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# Examining the Link Between Leader-Member Exchange and Subordinate Performance: The Role of Task Analyzability and Variety as Moderators

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## **Abstract**

Results from a field study with 152 members of a large urban hospital indicate that the relationship between the quality of leader-member exchange (LMX) and subordinate performance is moderated by perceptions of task analyzability and variety: LMX and performance are found to be significantly related when task challenge is either very high or very low. Under these task conditions, data indicate that there is a positive link between LMX and performance such that a higher quality leader-member exchange correlates with higher levels of performance. On the other hand, analyses also reveal that when tasks are perceived to be moderately challenging, no significant relationship between LMX and performance is present. In other words, these data suggest that characteristics of the task act as moderating agents of the LMX performance relationship. Results are discussed in terms of theory development, managerial implications, and future LMX research.

Using tenets from role theory as a foundation, Graen and his associates (Dansereau, Cashman, & Graen, 1973; Dansereau, Graen, & Haga, 1975; Graen & Cashman, 1975; Graen, Novak, & Sommerkamp, 1982; Graen & Scandura, 1987) have been developing an alternative approach to the study of leadership by focusing on the differentiated relationships that emerge between superior-subordinate dyads. Contrary to many of the traditional theories that assume that a leader exhib-

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its an "average leadership" style toward all members of a work group, Graen's LMX (Leader-Member Exchange) approach emphasizes that the quality of dyadic exchange can vary substantially between a supervisor and individual subordinates. Accordingly, Graen suggests that a more appropriate means of assessing a leader's potential for influencing subordinate behaviors requires measures that tap into the varying quality of this dyadic exchange.

A growing body of research supports Graen's perspective. In a number of studies, LMX has been shown to be significantly related to a variety of organizationally relevant and desirable outcomes. Among other factors, LMX has been shown to act as a useful predictor of turnover (Ferris, 1985; Graen, Liden, & Hoel, 1982), job satisfaction (Duchon, Green, & Taber, 1986; Graen et al., 1982), career progress (Wakabayashi & Graen, 1984), and has also been used as the basis for managerial training and development programs (Graen et al., 1982; Scandura & Graen, 1984). Yet despite the growing popularity of this dyadic perspective (Vecchio & Gobdel, 1984), a number of conceptual issues remain unresolved (Dienesch & Liden, 1986; Miner, 1980).

One of these unresolved issues deals with the association between subordinate performance and the quality of leader-member exchange. Early in the theory's development, Graen & Cashman (1975) postulated that subordinates in high quality dyadic exchanges would be more likely to exhibit higher levels of performance because of the additional resources they typically receive from the leader (i.e., greater information, increased interactions, greater personal concern, etc.). Although results from several studies support this hypothesis (Dansereau et al., 1975; Graen & Ginsburgh, 1977; Liden & Graen, 1980), other research has found the relationship to be weak (Rosse & Kraut, 1983) or not significant (Vecchio, 1982; Vecchio & Gobdel, 1984). Thus, although there may be a certain intuitive appeal in expecting subordinate performance to be linked with the quality of leader-member exchange, the empirical evidence is such that the relationship remains inconclusive (Dienesch & Liden, 1986; Miner, 1988).

The objective of the current study is to probe this unresolved relationship by expanding the framework within which the LMX/performance connection has been examined. Vecchio & Gobdel (1984) and Yukl (1989) suggest that a viable avenue for extending the LMX model, and potentially resolving disparate findings, would be to incorporate moderating agents into the theory's underlying structure. This approach has been successfully used in a number of studies (Graen, Novak, & Sommerkamp, 1982; Graen, Scandura, & Graen, 1986; Scandura & Graen, 1984; Wakabayashi, Graen, Graen, & Graen, 1988), where certain individual differences were found to moderate the effects of the quality of the dyadic exchange. For example, Wakabayashi & Graen (1984) found that an individual's rated career potential moderated the effects of LMX, such that higher scores on either career potential or LMX predicted more rapid promotion and the receipt of more frequent bonuses.

But though these studies provide evidence that moderators are important variables to examine in LMX research, the majority of investigations have focused primarily on identifying individual difference variables that are acting as moderating agents. Yet another widely acknowledged and potentially viable source of

moderating influences, one that has not been adequately examined in the LMX literature to date, deals with task characteristics and the variations that task-related contingencies may play in understanding the connection between LMX and subordinate performance.

One of the few studies that did investigate the role of task characteristics as a potential moderator of LMX and subordinate performance was conducted by Seers & Graen (1984). Results from their study indicated significant main effects for both task characteristics and LMX on subordinate performance, but provided no evidence that task characteristics may have been acting as moderating agents. Based on their data, Seers & Graen proposed that a dual attachment model was illustrative of the influence that task characteristics and LMX would have on job-related outcomes (e.g., performance). That is, both factors would have a significant effect, but their effects would be largely independent.

