

Transformational and Transactional Leadership: A Meta-Analytic Test of Their Relative Validity

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This study provided a comprehensive examination of the full range of transformational, transactional, and laissez-faire leadership. Results (based on 626 correlations from 87 sources) revealed an overall validity of .44 for transformational leadership, and this validity generalized over longitudinal and multisource designs. Contingent reward (.39) and laissez-faire (−.37) leadership had the next highest overall relations; management by exception (active and passive) was inconsistently related to the criteria. Surprisingly, there were several criteria for which contingent reward leadership had stronger relations than did transformational leadership. Furthermore, transformational leadership was strongly correlated with contingent reward (.80) and laissez-faire (−.65) leadership. Transformational and contingent reward leadership generally predicted criteria controlling for the other leadership dimensions, although transformational leadership failed to predict leader job performance.

In the past 20 years, a substantial body of research has accumulated on transformational–transactional leadership theory. Burns (1978) first introduced the concepts of transformational and transactional leadership in his treatment of political leadership. As Conger and Kanungo (1998) noted, to Burns the difference between transformational and transactional leadership is in terms of what leaders and followers offer one another. Transformational leaders offer a purpose that transcends short-term goals and focuses on higher order intrinsic needs. Transactional leaders, in contrast, focus on the proper exchange of resources. If transformational leadership results in followers identifying with the needs of the leader, the transactional leader gives followers something they want in exchange for something the leader wants (Kuhnert & Lewis, 1987). To Burns, transactional leadership is more commonplace than is transformational leadership, if less dramatic in its consequences.

Bass (1985) based his theory of transformational leadership on Burns's (1978) conceptualization, with several modifications or elaborations. First, Bass did not agree with Burns that transformational and transactional leadership represent opposite ends of a single continuum. Bass argued that transformational and transactional leadership are separate concepts, and further argued that the best leaders are both transformational and transactional. Second, Bass elaborated considerably on the behaviors that manifest transformational and transactional leadership. Although the theory has undergone several revisions, in the most recent version there are four dimensions of transformational leadership, three dimensions of transactional leadership, and a nonleadership dimension.

The four dimensions of transformational leadership are charisma or idealized influence, inspirational motivation, intellectual

stimulation, and individualized consideration. *Charisma*, or *idealized influence*, is the degree to which the leader behaves in admirable ways that cause followers to identify with the leader. Charismatic leaders display conviction, take stands, and appeal to followers on an emotional level. *Inspirational motivation* is the degree to which the leader articulates a vision that is appealing and inspiring to followers. Leaders with inspirational motivation challenge followers with high standards, communicate optimism about future goal attainment, and provide meaning for the task at hand. *Intellectual stimulation* is the degree to which the leader challenges assumptions, takes risks, and solicits followers' ideas. Leaders with this trait stimulate and encourage creativity in their followers. *Individualized consideration* is the degree to which the leader attends to each follower's needs, acts as a mentor or coach to the follower, and listens to the follower's concerns and needs.

Apart from its central role in transformational leadership theory, charismatic leadership has been the basis of its own distinct literature. Weber (1921/1947) was the first to discuss the implications of charismatic leadership for organizations. House's (1977) theory of charismatic leadership was the first to use the concept in contemporary organizational research. Since that time, there have been many studies of charismatic leadership (e.g., House, Spangler, & Woycke, 1991; Howell & Frost, 1989; Shamir, Zakay, Breinin, & Popper, 1998). As we note later, it is clear that transformational leadership and charismatic leadership theories have much in common, and in important ways, each literature has contributed to the other.

The three dimensions of transactional leadership are contingent reward, management by exception—active, and management by exception—passive. *Contingent reward* is the degree to which the leader sets up constructive transactions or exchanges with followers: The leader clarifies expectations and establishes the rewards for meeting these expectations. In general, management by exception is the degree to which the leader takes corrective action on the basis of results of leader–follower transactions. As noted by Howell and Avolio (1993), the difference between *management by exception—active* and *management by exception—passive* lies in

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the timing of the leader's intervention. Active leaders monitor follower behavior, anticipate problems, and take corrective actions before the behavior creates serious difficulties. Passive leaders wait until the behavior has created problems before taking action.

A final form of leadership, actually nonleadership, is *laissez-faire* leadership. *Laissez-faire* leadership is the avoidance or absence of leadership. Leaders who score high on *laissez-faire* leadership avoid making decisions, hesitate in taking action, and are absent when needed. Although *laissez-faire* leadership bears some resemblance to management by exception—passive leadership, researchers have argued that *laissez-faire* leadership, because it represents the absence of any leadership (transformational or transactional), should be treated separately from the other transactional dimensions (Avolio, 1999; Bass, 1998). Accordingly, we treat *laissez-faire* leadership as separate from transformational and transactional leadership (while also reporting on the relationships between *laissez-faire* leadership and these other leadership dimensions).

Since their introduction and delineation, transformational and transactional leadership have been investigated in scores of research studies. Transformational leadership has proven to be particularly popular. A search of keywords in materials published from 1990 to 2003 in the PsycINFO database revealed that there have been more studies on transformational or charismatic leadership than on all other popular theories of leadership (e.g., least preferred coworker theory, path-goal theory, normative decision theory, substitutes for leadership) combined. Studies have been conducted in the lab (Jung & Avolio, 1999) and in the field (Yammarino, Dubinsky, Comer, & Jolson, 1997). There have been correlational (Hater & Bass, 1988) and experimental (Barling, Weber, & Kelloway, 1996) studies. Studies have used both subjective perceptions of effective leaders (Judge & Bono, 2000) and hard economic criteria (Geyer & Steyrer, 1998). There have been studies of leaders in a wide variety of settings, including the military (Kane & Tremble, 2000), education (Koh, Steers, & Terborg, 1995), and business (Howell & Avolio, 1993), and at various levels, from entrepreneurial CEOs (Baum, Locke, & Kirkpatrick, 1998) to supervisors (Howell & Hall-Merenda, 1999). Most research on transformational leadership has been conducted in the U.S., although increasing support has been accumulating from international studies as well (see Bass, 1997).

Not only has transformational leadership theory been widely studied, it has garnered important support in the literature. Lowe, Kroeck, and Sivasubramaniam (1996) provided a meta-analysis of 22 published and 17 unpublished studies that used the Multifactor Leadership Questionnaire (MLQ; Avolio, Bass, & Jung, 1995). The authors analyzed five dimensions of transformational and transactional leadership. For the three transformational leadership dimensions they analyzed, overall validities ranged from .71 for charisma to .60 for intellectual stimulation. For transactional leadership, overall validities were .41 for contingent reward and .05 for management by exception. Validities were somewhat higher for leaders in public organizations and varied little depending on level of the leader within the organization. Validities were appreciably lower for organizational measures (organizational or work unit performance measures, supervisory performance appraisals) of leader effectiveness, ranging from .35 for charisma to -.05 for management by exception. Even with organizational measures,

however, the validities for charisma and individualized consideration were far from trivial, and they generalized across studies.

A "fundamental" (Bass & Avolio, 1993, p. 69) proposition of transformational-transactional leadership theory that has been often discussed but little tested is the *augmentation effect*, which stipulates that transformational leadership adds to the effect of transactional leadership. Bass (1998) described the augmentation effect as the degree to which "transformational leadership styles build on the transactional base in contributing to the extra effort and performance of followers" (p. 5). Bass (1999) went even further in commenting "the best leaders are both transformational and transactional" (p. 21). Howell and Avolio (1993) agreed with this viewpoint, stating that transformational leadership complements transactional leadership and that effective leaders often supplement transactional leadership with transformational leadership.

Implicit in this argument is the view that transformational leadership must be built on the foundation of transactional leadership. Indeed, Bass (1998) argued "transformational leadership does not substitute for transactional leadership" (p. 21). The very term *augmentation*, meaning amplification or extension, suggests that there is something to amplify or extend. Avolio (1999) commented "transactions are at the base of transformations" (p. 37). In Bass's (1985) conceptualization, transactional leadership results in followers meeting expectations, upon which their end of the bargain is fulfilled and they are rewarded accordingly. To motivate followers to move beyond expectations, according to Bass (1998), transformational leadership is required. This suggests that without the foundation of transactional leadership, transformational effects may not be possible.

Others have interpreted the augmentation hypothesis to suggest that transformational leadership adds beyond transactional leadership, but not vice versa (Bycio, Hackett, & Allen, 1995). This raises the possibility that whatever validity there is to transactional leadership, it is due to its association with transformational leadership. Bass (1998) commented that there are theoretical reasons to believe that transformational leaders will use transactional leadership and noted "consistent honoring of transactional agreements builds trust, dependability, and perceptions of consistency with leaders by followers, which are each a basis for transformational leadership" (p. 11). Thus, it is possible that the positive effects of transactional leadership are simple by-products of transformational leadership and have nothing unique to contribute. If there is nothing unique to transactional leadership, then its scientific and applied value would be called into serious question.

Accordingly, the purpose of the present study was to test the validity of transformational and transactional leadership. We provide the most thorough and comprehensive meta-analysis of the transformational or charismatic, transactional, and *laissez-faire* leadership literatures that has been completed, relating these leadership behaviors to follower leader satisfaction, follower job satisfaction, follower motivation, rated leader effectiveness, leader job performance, and group or organization performance. We specifically investigate the augmentation hypothesis by determining the unique contributions of both transformational and transactional leadership in predicting the various criteria. In the next section of this article, we discuss hypothesized relationships involving transformational, transactional, and *laissez-faire* leadership.

