



## The relative impact of complementary leader behaviors: Which matter most? ☆

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### ABSTRACT

Despite conceptual overlap between the transformational–transactional model of leadership and the Ohio State two-factor model (i.e., Consideration and Initiating Structure), no systematic research examines correspondence among these behaviors or estimates their relative validities across a common set of outcomes. The current studies a) examine the factor structure of five key dimensions of these two models (transformational, contingent reward, laissez faire, Initiating Structure, and Consideration) and b) estimate relative validities with respect to two organizational outcomes: employee job satisfaction and perceptions of leadership effectiveness. Although results of a meta-analysis show that transformational leadership is significantly related to both Consideration ( $\rho = .74$ ) and Initiating Structure ( $\rho = .50$ ), results of two primary studies provide support for the independence of these leadership dimensions. Moreover, dominance analyses (Budescu, 1993) reveal that Consideration and transformational leadership are the most important predictors of employee job satisfaction and ratings of leadership effectiveness, and each had incremental validity when controlling for the effects of the other. Overall, results suggest that dimensions from both models are important predictors of employee outcomes.

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### 1. Introduction

The leadership literature is vast and has produced thousands of studies that reveal the impact of leader behavioral patterns on a host of organizationally-relevant outcomes. Unfortunately, many of these studies tend to focus on only one particular approach without careful evaluation of its distinctiveness or relative influence beyond other leadership models. As Yukl (1989) noted, "... most researchers deal only with a narrow aspect of leadership and ignore the other aspects" (p. 254). While this phenomenon is common in the organization sciences (Ulrich & Barney, 1984), it may be particularly true for studies of leadership and leader effectiveness. Indeed, narrow examinations of isolated leader behaviors represent the "typical" leadership study (Hunter et al., 2007).

To date, only a handful of studies have attempted to examine the relative influence of multiple, distinct leadership conceptualizations (Bycio et al., 1995; Howell & Avolio, 1993; Howell & Hall-Merenda, 1999; Judge & Piccolo, 2004; Jung, 2001; Seltzer & Bass, 1990) or to assess the extent to which leadership theories, or the behavior dimensions specified by those theories, overlap (see DeRue et al., 2011, for a recent exception). Studies that compare and contrast multiple leadership dimensions have tended to focus on dimensions within a particular theory (e.g., transformational vs. transactional leadership, Judge & Piccolo, 2004; Vecchio et al., 2008), rather than make comparisons between different models.

Though many theories of leadership are proposed to be conceptually and functionally distinct, similarities exist in terms of leader portrayal, influence processes, and consequences (Yukl et al., 2002). Modern approaches, such as transformational leadership (Bass,

☆ This manuscript includes the efforts of three distinct research teams, each of which was independently addressing similar research questions. Upon learning about each others' research, the authors joined their three independent studies to provide a more comprehensive examination of the overlap between the transformational–transactional and Ohio State two-factor leadership models. Thus, these studies were not designed as a sequence of studies. Rather, this manuscript presents a collection of studies conducted simultaneously.

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1985; Burns, 1978), which emphasize follower perceptions, cognitions, and emotional responses to the leader (Lord & Brown, 2001; McColl-Kennedy & Anderson, 2002; Piccolo & Colquitt, 2006), are often regarded as advancements over more leader-centric models of effectiveness (e.g., Ohio State studies), but “proponents of these theories have exaggerated their uniqueness and capacity to explain effective leadership” (Yukl, 1999; p. 33). Whereas transformational leadership theory is often regarded as an improvement in scope and predictive validity over prior behavioral approaches (Yukl, 1999), facets of transformational leadership theory are strikingly similar to those described in the Ohio State model (Fleishman, 1973), and summary estimates of each model’s criterion-related validity are similar as well (Judge & Piccolo, 2004; Judge et al., 2004).

Given this conceptual and empirical convergence, we seek to understand the extent to which the transformational–transactional and Ohio State models of leadership overlap, and further seek to examine the relative validities of these models on a common set of organizational outcomes, namely follower job satisfaction and leader effectiveness. To do so, we conducted a meta-analysis of the studies that have measured both leadership models, we report results from two primary studies that were designed to determine the underlying factor structure of five behaviors in the two models, and then we assessed whether the two models complement (or supplant) each other in terms of predictive validity. We focus specifically on the five leadership dimensions from these two models (transformational, contingent reward, laissez faire, Consideration, and Initiating Structure) that have been shown to have robust predictive validity across a diverse set of outcomes (Judge & Piccolo, 2004; Judge et al., 2004).

In these three studies, we address three research questions: 1) Are the dimensions of the two leadership models empirically distinct? 2) To what extent are the narrow dimensions of each model redundant with each other in terms of predicting outcomes? 3) Which dimensions (e.g., transformational vs. Consideration) and which model (i.e., transformation-transactional vs. Ohio State two-factor) are most important in predicting outcomes? The answers to these questions tap the theoretical foundations on which the original models were built and have the potential to provide guidance to organizations about which leader behaviors (e.g., relationship development, role clarification) are the most important for achieving desired outcomes. Each of the two leadership models addressed in this research is effective at explaining variance in organizational outcomes, but little is known about their relative validities or whether they are redundant in the variance they each explain.

In addition, we aimed at answering these questions based on data collected in two countries (the United States and Germany) with different national cultures. We anticipated that doing so would shed light on the cultural independence of these leadership models, which each is important for predicting outcomes in both U.S. and German samples (e.g. Rowold & Heinitz, 2008). In the following section, we present brief overviews of the Ohio State and transformational leadership models, and offer hypotheses regarding the correspondence among the behaviors that characterize each approach. We then present the results of three independent empirical studies.

## 2. Consideration and Initiating Structure

The Ohio State studies of the 1950s and 1960s (e.g., Fleishman, 1953; Korman, 1966; Stogdill, 1950) identified two leader behaviors that were related to leader effectiveness. *Consideration* is the degree to which a leader shows concern and respect for followers, looks out for their welfare, and expresses appreciation and support (Bass, 1990). Considerate leaders are oriented towards developing relationships and mutual trust with followers, and make special efforts to have followers feel comfortable with the leader and confident in their own abilities to complete assignments. *Initiating Structure*, on the other hand, is the degree to which a leader defines and organizes his or her role and the roles of his or her followers. Leaders who initiate structure are oriented toward task and goal attainment, and seek to establish specific patterns of communication with followers. In addition, these leaders make special efforts to maintain standards for the manner in which work is to be accomplished (Fleishman, 1973). In sum, Consideration and Initiating Structure are specific behaviors that leaders enact toward followers in a variety of contexts (Northouse, 2001).

The behavioral approach to understanding leadership remained popular for several decades and both Consideration and Initiating Structure generated considerable empirical study in the leadership literature. Whereas the two behaviors seem to be fulfilled through different mechanisms, both Consideration and Initiating Structure are associated with follower attitudes and work-relevant behaviors. A meta-analysis provided estimates for the validities of Consideration and Initiating Structure (Judge et al., 2004) across six criteria: follower job satisfaction, follower satisfaction with the leader, follower motivation, leader job performance, group/organization performance, and leader effectiveness. According to Judge et al. (2004), Consideration is strongly related to outcomes that indicate follower satisfaction, while Initiating Structure is strongly related to outcomes that indicate performance (e.g., leader job performance). Consideration and Initiating Structure each displayed positive, non-zero correlations with follower job satisfaction and follower satisfaction with the leader, but Consideration was more strongly related to satisfaction than Initiating Structure.

Recent studies of the Ohio State behaviors have identified mechanisms that account for these observed effects (e.g., regulatory focus; Neubert et al., 2008), boundary conditions on the effectiveness of leader behaviors (e.g., national culture; Euwema et al., 2007), and each behavior’s validity when controlling for the other (e.g., Keller, 2006). Thus, while the transformational model (Bass, 1985) continues to garner research on the mechanisms and processes by which leadership is revealed, the two-factor model (Consideration and Initiating Structure) appears to be enjoying a resurgence in the literature, perhaps driven by Judge et al.’s (2004) recognition of the model’s validity.