However, results from the Seers & Graen (1984) study may have been somewhat equivocated by the manner in which they chose to operationalize their measures. In particular, their "task" characteristic variable was actually a composite of task items (i.e., a job's motivating potential score) and non-task items (i.e., employee growth-need strength and the cross-product of growth-need strength  $\times$  motivating potential score). Similarly, their measure of leader-member exchange was a composite of LMX and non-LMX items (i.e., the leader's growth need strength). This being the case, it is possible that the lack of support for task characteristics as moderating agents may have been due, at least in part, to a potentially confounding effect, arising from the inclusion of non-task and non-LMX items when measuring these two variables. It should be noted, however, that this is not meant as a criticism of the Seers & Graen study, but rather to point out that the role of task characteristics as potential moderators of LMX and performance remains uncertain and inconclusive and warrants further examination.

It should also be pointed out that a substantial body of extant literature indicates that there is every reason we should expect characteristics of a task to moderate the effects of leader behaviors. For example, from the literature on job design, Griffin (1980, 1981) suggests that effective leader behaviors may be a function of the congruity between subordinates and the tasks to which they are assigned. When incongruity is high (i.e., when there is a disparity between characteristics of a task and a subordinate's needs, skills, interests, etc.), the leader may become a more influential factor in affecting outcomes such as performance and satisfaction. On the other hand, when there is congruity between a subordinate and characteristics of his or her task, the leader may be less influential because the need for his or her intervention is substantially reduced.

Similarly, many of the current leadership theories suggest that the nature and complexity of tasks will intervene to determine appropriate leader behaviors. Among others, Fiedler's LPC model (1964, 1967), House's Path-Goal model (1971), Hersey & Blanchard's Situational Leadership theory (1969, 1988), and Vroom & Yetton's Decision Tree approach (1973) all recognize that the effect of leader behaviors will be, at least in part, a function of characteristics of the task. For example, House (1971) proposes that when a task is highly unstructured and non-routine, a directive leadership style would facilitate a subordinate's ability

to perform. Conversely, when a task is routine or offers little challenge, he prescribes a more supportive style of interaction with the subordinate.

A third line of research that would lead us to expect that task characteristics might moderate the LMX/performance relationship has been conducted by Kerr and his colleagues (Howell, Dorfman, & Kerr, 1986; Kerr & Jermier, 1978). These studies indicate that certain characteristics of a task may act as substitutes for the leader, such that a leader's efforts to influence performance levels, for example, may be either supported or negated by moderator influences. Thus, a task that is structured, routine, or unambiguous might act as a substitute for directive leader behaviors (Kerr & Jermier, 1978), but as House suggests (1971), might simultaneously create a situation that calls for an increase in leader support. Under different task conditions, however, this same level of supportive interaction may not be necessary. For example, if a subordinate finds the task itself to be challenging and intrinsically satisfying, the motivational support commonly provided by the leader may be redundant or even perceived as excessive (Kerr & Jermier, 1978).

Therefore, results of the Seers & Graen (1984) study notwithstanding, these three lines of research present a compelling argument for expecting task characteristics to play a moderating role in the relationship between LMX and subordinate performance. At the same time, however, these lines of research draw attention to the variety of instruments that have been used in extant research to classify task characteristics. For example, among the most frequently cited typologies for evaluating tasks are those suggested in Hackman & Oldham's (1975) Job Diagnostic Survey (JDS), and Sims, Szilagyi, & Keller's (1976) Job Characteristics Index (JCI). The scope of both these instruments is quite broad, however, and includes items that extend beyond the task itself. To illustrate, among the various items measured by the JCI are autonomy, dealing with others, and the friendship opportunities that emanate from the job or the job setting. Although these are undoubtedly important characteristics of the job in total, they are characteristics that are most directly associated with employee motivation and satisfaction. Their relationship with the day-to-day execution of a specific task is more indirect.

For the present study, therefore, it was felt that a more appropriate measure would be one that deals specifically with job characteristics that directly influence task execution. Such a measure has been created and psychometrically evaluated by Withey, Daft, & Cooper (1983). This instrument is based on Perrow's (1967) two-dimensional typology of task analyzability and task variety. Analyzability refers to the extent to which workers can follow unambiguous processes to solve task-related problems: that is, the degree to which the task is structured. Variety, on the other hand, refers to the number and frequency of exceptional, unexpected, and/or novel events. Perrow argues that these factors directly affect an employee's ability to transform inputs to outputs: that is, the ability to perform the day-to-day responsibilities associated with task execution.