Hypotheses

Before the hypotheses are presented, one issue that needs to be discussed is the relationships among the transformational leadership dimensions. Although some research has indicated that the four dimensions of transformational leadership are empirically separable (Avolio, Bass, & Jung, 1999), other research has suggested that the dimensions may lack discriminant validity (Bycio et al., 1995). In the latest version of the MLQ, the mean correlation among the four transformational leadership measures was .83. When corrected for unreliability on the basis of the mean coefficient alpha (mean $\alpha = .89$), this correlation was .93. Because the dimensions are very highly correlated, many researchers have combined the factors (e.g., Howell & Hall-Merenda, 1999; Judge & Bono, 2000). Accordingly, we treat the dimensions of transformational leadership as indicators of a higher order transformational leadership factor. Our hypotheses and tests reflect this perspective.

Given both the theoretical context and empirical support for transformational leadership, one would expect leaders who engage in such behavior to engender many positive outcomes. Indeed, empirical evidence has suggested that transformational leadership is linked to outcomes that most organizations, individuals, and leaders presumably would value. Followers of transformational leaders should be more satisfied with their leaders (Bass, 1999) and, by extension, their jobs as a whole. Furthermore, Avolio (1999) commented, "transformational leadership involves motivating others" (p. 41). Evidence has indicated strong correlations between scores on transformational leadership and extra effort as assessed by the MLQ (e.g., Bycio et al., 1995). Managers at Federal Express who were rated as transformational received higher performance evaluations (Hater & Bass, 1988). Transformational leadership appears to produce higher performance at the group (Sosik, Avolio, & Kahai, 1997) and organization or business unit (Howell & Avolio, 1993) levels as well. As a result of these positive effects, transformational leaders should be rated as more effective by others in a position to observe their behavior.

Hypothesis 1: Transformational leadership will have positive, nonzero relationships with the following leadership criteria: (a) follower job satisfaction, (b) follower leader satisfaction, (c) follower motivation, (d) leader job performance, (e) group or organization performance, and (f) rated leader effectiveness.

There is not unanimity of opinion regarding whether transformational and charismatic leadership are functional equivalents for one another. Bass (1985) argued that charisma is part of transformational leadership, but it, in and of itself, is insufficient to "account for the transformational process" (p. 31). Thus, Bass would have viewed transformational theory as subsuming charismatic theory (House & Aditya, 1997). The charisma dimension, however, is "clearly the most influential" of the four transformational dimensions, and typically, it is the dimension that has the strongest relationship with outcome variables (Conger & Kanungo, 1998, p. 15). Both Burns's (1978) and Bass's (1985) conceptualizations of transformational leadership and House's (House & Shamir, 1993) conception of charismatic leadership emphasize the importance of intrinsic rewards. Both theories view the most

effective leaders as those who cause followers to identify with the goals the leader articulates. Furthermore, many, if not most, scholars have concluded that the differences between the two theories are small. House and Podsakoff (1994) characterized the disagreements among authors of these theories as "modest," "minor," and "fine tuning" (pp. 71–72). Conger and Kanungo (1998) noted "there is little real difference" between charismatic and transformational leadership (p. 15). Finally, two other meta-analyses, focusing specifically on charismatic leadership (DeGroot, Kiker, & Cross, 2000; Fuller, Patterson, Hester, & Stringer, 1996), provided essentially the same pattern of results as the previously mentioned meta-analysis of transformational leadership (Lowe et al., 1996). Thus, although this is the first study to explicitly compare transformational and charismatic leadership, there is ample reason to believe that the validities of both concepts are similar.

Hypothesis 2: Transformational and charismatic leadership will exhibit similar overall validities.

Of the transactional leadership dimensions, contingent reward is the most effective. The Lowe et al. (1996) meta-analysis revealed that the validity of contingent reward leadership was distinguishable from zero, whereas the validity of management by exception was not. (The study did not separate management by exception into active and passive types and did not include laissez-faire leadership.) In Bass and Avolio's (1994) full range of leadership model, contingent reward leadership was the only leadership behavior that was seen as effective. As Avolio (1999) noted, contingent reward leadership is "reasonably effective" because setting clear expectations and goals and rewarding followers for goal attainment are likely motivating to a certain point. As for the other forms of transactional leadership, management by exception—active leadership was seen as neither effective nor ineffective in Bass and Avolio's (1994) full range of leadership model. Both management by exception—passive and laissez-faire leadership, however, were seen as ineffective leadership behaviors. Avolio (1999) noted that laissez-faire leadership is "poor, ineffective leadership and highly dissatisfying for followers" (p. 55). Thus, we hypothesized the following.

Hypothesis 3: Contingent reward transactional leadership will have positive, nonzero relationships with the following leadership criteria: (a) follower job satisfaction, (b) follower leader satisfaction, (c) follower motivation, (d) leader job performance, (e) group or organization performance, and (f) rated leader effectiveness.

Hypothesis 4: Management by exception—passive and laissez-faire leadership will have negative, nonzero relationships with the following leadership criteria: (a) follower job satisfaction, (b) follower leader satisfaction, (c) follower motivation, (d) leader job performance, (e) group or organization performance, and (f) rated leader effectiveness.

Finally, the augmentation hypothesis proposes that transformational leadership adds to the base of transactional leadership. Implicit in this hypothesis is the expectation that transformational leadership will predict the leadership criteria controlling for transactional leadership (Bass, 1997). What is not entirely clear is

whether the base of transactional leadership really matters. If transactional leadership is an important base on which transformational leadership builds, as is implied in the discussion surrounding the augmentation hypothesis (Bass, 1998, 1999), then transactional leadership (or at least one dimension of it) should predict the criteria controlling for transformational leadership. On the other hand, if transactional leadership does not predict the criteria controlling for transformational leadership, then any useful information transactional leadership provides about a leader's behavior is accounted for by transformational leadership. In such a case, transactional leadership would not be important as far as the leadership criteria are concerned. Accordingly, in light of the augmentation hypothesis, below we offer one hypothesis (Hypothesis 5) and pose one research question (Question 1).

Hypothesis 5: Transformational leadership will significantly predict leadership criteria controlling for the three transactional leadership behaviors and laissez-faire leadership.

Question 1: Will any or all of the three transactional leadership behaviors or laissez-faire leadership predict leadership criteria controlling for transformational leadership?

Method

Literature Search

To identify all possible studies of transformational and transactional leadership, we searched the PsycINFO database for studies (articles, book chapters, dissertations, and unpublished reports; published from 1887 to 2003) that referenced transformational leadership as well as related terms such as *charisma*, *charismatic leadership*, and *vision*. Similarly, we identified studies that referenced transactional leadership as well as the three specific transactional dimensions. To identify early articles that related transformational and transactional leadership to organizational criteria, we compiled a list of studies from the references included in two comprehensive meta-analytic reviews on the topic that were published in 1996 (Fuller et al., 1996; Lowe et al., 1996). Then, to update this list, we used the results of the searches described above to identify studies published since 1995 that included transformational leadership and transactional leadership.

Our search efforts resulted in the identification of 42 articles referenced in literature reviews or meta-analyses on relevant topics and 1,231 abstracts, for both journal articles and dissertations, identified by means of electronic searches. In reviewing the abstracts, we eliminated studies that clearly did not include primary data (such as qualitative studies or reviews) and studies that did not appear to measure leadership (we excluded, for example, a large number of optometry studies of vision or vision disorders). For the remaining 247 articles and 34 doctoral dissertations, we examined each study to determine whether it contained the information needed to calculate correlations among variables included in this study.

Studies that measured the variables of interest and contained some measure of association among variables were selected for inclusion in the final analysis. We reviewed each study, evaluated the relevance of the data contained within, and recorded relevant statistical and moderator information into four separate but related databases. For those articles that required a conversion of means, standard deviations, *t* statistics, or *F* statistics into correlations, we collaborated to ensure accurate translation. From studies that reported cross-lagged effects or tests of ambiguous causal direction, we recorded only the correlations for which leadership was measured before the criterion. Cross-lagged correlations were not averaged for the study's main analysis. Further, studies were labeled as *longitudinal* when the criterion variable was measured after the leadership variable. Finally, for the few articles that did not explicitly identify relationships in a table or a diagram, we collaborated to ensure proper interpretation of study results.

Several studies were excluded because they reported percentages or proportions of means with no standard deviations or because they reported other measures of association that could not be converted to correlations. In total, 87 studies met the criteria for inclusion in the database (68 journal articles, 18 dissertations, and 1 unpublished data set). These studies reported a total of 626 correlations.

Meta-Analytic Procedures

We used the meta-analytic methods of Hunter and Schmidt (1990) to estimate the validities of transformational and transactional leadership as well as the correlations among these constructs. We corrected each primary correlation for attenuation due to unreliability in both the predictor and the criterion, and then we computed the sample-weighted means of these corrected correlations. To estimate parameters describing the variability of the meta-analytical estimates and the confidence in these estimates, we corrected the variance of the observed individual estimates for the effects of both sampling and measurement error. In the vast majority of studies, authors reported the internal consistency reliabilities for the measures used to compute the primary correlations (e.g., authors reported the reliability of transformational leadership in 83% of the studies included in the meta-analysis). When reliabilities for transformational or transactional leadership or the criteria were not reported in the original studies, we averaged the reliabilities reported in the studies that did provide such estimates, and we used these mean reliability values to correct the primary correlations. The mean reliabilities were as follows: for transformational leadership, .90; for the three transactional leadership dimensions, .75; for laissez-faire leadership, .67. The mean criterion reliability was .84.