## 3. Transformational–transactional leadership

The most popular contemporary theory of leadership is transformational leadership. The theory was originally introduced by Burns (1978) and Bass (1985) to describe the impact that exceptional leaders have on subordinates’ reactions and to describe the

process by which leaders create a connection with followers, attend to their individual needs, and help followers reach their potential. Transformational leadership theory rests on the idea that certain leader behaviors not only influence subordinate attitudes and behaviors, but also inspire them to perform beyond previous levels.

Since its original introduction, transformational leadership theory has evolved to describe four dimensions of behavior: idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration. *Idealized influence* is the degree to which leaders behave in admirable or charismatic ways that cause followers to identify with them. *Inspirational motivation* is the degree to which leaders articulate a vision that is appealing and inspiring to followers. *Intellectual stimulation* is the degree to which leaders challenge assumptions, take risks, and solicit followers' ideas. *Individualized consideration* is the degree to which leaders attend to followers' needs, act as mentors or coaches, and listen to followers' concerns. In the last two decades, the positive effects of transformational leadership have been described in hundreds of empirical studies and summarized in three separate meta-analytic reviews (Fuller et al., 1996; Judge & Piccolo, 2004; Lowe et al., 1996).

Transactional leader behaviors are also characterized along four dimensions: contingent reward, management-by-exception active, management-by-exception passive, and laissez-faire leadership. *Contingent reward* is the degree to which the leader relies of constructive transactions or exchanges to motivate followers, such as clarifying expectations and establishing the pattern of rewards available for meeting those expectations. Management-by-exception is the degree to which the leader takes corrective action based on results of leader–follower transactions (Judge & Piccolo, 2004). As noted by Howell and Avolio (1993), the difference between *management-by-exception active* and *management-by-exception passive* lies in the timing of the leader's intervention. Active leaders monitor follower behavior, anticipate problems, and take preventative actions before problems become serious. Passive leaders, on the other hand, wait until the behavior has created problems before taking corrective action. Finally, *laissez-faire* is the avoidance or absence of leadership, indicating leaders who avoid making decisions, hesitate in taking action, and are absent when needed.

Although transformational behaviors were expected to constitute an extension and enhancement beyond transactional leadership, in other words, *augment* the effect of transactional leadership (Bass, 1985) on outcomes, transformational and contingent reward behaviors maintain similar levels of predictive validity across criteria such as follower performance, follower job satisfaction, and ratings of leader effectiveness (Judge & Piccolo, 2004). Further, the two behaviors are highly correlated ( $\rho = .80$ ; Judge & Piccolo, 2004), suggesting that transformational and contingent reward may indeed be tapping similar mechanisms in the leadership process.

Most research on Consideration, Initiating Structure, and transformational leadership has been conducted in North America. Global leadership has been subject to intensive research recently (conf. the GLOBE project, House et al., 2004), providing a glimpse of differences and similarities associated with national culture. Both of the above described leadership concepts are widely used in German speaking countries. While there are cultural differences between American and German cultures (Gupta et al., 2002; Hofstede, 1980), "American" leadership practices (Kuchinke, 1999), such as transformational leadership, Consideration, and Initiating Structure, show an impact on organizational outcomes in German research (Heinitz, 2006; Kroeger & Tartler, 2002; Rowold & Heinitz, 2008). Although culture is not the main focus of this study, gathering data in different countries allows us to examine cross-cultural validity. As extant research indicates that these leadership concepts demonstrate validity in both countries, understanding the uniqueness of leadership styles in a cross-cultural setting would highlight their global importance.

#### 4. Similarities and differences between the two leadership models

Despite its popularity in the leadership literature, little research has attempted to test the validity of transformational–transactional leadership relative to other leadership approaches, even though theoretical arguments suggest similarities between some of their dimensions. The transformational approach is proposed to be an extension of previous behavioral theories (Yukl, 1999), but there have been only brief descriptions in the literature of how transformational leadership relates to the behaviors in the Ohio State studies (Hunt, 1999).

Bass (1999) argued that the transformational leadership facet of individualized consideration could be distinguished from the Ohio State Consideration factor because individualized consideration deals with a concern for followers and their individual development. Consideration, Bass (1999) argued, was more transactional in nature, specifying the behaviors a leader takes to foster relationships with followers (e.g., building camaraderie and trust) rather than effort on the part of the leader to help followers achieve a high level of development. Despite Bass (1999) arguments, some of the behaviors that characterize Consideration or Initiating Structure are similar to those of the transformational–transactional approach. A leader who uses individualized consideration, for example, treats each follower in a "caring and unique way" (Northouse, 2001, p. 139). With some followers, the leader may build a strong affiliation or personal bond, in which case individualized consideration resembles Consideration. Thus, behaviors that characterize individualized consideration and Consideration exhibit some overlap.

Beyond the conceptual similarities between transformational–transactional leadership and the Ohio State behaviors, the few empirical studies that have included both approaches tend to report high intercorrelations. Seltzer and Bass (1990), for example, reported a significant relationship between individualized consideration and Consideration ( $r = .60, p < .01$ ). The Seltzer and Bass (1990) study also reported strong correlations between Initiating Structure and the transformational facets of charisma ( $r = .42, p < .01$ ) and intellectual stimulation ( $r = .48, p < .01$ ). Furthermore, in an attempt to organize a hierarchical taxonomy of leadership behaviors, Yukl et al. (2002) labeled both *Consideration*, as measured by the LBDQ-12 (Stogdill et al., 1962), and *individualized consideration*, as measured by the Multi-Factor Leadership Questionnaire (Bass & Avolio, 1995), as aspects of a broad set of supporting leader behaviors. Thus, our first research question focuses on empirical overlap between the five dimensions of the two leadership models.

Because the dimensions exhibit empirical overlap (i.e., they are strongly correlated with each other), but have some conceptual and measurement distinctions, we suggest the following.

**Hypotheses 1.** The five key dimensions of the Ohio State and transformational–transactional leadership models (transformational leadership, contingent reward, laissez faire, Initiating Structure and Consideration) represent five distinct correlated factors.

Even though key dimensions of the two leadership models addressed in this research may be conceptually and empirically distinct, we expect them to be highly correlated (e.g., Seltzer & Bass, 1990). For this reason we also address the extent to which each of the five distinct dimensions has unique predictive validity. Existing research suggests that dimensions from both the transformational–transactional and Ohio State two-factor models have similar relations with organizational measures of performance. Lowe et al. (1996), for example, reported a 95% confidence interval of .26 to .29 for the corrected validity estimate of individualized consideration on organizational and leader performance. The estimated validity of Consideration predicting group/organization performance as reported by Judge et al. (2004) was  $\rho = .28$ , which falls within the 95% confidence interval for individualized consideration reported by Lowe et al. (1996). Further, the relationship between Consideration and leader job performance ( $\rho = .25$ ; Judge et al., 2004) is within the 95% confidence interval for the relation between intellectual stimulation and performance (.25, .28) reported by Lowe et al. (1996). Similar predictive validities do not necessarily mean that the leadership dimensions are redundant, as each may explain unique variance in the outcomes. However, similarity in validities of dimensions from the two models points out the importance of conducting usefulness analyses, to determine whether each dimension has incremental predictive validity after controlling for the others.

Despite similar validities among dimensions of the two models, theory suggests that the transformational–transactional model is broader (Bass, 1985) than the simpler two-factor behavioral approach offered by researchers at Ohio State. Whereas Consideration and Initiating Structure are both valid predictors of organizational criteria (Judge et al., 2004), there is a reason to believe that transformational–transactional leadership model will explain additional variance in outcomes, such as performance, satisfaction, and motivation, beyond the two-factor model. The Ohio State two-factor model, for example, does not describe behaviors that are important for leader effectiveness such as expressing a clear vision, managing change, or connecting emotionally with followers (Yukl, 1999). A central tenet in the transformational leadership process is the powerful emotional effect that these leaders have on their followers, such that followers come to experience higher levels of self-efficacy (Bono & Judge, 2003; Shamir et al., 1993) and group potency (Sosik et al., 1997), set higher goals (Sosik et al., 2004), and regard organizational objectives as their own (Bono & Judge, 2003). As a more comprehensive approach to understanding the leadership process, transformational leadership theory is likely to explain variance in outcomes beyond that of the two-factor behavioral approach.