According to Perrow (1967) and Withey et al. (1983), tasks will vary independently along both these dimensions. An employee's perception of task analyzability and variety provides information on the perceived uncertainty, routinization, and/or challenge experienced with a task. The greatest uncertainty, and consequently the most challenging situation, would be experienced when tasks

are low in analyzability and high in variety. In other words, task challenge will be highest when novel and unexpected events occur with some regularity and when the employee is unsure about the correct procedures to follow in resolving task problems. The least uncertainty, and hence the least challenging situation, would be experienced when tasks are highly analyzable and low in variety. Here the task could be described as being highly structured, the employee is more certain about the correct procedure to follow, and the work is relatively routine (i.e., few novel or unexpected events occur). Extending this line of reasoning, Perrow (1967) would suggest that tasks with either high analyzability and variety or low analyzability and variety represent situations where the employee would encounter less extreme levels of task uncertainty and challenge.

Therefore, according to Perrow's typology, the situations in which the greatest managerial dilemmas would occur are at the extremes: that is, when tasks are either very structured and routine or when tasks are ambiguous and involve many non-routine events. In the former, subordinate performance may wane because of boredom and monotony; in the latter, performance may suffer because of doubt, apprehension, and fear of failure. Under these conditions, we might expect the role of the manager to become a more central element in affecting subordinate performance because there is a greater potential for incongruity (Griffin, 1980, 1981) to exist between the task requirements and the subordinate's skills and abilities. This is not to say, however, that superior performance will always be associated with tasks that have moderate levels of uncertainty or challenge. Rather, it suggests that the *opportunity* for a leader to affect the performance of his or her subordinates may be greatest when task characteristics are least favorable.

With respect to the current investigation, in order to understand how task analyzability and variety could moderate the relationship between performance and LMX, it is necessary to briefly review how Graen describes different LMX exchanges. In certain dyads, the quality of the exchange is reserved and limited to interactions prescribed by the employment contract. In this type of exchange, a greater "distance" is maintained between supervisors and their "hired hands." Here, subordinates grant the superior the legitimate authority to direct their behaviors, but only in return for the salary and benefits coincident with their performance of task related duties (Miner, 1988).

In other dyads, the relationship between leader and subordinate goes beyond the prescribed tender of the employment contract. Because leaders are frequently unable to deal personally with all of the problems of running the unit, they come to rely more heavily on certain subordinates to act as their surrogates (Dansereau et al., 1975). Here, in exchange for greater consideration, information, influence, and support (Graen & Cashman, 1975), subordinates assume the role of the leader's trusted assistants by taking on additional duties, and expending greater time and effort toward meeting work group goals. The interaction that develops between these subordinates and the leader evolves into a more symbiotic exchange, where both parties give and receive more than the formal employment contract specifies.

If we accept Graen's description of the attributes of a low versus high quality exchange, then it is clear that high LMX subordinates have the *potential* to receive

more help and assistance from their leaders. On the other hand, it is also clear from the preceding discussion of task characteristics that not all tasks *need* the same degree of leader intervention. Therefore, it could be argued that the greatest *opportunity* for a leader to influence task-related outcomes (i.e., performance) exists when task characteristics call for leader intervention *and* when the leader-subordinate dyad has a high quality exchange. When the exchange is of low quality, *or* if task characteristics do not warrant leader assistance, then the opportunity for a leader to affect task-related outcomes is diminished.

What this suggests, therefore, is that the relationship between LMX and subordinate performance is probably not uniform across all task conditions. Instead, the relationship is probably moderated by characteristics of a subordinate's task. For example, as discussed earlier, tasks will be most routine when analyzability is high and variety is low. Under these conditions, the additional interaction afforded to subordinates with high quality exchanges would not be necessary for determining *how* to perform these routine tasks, because the subordinate is already clear *about* task requirements. Indeed, under these task conditions, a highly directive leader may actually denigrate subordinate performance (Moorhead & Griffin, 1989) by being too overbearing.

However, routine and unchallenging tasks *do* call for leader behaviors that are supportive and high in consideration (House, 1971). Because these attributes are part of the foundation of a high quality dyad, then we might expect that subordinates with higher LMX scores, having received more leader support and consideration, would be in a position to exhibit performance superior to that of their low-LMX counterparts.

At the other extreme, when analyzability is low and variety is high, the most demanding task conditions are experienced. Here workers are faced with unexpected and non-routine problems, the solutions to which are not easily analyzable. Under these conditions it is conceivable that the additional guidance and instruction provided in high quality dyads would manifest itself in higher subordinate performance. Because subordinates in lower quality dyads are not as likely to receive the extra attention from their leader and because they also experience the same ambiguity that coincides with non-routine problems, it is plausible to expect their performance to be lower.