In addition to reporting point estimates for corrected correlations, one must also describe variability in these estimates. Accordingly, we report 80% credibility intervals and 90% confidence intervals around the estimated population correlations. It is important to report both confidence and credibility intervals because each conveys unique information about the nature of the true estimates. Confidence intervals provide an estimate of the variability around the estimated mean corrected correlation that is due to sampling error: A 90% confidence interval around a positive point estimate that excludes zero indicates that if the estimation procedures were repeated a large number of times, the point estimate would be larger than zero in 95% of the cases (the other 5% of the correlations would lie beyond the upper limit of the interval). Credibility intervals provide an estimate of the variability of individual correlations across studies: An 80% credibility interval excluding zero for a positive correlation indicates that more than 90% of the individual correlations in the meta-analysis are greater than zero (10% lie beyond the upper bound of the interval). Thus, confidence intervals estimate variability in the mean correlation, whereas credibility intervals estimate variability in the individual correlations across the studies.

Moderator Analyses

We divided the studies into categories according to the expected moderator variables. We conducted separate meta-analyses for each of the categories to estimate the true correlations for the categories delimited by moderator variables. Meta-analytical evidence for the presence of moderators requires that (a) true estimates are different in the categories formed by the potential moderator variable and (b) the mean corrected standard deviation within categories is smaller than the corrected standard deviation computed for combined categories. To test for the presence of moderator effects, as recommended by Sagie and Koslowsky (1993) we calculated the *Q* statistic (Hunter & Schmidt, 1990, p. 151), which tests for homogeneity in the true correlations across studies. A significant *Q* statistic (which is distributed approximately as a chi-square) indicates the likelihood that moderators explain variability in the correlations across studies. If a significant *Q* statistic across moderator categories becomes nonsignificant

within a moderator category, it suggests that the moderator explains a significant amount of the variability in the correlations across the moderator categories.

Regression Analyses

Using regression analysis, we sought to determine the independent contribution of the leadership behaviors (transformational and transactional leadership) to the prediction of organizational criteria relevant to leadership. Following the theory-testing method developed by Viswesvaran and Ones (1995), we conducted the regression analyses on meta-analytically derived correlations between the variables (i.e., meta-analytic regression; Colquitt, Conlon, Wesson, Porter, & Ng, 2001). To compute the standard errors associated with the regression coefficients, following Viswesvaran and Ones (1995) we used the harmonic means of the total sample sizes on which each meta-analytic correlation from the input matrix was estimated. To conduct these analyses, we used Hunter's (1992) regression program.

Results

The results of the overall meta-analysis, which estimates the validities of transformational leadership and the four other leadership dimensions across all criteria, are provided in Table 1. The meta-analysis results show that transformational leadership shows the highest overall validity ($\hat{\rho} = .44$) but is closely followed by contingent reward leadership ($\hat{\rho} = .39$). Laissez-faire leadership also has a moderately strong, negative average relationship with the leadership criteria ($\hat{\rho} = -.37$). For all five of the leadership behaviors, the mean validities are distinguishable from zero, in that the 90% confidence intervals exclude zero. Thus, we can be confident that these mean correlations are distinguishable from zero. Furthermore, for transformational leadership and contingent reward leadership, the 80% credibility intervals exclude zero, meaning that more than 90% of the individual correlations for transformational and contingent reward leadership are greater than zero (10% lie beyond the upper bound of the interval). Thus, transformational leadership and contingent reward leadership display the strongest and also the most consistent correlations across the leadership criteria.

Despite the strength and generalizability of the estimates for transformational leadership and contingent reward leadership, the Q statistics (see Sagie & Koslowsky, 1993) for each were highly significant, indicating that there was a significant amount of variance in the correlations across studies unaccounted for by study artifacts and measurement error. Specifically, the Q statistic for

transformational leadership was 1,279.91 ($p < .01$) and the Q statistic for contingent reward was 686.59 ($p < .01$), suggesting the presence of moderators across studies. One likely moderator is criterion type. In particular, it seems likely that the behaviors have differential correlations with the criteria. Accordingly, we performed separate meta-analyses for transformational and contingent reward leadership for each of the six criteria. The results of these meta-analyses are provided in Table 2. As the results in Table 2 indicate, both transformational leadership and contingent reward leadership show positive, nonzero relationships with each of the leadership criteria, providing support for both Hypothesis 1 and Hypothesis 3. For each leadership criteria, the estimated mean validities are distinguishable from zero, in that the 90% confidence intervals exclude zero, and with two exceptions (transformational leadership and leader job performance, contingent reward leadership and group or organization performance), the validities generalized across studies, in that the 80% credibility intervals excluded zero.

In addition, we were interested in whether transformational leadership and contingent reward leadership differentially predicted the leadership criteria. The estimated mean validities for each leadership criterion are not independent in this case, because these correlations were computed from the same population. Thus, to determine whether the estimated mean validities for each leadership criterion were significantly different, we conducted the Steiger (1980) test, which takes dependency into account and allowed us to calculate a test statistic with a Student's t distribution. Test statistics were calculated for each leadership criterion and compared with tabled values of the Student's t distribution. Results are presented in the last column of Table 2. As these results indicate, there are two criteria for which transformational leadership had a higher validity coefficient than did contingent reward: follower satisfaction with leader ($\hat{\rho}_T = .71$ vs. $\hat{\rho}_{CR} = .55$), $t = 5.46$, $p < .01$, and leader effectiveness ($\hat{\rho}_T = .64$ vs. $\hat{\rho}_{CR} = .55$), $t = 2.67$, $p < .01$; and two criteria for which contingent reward had significantly higher validity than did transformational leadership: follower job satisfaction ($\hat{\rho}_T = .58$ vs. $\hat{\rho}_{CR} = .64$), $t = -2.21$, $p < .05$, and leader job performance ($\hat{\rho}_T = .27$ vs. $\hat{\rho}_{CR} = .45$), $t = -3.25$, $p < .01$. For follower motivation and group or organization performance, the differences between transformational leadership and contingent reward were not significant.

Moreover, transformational leadership appeared to display stronger relationships with criteria that reflect follower satisfaction

Table 1
Overall Validities of Transformational, Transactional, and Laissez-Faire Leadership

Leadership dimension	<i>k</i>	<i>N</i>	\bar{r}	$\hat{\rho}$	80% CV	90% CI
Transformational	93	17,105	.38	.44	.10, .78	.39, .49
Transactional						
Contingent reward	42	9,688	.32	.39	.04, .75	.31, .48
MBE-active	28	4,439	.12	.15	-.04, .34	.09, .21
MBE-passive	21	5,532	-.14	-.18	-.43, .08	-.27, -.09
Laissez-faire	15	2,517	-.28	-.37	-.84, .09	-.56, -.19

Note. k = number of correlations; N = combined sample size; \bar{r} = mean uncorrected correlation; $\hat{\rho}$ = estimated true score correlation; CV = credibility interval; CI = confidence interval; MBE = management by exception.

Table 2
Relationships of Transformational and Contingent Reward Leadership to Leadership Criteria

Criteria	Transformational			Contingent reward			<i>t</i>
	<i>k</i>	<i>N</i>	$\hat{\rho}$	<i>k</i>	<i>N</i>	$\hat{\rho}$	
Follower job satisfaction	18	5,279	.58 ^{a,b}	6	1,933	.64 ^{a,b}	-2.21*
Follower satisfaction with leader	23	4,349	.71 ^{a,b}	14	4,076	.55 ^{a,b}	5.46**
Follower motivation	16	4,773	.53 ^{a,b}	13	3,615	.59 ^{a,b}	-1.95
Leader job performance	13	2,126	.27 ^a	6	684	.45 ^{a,b}	-3.25**
Group or organization performance	41	6,197	.26 ^{a,b}	16	3,227	.16 ^a	1.60
Leader effectiveness	27	5,415	.64 ^{a,b}	18	3,886	.55 ^{a,b}	2.67**

Note. The *t* tests measured the differences in transformational and contingent reward correlations. *k* = number of correlations; *N* = combined sample size; $\hat{\rho}$ = estimated true score correlation:

^a 95% confidence interval excluded zero. ^b 80% credibility interval excluded zero.

* *p* < .05. ** *p* < .01.

and motivation than with criteria that reflect performance. The correlations of transformational leadership with follower job satisfaction ($\hat{\rho} = .58$), follower satisfaction with leader ($\hat{\rho} = .71$), and follower motivation ($\hat{\rho} = .53$) are all significantly stronger than the relationships of transformational leadership with leader job performance ($\hat{\rho} = .27$) and group or organization performance ($\hat{\rho} = .23$). Beyond the common source variance explanation of this result, it is possible that transformational leadership is more satisfying to followers than it is effective in inducing leader and group performance, particularly when objective measures of performance are used (Ross & Offerman, 1997).

Hypothesis 2 suggested that transformational leadership and charisma would display similar overall validities. To determine whether differences between the two exist, we conducted separate meta-analyses for each subset of studies. Using the technique proposed by Quiñones, Ford, and Teachout (1995), we carried out a *Z* test to examine the statistical significance of the difference between studies that measured transformational leadership directly and studies that measured charisma. A *Z* score greater than 1.96 or less than -1.96 would indicate that differences in overall validities were statistically significant at *p* < .05. Results suggest that charisma ($\hat{\rho} = .52$, *k* = 23) displays a slightly higher overall validity than does transformational leadership ($\hat{\rho} = .42$, *k* = 70), but the difference between the two was not significant (*Z* =

-1.62, *ns*). Thus, consistent with Hypothesis 2, transformational leadership and charisma display similar overall validities.