It is also true, however, that the Ohio State factors specify leader behaviors that are not directly captured by the transformational–transactional model. The “full range of leadership” as introduced by Bass (1985) and extended by Avolio (1999) does not fully describe some of the behaviors portrayed in the two-factor model. None of the transformational–transactional dimensions, for example, suggest that leaders define the roles of followers and establish specific modes of communication (Initiating Structure), nor does the transformational–transactional approach suggest that leaders spend time fostering cooperation among team members or building personal relationships with followers (Consideration). The Multi-factor Leadership Questionnaire (MLQ; Bass & Avolio, 1995), the most popular measure of the transformational–transactional model of leadership, does not assess the extent to which leaders assign particular tasks or schedule work to be done (Initiating Structure), nor the extent to which leaders treat team members as equals (Consideration). Given theoretical arguments that each leadership model includes unique dimensions, we hypothesize the following.

**Hypothesis 2a.** In aggregate, the dimensions of the transformational–transactional model have incremental validity in predicting employee job satisfaction and leader effectiveness, after controlling for the effects of the two Ohio State leadership dimensions.

**Hypothesis 2b.** In aggregate, the dimensions of the Ohio State leadership model have incremental validity in predicting employee job satisfaction and leader effectiveness, after controlling for the effects of the transformational–transactional dimensions.

In addition to our specific predictions for the overall leadership models, we will also examine the incremental predictive validity of each of the five key dimensions (transformational, contingent reward, laissez faire, Consideration, and Initiating Structure) after controlling for all the other dimensions. We will also examine the *relative* importance of each of the five dimensions in predicting the outcomes of interest.

## 5. Study 1

In Study 1, our focus was on the association between transformational leadership, Initiating Structure and Consideration, and the outcomes. We used the small existing literature that included measures of multiple leader behaviors to conduct a meta-analysis examining the correlations between transformational leadership and the two Ohio State dimensions, as well as the relative validity of each in predicting job satisfaction and leader effectiveness. Due to the paucity of studies that included the transactional dimensions along with Consideration and Initiating Structure, we address only transformational leadership in Study 1.

In the subsequent studies, we focus on those leader behaviors that have been shown to hold robust predictive validities across several organizational outcomes. We have excluded the management-by-exception active and passive dimensions of transactional leadership, which are related to our criteria in some studies (e.g. Yammarino, Spangler, & Bass, 1993), but not others (e.g., Yammarino & Bass, 1990). That is, the management-by-exception dimension does not appear to be as robust a correlate of satisfaction

and effectiveness as the other transactional dimensions (contingent reward and laissez-faire). We therefore did not include management-by-exception in estimates of factor structure or relative validity.

### 5.1. Method

We searched the PsycInfo database (1887–2011) for all studies (articles, book chapters, dissertations, and unpublished reports) that included keywords such as Consideration, Initiating Structure, transformational leadership, and the four dimensions of transformational leadership (e.g., intellectual stimulation). We also searched for related keywords such as charisma or charismatic leadership and examined the references of relevant review articles (Fuller et al., 1996; Judge & Piccolo, 2004; Judge et al., 2004; Lowe et al., 1996) to identify studies not discovered in the electronic search. This search yielded a total of 169 studies.

There were three requirements for inclusion in this meta-analysis: 1) articles had to include original empirical data; 2) studies had to have measured at least one of the Ohio State behaviors and at least one dimension of transformational leadership; 3) studies had to report correlations or the data needed to compute correlations. When several transformational leadership dimensions were included in a study, we calculated a composite correlation. Only eleven studies met the criteria for inclusion in the final analysis.

To examine the association between the leadership dimensions and outcomes, we followed the theory-testing method developed by Viswesvaran and Ones (1995). We used meta-analytic estimates of the correlation between the leadership dimensions (between Initiating Structure and Consideration as reported by Judge & Piccolo, 2004), and meta-analytic correlations between the three leadership dimensions and the outcomes as reported by Judge and Piccolo (2004) and Judge et al. (2004), to estimate a regression model examining the unique effects of each leadership dimension on each outcome, after controlling for the effects of the other dimensions. We used Hunter's (1992) software program to conduct a regression analysis on the meta-analytically derived correlations between the leadership variables and outcomes (i.e., meta-analytic regression; Colquitt et al., 2001), a technique that has been used previously in leadership research (Podsakoff et al., 1996). To compute the standard errors associated with regression coefficients, we used the harmonic mean of the total sample sizes on which each meta-analytic correlation was estimated (Viswesvaran & Ones, 1995).

### 5.2. Results

Results revealed that transformational leadership is highly correlated with Consideration ( $\hat{\rho} = .74, p < .05$ ) and is positively correlated with Initiating Structure ( $\hat{\rho} = .50, p < .05$ ) as well. The correlations between transformational leadership and the dimensions of the two-factor model are higher than the correlation between the two dimensions of the Ohio State model (i.e., Consideration and Initiating Structure), as reported by Judge et al., 2004 ( $\hat{\rho} = .17; p < .05$ ).

To determine the unique, incremental validity of the three dimensions, we estimated regression equations for each of the study's criteria (job satisfaction, leader effectiveness) in which all three leadership dimensions were entered simultaneously. To estimate these regressions, we used data from the meta-analysis of the association between transformational leadership, Consideration, and Initiating Structure, and data from Judge and Piccolo (2004) and Judge et al. (2004) linking these leadership dimensions to the outcomes. Results in Table 1 show that when predicting employees' satisfaction with their jobs, both Consideration ( $\beta = .23, p < .01$ ) and transformational leadership ( $\beta = .28, p < .01$ ) were significant predictors, but Initiating Structure was not ( $\beta = -.07, p > .05$ ). For leader effectiveness, the pattern was slightly different with Initiating Structure ( $\beta = .21, p < .01$ ) and transformational ( $\beta = .20, p < .01$ ) as significant predictors, but not Consideration ( $\beta = .15, p > .05$ ). These results show that each model of leadership is useful in predicting the outcomes of interest, supporting H2a and H2b. However, when we examine results at the dimension level, we find that some dimensions are redundant (i.e., Initiating Structure adds nothing to the prediction of job satisfaction, and Consideration adds nothing to the prediction of effectiveness).

## 6. Study 2

In Study 2, we use primary data to examine the factor structure of the five dimensions that comprise the two leadership models, as well as the relative importance of each dimension in predicting outcomes. An important aspect of Study 2 is that all of the data (reports of leadership behavior and outcomes) are reported by the same individual. Although same-source data tend to be viewed

**Table 1**  
Relative validity of Consideration, Initiating Structure, and transformational leadership: Study 1.

	Follower Job satisfaction	Leader Effectiveness
Consideration	.23**	.15
Initiating Structure	-.07	.21**
Transformational leadership	.28**	.20**
R	.46**	.45**
R <sup>2</sup>	.21**	.20

Note. With the exceptions of R and R<sup>2</sup>, table entries are standardized regression ( $\beta$ ) coefficients. Harmonic mean sample size = 295.

\*  $p < .05$ .

\*\*  $p < .01$ .



negatively in the organizational sciences in general (Podsakoff et al., 2003), such data are important for this research because we are interested in the *relative* importance of several leadership dimensions in predicting employee attitudes and leader effectiveness.

## 6.1. Method

### 6.1.1. Participants and procedure

Participants were 355 employees who reported directly to a manager enrolled in a leadership development program offered to employees of two large organizations: 1) a mid-sized U.S. city; and 2) a professional association that supports organizations providing services to individuals with disabilities. Data were drawn from a leadership assessment conducted for these organizations by the second author.

