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The Configuration of Performance Appraisal: Investigating the Impact of Leadership and Personality Using a Within- and Between-Supervisory Group Analysis

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The key to improving performance appraisals in organizations may be the leadership exchange processes that occur between managers and subordinates. We suggest two ways in which this might unfold: (a) the direct relationships among leadership attention, tenure with supervisor, and actual performance appraisal rating and (b) the configuration of these three variables around the organization's structure in which differences between supervisory groups are highlighted. Our findings suggest that all three variables are significantly related. For leadership attention and performance appraisal, an individual-level model best applies. A group model is implied for leadership attention and tenure with supervisor, whereby entire supervisory groups that have longer tenure with their supervisor also receive, on average, higher amounts of leadership attention.

Both practitioners and researchers are very concerned with understanding and improving the performance appraisal process in organizations (Dansereau & Markham, 1987; Murphy & Cleveland, 1991). Inherent in most organizational compensation systems is the need for a reliable method of appraising an individual's performance. Generally, this occurs in the form of a supervisor's periodic evaluation of each employee's work habits, behaviors, or results. Most of the early research on performance appraisal focused on problems of measurement, with little conceptualization from a social-psychological framework (Murphy & Cleveland, 1991). However, the underlying assumption of this paper is that the key to understanding performance evaluations lies with the supervisor who gives the actual appraisal rather than with the format of the rating instruments (cf. Hills, 1979, 1987).

Leadership Impact

We are interested in the direct impact of three variables: leadership attention received by the subordinate, the performance appraisal rating given by the supe-
rior, and the amount of time that a subordinate has reported to his or her superior. We use the term direct impact to refer to the possible existence of a relationship between variables without considering how these variables might be configured around the organization's structure. These variables conceptually fit into a social-psychological framework of exchange between supervisor and subordinate as outlined by Murphy and Cleveland (1991). They suggest that exchanges between leaders and their group members affect the leaders' goals in administering the appraisal as well as the manner in which leaders treat their subordinates during the appraisal process. The importance of leader-member relations to the performance appraisal process has been echoed in similar research on perceptual congruence in two studies by Wexley and Pulakos (1983) and Pulakos and Wexley (1983). From the vantage of both superior's ratings of subordinate performance and subordinate's ratings of superior's performance, they found that perceptual similarity had a significant effect on the ratings given by either party. They concluded in these studies that performance appraisal research has neglected the nature of leader-member relationships. Thus, rather than being viewed solely as a function of subordinate performance, performance appraisal may be regarded as part of a larger nomological network that includes leadership constructs in addressing our underlying concern: Can we find evidence linking leadership and performance appraisal processes?

To the extent that leadership processes and performance appraisal ratings together might reflect an underlying social exchange process, we expect the perceived amount of received leadership attention, as reported by the subordinate, will be significantly related to the performance appraisal rating assigned by the superior. Given the realities of dealing with different subordinates, we suspect that this leader-member exchange does not unfold equally for all subordinates.

The nature of leadership attention, as defined by Dansereau, Alutto, and Yammarino (1984), focuses on giving interpersonal consideration as a form of return on the investments made by the subordinate who, in turn, engages in mutually satisfying work. Thus, a new member of a supervisory group would require some time in his or her role to prove that the superior should invest in such a relationship. This is not to say that the new recruit will not be given direction and guidance; rather, the role-making phase of the relationship needs to be established before a full exchange relationship can take place.

Dansereau, Graen, and Haga (1975) examined the longitudinal unfolding of this exchange process. They found that, in fact, a period of time is required for new superior-subordinate relationships to become clear and for an exchange relationship to fully develop. Thus, we expect that the amount of time (or tenure) the subordinate has served with the same supervisor will be related to both the amount of leadership attention he or she reports and the performance appraisal ratings he or she receives.

The Configurational Impact of Leadership

Configurational impact refers to the effect of the organizational structure on any of the relationships between the variables described. This configurational issue is inherent within the leadership-performance appraisal domain regardless of which specific variables are selected. Indeed, Graen and Schiemann (1978) indicate that an understanding of leader-member exchanges is intimately tied to a level of analysis problem. In other words, should individuals, dyads, supervisory work groups, or some larger collectivity be studied as the unit of analysis around which a set of variables are configured? We can extend this issue by asking if the leadership-performance appraisal rela-
tionship reflects a process of differentiation whereby superiors recognize relative differences within the group or if they stress the "sameness" of the group by downplaying differences within the group, thereby treating all members homogeneously. This is the configuration issue in performance appraisal (see Dansereau & Markham, 1987).