Table 3 provides the results of the meta-analyses relating management by exception—active and —passive and laissez-faire leadership to each of the six criteria. In three cases, there were not enough correlations to meta-analyze (i.e., management by exception—active and —passive with follower job satisfaction, laissez-faire with group or organization performance). Overall, the validities in Table 3 are lower than those in Table 2 for transformational and contingent reward leadership, and the results are not as consistent. Nevertheless, some moderately strong and generalizable relations did emerge. Specifically, laissez-faire leadership had relatively strong and negative correlations with follower satisfaction with the leader ($\hat{\rho} = -.58$) and leader effectiveness ($\hat{\rho} = -.54$). Further, laissez-faire leadership had negative correlations with all five leadership criteria, and three of these correlations were distinguishable from zero (follower job satisfaction, follower satisfaction with leader, and leader effectiveness). Management by exception—passive also evinced moderately negative correlations with four leadership criteria. Three of the four correlations (follower motivation, group or organization performance, and leader effectiveness) were distinguishable from zero, in that the 90% confidence interval did not include zero. The 80% credibility interval for these three criteria, however, did include zero, indi-

Table 3
Relationships of Management by Exception (Active and Passive) and Laissez-Faire Leadership to Leadership Criteria

Criteria	MBE-active			MBE-passive			Laissez-faire		
	<i>k</i>	<i>N</i>	$\hat{\rho}$	<i>k</i>	<i>N</i>	$\hat{\rho}$	<i>k</i>	<i>N</i>	$\hat{\rho}$
Follower job satisfaction	—	—	—	—	—	—	2	392	-.28 ^{a,b}
Follower satisfaction with leader	11	2,272	.24 ^a	8	3,255	-.14	5	838	-.58 ^{a,b}
Follower motivation	11	1,879	.14 ^{a,b}	11	3,441	-.27 ^a	6	1,302	-.07
Leader job performance	6	684	.13 ^{a,b}	4	355	.00	2	301	-.01
Group or organization performance	11	1,579	-.09	9	1,976	-.17 ^a	—	—	—
Leader effectiveness	14	2,117	.21 ^a	8	2,627	-.19 ^a	11	1,920	-.54 ^{a,b}

Note. Dashes indicate data are not reported because there were too few (less than two) correlations to meta-analyze. *k* = number of correlations; *N* = combined sample size; $\hat{\rho}$ = estimated true score correlation; MBE = management by exception.

^a 90% confidence interval excluded zero. ^b 80% credibility interval excluded zero.

cating that more than 10% of the correlations included in the main analysis were positive. These results provide partial support for *Hypothesis 4*. Although both laissez-faire and management by exception—passive leadership display negative correlations with the leadership criteria, several correlations were not significant.

Because of the relative strength and generality of the correlations of transformational and contingent reward leadership, we performed further moderator analyses. Specifically, for transformational and contingent reward leadership, we investigated whether validities varied depending on *research design* (cross-sectional vs. longitudinal), *independence of data sources* (same source vs. different source), *study setting* (business, college, military, or public sector), and *level of leader* (supervisory level vs. mid- to upper level). The results of these moderator analyses are provided in Table 4. In general, the results show that transformational leadership validities are more robust across the moderator variable categories. Specifically, whereas both transformational and contingent reward leadership have nonzero relations in cross-sectional designs and in designs in which the data sources are the same, only the validities of transformational leadership generalize when the research design is longitudinal and when the data are from different sources. Similarly, transformational leadership generalized in college settings, although the same was not true for contingent reward leadership.

The validities of both transformational and contingent reward leadership appear to be influenced by research design and the independence of data sources used in the study. For example, transformational leadership had a higher validity in cross-sectional ($\hat{p} = .50$) than in longitudinal ($\hat{p} = .27$) studies ($Z = 4.00, p < .01$) and a higher validity when both leadership and criteria were measured by the same ($\hat{p} = .55$) than by different ($\hat{p} = .28$) sources ($Z = 5.46, p < .01$). The same results are true for contingent reward. Contingent reward had higher validity in cross-sectional ($\hat{p} = .49$) than in longitudinal ($\hat{p} = .13$) studies ($Z = 4.44, p < .01$)

Table 4
Moderator Analyses Results for Transformational and Contingent Reward Leadership

Moderator	Transformational		Contingent reward	
	k	\hat{p}	k	\hat{p}
<i>Research design</i>				
Cross-sectional	62	.50 ^{a,b}	30	.49 ^{a,b}
Longitudinal	31	.27 ^a	12	.13 ^a
<i>Independence of data sources</i>				
Same source	38	.55 ^{a,b}	21	.54 ^{a,b}
Different source	55	.28 ^{a,b}	21	.15 ^a
<i>Study setting</i>				
Business	44	.42 ^{a,b}	18	.51 ^{a,b}
College	19	.40 ^{a,b}	2	.19
Military	15	.51 ^{a,b}	13	.32 ^{a,b}
Public sector	14	.49 ^{a,b}	9	.27 ^a
<i>Level of leader</i>				
Supervisory level	60	.48 ^{a,b}	27	.46 ^{a,b}
Mid- or upper level	32	.37 ^{a,b}	15	.30 ^a

Note. k = number of correlations; \hat{p} = estimated true score correlation.

^a 90% confidence interval excluded zero. ^b 80% credibility interval excluded zero.

and a higher validity when leadership and criteria were measured by the same ($\hat{p} = .54$) than by different ($\hat{p} = .15$) sources ($Z = 5.65, p < .01$).

The validity of transformational leadership appears to generalize across study setting. We evaluated the validity of transformational leadership for studies that included business professionals, college students, the military, and participants from the public sector, but differences among each setting were not significant. On the other hand, contingent reward appeared to have a stronger validity in a business setting ($\hat{p} = .51$) than in college ($\hat{p} = .19$), the military ($\hat{p} = .32$), or the public sector ($\hat{p} = .27$). Significance tests on these correlations revealed that contingent reward's validity in a business setting was significantly stronger than that in all of the other settings. Finally, the level of the leader considered in a study did not affect the validities for transformational leadership or contingent reward; differences within this moderator category were not significant.

Although not reported in Table 4, we also investigated whether validities varied depending on how transformational leadership was measured. There were three broad categories of measures. First, some measures were direct, as was the case when authors measured transformational leadership with an overall scale or by summing the dimensions to form an overall measure. Second, some measures of transformational leadership were created by computing a composite correlation involving the individual dimensions. This was the case when authors reported validities of the individual transformational leadership dimensions (and the correlations among those dimensions) without reporting an overall validity estimate. Finally, studies that explicitly measured charismatic leadership were treated separately. The validities did not vary dramatically across measures, although the validities of charisma ($k = 23, \hat{p} = .52$) and composite measures of transformational leadership ($k = 35, \hat{p} = .48$) were higher than the validity of direct measures of transformational leadership ($k = 35, \hat{p} = .33$). In all cases, both the 90% confidence intervals and the 80% credibility intervals excluded zero, meaning that the mean relations are distinguishable from zero and that more than 90% of the individual correlations across studies were greater than zero.

Table 5 provides meta-analytic estimates of correlations of transformational leadership with transactional and laissez-faire leadership. Transformational leadership exhibited very strong relations with contingent reward leadership ($\hat{p} = .80$) and laissez-faire leadership ($\hat{p} = -.65$). Table 6 provides the meta-analyzed intercorrelations among the transactional and laissez-faire leadership dimensions. Of interest, the correlations among these dimensions are, in most cases, much lower than the correlations between transformational leadership and these dimensions. The strongest correlations were between management by exception—active and laissez-faire leadership ($\hat{p} = -.51$) and between contingent reward and laissez-faire leadership ($\hat{p} = -.38$).

Finally, Table 7 provides a test of Hypothesis 5 and Question 1 in which the relative validities of transformational, transactional, and laissez-faire leadership are investigated. To estimate the regression equations provided in Table 7, we used the regression-based analyses described in the Method section. We confined our analyses to those criteria for which meta-analytic estimates for all three transactional and laissez-faire leadership behaviors were available (thus excluding follower job satisfaction and group or organization performance). The results reveal that transformational

Table 5
Relationships Between Transformational Leadership and Transactional and Laissez-Faire Leadership

Leadership dimension	<i>k</i>	<i>N</i>	\bar{r}	$\hat{\rho}$	80% CV	90% CI
Transactional						
Contingent reward	87	22,369	.68	.80	.65, .95	.78, .83
MBE-active	60	12,600	.14	.17	-.36, .69	.06, .27
MBE-passive	50	10,928	-.17	-.20	-.64, .24	-.30, -.10
Laissez-faire	25	5,674	-.50	-.65	-.91, -.39	-.73, -.57

Note. *k* = number of correlations; *N* = combined sample size; \bar{r} = mean uncorrected correlation; $\hat{\rho}$ = estimated true score correlation; CV = credibility interval; CI = confidence interval; MBE = management by exception.

leadership significantly predicted the criteria in four of five analyses, including the overall analysis, providing support for Hypothesis 5. The one criterion that transformational leadership did not significantly predict was leader job performance. Contingent reward leadership significantly predicted each of the five criteria, including the overall analysis, although for one criterion the standardized coefficient was quite small ($\beta = .06$). All other leadership types (management by exception—active, management by exception—passive, and laissez-faire) also generally significantly predicted the criteria, although the magnitude of the coefficient estimates was generally fairly small. Overall, the multiple correlation and multiple correlation squared statistics were strong and significant, indicating that transformational, transactional, and laissez-faire leadership are important predictors of the criteria indicating leadership effectiveness.