Eighty managers distributed surveys to each employee that reported directly to them ( $n = 473$ ). Surveys distributed to employees contained both leadership behavior items and questions about respondents' job satisfaction and perceptions of the leaders' effectiveness. Respondents were anonymous (only the leader's name was on each survey) and were returned directly to the researchers. Seventy percent ( $n = 364$ ) of employees returned a completed survey, however, missing data reduced the number of usable surveys to 355. Participants were mostly female (56%) and Caucasian (80%), and their average age was 42 years old; 37% had a high school education, 20% a 2-year degree, and 38% a bachelor's degree.

### 6.1.2. Measures

**6.1.2.1. Leadership.** We administered both the Multifactor Leadership Questionnaire (*MLQ-Form 5X*; Avolio & Bass, 2002) and the Leader Behavior Description Questionnaire (*LBDQ-Form XII*; Stogdill, 1963). We used the MLQ to assess transformational, contingent reward, and laissez faire leadership, and the LBDQ to assess the Initiating Structure and Consideration leadership dimensions. The MLQ includes 20 items designed to measure transformational leadership, four items for contingent reward and four items for laissez faire. Consistent with other studies (Barling et al., 1996; Ployhart et al., 2001; Shin & Zhou, 2003) and meta-analyses (Judge et al., 2004, Bono & Judge, 2004), we combined the transformational leadership items into a single score. The LBDQ includes 10 items for each of the two dimensions, which were averaged to form a Consideration and Initiating Structure score for each respondent. Participants responded to the leadership items for their direct supervisor, using a scale anchored by 0 = *Not at all* to 4 = *Frequently, if not always*.

**6.1.2.2. Job satisfaction.** Employees' overall job satisfaction was measured with five items taken from the Brayfield–Rothe measure of job satisfaction (Brayfield & Rothe, 1951). The five items were, "I feel fairly satisfied with my present job," "I find real enjoyment in my work," "I consider my job to be rather unpleasant" (reverse scored), "Most days I am enthusiastic about my work," and "Each day at work seems like it will never end (reverse scored)." Responses were evaluated on a scale anchored by 1 = *strongly disagree* and 5 = *strongly agree*.

**6.1.2.3. Leader effectiveness.** Perceptions of leader effectiveness were obtained from responses to four MLQ effectiveness items including, "Is effective in meeting my job-related needs." Participating employees were also asked to respond to a single item assessing leadership effectiveness developed by Yukl (2002). This item asked direct reports and peers to rate the target managers' overall effectiveness, as compared to other managers they have known (e.g., "A little above average (in the top 40%)"). To form a single score for leadership effectiveness, we first averaged the four MLQ items and then averaged the standardized MLQ and Yukl effectiveness scores; the two measures were highly correlated ( $r = .71$ ).

## 6.2. Results

The first step in our analysis was to conduct a confirmatory factor analysis examining the factor structure of leader behavior. We first tested a five factor model (transformational (TF), contingent reward (CR), Consideration (C), Initiating Structure (IS), and laissez-

**Table 2**

Means, standard deviations, and correlations: Study 2 (below diagonal) and Study 3 (above diagonal).

Scale	Mean	SD	1	2	3	4	5	6	7
1 Transformational	2.63 (2.92)	0.74 (0.78)	<b>.91</b> (.95)	.84	-.71	.40	.72	.37	.86
2 Contingent reward	2.66 (3.09)	0.90 (0.87)	.81	<b>.78</b> (.74)	-.62	.45	.64	.29	.74
3 Laissez faire	0.65 (2.71)	0.74 (0.82)	-.54	-.47	<b>.76</b> (.65)	-.32	-.61	-.28	-.67
4 Initiating Structure	3.76 (3.07)	0.62 (0.73)	.57	.57	-.55	<b>.83</b> (.76)	.21	.13	.35
5 Consideration	3.83 (3.48)	0.66 (0.89)	.77	.63	-.60	.53	<b>.88</b> (.88)	.32	.68
6 Job satisfaction	4.10 (-1.30)	0.63 (0.70)	.34	.29	-.32	.21	.38	<b>.84</b> (.89)	.41
7 Effectiveness	4.86 (2.80)	1.34 (0.99)	.79	.71	-.69	.62	.79	.40	<b>.87</b> (.88)

*Note.* Study 2:  $n = 355$ . Correlations are reported below the diagonal. Coefficient alpha reliability estimates are on the diagonal in bold. Correlations above .12 are significant at  $p < .05$ ; above .21 are significant at  $p < .01$ .

Study 3:  $n = 1269$ . Correlations are reported above the diagonal. Coefficient alpha reliability estimates are on the diagonal in parentheses. Means and standard deviations are also in parentheses. Correlations above .13 are significant at  $p < .01$ .

faire (LF)) in which each of the five leadership dimensions was specified as an independent factor. This model provided an acceptable fit to the data ( $\chi^2 = 1343.62$ ,  $df = 517$ ,  $p < .01$ , CFI = .97, RMSEA = .077) and a significantly better fit than other models that specified fewer factor models (i.e. four factors [TF&C, CR, IS, LF; increase in  $\chi^2 = 133.99$ ,  $p < .01$ ] or three factors [TF&C, CR&IS, LF; increase in  $\chi^2 = 364.80$ ,  $p < .01$ ]). Thus, H1 was supported.

In Table 2 below the diagonal, we present means, standard deviations, and scale reliabilities, along with correlations between the leadership factors and the outcomes. All of the leadership dimensions were strongly associated with leader effectiveness:  $r = .79$  transformational;  $r = .71$  contingent reward;  $r = -.69$  laissez faire;  $r = .62$  Initiating Structure; and  $r = .79$  for Consideration ( $p < .01$  for all). Correlations between the leadership dimensions and job satisfaction were also positive and significant ( $p < .01$ ), though more modest in magnitude:  $r = .34$  transformational;  $r = .29$ ; contingent reward;  $r = -.32$  laissez faire;  $r = .21$  Initiating Structure; and  $r = .38$  for Consideration. Job satisfaction and leader effectiveness were also positively correlated ( $r = .40$ ,  $p < .01$ ).

We used dominance analysis (Budescu, 1993) to compare the relative importance of each type of leader behavior in predicting job satisfaction and leader effectiveness. In dominance analysis, a variable's importance in predicting a criterion is assessed by considering its direct effect (when considered by itself as a predictor), its total effect (after considering all other predictors), and its partial effect (when considered with a subset of the other predictors). According to Budescu, "one variable is more important than its competitor if its predictive ability exceeds all others' in all subset regressions." In dominance analysis, outcomes (e.g., job satisfaction, leadership effectiveness) are regressed on all possible combinations of the five leadership dimensions, entered singly, in pairs, and in groups of three, four, and five.