Dansereau, Alutto, and Yammarino (1984) and Dansereau and Markham (1987) illustrated four ways in which the variables might be configured with respect to a single level of analysis built around the work group. First, entire supervisory units can be characterized by (a) similar average levels of leadership attention and performance ratings and (b) a significant correlation among these unit scores. This is termed a between-unit model because it focuses on differences between groups, thereby implying similarity inside units. In the leadership research literature, it has also been called the Average Leadership Style (ALS) (Dansereau et al., 1975) because it uses averaged reports about one supervisor from many subordinates. For one organization, Markham (1988) found that differences between supervisory groups were crucial to understanding the pay-for-performance system whereby pay and performance ratings were significantly correlated at the supervisory unit level but not at the individual level.

Second, supervisory units can be characterized by (a) high variability within groups on both variables and (b) a significant correlation based on this source of variation, such that a subordinate who is high on leadership attention compared to the group's average is also given a relatively high performance rating. This is called a within-group configuration. At times, this configuration has been associated with the Leader-Member Exchange model (LMX) (Dansereau et al., 1984). (See Markham, Dansereau, Alutto, & Dumas, 1983, for an example of this effect in the leadership area.)

Third, it may well be that variables describing the leadership exchange process are independent of supervisory groups. In other words, there may be important variance and covariance between and within units. In such a case, it would be faulty logic to state that both models mentioned are operating. Since they are mutually exclusive, it is more parsimonious to suggest that because the imposition of supervisory units as statistical cells does not help in understanding the configuration of the data, another level of analysis might be more powerful. Thus, this type of equivocal model might best be interpreted as a function of individual differences that could arise from the dyadic level of analysis in which high- and low-rated dyads are evenly scattered across supervisory groups.

A fourth and final model corresponds to the traditional null model. In this model, no statement can be made about configuration because no relationships can be found among the variables.

We do not imply that all leadership-performance appraisal processes are configured the same way and at the same level of analysis. Rather, different leadership processes may unfold at different levels of analysis, as noted by Schriesheim (1980).

It makes little sense to see these approaches [average leadership style (ALS) and leader-member exchange (LMX)] . . . as mutually exclusive. It makes much more sense to study individual and group-directed leadership in combination and within a particular group context (p. 192).

While Graen, Liden, and Hoel (1982) found the LMX to be a better configuration than the more traditional ALS approach, Dansereau, Alutto, Markham, and Dumas (1982) found that these models, although distinct in terms of different variables, can operate on a simultaneous basis.

The empirical question, according to Dansereau et al. (1982), is whether a specifically identified nomological network of variables is more compatible with the
ALS model or with the LMX model. This study, therefore, tests the relationships among leadership attention, tenure with supervisor, and performance rating at both the individual level of analysis and at the supervisory-group level of analysis.

**Methods**

The research site for this study was a large transit authority located in the United States. This authority had over 5,000 employees; about 1,000 participated in the transit system's merit pay plan. Performance appraisal ratings and supervisory-group membership information were collected from the archival records of approximately 1,000 employees who participated in the plan. In conjunction with the collection of the archival data, approximately 800 employees completed a questionnaire designed to tap their attitudes toward the pay-for-performance system. Because employees were asked to identify themselves on the questionnaires in order to match their responses with archival records, confidentiality of information was stressed.

**Subjects**

Of the 1,000 employees on whom archival data were collected, approximately 455 provided identification numbers which could be matched with archival records in order to compile supervisory groups. These employees were embedded within 191 supervisory units. The age of the respondents ranged from 26 to 67 years, with an average of 44.25 years. Respondents had an average length of service of 12.6 years, with a range of 1 to 44 years. Of the respondents, 78% were male and 22% were female.

**Measures**

**Leader-member exchange.** The quality of the exchange between superior and subordinate was measured using a shortened version of the subordinate self-report scale previously used by Dansereau et al. (1984). The full scale has 11 items with a coefficient alpha (Cronbach, 1951) score of .92, while the shortened scale has 4 items with a satisfactory coefficient alpha of .88. The mean for this scale was 4.34, with a standard deviation of 1.38 and a range of responses from 1 to 6. It contained items such as “Assurance by my superior that he has confidence in my integrity, motivation, and ability.”

