly often,” and “frequently if not always.” The scale has a magnitude estimation ratio of 0:1:2:3:4 corresponding to the above descriptors (Bass, Cascio, & O’Connor, 1974).

Strategic Leadership*Environmental monitoring*

Item 1. Understands the constraints of our organization

Item 2. Capitalizes on opportunities presented by the external environment

Strategy formulation and implementation

Item 3. Develops specific policies to support his/her vision

Item 4. Sets specific objectives so that the mission can be accomplished

Follower Work Facilitation*Path-goal facilitation*

Item 5. Removes obstacles to my goal attainment

Item 6. Ensures that I have sufficient resources to reach my goals

Outcome monitoring

Item 7. Helps me correct my mistakes

Item 8. Provides me with information concerning how mistakes can be avoided