In Tables 3 and 4, we present the results of the dominance analysis for job satisfaction and leadership effectiveness. Dominance analysis involves a series of two-step regressions. In the first step (Model 1), we enter all possible combinations of the leadership variables (see column 1 for a description of the variables in Step 1) into a regression. In the second step (columns 3–7), each variable not included in Model 1 is entered individually in second step (Model 2). The variance explained ( $R^2$ ) by Model 1 variables is presented in column 2. The values in columns 3–7 represent the unique incremental contribution of each variable when it was added to the regression in the second step, expressed as an incremental  $R^2$  (i.e., additional variance accounted for by the variable added in step 2). For example, in the first row of Table 3, the indication "TF" in column 1 means that in the first step of our regression we entered transformational leadership, which accounted for 12% of the variance in job satisfaction (see Table 3, column 2). When we

**Table 3**  
Dominance analysis for job satisfaction: Study 2.

Leadership dimensions entered in Model 1	$R^2$ for Model 1	Incremental contribution of dimension in Model 2 (values are incremental $R^2$ )				
		TF	CR	LF	IS	C
TF	.12**			.02**	.00	.03**
CR	.08**	.04**	.00	.04**	.00	.07**
LF	.10**	.04**	.03**		.00	.06**
IS	.05**	.07**	.04**	.06**		.10**
C	.15**	.01	.00	.01*	.00	
TF, CR	.12**			.02**	.00	.03**
TF, LF	.14**		.00		.00	.03*
TF, IS	.12**		.00	.03**		.04**
TF, C	.15**		.00	.01*	.00	
TF, CR, LF	.14**				.00	.02**
TF, CR, IS	.12**			.03**		.03**
TF, CR, C	.15**			.01*	.00	
TF, LF, IS	.14**		.00			.02**
TF, LF, C	.16**		.00		.00	
TF, IS, C	.15**		.00	.01*		
TF, CR, LF, IS	.14**					.02**
TF, CR, LF, C	.16**				.00	
TF, CR, IS, C	.15**			.01*		
TF, LF, IS, C	.17**		.00			
CR, LF	.13**	.02**			.00	.03**
CR, IS	.08**	.03**		.04**		.07**
CR, C	.15**	.00		.01*	.00	
CR, LF, IS	.13**	.02**				.04**
CR, LF, C	.16**	.00			.00	
CR, IS, C	.15**	.00		.01*		
CR, LF, IS, C	.16**	.00				
LF, IS	.10**	.04**	.02**			.06**
LF, C	.16**	.00	.00		.00	
LF, IS, C	.16**	.00	.00			
IS, C	.15**	.00	.00	.01*		

Note. TF = transformational leadership, CR = contingent reward, LF = laissez-faire, IS = Initiating Structure; C = Consideration. Column 1 lists the variables entered in the first step of a hierarchical regression (Model 1), with Column 2 presenting the  $R^2$  for the first step. Values in columns 3–7 represent the incremental  $R^2$  for each individual dimension when added separately in a second step of the regression (Model 2).

Listwise  $n = 355$ .

\*  $p < .05$ .

\*\*  $p < .01$ .

added contingent reward in the second step of the regression (see Table 3, column 4), we found that it added no incremental predictive validity for job satisfaction. In contrast, when we added laissez faire in the second step (see Table 4, column 5), we found that laissez faire explained an additional 2% of the variance in job satisfaction. Initiating Structure in Model 2 (Table 3, column 6) made no incremental contribution to the prediction of job satisfaction (once transformational leadership was entered in Model 1), but Consideration (Table 3, column 7) explained an additional 3% of the variance.

The important thing to remember in interpreting these results is that each of the dimensions in columns 3–7 is added one at a time in a second step of the regression, with the first step being defined in column 1. Each row represents one set of regressions and for each regression, a variable is said to dominate if its incremental contribution in Step 2 is larger than the incremental contribution of any of the other variables entered in Step 2. Returning to our row 1 example, consideration is a more important predictor of job satisfaction than contingent reward, laissez faire, and Initiating Structure because its incremental  $R^2$  is the largest of the four. Similarly, laissez faire is a more important predictor than either contingent reward or Initiating Structure.

Determining which leadership dimension is most important requires a pairwise comparison of each possible pair of leadership dimensions across all comparisons (all rows). In Tables 3 and 4 there are eight comparisons of each pair of leadership dimensions (e.g., transformational and consideration). For each comparison of two leadership dimensions, there are three possible outcomes: dimension a is more important than dimension b; dimension b is more important than dimension a; or dominance cannot be determined because the incremental contributions of a and b are equal. Using this method to analyze the results of Tables 5 and 6, we conclude the following. For job satisfaction, the most important (i.e., dominant) predictor is Consideration, followed by transformational and laissez faire, with contingent reward and Initiating Structure as the least important (i.e.,  $C > TF, LF > CR, IS$ ). For leadership effectiveness a similar, but slightly different pattern emerged. Consideration and transformational were equally important predictors, with contingent reward and Initiating Structure less important (i.e.,  $C, TF > CR, IS$ ). The importance of laissez faire was indeterminate because it was sometimes more important and sometimes less important than the other dimensions.

Considered as a whole, these results suggest that the three most important predictors – for job satisfaction and leader effectiveness—are transformational, Consideration, and laissez faire. Despite the high correlations between these variables, each made incremental contributions to prediction of the outcomes. Initiating Structure and contingent reward, in contrast, were the least important predictors for both outcomes.

**Table 4**

Dominance analysis for leader effectiveness: Study 2.

Leadership dimensions entered in Model 1	$R^2$ for Model 1	Incremental contribution of dimension in Model 2 (values are incremental $R^2$ )				
		TF	CR	LF	IS	C
TF	.63**		.01**	.10**	.04**	.08**
CR	.51**	.14**		.16**	.07**	.19**
LF	.48**	.25**	.19**		.08**	.21**
IS	.39**	.29**	.19**	.18**		.29**
C	.61**	.09**	.08**	.08**	.06**	
TF, CR	.65**		.01**	.10**	.04**	.08**
TF, LF	.73**		.01**		.01**	.03**
TF, IS	.68**		.01**	.07**		.06**
TF, C	.71**		.01**	.06**	.03**	
TF, CR, LF	.74**				.01**	.03**
TF, CR, IS	.68**			.07**		.06**
TF CR, C	.72**			.05**	.02**	
TF, LF, IS	.74**		.01**			.03**
TF, LF, C	.76**		.01**		.01**	
TF, IS, C	.74**		.01**	.04**		
TF, CR, LF, IS	.75**					.03**
TF, CR, LF, C	.77**				.01**	
TF CR, IS, C	.74**			.04**		
TF, LF, IS, C	.77**		.01**			
CR, LF	.67**	.07**			.01**	.08**
CR, IS	.58**	.10**		.11**		.14**
CR, C	.70**	.02**		.06**	.03**	
CR, LF, IS	.69**	.06**				.07**
CR, LF, C	.75**	.01**			.01**	
CR, IS, C	.72**	.02**		.04**		
CR, LF, IS, C	.76**	.02**				
LF, IS	.57**	.18**	.12**			.16**
LF, C	.70**	.07**	.06**		.03**	
LF, IS, C	.72**	.05**	.04**			
IS, C	.68**	.05**	.04**	.04**		

Note. TF = transformational leadership, CR = contingent reward, LF = laissez-faire, IS = Initiating Structure; C = Consideration. Column 1 lists the variables entered in the first step of a hierarchical regression (Model 1), with Column 2 presenting the  $R^2$  for the first step. Values in columns 3–7 represent the incremental  $R^2$  for each individual dimension when added separately in a second step of the regression (Model 2).

Listwise  $n = 355$ .

\*  $p < .05$ .

\*\*  $p < .01$ .



To test H2a and H2b, we also examined the relative predictive validity of the three MLQ dimensions (transformational, contingent reward, and laissez-faire), as compared to the two LBDQ dimensions (Initiating Structure and Consideration). Results of this usefulness analysis, presented in Table 5, reveal that the LBDQ dimensions, as a group, add significantly over the MLQ dimension in the prediction of both outcomes ( $\Delta R^2 = .02$ ,  $p < .01$  for job satisfaction and  $\Delta R^2 = .04$ ,  $p < .01$  for leader effectiveness). The reverse is also true; the MLQ adds to the LBDQ in the prediction of outcomes ( $\Delta R^2 = .02$ ,  $p < .01$  for job satisfaction and  $\Delta R^2 = .10$ ,  $p < .01$  for leader effectiveness).

## 7. Study 3

Study 3 builds on Study 2 by exploring the same research questions and using similar methods, but using different measurement instruments with a sample of German public administration employees. According to Gupta et al. (2002), “Germanic Europe shows higher practices of performance orientation, uncertainty avoidance, future orientation, and assertiveness than many other clusters. This region is also characterized by relatively low levels of institutional collectivism, group and family collectivism, gender egalitarianism, and humane orientation” (p. 23). These aspects of culture may lead to different associations between leader behavior and follower outcomes in Germany as compared to the U.S. However, as mentioned previously, there is an impact of transformational and transactional leadership as well as Consideration and Initiating Structure on effectiveness, satisfaction and the like. Research on their relative importance in a German sample, especially in comparison to the American data, may also shed light on the global importance of these constructs.