Discussion

Transformational–transactional leadership theory dominates current thinking about leadership research. A plurality, if not a majority, of leadership studies published concern this explanation of leadership effectiveness. At a broad level, our results both support transformational–transactional leadership theory and lead to more circumspect conclusions about its validity. In terms of support, the overall results revealed that transformational leadership has relatively high levels of validity ($\hat{\rho} = .44$). Just as impressive, the vast majority of individual correlations in the

studies included in the meta-analysis were greater than zero. Indeed, out of 93 independent samples in the main transformational analysis, only three correlations were negative, and the most negative of these was merely $-.07$ (Curphy, 1991). Furthermore, as we discuss shortly, transformational leadership generalized across all of the leadership criteria and the majority of the other moderator variable conditions. In terms of overall validity, it appears that charisma displays somewhat higher validities than does transformational leadership, although both generalize across studies. A final piece of support is that, in the overall analysis, the coefficient for transformational leadership was significant, controlling for the three transactional leadership dimensions and laissez-faire leadership.

Despite this impressive support, the present study suggests four areas of concern regarding transformational–transactional leadership theory. First, the effect sizes for transformational leadership in this meta-analytic review are not nearly as strong as those reported by Lowe et al. (1996). For example, the composite corrected correlation reported by Lowe et al. across three transformational leadership dimensions was $.73$, compared with $.44$ in the present review. One possible reason for this difference is that, since 1995, transformational leadership has been studied with more rigorous research designs.¹ Given the popularity of the theory, since the mid-1990s many more published studies have been available for review than those available to Lowe et al., who could include only 22 published studies in their meta-analysis. It seems reasonable to assume that reviewers and editors have insisted, particularly more recently, that studies of transformational leadership use indepen-

Table 6
Relationships Among Transactional Leadership and Laissez-Faire Leadership

Leadership dimension	Contingent reward		MBE-active		MBE-passive	
	<i>k</i>	$\hat{\rho}$	<i>k</i>	$\hat{\rho}$	<i>k</i>	$\hat{\rho}$
Transactional						
Contingent reward	—	—	—	—	—	—
MBE-active	20	.19 ^a	—	—	—	—
MBE-passive	17	-.05	13	-.05	—	—
Laissez-faire	6	-.38 ^{a,b}	5	-.51 ^{a,b}	3	.24 ^{a,b}

Note. *k* = number of correlations; $\hat{\rho}$ = estimated true score correlation; MBE = management by exception.

^a 90% confidence interval excluded zero. ^b 80% credibility interval excluded zero.

¹ As noted by a reviewer on a previous version of this article, another factor that may explain changes in validity is that the author pool has broadened beyond the original transformational leadership researchers. Indeed, although the current study included 52 studies of transformational leadership published since 1995, only 12 were authored by Bass, Avolio, and colleagues (a list of names was obtained from both Bass and Avolio). To further investigate the effects of change in author pool, we compared studies authored by Bass, Avolio, their students, and their colleagues with studies completed by others. The validities of transformational and contingent reward leadership for the studies authored by Bass, Avolio, and colleagues were $.39$ and $.35$, respectively. The validities of transformational and contingent reward leadership for studies authored by others were $.45$ and $.41$, respectively. The validities were not significantly different between the two groups, indicating that the validities of transformational and contingent reward leadership were similar for Bass, Avolio, and their colleagues and those not affiliated with these researchers.

Table 7
Regression Results Testing Unique Effects of Transformational, Transactional, and Laissez-Faire Leadership

Leadership dimension	Overall	Follower satisfaction with leader	Follower motivation	Leader job performance	Leader effectiveness
Transformational	.24**	.52**	.32**	.02	.37**
Transactional					
Contingent reward	.11**	.06**	.22**	.45**	.15**
MBE-active	.03**	.07**	.12**	.11**	.04*
MBE-passive	-.08**	-.01	-.10**	-.01	-.06**
Laissez-faire	-.09**	-.13**	.03	.22**	-.14**
<i>R</i>	.41**	.66**	.53**	.43**	.59**
<i>R</i> ²	.17**	.44**	.28**	.18**	.35**

Notes. With the exception of multiple correlation (*R*) and multiple correlation squared (*R*²) values, table entries are standardized regression (β) coefficients. MBE = management by exception.

* $p < .05$. ** $p < .01$.

dent validation criteria. Furthermore, even when leadership and outcome data are supplied by the same source at the same time, we believe it is less common for recent studies to use the MLQ criterion measures of leader effectiveness, leader satisfaction, and follower motivation. Because these latter measures appeared in the same survey as the transformational leadership behavior items, there is reason to believe that the leadership-outcome relations were inflated in the Lowe et al. study. Thus, although the validities reported in this review are lower than those previously reported by Lowe et al., they are probably more representative of rigorous research designs that have become more commonplace in the transformational leadership literature. We should also note that, although not a reason for the difference with the Lowe et al. (1996) result, had we corrected estimates of leader job performance, group or organization performance, or leader effectiveness on the basis of interrater reliability, the estimated validities would have been higher.

Second, contingent reward leadership appeared to have validity levels comparable with those of transformational leadership. The difference in the overall validities (.39 vs. .44, respectively) was relatively small, and in the criteria analyses, contingent reward showed higher validity coefficients than did transformational leadership for half (3/6) of the criteria. On the one hand, this is troublesome as it clearly is not predicted by transformational-transactional leadership theory. For example, Bass and Avolio (1994) commented that contingent reward "has been found to be reasonably effective, although not as much as any of the transformational components" (p. 6). On the other hand, the fact that contingent reward leadership possesses validity does nothing, per se, to diminish the validity of transformational leadership. Both are valid, and the superiority of one relative to the other seems to depend on the context.

Specifically, transformational and contingent reward leadership were of roughly equal validity under weak research designs (when leadership and the criterion were measured at the same time and with the same source). Compared with contingent reward leadership, however, transformational leadership was considerably more valid under strong research designs (longitudinal designs and

designs in which the leadership and the criterion were measured with different sources of data). Furthermore, when controlling for contingent reward and the other forms of transactional leadership, we found transformational leadership to be generally a stronger predictor of the leadership criteria. These latter findings are not trivial sources of support for transformational leadership. Finally, it is interesting that across the four study settings (business, college, military, and public sector), contingent reward worked best in business settings. It is possible that this is so because contingent reward leadership is resource dependent. Specifically, business leaders may be better able to tangibly reward followers in exchange for their efforts. In situations in which leaders have access to fewer resources, contingent reward leadership may be less effective because it is more difficult for leaders to meet their end of the bargain. Thus, transformational leadership, despite its validity being no higher than that for contingent reward leadership, may be more robust (less dependent on access to resources).

A third area of concern is the high correlations between transformational leadership and several dimensions of transactional leadership. Specifically, transformational leadership correlated very highly with contingent reward leadership ($\hat{\rho} = .80$) and also quite highly with laissez-faire leadership ($\hat{\rho} = -.65$). A correlation of .80, although corrected, is as high as or higher than one expects for alternative measures of the same construct. For example, two measures of charisma were found to correlate at .69 in one study (Conger & Kanungo, 1998). Although past research has suggested that the MLQ assesses distinct aspects of transformational and transactional leadership (Avolio et al., 1999), the full range of leadership theory is clearly a multivariate theory in that it explicitly argues for the joint inclusion of transformational, transactional, and laissez-faire leadership as distinct behaviors (Avolio, 1999). Thus, even if transformational and contingent reward leadership are distinct (which is an arguable assumption), it may be difficult to separate the unique effects of constructs that correlate at such a high level. Moreover, although not a focus of this analysis, there is the issue of the separability of the transformational leadership dimensions, which also has implications for the full range of leadership model.

This leads to the fourth concern. In predicting the outcomes, controlling for the other forms of leadership tended to substantially undermine the validities of transformational, transactional, and laissez-faire leadership. Specifically, in the overall analysis, when comparing the criterion-related validities reported in Table 1 with the incremental validities reported in Table 7, the validities declined by .45% for transformational leadership (from .44 to .24), 72% for contingent reward leadership (from .39 to .11), and 76% for laissez-faire leadership (from -.37 to -.09). In some of the other analyses the validity decrements were even greater (e.g., the validity of transformational leadership in predicting leader job performance declined from .27 [Table 2] to .02 [Table 7]). The likely reason for these multivariate validity decrements is the correlation of transformational leadership with transactional leadership and especially with contingent reward and laissez-faire (in the negative) leadership. Indeed, multicollinearity surely explains why a small, nonsignificant correlation ($\rho = -.01$) between laissez-faire leadership and leader job performance becomes positive and significant ($\hat{\beta} = .22$) when controlling for the other factors. This multicollinearity poses a clear challenge for the full range of leadership model. Can one expect to find distinct unique effects with behaviors that correlate so highly (as high as .80)? Given that Bass, Avolio, and colleagues (e.g., Jung & Avolio, 1999; Sosik et al., 1997; Yammarino & Dubinsky, 1994) have indicated that the full range of transformational and transactional behaviors needs to be studied together, this is clearly an issue that needs to be considered in future research. Although there were many cases in which augmentation effects were found, the fact that the effects of transformational, transactional, and laissez-faire leadership were substantially weakened when controlling for their mutual influences poses challenges for the full range of leadership model.

One limitation of the results comparing the validities of transformational and contingent reward leadership is the possibility that the results are not matched by sample. In short, studies of the validity of transformational leadership comprise a broader cross section of studies than do those of contingent reward leadership. It is thus possible that there are unique aspects of these nonoverlapping studies that affected the results and therefore confound the comparisons. To investigate this possibility, we conducted a separate meta-analysis of transformational leadership, limiting analyzed studies to those that also included contingent reward leadership. The validity of transformational leadership did increase in this subanalysis but only slightly ($k = 38$, $\hat{\rho} = .48$). Thus, this possibility seems an unlikely explanation for the results.