**Tenure with supervisor.** Because previous research (Dansereau et al., 1975) suggests that the first year or two is critical in developing leader-member exchanges, we assigned subordinates to one of three categories. If subordinates had been with their supervisor 1 year or less, they were assigned a “1.” About 43% of the respondents were in this category. If subordinates had been with their supervisor 1 to 2 years, they were assigned a “2.” This category contained 28% of the respondents. If subordinates had been with their supervisor 3 or more years, they were assigned a “3.” This category contained 29% of the respondents. The average for this variable was 1.86, with a standard deviation of .84.

**Performance appraisal.** The performance appraisal evaluation was an elaborate document comprised of separate supervisory ratings of the employee on work habits, task behaviors, and results. The supervisor was required to combine all of this information into an overall judgment of performance which was then used in conjunction with guide charts for the determination of individual pay increases. The actual performance appraisal rating was formally reviewed by upper management. For this study, the overall evalua-
 tion was used as the measure of performance level. The scaling, which was converted to a numeric system by assigning values of 1 through 5 to the performance levels, corresponded to "unsatisfactory," "needs improvement," "competent," "superior," and "outstanding," respectively. Overall mean score for the respondents was 3.65, with a standard deviation of 0.66 and a range from 2 to 5.

Data analysis procedure. Within and between analysis (WABA), derived from Dansereau et al. (1984) and utilized by Markham (1988) and Markham and McKee (1991), was the statistical technique employed for this study. This inferential/statistical method simultaneously examines sources of variation and covariation within and between supervisory units. This technique has been further utilized in drawing inferences within the leadership area by Dansereau et al. (1982) and Markham et al. (1983).

The logic behind WABA requires the explicit linking of a supervisory group with statistical cells in an ANOVA sense. To strongly infer an ideal entire group effect, we must demonstrate that (a) there are significant differences between groups on both variables, (b) the weighted unit averages of leadership attention correlate with the average unit scores on the performance appraisal rating, (c) the within-unit (or partial) correlations of the same variables are not significant, and (d) there is a significant difference between the correlation based on the unit averages (derived from between-unit differences) and the correlation based on within-unit differences (derived from individual deviation scores after between-unit differences were held constant).

In order to infer that a within-unit configuration exists, we must find that the within-unit correlation is significantly larger than zero and larger than the corresponding correlation based on weighted unit averages. An equivocal condition exists when both correlations are significant but not different from each other. A null condition exists when neither correlation is significant. For a complete explanation of this technique, see Dansereau et al. (1984).

Results

The results of aligning the supervisory units as statistical cells showed significant differences for leadership attention ($F = 1.33; df = 190, 383; R^2 = .57, p < .05$) and for performance rating ($F = 1.25; df = 190, 383; R^2 = .55, p < .05$). These initial results supported the notion of differences between groups. However, these differences might not covary. As shown in Figure 1, leadership attention was significantly related to the performance appraisal measure using the total correlation ($r_t = .26, p < .01$) based on an N of 383 individuals. Notice also in Figure 1 that the correlation based on group averages was significant ($r_b = .25, p < .01$ with J = 191 supervisory units), as was the within-unit correlation ($r_w = .26, p < .01$). It is tempting to infer that a clear, group-based effect had been identified. However, this inference cannot be made because of the significant within-unit correlation, which shows that individuals who reported high levels of leadership attention when compared to the group's average also received high performance appraisals. Thus, the most parsimonious interpretation of these data according to Dansereau et al. (1984) would be that the imposition of supervisory groups as statistical cells does not aid our understanding of the data. It appears that some version of an individual level of analysis best models the configuration of these data. This version could include either a dyadic model or a full individual model, both of which are lower levels of analysis than the supervisory work group. This equivocal condition can be interpreted by Dansereau et al. (1984) as an indication of the possibility that a level of analysis, such as
Figure 1  The configuration correlations for leadership attention, tenure with supervisor, and performance appraisal rating.

the dyad, should be investigated to obtain a clear configuration effect.

The inference regarding the relationship of leadership attention and tenure with supervisor is different from the preceding inference. In this case, as they did with leadership attention, the results of aligning the supervisory units as statistical cells also showed significant differences for tenure with supervisor ($F = 1.92; df = 190, 383; R^2 = .64, p < .01$). Figure 1 shows that the correlation based on group averages was significant ($r_b = .15, p < .05$ with $J = 191$ supervisory units). However, the within-unit correlation was not significant ($r_w = .02, n.s.$). We infer a weak between-unit condition in which groups that have, on average, a longer tenure with their supervisor also receive, on average, more attention. (This is a weak inference because the difference between $r_b$ and $r_w$ was marginal, using a Z test [$Z = 1.26$] to compare significant differences between the two correlations.)