### 7.1. Method

#### 7.1.1. Participants and procedures

Participants in Study 3 were employees of a large German public administration office. This study was part of an extensive organizational analysis conducted in the course of a reform process taking place within this office. All managers distributed questionnaires to employees who reported directly to them. Responses were anonymous and were returned directly to the researchers. Thirteen hundred and eleven (1311) employees (46.8%) returned a completed survey; however, due to missing data, the number of participants in this study is 1269. The mean age of the sample is 37.2 years ( $SD = 9.6$  years). Only 7% of participants had leadership functions; 71% of the participants were female.

#### 7.1.2. Measures

**7.1.2.1. Leadership.** A German translation of the MLQ (Felfe, 2006) was used to measure transformational leadership, contingent reward, and laissez faire. The German translation shows good psychometric properties and, in comparison to the English version, similar correlations with several outcome criteria (Felfe, 2006). To assess Initiating Structure and Consideration, we used an LBDQ-version developed by Halpin (see Bryant, 2002) and modified and translated into German by Heinitz (2006). Initiating Structure was assessed with seven items and Consideration with six items, using a scale anchored by 1 = *never* and 5 = *always*.

**7.1.2.2. Job satisfaction.** Employees' satisfaction with their jobs was assessed using a scale developed by Felfe et al. (1994). This 19-item scale measures 3 facets of job satisfaction (social, organizational and economical facets); however, for the present study responses were averaged to form an overall index of job satisfaction. For each item, participants rated the importance of certain aspects of the job (e.g., good wages or a good relationship with their colleagues) and whether each aspect is fulfilled by the job. Scales were anchored by 1 = *not important at all* and 5 = *very important* (importance) and 1 = *not fulfilled at all* and 5 = *completely fulfilled* (fulfillment). A difference score (between importance and fulfillment) is created for each item and these scores are summed. Thus the final score represents employees' general satisfaction based on the extent to which their jobs provide the aspects they view as important.

**7.1.2.3. Leadership effectiveness.** Perceptions of leader effectiveness were obtained from responses to the same four MLQ items used in Study 2 (as translated by Felfe, 2006).

**Table 5**

Usefulness analysis for MLQ and LBDQ: Study 2.

Criteria	Entering MLQ $R^2$	Entering LBDQ $\Delta R^2$	$F^a$ , df	Entering LBDQ $R^2$	Entering MLQ $\Delta R^2$	$F^a$ , df
Job satisfaction	.14**	.02**	4.57, 2	.15**,*	.02**	2.42, 3
Leadership effectiveness	.74**	.04**	29.13, 2	.68**	.10**	58.10, 3

Note.  $n = 355$ . MLQ = Multifactor Leadership Questionnaire (transformational, contingent reward, and laissez faire dimensions only). LBDQ = Leader Behavior Description Questionnaire VII (Initiating Structure and Consideration).

<sup>a</sup> Incremental  $F$  test, adding in the second set of variables.

\*  $p < .05$ .

\*\*  $p < .01$ .

**Table 6**

Dominance analysis for job satisfaction: Study 3.

Leadership dimensions entered in Model 1	$R^2$ for Model 1	Incremental contribution of dimension in Model 2 (values are incremental $R^2$ ) <sup>a</sup>				
		TF	CR	LF	IS	C
TF	.14**					
CR	.09**	.05**	.00	.02**	.00	.01**
LF	.08**	.06**	.02**		.00	.04**
IS	.02**	.12**	.07**	.06**		.09**
C	.10**	.04**	.01**	.01**	.00*	
TF, CR	.14**		.00	.00	.00	.01**
TF, LF	.14**		.00	.00	.00	.01**
TF, IS	.14**		.00	.00	.00	.01**
TF, C	.14**		.00	.00	.00	.01**
TF, CR, LF	.14**			.00	.00	.01**
TF, CR, IS	.14**			.00	.00	.01**
TF, CR, C	.14**			.00	.00	.01**
TF, LF, IS	.14**		.00		.00	.01**
TF, LF, C	.14**		.00		.00	.01**
TF, IS, C	.14**		.00	.00		.01**
TF, CR, LF, IS	.14**			.00		.01**
TF, CR, LF, C	.14**			.00	.00	.01**
TF, CR, IS, C	.14**			.00	.00	.01**
TF, LF, IS, C	.14**		.00			.01**
CR, LF	.10**	.04**			.00	.02**
CR, IS	.09**	.05**		.02**		.03**
CR, C	.12**	.03**		.00*	.00	
CR, LF, IS	.10**	.04**			.00	.02**
CR, LF, C	.12**	.02**			.00	
CR, IS, C	.12**	.03**		.00*		
CR, LF, IS, C	.12**	.02**				
LF, IS	.08**	.06**	.02**			.04**
LF, C	.12**	.03**	.01**		.00	
LF, IS, C	.12**	.03**	.01**			
IS, C	.11**	.04**	.01**	.01**		

Note. TF = transformational leadership, CR = contingent reward, LF = laissez-faire, IS = Initiating Structure; C = Consideration. Column 1 lists the variables entered in the first step of a hierarchical regression (Model 1), with Column 2 presenting the  $R^2$  for the first step. Values in columns 3–7 represent the incremental  $R^2$  for each individual dimension when added separately in a second step of the regression (Model 2).

Listwise  $n = 1269$ .

<sup>a</sup>  $R^2$  of <.005 (rounded down to .00) significant at  $p < .05$ .

\*  $p < .05$ .

\*\*  $p < .01$ .

## 7.2. Results

As in Study 2, we first conducted a confirmatory factor analysis to examine the independence of the five leadership dimensions. Again, the five factor model was a good fit for the data ( $\chi^2 = 6823.65$ ,  $df = 769$ ,  $p < .01$ , CFI = .99, RMSEA = .078) and was a significantly better fit than other models that specified fewer factor models (i.e., four factors [TF&C, CR, IS, LF; increase in  $\chi^2 = 2380.26$ ,  $p < .01$ ] or three factors [TF&C, CR&IS, LF; increase in  $\chi^2 = 5178.48$ ,  $p < .01$ ]), supporting H1.

Means, standard deviations, scale reliabilities, and correlations between Study 3 variables are presented in Table 2 above the diagonal. As in Study 2, all of the leadership dimensions were strongly associated with leadership effectiveness:  $r = .86$  transformational;  $r = .74$  contingent reward;  $r = -.67$  laissez faire;  $r = .35$  Initiating Structure; and  $r = .68$  for Consideration ( $p < .01$  for all). Correlations between the leadership dimensions and job satisfaction are also positive and significant ( $p < .01$  for all), though smaller:  $r = .37$  transformational;  $r = .29$  contingent reward;  $r = -.28$  laissez faire;  $r = .13$  Initiating Structure; and  $r = .32$  for Consideration. Job satisfaction and leader effectiveness were also positively correlated ( $r = .41$ ,  $p < .01$ ).

Results of the dominance analysis are presented in Table 6 (job satisfaction) and Table 7 (leader effectiveness). Using the same method of pairwise comparison described in Study 2, in which the incremental validity of each of leadership dimensions is compared to the other four dimensions in Model 2 regressions, we use the data from Table 6 to conclude the following. The most important leadership predictor of job satisfaction is transformational leadership, followed by Consideration. Laissez faire, contingent reward and Initiating Structure were less important in predicting job satisfaction (i.e. TF > C > LF, CR, IS). A very similar pattern was found for leadership effectiveness, with one exception. Transformational leadership was again the most important predictor, followed by Consideration. The exception was that Initiating Structure was less important than both laissez faire and contingent reward (i.e., TF > C > LF, CR > IS). When the five leadership dimensions were entered simultaneously into a regression (not shown in a table), only transformational leadership ( $\beta = .33$ ,  $p < .01$ ) and Consideration ( $\beta = .11$ ,  $p < .01$ ) were significant predictors of job satisfaction. For leader effectiveness, transformational ( $\beta = .68$ ,  $p < .01$ ), laissez faire ( $\beta = -.09$ ,  $p < .01$ ), and consideration ( $\beta = .11$ ,  $p < .01$ ) were significant predictors.