Beyond the multivariate findings, the results for transactional and laissez-faire leadership also are illuminating. On the one end of the transactional leadership spectrum, contingent reward is highly effective and, in some cases, may be more effective than transformational leadership. At the other end of the spectrum is management by exception—passive leadership and the nonleadership factor, laissez-faire leadership. These passive or inactive forms of leadership display moderately to strongly negative relations across the criteria. Between these two extremes is management by exception—active leadership. The arrangement of validities, from contingent reward, to management by exception—active, to management by exception—passive, to laissez-faire, does provide important support for Bass and Avolio's (e.g., Bass, 1995) "correlational hierarchy." Contingent reward and, espe-

cially, laissez-faire leadership have received scant attention in previous leadership research. Given that their validities are, overall, relatively high and, in some cases, rival that of transformational leadership, future research should study these behaviors in more detail. Bass (1999) argued that the best leaders are transformational and transactional. If the measurement issues (the high correlations with transformational leadership) can be resolved, the conditions that foster contingent reward leadership and remedy laissez-faire leadership, as well as the specific processes by which these behaviors are effective, need to be addressed.

Contributions Beyond Previous Meta-Analyses

Although one previous meta-analysis of transformational leadership (Lowe et al., 1996) and two previous meta-analyses of charismatic leadership (DeGroot et al., 2000; Fuller et al., 1996) have been published, there are some important issues these previous efforts have not fully addressed. Below we outline how this study contributes to the literature.

Larger scope. Most obvious, the present undertaking substantially broadens the scope of previous reviews. The number of studies in the current review is roughly double that of the Lowe et al. (1996) review, which was the largest review to date. This is not to criticize Lowe et al.; those authors meta-analyzed the studies that were available at that time. However, more research has been conducted on transformational leadership since 1994 (the most recent published study included in their meta-analysis) than has been conducted in all the years before 1994. Thus, the literature has expanded considerably since the Lowe et al. review, and it is important to determine whether the initial results generalize.

Furthermore, the Lowe et al. (1996) review confined itself to studies using the MLQ. The MLQ is the most widely used measure of transformational leadership, but clearly there are many studies that have measured transformational leadership experimentally or through other means, and there are many studies that have focused on charismatic leadership. Finally, although the Lowe et al. article is frequently cited in the literature (68 citations in the literature we meta-analyzed), the other two articles are virtually unnoticed in the industrial–organizational psychology and management literature. The Fuller et al. (1996) and DeGroot et al. (2000) articles have been cited a total of 7 times, only once in *Journal of Applied Psychology*.

Addition of transactional and laissez-faire leadership. The present study represents the first meta-analysis of all the dimensions of transactional leadership as articulated in the full leadership model. Moreover, this article presents the first meta-analysis of the validity of laissez-faire leadership. For each of these forms of leadership, the findings revealed noteworthy effects. First, two forms of transactional leadership behavior, contingent reward and management by exception—active, were significant predictors of all of the leadership criteria. Second, the passive forms of leadership, management by exception—passive and laissez-faire, had some of the strongest effect sizes in the entire analysis. Specifically, the overall validity of laissez-faire leadership was moderately strong ($\hat{\rho} = -.37$) and was especially strong for two criteria, follower satisfaction with the leader ($\hat{\rho} = -.58$) and leader effectiveness ($\hat{\rho} = -.54$). For management by exception—passive, in general the effect sizes were smaller, but in several cases management by exception—passive significantly predicted the specific

criteria in the multivariate analysis as well. Overall, the results revealed that the absence of leadership (*laissez-faire* leadership) is nearly as important as the presence of other forms of leadership.

Corrective value of present results. Overall, results from the present study are quite different from those of previous meta-analytic reviews. Specifically, in the Lowe et al. (1996) review, the mean corrected correlation for a composite of the individual transformational leadership dimensions was .73, compared with .44 in the present meta-analysis. Thus, the overall validity of transformational leadership according to Lowe et al. is 65.9% higher than the overall validity reported here. Why do the results presented here differ so dramatically from Lowe et al.'s? One likely reason is that the methodological strength of transformational leadership studies has increased over time, providing more realistic estimates of the validity of transformational (and, of course, transactional) leadership. Indeed, 59.1% of the correlations included in this study were multisource, compared with only, on average, 31.4% of the correlations in the Lowe et al. study. Again, our point is not to criticize Lowe et al. We believe they did a thorough and faithful job of analyzing the data that were available. The issue is that more recent transformational leadership studies are more rigorous, and more rigorous studies have produced more realistic validities. This is confirmed by our own data, in that mean year of publication was significantly later for multisource studies ($M = 1996$) than it was for same-source studies ($M = 1993$), $t = 2.17$, $p < .01$.

First multivariate test of transformational and transactional leadership. Despite arguments attesting to the power and benefits of testing multivariate relationships on the basis of meta-analytic data (Colquitt et al., 2001; Viswesvaran & Ones, 1995), no previous research has tested the multivariate effects of transformational, transactional, and *laissez-faire* leadership when controlling for their mutual influences. This is critical because the augmentation hypothesis, which is one of the core hypotheses underlying the full range of leadership model (Bass, 1997), requires that the effects of transformational leadership be assessed when controlling for the influences of the other forms. Indeed, as was noted earlier, our results show that controlling for one leadership style has substantial effects on the validity of the other. At the same time, the results also tend to support the augmentation hypothesis in that transformational leadership did add beyond the effects of transactional and *laissez-faire* leadership (though controlling for these other forms of leadership did substantially reduce the effect of transformational leadership). Thus, because we investigated both criterion-related and incremental validities (the relative validities of transformational and transactional leadership controlling for each other), the results provide the most comprehensive analysis of the true validities of transformational and transactional leadership to date.

Conclusion

In summary, the meta-analytic results presented in this study provide the most complete test of the full range of leadership as postulated by Bass, Avolio, and colleagues (e.g., Jung & Avolio, 1999; Sosik et al., 1997; Yammarino & Dubinsky, 1994). The results provide important support for the validity of transformational as well as contingent reward and, to some extent, *laissez-faire* leadership. The validity of transformational leadership, in particular, seems to generalize across many situations, including

when it is studied in rigorous settings. On the other hand, our results reveal that transformational and transactional leadership are so highly related that it makes it difficult to separate their unique effects. Yukl and Van Fleet (1992) noted "Bass views transformational and transactional leadership as distinct but not mutually exclusive processes" (p. 176). Given the evidence presented here, future research should address the relationships of transformational to contingent reward and *laissez-faire* leadership as well as study these latter forms of leadership in more depth.

References

- References marked with an asterisk indicate studies included in the meta-analysis.
- *Adcock, B. P. (2000). *The role of organizational citizenship behavior in the linkage of employee and customer satisfaction*. Unpublished doctoral dissertation, University of South Florida.
 - *Albritton, R. L. (1993). *Transformational vs. transactional leadership in university libraries: A test of the model and its relationship to perceived library organizational effectiveness*. Unpublished doctoral dissertation, University of Illinois at Urbana-Champaign.
 - *Atwater, L. E., Camobreco, J. F., Dionne, S. D., Avolio, B. J., & Lau, A. N. (1997). Effects of rewards and punishments on leader charisma, leader effectiveness and follower reactions. *Leadership Quarterly*, 8, 133–152.
 - Avolio, B. J. (1999). *Full leadership development*. Thousand Oaks, CA: Sage.
 - Avolio, B. J., Bass, B. M., & Jung, D. I. (1995). *Multifactor Leadership Questionnaire technical report*. Redwood City, CA: Mind Garden.
 - Avolio, B. J., Bass, B. M., & Jung, D. I. (1999). Re-examining the components of transformational and transactional leadership using the Multifactor Leadership Questionnaire. *Journal of Occupational and Organizational Psychology*, 72, 441–462.
 - *Avolio, B. J., Waldman, D. A., & Einstein, W. O. (1988). Transformational leadership in a management game simulation: Impacting the bottom line. *Group & Organization Studies*, 13, 59–80.
 - *Avolio, B. J., & Yammarino, F. J. (1990). Operationalizing charismatic leadership using a levels-of-analysis framework. *Leadership Quarterly*, 1, 193–208.
 - *Avolio, B. J., Yammarino, F. J., & Bass, B. M. (1991). Identifying common methods variance with data collected from a single source: An unresolved sticky issue. *Journal of Management*, 17, 571–587.
 - *Awamleh, R., & Gardner, W. L. (1999). Perceptions of leader charisma and effectiveness: The effects of vision content, delivery, and organizational performance. *Leadership Quarterly*, 10, 345–373.
 - *Barling, J., Weber, T., & Kelloway, E. K. (1996). Effects of transformational leadership training on attitudinal and financial outcomes: A field experiment. *Journal of Applied Psychology*, 81, 827–832.
 - Bass, B. M. (1985). *Leadership and performance beyond expectations*. New York: Free Press.
 - Bass, B. M. (1995). Theory of transformational leadership redux. *Leadership Quarterly*, 6, 463–478.
 - Bass, B. M. (1997). Does the transactional-transformational paradigm transcend organizational and national boundaries? *American Psychologist*, 22, 130–142.
 - Bass, B. M. (1998). *Transformational leadership: Industry, military, and educational impact*. Mahwah, NJ: Erlbaum.
 - Bass, B. M. (1999). Two decades of research and development in transformational leadership. *European Journal of Work and Organizational Psychology*, 8, 9–32.
 - *Bass, B. M., & Avolio, B. J. (1989). Potential biases in leadership measures: How prototypes, leniency, and general satisfaction relate to