The inference regarding the relationship of performance appraisal and tenure with supervisor also appears equivocal. This is reflected in the previously mentioned univariate 'F' test for significant differences between units on these variables. Note in Figure 1 that the correlation based on group averages was also significant ($r_b = .29, p < .01$ with $J = 191$ supervisory units), as was the within-unit correlation ($r_w = .19, p < .01$). Thus, the individual correlation of $r_c = .25, p < .01$, representing the individual level of analysis, seemed the most parsimonious.

Post-hoc analysis. In order to shed more light on this network of variables, we investigated the possibility that the tenure variable might serve as a potential boundary condition. We identified three categories into which entire supervisory groups were placed: (a) those in which most of the members had been with their supervisor 1 year, (b) those who had been with their supervisor 2 years, and (c) those who had been with their supervisor 3 or more years. We then ran a one-way ANOVA on leadership attention and performance appraisal. The results are presented in Figure 2.

There was a significant difference in leadership attention received by subordinates across the three levels of time with supervisor ($F = 3.71; df = 2, 383; p < .03$). A Duncan's test (Miller, 1981) isolated this
effect to the most senior level. In other words, there was no detectable difference between the first-year subordinate's ($x = 4.35$) and second-year subordinate's ($x = 4.38$) reported levels of leadership attention. However, if the individuals in a group had remained with their supervisor 3 years or more, they received significantly higher levels of leadership attention ($x = 4.71$). Exactly the same pattern was found for the performance appraisal measure (overall $F = 8.72$; $df = 2, 383$; $p < .0002$). Subordinates in first-year supervisory groups ($x = 3.52$) and second-year supervisory groups ($x = 3.61$) had significantly lower performance appraisal ratings than did the third-year groups ($x = 3.83$). The difference between the first year and second year was nonsignificant.

**Discussion**

We can affirm the research question posed at the beginning of this paper: There appears to be evidence of the dual impact of leadership on performance appraisals, despite the rather low magnitude of the bivariate correlations. Although research with a nomological network of variables using multiple regression could increase the amount of explained variance, variables must be used that operate at the same level of analysis (Dansereau et al., 1984).

The empirical results of this study provide evidence for two important themes. First, there is support for the basic notions from Murphy and Cleveland (1991) that leadership can have an impact upon performance ratings, a process which can be understood within the social-psychological framework of exchange theory.

Second, from an organizational-configuration perspective, the evidence suggests at least two different types of processes. In the “entire group” process, entire supervisory groups are characterized by their average tenure with their supervisor which is, in turn, correlated with the group’s average amount of leadership attention. In the “individualized” process, supervisors appear to provide leadership attention to subordinates independently of their membership in the groups. In other
words, the amount of leadership attention is a function of the individual employee’s relationship with the subordinate, independent of membership in the work unit. At the same time, individuals with longer tenure with their supervisor also receive higher performance-appraisal scores. Surprisingly, the relationship between tenure and leadership attention appears to operate at a different level of analysis.

In conjunction with Markham’s (1988) group-level findings, the identification of between-group phenomena for some of these variables invites speculation about the underlying leadership dynamics in organizations. For example, it may well be that supervisors engage in an exchange process with subordinates and that performance appraisal ratings are really a surrogate indicator of a superior’s satisfaction with this relationship (Dansereau et al., 1984; Graen, Dansereau, Minami, & Cashman, 1973).

This model presupposes that the supervisor is in that role first and in some manner helps select or even recruit the subordinate. What happens when a new supervisor, through succession, inherits an entire group of incumbents? In such a case, the supervisor might deal with incumbents as an entire group to keep the group intact. It is conceivable that this process continues throughout the life of the group, even as new members are socialized into the group. Thus, it is possible that two different processes operate in mature groups.

While this exchange seems to be reflected in the performance appraisal scores, this process might unfold at the dyadic level. A study using matched superior-subordinate reports would be needed to determine if the dyadic level of analysis would best model the data.

Given the dearth of studies that have investigated the relationship between leadership and performance appraisal, these results are encouraging as a step into future studies of configuration. From an applied perspective, they also suggest (a) the use of the superior-subordinate dyad as a lever to make organizational improvements in performance and (b) the need to consider explicitly what types of configurations might result in maximum organizational-level performance. As organizations face dwindling capital resources in the 1990s, they must turn to their human capital for long-term increases in performance. The configuration of the leadership exchange process may well hold the key to understanding this effect.

In summary, this research has continued the effort to determine not only the key variables that comprise the nomological network linking leadership behaviors with performance ratings, but also the ways variables are configured around the structure of an organization.

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