We also compared the predictive validity of the two leadership models (i.e., Ohio State and transformational–transactional) in a usefulness analysis. Consistent with Study 2, results in Table 8 reveal that the LBDQ dimensions, as a group, add significantly over the MLQ dimensions in the prediction of both outcomes ( $\Delta R^2 = .01, p < .05$  for job satisfaction and  $\Delta R^2 = .04, p < .01$  for leader effectiveness). The reverse is also true to a slightly stronger degree; the MLQ adds to the LBDQ in the prediction of outcomes ( $\Delta R^2 = .04, p < .01$  for job satisfaction and  $\Delta R^2 = .24, p < .01$  for leader effectiveness).

## 8. General discussion

Recently, two separate meta-analyses (Judge & Piccolo, 2004; Judge et al., 2004) summarized the literature on the transformational (Bass, 1985) and the Ohio State two-factor models of leadership (Fleishman, 1973), reporting that these two models had similar validities across a common set of criteria. Although these models are proposed to be conceptually distinct, the few studies that have measured both models have reported high correspondence among the behaviors that characterize each (e.g., Keller, 2006). These results raise questions regarding the extent to which the Ohio State and transformational models overlap, whether observed effects are redundant, and whether the models offer unique predictive validity. In that vein, we examined the underlying factor structure of five leader behaviors in the two models and estimated the relative validities of these behaviors.

Based on our review of previous research that measured both models, transformational leadership (TF) is highly related to both Consideration (C) and Initiating Structure (IS). The correlation between TF and C is above conventional levels of scale reliability, suggesting that there is great overlap in these behaviors. Despite this overlap, each dimension explained variance in follower job satisfaction when controlling for the other, suggesting that the models are not entirely redundant. Similarly, both TF and IS were significant predictors of leader effectiveness when entered in the same regression equation. These results highlight the importance and validity of each model.

Consistent with arguments for the distinctiveness of these leadership models (Bass, 1985; 1990), the results of two primary studies support the existence of a five-factor model comprised of transformational leadership, contingent reward, Consideration, Initiating Structure, and laissez faire leadership. Although transformational leadership is highly related to contingent reward

**Table 7**  
Dominance analysis for leadership effectiveness: Study 3.

Leadership dimensions entered in Step 1	$R^2$ for Step 1	Incremental contribution of dimension in Step 2 (values are incremental $R^2$ ) <sup>a</sup>				
		TF	CR	LF	IS	C
TF	.74**		.00	.01**	.00	.01**
CR	.55**	.19**		.07**	.00	.08**
LF	.45**	.30**	.17**		.02**	.12**
IS	.12**	.62**	.43**	.35**		.39**
C	.47**	.28**	.16**	.10**	.04**	
TF, CR	.74**			.01**	.00	.01**
TF, LF	.75**		.00		.00	.01**
TF, IS	.74**		.00*	.01**		.01**
TF, C	.75**		.00	.00** <sup>a</sup>	.00	
TF, CR, LF	.75**				.00	.01**
TF, CR, IS	.74**			.01**		.01**
TF, CR, C	.75**			.00**		
TF, LF, IS	.74**		.00		.00	.01**
TF, LF, C	.75**		.00		.00	
TF, IS, C	.74**		.00	.00**		
TF, CR, LF, IS	.74**					.01**
TF, CR, LF, C	.74**				.00	
TF, CR, IS, C	.75**			.00**		
TF, LF, IS, C	.75**		.00			
CR, LF	.62**	.13**			.00	.04**
CR, IS	.55**	.19**		.07**		.08**
CR, C	.63**	.12**		.03**	.00*	
CR, LF, IS	.62**	.13**				.04**
CR, LF, C	.66**	.10**			.00*	
CR, IS, C	.63**	.12**		.03**		
CR, LF, IS, C	.66**	.09**				
LF, IS	.47**	.27**	.15**			.12**
LF, C	.57**	.18**	.09**		.02**	
LF, IS, C	.59**	.16**	.07**			
IS, C	.51**	.24**	.12**	.08**		

Note. TF = transformational leadership, CR = contingent reward, LF = laissez-faire, IS = Initiating Structure; C = Consideration. Column 1 lists the variables entered in the first step of a hierarchical regression (Model 1), with Column 2 presenting the  $R^2$  for the first step. Values in columns 3–7 represent the incremental  $R^2$  for each individual dimension when added separately in a second step of the regression (Model 2).

Listwise  $n = 1269$ .

<sup>a</sup>  $R^2$  of  $<.005$  (rounded down to .00) significant at  $p < .05$ .

\*  $p < .05$ .

\*\*  $p < .01$ .

( $\rho = .80$ ; Judge & Piccolo, 2004) and Consideration ( $\rho = .74$ ; Study 1), these behaviors emerged as empirically distinct factors, each explaining significant incremental variance in the study's outcomes beyond the others. A five-factor model offered superior fit to the data in both Studies 2 and 3 relative to a model in which transformational leadership and Consideration were combined.

We also used dominance analysis (Budescu, 1993) to estimate the relative validity of these five factors across the study's criteria: follower job satisfaction and leader effectiveness. Results of Studies 2 and 3 were remarkably similar. Transformational leadership was a consistent predictor of job satisfaction when controlling for all of the other leader behaviors, but so was Consideration, underlining the concept's predictive utility. For leader effectiveness, Initiating Structure emerged as a consistent predictor, explaining incremental validity beyond the other leadership behaviors. These results are consistent with studies that have measured both leadership models (e.g., Stoker et al., 2001) and the results of the small meta-analysis reported in Study 1.

### 8.1. Theoretical and practical implications

These studies shed light on the interrelations and relative validities of the leadership dimensions associated with the transformational–transactional leadership model and the Ohio State two-factor model. This “compare and contrast” approach yielded several important theoretical and practical findings.

First, results indicate that the five dimensions of leadership behaviors we studied (i.e., transformational, transactional, laissez faire, Consideration, and Initiating Structure) are best thought of as conceptually distinct, though highly correlated. In both primary studies (Study 2 and Study 3), the five-factor model had a significantly better fit to the data than did models with fewer factors. Despite highly significant correlations among the factors ( $r_{TF-C} = .74$ ;  $r_{TF-IS} = .50$ ), our results are consistent with those of Seltzer and Bass (1990) and of Neubert et al. (2008), who each argued for the distinction between transformational and Ohio State behaviors.

Second, with respect to predicting outcomes, such as employees' satisfaction with their jobs and perceptions of leadership effectiveness, dimensions from both leadership models are important. Considered as a whole, our results suggest that transformational and Consideration are both significant predictors of employees' attitudes. This is an important finding given the steep decline in research on Consideration, which has been influenced by difficulty in the measurement of Consideration and Initiating Structure, and the introduction of transformational leadership theory. Given the abundance of research on transformational leadership in the past two decades and its billing as a “full range” model (Avolio, 1999), it is unlikely that business organizations would use both transformational leadership and Consideration in the development of their leadership competency models. Yet, our results suggest that both explain unique variance in job satisfaction and ratings of leader effectiveness. If an organization or a researcher was interested in explaining the greatest possible variance in employees' job satisfaction, he or she would be well-served to choose dimensions from across the two models (i.e., transformational and Consideration), rather than relying on one model as fully comprehensive.