- ratings and rankings of transformational and transactional leadership constructs. *Educational & Psychological Measurement*, 49, 509–527.
- Bass, B. M., & Avolio, B. J. (1993). Transformational leadership: A response to critiques. In M. M. Chemers & R. Ayman (Eds.), *Leadership theory and research: Perspectives and directions* (pp. 49–80). San Diego, CA: Academic Press.
- Bass, B. M., & Avolio, B. J. (1994). *Improving organizational effectiveness through transformational leadership*. Thousand Oaks, CA: Sage.
- *Bass, B. M., & Yammarino, F. J. (1991). Congruence of self and others' leadership ratings of naval officers for understanding successful performance. *Applied Psychology: An International Review*, 40, 437–454.
- *Baum, J. R., Locke, E. A., & Kirkpatrick, S. A. (1998). A longitudinal study of the relation of vision and vision communication to venture growth in entrepreneurial firms. *Journal of Applied Psychology*, 83, 43–54.
- *Bramwell, A. T. (1992). *The effect of charismatically given task instructions on receivers' physiological and emotional responses to a task and their subsequent performance*. Unpublished doctoral dissertation, University of Washington.
- *Brossot, K. B. (2001). *Understanding employee empowerment in the workplace: Exploring the relationships between transformational leadership, employee perceptions of empowerment, and key work outcomes*. Unpublished doctoral dissertation, The Claremont Graduate University.
- Burns, J. M. (1978). *Leadership*. New York: Harper & Row.
- *Butler, J. K., Cantrell, R. S., & Flick, R. J. (1999). Transformational leadership behaviors, upward trust, and satisfaction in self-managed work teams. *Organization Development Journal*, 17, 13–28.
- *Bycio, P., Hackett, R. D., & Allen, J. S. (1995). Further assessments of Bass's (1985) conceptualization of transactional and transformational leadership. *Journal of Applied Psychology*, 80, 468–478.
- Colquitt, J. A., Conlon, D. E., Wesson, M. J., Porter, C., & Ng, K. Y. (2001). Justice at the millennium: A meta-analytic review of 25 years of organizational justice research. *Journal of Applied Psychology*, 86, 425–445.
- Conger, J. A., & Kanungo, R. N. (1998). *Charismatic leadership in organizations*. Thousand Oaks, CA: Sage.
- *Conger, J. A., Kanungo, R. N., & Menon, S. T. (2000). Charismatic leadership and follower effects. *Journal of Organizational Behavior*, 21, 747–767.
- *Cowen, S. S. (1992). A study of relationships between perceived leadership behaviors of presidents at public four-year institutions of higher education in the U. S. and the changes in FTE enrollment, perceptions of effectiveness, subordinate satisfaction, and other factors of the presidency (Doctoral dissertation, Gonzaga University, 1990). *Dissertation Abstracts International*, 53, 78.
- *Curphy, G. J. (1991). *An empirical evaluation of Bass' (1985) theory of transformational and transactional leadership*. Unpublished doctoral dissertation, University of Minnesota, Twin Cities Campus.
- DeGroot, T., Kiker, D. S., & Cross, T. C. (2000). A meta-analysis to review organizational outcomes related to charismatic leadership. *Canadian Journal of Administrative Sciences*, 17, 356–371.
- *Deluga, R. J. (1991). The relationship of leader and subordinate influencing activity in naval environments. *Military Psychology*, 3, 25–39.
- *Dubinsky, A. J., Yammarino, F. J., Jolson, M. A., & Spangler, W. D. (1995). Transformational leadership: An initial investigation in sales management. *Journal of Personal Selling & Sales Management*, 15, 17–31.
- *Ehrlich, S. B., Meindl, J. R., & Viellieu, B. (1990). The charismatic appeal of a transformational leader: An empirical case study of a small, high-technology contractor. *Leadership Quarterly*, 1, 229–247.
- *Fullagar, C., McCoy, D., & Shull, C. (1992). The socialization of union loyalty. *Journal of Organizational Behavior*, 13, 13–26.
- Fuller, J. B., Patterson, C. E. P., Hester, K., & Stringer, D. Y. (1996). A quantitative review of research on charismatic leadership. *Psychological Reports*, 78, 271–287.
- *Gerstner, C. R. (1998). *Leadership relationships and work group effectiveness: A multi-level empirical examination*. Unpublished doctoral dissertation, The Pennsylvania State University.
- *Geyer, A. L. J., & Steyrer, J. M. (1998). Transformational leadership and objective performance in banks. *Applied Psychology: An International Review*, 47, 397–420.
- *Hackman, M. Z., Furniss, A. H., Hills, M. J., & Paterson, T. J. (1992). Perceptions of gender-role characteristics and transformational and transactional leadership behaviours. *Perceptual & Motor Skills*, 75, 311–319.
- *Hater, J. J., & Bass, B. M. (1988). Superiors' evaluations and subordinates' perceptions of transformational and transactional leadership. *Journal of Applied Psychology*, 73, 695–702.
- *Holladay, S. J., & Coombs, W. T. (1994). Speaking of visions and visions being spoken. *Management Communication Quarterly*, 8, 165–189.
- House, R. J. (1977). A 1976 theory of charismatic leadership. In J. G. Hunt & L. L. Larson (Eds.), *Leadership: The cutting edge* (pp. 189–207). Carbondale, IL: South Illinois University Press.
- House, R. J., & Aditya, R. N. (1997). The social scientific study of leadership: Quo vadis? *Journal of Management*, 23, 409–473.
- House, R. J., & Podsakoff, P. M. (1994). Leadership effectiveness: Past perspectives and future directions for research. In J. Greenberg (Ed.), *Organizational behavior: The state of the science* (pp. 45–82). Hillsdale, NJ: Erlbaum.
- House, R. J., & Shamir, B. (1993). Toward the integration of transformational, charismatic, and visionary theories. In M. M. Chemers & R. Ayman (Eds.), *Leadership theory and research: Perspectives and directions* (pp. 81–107). San Diego: Academic Press.
- *House, R. J., Spangler, W. D., & Woycke, J. (1991). Personality and charisma in the U. S. presidency: A psychological theory of leader effectiveness. *Administrative Science Quarterly*, 36, 364–396.
- *Howell, J. M., & Avolio, B. J. (1993). Transformational leadership, transactional leadership, locus of control, and support for innovation: Key predictors of consolidated business-unit performance. *Journal of Applied Psychology*, 78, 891–902.
- *Howell, J. M., & Frost, P. J. (1989). A laboratory study of charismatic leadership. *Organizational Behavior & Human Decision Processes*, 43, 243–269.
- *Howell, J. M., & Hall-Merenda, K. E. (1999). The ties that bind: The impact of leader-member exchange, transformational and transactional leadership, and distance on predicting follower performance. *Journal of Applied Psychology*, 84, 680–694.
- *Howell, J. M., & Higgins, C. A. (1990). Champions of technological innovation. *Administrative Science Quarterly*, 35, 317–341.
- Hunter, J. E. (1992). *REGRESS: A multiple regression program in BASIC*. User's manual [Computer software and manual]. East Lansing: Michigan State University, Department of Psychology.
- Hunter, J. E., & Schmidt, F. L. (1990). *Methods of meta-analysis*. Newbury Park, CA: Sage.
- *Judge, T. A. (2002). [Leadership among students in MAN 5245, Organizational Behavior, Spring, 2002]. Unpublished raw data.
- Judge, T. A., & Bono, J. E. (2000). Five-factor model of personality and transformational leadership. *Journal of Applied Psychology*, 85, 751–765.
- *Jung, D. I. (2001). Transformational and transactional leadership and their effects on creativity in groups. *Creativity Research Journal*, 13, 185–195.
- *Jung, D. I., & Avolio, B. J. (1998). Examination of transformational leadership and group process among Caucasian- and Asian-Americans: Are they different? *Research in International Business and International Relations*, 7, 29–66.
- Jung, D. I., & Avolio, B. J. (1999). Effects of leadership style and