Third, in Fig. 1, we present a graph summarizing the results of Studies 2 and 3. This graph suggests that if you had to pick just one leadership behavior to predict leadership outcomes (both job satisfaction and leader effectiveness), the behavior to choose would be Consideration. Surprisingly, and in contrast to the majority of empirical leadership research conducted over the past 25 years, Consideration dominated transformational leadership in terms of overall predictive validity, highlighting the importance of basic interpersonal savvy in effective leadership. Indeed, in organizational settings, many leader failures can be traced directly to his or her inability or unwillingness to be empathetic, to be considerate, or to maintain amicable relationships with colleagues (Hogan et al., 2010). Given this phenomenon, organizations can enhance the Consideration of managers by applying basic interventions designed to improve one's ability to treat others politely, with care, dignity, and respect (e.g., Greenberg, 2006; Skarlicki & Latham, 2005).

The dimensions with the least incremental predictive validity were Initiating Structure and contingent reward. These leadership behaviors, which describe more mundane, day-to-day, transactional management behaviors, are not as important for predicting leadership effectiveness as transformational leadership and Consideration. Nonetheless, results of Studies 2 and 3 reveal that all five leadership behaviors explain variance in leadership effectiveness, but only some of the behaviors (i.e., transformational, laissez-faire, and consideration) predict job satisfaction. The emergence of different patterns of leadership behavior in the prediction of each criterion suggests that employees are aware of and can distinguish between leader behaviors they like (i.e., predictors of job satisfaction) and leadership behaviors that are needed (i.e., predictors of leader effectiveness). It is also important to recognize that our results do not suggest that contingent reward or Initiating Structure is not an important activity for leaders. Rather, our results suggest that contingent reward and Initiating Structure – as measured in the two models we examined – are redundant with transformational leadership, Consideration, and laissez faire, and thus add little to our understanding of employees' reactions to their leaders.

**Table 8**  
Usefulness analysis for MLQ and LBDQ: Study 3.

Criteria	Entering MLQ $R^2$	Entering LBDQ $\Delta R^2$	$F^a$ , df	Entering LBDQ $R^2$	Entering MLQ $\Delta R^2$	$F^a$ , df
Job satisfaction	.14**	.01*	4.25, 2	.11**	.04**	18.32, 3
Leadership effectiveness	.75**	.01**	14.22, 2	.51**	.24**	407.85, 3

Note. Listwise  $n = 1269$ . MLQ = Multifactor Leadership Questionnaire (transformational, contingent reward, and laissez faire dimensions only). LBDQ = Leader Behavior Description Questionnaire (Initiating Structure and Consideration).

<sup>a</sup> Incremental  $F$  test, adding in the second set of variables.

\*  $p < .05$ .

\*\*  $p < .01$ .

Finally, the results of the present study have implications for the current discussion about the veracity of a “full range leadership theory” (Avolio & Yammarino, 2002). Several scholars have advocated and extended this theory (e.g., Antonakis & House, 2002; Michel et al., 2008), but the results of the present research underline the importance of Consideration for the prediction of several important outcome criteria, suggesting that a full-range theory should include elements of both the Ohio State and transformational models. Leadership scholars would be well advised to include “the forgotten one” (Judge et al., 2004) of Consideration (and, to a lesser degree, Initiating Structure) into research efforts focusing on effective leadership. The Ohio State model should be carefully examined to identify the optimal convergence with the current “full range leadership theory.”

The results of these studies have practical implications for leader selection, assessment, and development. Although many contemporary organizations tend to use a host of trait and personality-based measures for leader selection (DeRue et al., 2011), our results suggest that organizations should focus leadership selection and development activities on important behaviors such as Consideration and the observable patterns associated with transformational leadership. Development efforts could begin by emphasizing follower-centered behaviors (e.g., Consideration), and then proceed to more strategic or visionary aspects of leadership (i.e., transformational leadership). Further, organizations can maximize leader development efforts by emphasizing specific behaviors (e.g., Consideration) and broad skills (e.g., managing uncertainty, visioning, and adapting to organizational change) that generalize across varied industries and environmental contexts (Zaccaro & Banks, 2004).

## 8.2. Limitations and future research

Although several empirical studies were conducted to explore interrelationships and criterion-related validities associated with two leadership models, future research could further enhance our understanding of effective leadership. First, cross-cultural replications of the present results seem to be necessary. Although some differences exist between German and U.S. cultures, other countries may have larger differences with regard to additional value dimensions (Hofstede, 1980; House et al., 2001). For example, China and Japan, two important economies, are both higher in the value dimension of collectivism than Germany and the U.S. Employees with a collectivist orientation may also be inclined to rate leaders who develop intra-group relationships (Consideration) as more effective than those leaders who offer economic rewards for individual accomplishment (contingent reward). This would constitute an interesting generalization of the results reported in these three studies to cultures that are markedly different from the U.S. and Germany.

Another limitation of the present study was its focus on two main leadership theories. Other leadership theories, such as path-goal theory (House & Mitchell, 1974) or leader-member-exchange (LMX) theory (Graen & Uhl-Bien, 1995), should be included in future research. Indeed, the correspondence between transformational leadership and LMX is very high (e.g., Howell & Hall-Merenda, 1999; Piccolo & Colquitt, 2006), raising the possibility that these two models also converge across a set of common outcomes. Future research should also examine the extent to which newer models of leadership (e.g., authentic leadership; Walumbwa et al., 2008) contribute once the effects of both transformational leadership and Consideration are taken into account.

We used meta-analysis to estimate “true” correlations between the leadership models of interest. Our exhaustive scan of the literature yielded just 11 studies that measured Consideration, Initiating Structure, and transformational leadership at the same time. Although it is common to use meta-analytic techniques to aggregate large bodies of literature, there is no minimum number of studies required to make such an estimate though the accuracy of the point estimate would be more stable [i.e., narrower confidence interval] with additional studies (Hunter & Schmidt, 2004). Even though 11 is a small number by typical standards in meta-analytic studies, our research included the entire population of studies that jointly examined the two leadership models. Additional studies would have allowed us to examine differences based on the level of the leader, industry type, or national culture, but we did not have sufficient data to test for these moderators.

Finally, the present empirical studies relied on subjective performance criteria. In the analyses conducted (e.g., regression and dominance analyses), both the dependent (e.g., job satisfaction) and the independent (e.g., leadership behavior) variables were assessed by the same source and with the same method. That said, we assume that all predictor-criterion relationships were affected

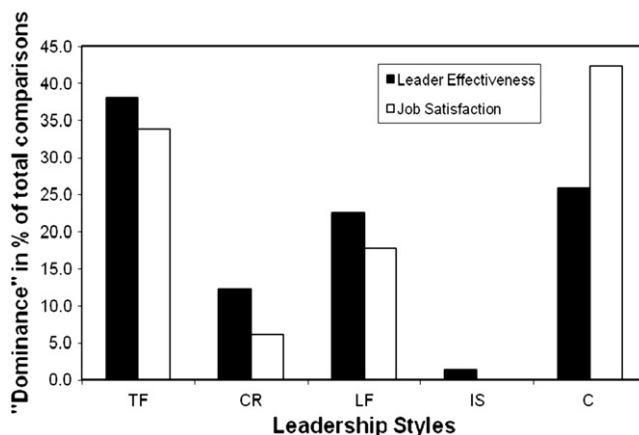


Fig. 1. Combined dominance analysis results for Studies 2 and 3.



similarly by this common-method bias. Results of the various dominance analyses, therefore, were not affected. Nevertheless, future research should examine the effects of the key leadership traits (e.g., Consideration, transformational) on other, objective indicators of leader effectiveness such as profit, absenteeism, and innovation.

### 8.3. Conclusion

Considered as a whole, the results of these studies suggest that despite considerable redundancy in the measurement of leadership behaviors generally, Consideration and transformational leadership behaviors are both important predictors of leadership effectiveness and each contributes incrementally to the prediction of employees' job satisfaction and evaluations of leaders' effectiveness. Therefore, a "full range" model of leadership should extend beyond the transformational–transactional leadership paradigm to include the relational aspects of leadership uniquely captured in the Consideration dimension.

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<sup>1</sup> The asterisk (\*) indicates studies that were included in the meta-analyses.

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