- followers' cultural orientation on performance in group and individual task conditions. *Academy of Management Journal*, 42, 208–218.
- *Jung, D. I., & Avolio, B. J. (2000). Opening the black box: An experimental investigation of the mediating effects of trust and value congruence on transformational and transactional leadership. *Journal of Organizational Behavior*, 21, 949–964.
- *Kane, T. D., & Tremble, T. R. (2000). Transformational leadership effects at different levels of the Army. *Military Psychology*, 12, 137–160.
- *Keller, R. T. (1992). Transformational leadership and the performance of research and development project groups. *Journal of Management*, 18, 489–501.
- *Kim, J. (2001). *A study of relationships among work motivation, problem-solving style, leadership style, and team climate on creative behavior in the South Korean workplace*. Unpublished doctoral dissertation, University of Missouri—Columbia.
- *Kirby, P. C., Paradise, L. V., & King, M. I. (1992). Extraordinary leaders in education: Understanding transformational leadership. *Journal of Educational Research*, 85, 303–311.
- *Kirkpatrick, S. A., & Locke, E. A. (1996). Direct and indirect effects of three core charismatic leadership components on performance and attitudes. *Journal of Applied Psychology*, 81, 36–51.
- *Koh, W. L., Steers, R. M., & Terborg, J. R. (1995). The effects of transformation leadership on teacher attitudes and student performance in Singapore. *Journal of Organizational Behavior*, 16, 319–333.
- *Kramer, T. R. (1996). *An empirical assessment of the behavioral dimensions of charismatic leadership*. Unpublished doctoral dissertation, University of Alabama.
- *Kudisch, J. D., Poteet, M. L., Dobbins, G. H., & Rush, M. C. (1995). Expert power, referent power, and charisma: Toward the resolution of a theoretical debate. *Journal of Business & Psychology*, 10, 177–195.
- Kuhnert, K. W., & Lewis, P. (1987). Transactional and transformational leadership: A constructive developmental analysis. *Academy of Management Review*, 12, 648–657.
- *Larmore, A. M. (2000). *The relationship between leader match, direct report team perceptions of transformational leadership, and CEO effectiveness*. Unpublished doctoral dissertation, Illinois Institute of Technology.
- *Liang, T. (1991). *Relationships among leader attributes, behaviors, and effectiveness of vocational education administrators*. Unpublished doctoral dissertation, University of Minnesota, Twin Cities Campus.
- Lowe, K. B., Kroeck, K. G., & Sivasubramaniam, N. (1996). Effectiveness correlates of transformation and transactional leadership: A meta-analytic review of the MLQ literature. *Leadership Quarterly*, 7, 385–425.
- *MacKenzie, S. B., Podsakoff, P. M., & Rich, G. A. (2001). Transformational and transactional leadership and salesperson performance. *Journal of the Academy of Marketing Science*, 29, 115–134.
- *McConnell, L. L. (1992). *Visionary leadership and managerial leadership in secondary school principals*. Unpublished doctoral dissertation, University of La Verne.
- *McDaniel, C., & Wolf, G. A. (1992). Transformational leadership in nursing service. *Journal of Nursing Administration*, 22, 60–65.
- *Niehoff, B. P., Enz, C. A., & Grover, R. A. (1990). The impact of top-management actions on employee attitudes and perceptions. *Group & Organization Studies*, 15, 337–352.
- *Paul, J. R. (1999). *The effects of charismatic leadership on followers' self-cognitions and cognitive processing*. Unpublished doctoral dissertation, New Mexico State University.
- *Percy, P. M. (1997). *Relationships between interpersonal power and followers' satisfaction: A leadership perspective*. Unpublished doctoral dissertation, University of Kentucky.
- *Pillai, R., & Meindl, J. R. (1998). Context and charisma: A "meso" level examination of the relationship of organic structure, collectivism, and crisis to charismatic leadership. *Journal of Management*, 24, 643–671.
- *Pillai, R., Schriesheim, C. A., & Williams, E. S. (1999). Fairness perceptions and trust as mediators for transformational and transactional leadership: A two-sample study. *Journal of Management*, 25, 897–933.
- *Podsakoff, P. M., MacKenzie, S. B., & Bommer, W. H. (1996). Transformational leader behaviors and substitutes for leadership as determinants of employee satisfaction, commitment, trust, and organizational citizenship behaviors. *Journal of Management*, 22, 259–298.
- *Podsakoff, P. M., MacKenzie, S. B., Moorman, R. H., & Fetter, R. (1990). Transformational leader behaviors and their effects on followers' trust in leader, satisfaction, and organizational citizenship behaviors. *Leadership Quarterly*, 1, 107–142.
- *Pollock, K. S. (1998). *The relationship between leadership style and subordinate satisfaction and performance in public accounting firms*. Unpublished doctoral dissertation, University of Kentucky.
- Quiñones, M. A., Ford, J. K., & Teachout, M. S. (1995). The relationship between work experience and job performance: A conceptual and meta-analytic review. *Personnel Psychology*, 48, 887–910.
- *Rogers, T. A. (2001). *The role of transformational leadership in salespersons' motivation and performance*. Unpublished doctoral dissertation, Illinois Institute of Technology.
- *Ross, S. M., & Offermann, L. R. (1997). Transformational leaders: Measurement of personality attributes and work group performance. *Personality & Social Psychology Bulletin*, 23, 1078–1086.
- *Roush, P. E., & Atwater, L. E. (1992). Using the MBTI to understand transformational leadership and self-perception accuracy. *Military Psychology*, 4, 17–34.
- *Rush, C. H., Jr. (1959). Group dimensions of aircrews. *Dissertation Abstracts*, 19, 1847–1850.
- *Russ, F. A., McNeilly, K. M., & Comer, J. M. (1996). Leadership, decision making and performance of sales managers: A multi-level approach. *Journal of Personal Selling & Sales Management*, 16, 1–15.
- Sagiv, A., & Koslowsky, M. (1993). Detecting moderators with meta-analysis: An evaluation and comparison of techniques. *Personnel Psychology*, 46, 629–640.
- *Seltzer, J., & Bass, B. M. (1990). Transformational leadership: Beyond initiation and consideration. *Journal of Management*, 16, 693–703.
- *Shamir, B. (1992). Attribution of influence and charisma to the leader: The romance of leadership revisited. *Journal of Applied Social Psychology*, 22, 386–407.
- *Shamir, B., Zakay, E., Breinin, E., & Popper, M. (1998). Correlates of charismatic leader behavior in military units: Subordinates' attitudes, unit characteristics, and superiors' appraisals of leader performance. *Academy of Management Journal*, 41, 387–409.
- *Shea, C. M., & Howell, J. M. (1999). Charismatic leadership and task feedback: A laboratory study of their effects on self-efficacy and task performance. *Leadership Quarterly*, 10, 375–396.
- *Shivers, S. L. (2000). *A role theory approach to understanding transformational and transactional leadership behaviors: The role of interpretations of organizational context*. Unpublished doctoral dissertation, Purdue University.
- *Silins, H. C. (1992). Effective leadership for school reform. *Alberta Journal of Educational Research*, 38, 317–334.
- *Singer, M. S. (1985). Transformational vs transactional leadership: A study of New Zealand company managers. *Psychological Reports*, 57, 143–146.
- *Sosik, J. J. (1997). Effects of transformational leadership and anonymity on idea generation in computer-mediated groups. *Group & Organization Management*, 22, 460–487.
- *Sosik, J. J., Avolio, B. J., & Kahai, S. S. (1997). Effects of leadership style and anonymity on group potency and effectiveness in a group decision support system environment. *Journal of Applied Psychology*, 82, 89–103.
- *Sosik, J. J., Avolio, B. J., Kahai, S. S., & Jung, D. I. (1998). Computer-supported work group potency and effectiveness: The role of transfor-

- mational leadership, anonymity, and task interdependence. *Computers in Human Behavior*, 14, 491–511.
- *Sosik, J. J., & Megerian, L. E. (1999). Understanding leader emotional intelligence and performance: The role of self–other agreement on transformational leadership perceptions. *Group & Organization Management*, 24, 367–390.
- *Spangler, W. D., & Braiotta, L. (1990). Leadership and corporate audit committee effectiveness. *Group & Organization Studies*, 15, 134–157.
- *Sparks, J. R., & Schenk, J. A. (2001). Explaining the effects of transformational leadership: An investigation of the effects of higher-order motives in multilevel marketing organizations. *Journal of Organizational Behavior*, 22, 849–869.
- Steiger, J. H. (1980). Tests for comparing elements of a correlation matrix. *Psychological Bulletin*, 87, 245–251.
- *Tracey, J. B., & Hinkin, T. R. (1998). Transformational leadership or effective managerial practices? *Group & Organization Management*, 23, 220–236.
- Viswesvaran, C., & Ones, D. S. (1995). Theory testing: Combining psychometric meta-analysis and structural equations modeling. *Personnel Psychology*, 48, 865–885.
- *Waldman, D. A., Bass, B. M., & Einstein, W. O. (1987). Leadership and outcomes of performance appraisal processes. *Journal of Occupational Psychology*, 60, 177–186.
- *Waldman, D. A., Bass, B. M., & Yammarino, F. J. (1990). Adding to contingent-reward behavior: The augmenting effect of charismatic leadership. *Group & Organization Studies*, 15, 381–394.
- Weber, M. (1947). *The theory of social and economic organization*. (A. M. Henderson & T. Parsons, Trans.). New York: Free Press. (Original work published 1921)
- *Wofford, J. C., Goodwin, V. L., & Whittington, J. L. (1998). A field study of a cognitive approach to understanding transformational and transactional leadership. *Leadership Quarterly*, 9, 55–84.
- *Wofford, J. C., Whittington, J. L., & Goodwin, V. L. (2001). Follower motive patterns as situational moderators for transformational leadership effectiveness. *Journal of Managerial Issues*, 13, 196–211.
- *Yammarino, F. J., & Bass, B. M. (1990a). Long-term forecasting of transformational leadership and its effects among naval officers: Some preliminary findings. In K. E. Clark & M. B. Clark (Eds.), *Measures of leadership* (pp. 151–169). West Orange, NJ: Leadership Library of America.
- *Yammarino, F. J., & Bass, B. M. (1990b). Transformational leadership and multiple levels of analysis. *Human Relations*, 43, 975–995.
- *Yammarino, F. J., & Dubinsky, A. J. (1994). Transformational leadership theory: Using levels of analysis to determine boundary conditions. *Personnel Psychology*, 47, 787–811.
- *Yammarino, F. J., Dubinsky, A. J., Comer, L. B., & Jolson, M. A. (1997). Women and transformational and contingent reward leadership: A multiple-levels-of-analysis perspective. *Academy of Management Journal*, 40, 205–222.
- *Yammarino, F. J., Spangler, W. D., & Bass, B. M. (1993). Transformational leadership and performance: A longitudinal investigation. *Leadership Quarterly*, 4, 81–102.
- *Yorges, S. L., Weiss, H. M., & Strickland, O. J. (1999). The effect of leader outcomes on influence, attributions, and perceptions of charisma. *Journal of Applied Psychology*, 84, 428–436.
- Yukl, G., & Van Fleet, D. D. (1992). Theory and research on leadership in organizations. In M. D. Dunnette & L. M. Hough (Eds.), *Handbook of industrial and organizational psychology* (pp. 147–197). Palo Alto, CA: Consulting Psychologists Press.
- *Zacharatos, A., Barling, J., & Kelloway, E. K. (2000). Development and effects of transformational leadership in adolescents. *Leadership Quarterly*, 11, 211–226.

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