Between the extremes of highly routine and highly non-routine tasks, however, conditions may be such that the relationship between performance and LMX is not as straightforward. For example, when both analyzability and variety are low, a moderate level of task uncertainty exists. Although the tasks cannot be easily broken down into specific and programmable steps, the uncertainty brought about by low analyzability may be partially compensated for by the fact that there are only a few unexpected and surprising events. Indeed, the modest challenge experienced under these conditions may in itself motivate subordinates toward higher performance (McClelland, 1961).

Similarly, when task analyzability and task variety are both high, subordinates are faced with a considerable number of novel and unexpected events, but there are fairly well established procedures that can be used to resolve most task problems. Thus, the task-related contingencies are such that the work is reason-

ably challenging, with a manageable level of uncertainty. Under these conditions, the role of the leader as a facilitator of higher performance may be partially fulfilled by characteristics of the task itself.

If the situations described above accurately depict events in the day-to-day activities of the work place, then there is reason to believe that the relationship between LMX and subordinate performance would not be uniform across all situations. Rather, differences in task characteristics would moderate the relationship. When tasks are either extremely challenging or extremely routine, the quality of dyadic exchange becomes more salient, and the *opportunity* for the leader to influence subordinate performance increases. On the other hand, when task characteristics result in a more manageable level of challenge and uncertainty, the quality of the dyadic interaction becomes less prominent, and differences in performance between subordinates with high versus low quality exchanges would be less pronounced.

To the extent this is the case, support should be found for the following hypothesis:

**Hypothesis 1:** Task analyzability and task variety will moderate the relationship between the quality of leader-member exchange and subordinate performance.

Further, consistent with the propositions tendered by Griffin (1980, 1981) and Ken and his colleagues (Howell, Dorfman, & Ken; 1986; Kerr & Jermier, 1978), the effects of the moderating agents should be such that leader-member relationships are more important at the extremes of task uncertainty and challenge. For example, as cited earlier, Griffin argues that the leader becomes a more central figure when there is a lack of congruity between the subordinate and the task. Similarly, Kerr and associates contend that the leader may become redundant if task characteristics themselves fulfill the needs of the subordinate. Because there is greater likelihood for subordinate/task *incongruity* when a task is extremely difficult or extremely routine and because extreme task boredom or extreme task difficulty are more likely to create the need for leader interventions, then there is reason to expect the following:

**Hypothesis 2:** The relationship between leader-member exchange and subordinate performance will be significant when tasks have low analyzability/high variety and high analyzability/low variety. The relationship between LMX and performance will not be significant when there is low analyzability/low variety or high analyzability/high variety.

## Method

### *Subjects and Setting*

Subjects for the study were 152 employees from the Department of Pathology and Laboratory Medicine at a 650-bed university medical center. The department is a composite of nine laboratories, each performing different kinds of testing for the hospital as well as providing specialty testing services for a number

of outside institutions. In some of the labs (i.e., Chemistry, Hematology, and the Blood Bank), tasks tend to be fairly routine but high in variety, with extensive use of computer-aided procedures. In others, like Immunology, tasks are very labor intensive (i.e., growing, testing, and analyzing culture samples), where a single task episode could go on for extended periods of time. In still other labs, the mixture of task duties are very eclectic, ranging from the routine to the extremely complex. Thus, there was a fairly wide range of task characteristics represented in the sample.

Of the respondents for whom demographic information was available, 125 were women (mean age 31; mean tenure on the job 4.5 years) and 24 were men (mean age 31; mean tenure on the job 2.6 years). Participation in the study was voluntary, although encouraged by hospital administration.

#### *Procedures and Measures*

Information was gathered through questionnaires administered at the hospital during normal working hours. Participants were assured of the confidentiality of their individual responses and told that upper-level management would only receive summarized data. Of particular interest to this investigation were employee responses that provided information on leader-member exchange (LMX), task variety, and task analyzability.

*Leader-Member Exchange (LMX).* A five-item version of Graen's LMX scale (Duchon, Green & Taber, 1986; Graen & Cashman, 1975) was used to measure the quality of exchange between subordinates and their manager: "Can you count on your supervisor to help you out when you need it?"; "Is your supervisor willing to use his/her authority to help you solve problems?"; "Do you and your supervisor work well together?" "Do you give suggestions to your supervisor about improving the work?"; "Does your supervisor recognize your potential?" All items were followed by a 5-point response scale where 1 = *Not at all*; 3 = *To some extent*; 5 = *Very great extent*. Responses to the five items were summed to form a measure of LMX with a possible range of 5 (low) to 25 (high). Consistent with earlier research, the measure had an acceptable level of internal consistency (Cronbach alpha = .79).

*Task variety.* Using a slightly modified version of Withey, Daft, & Cooper's (1983) instrument, participants responded to five items intended to assess perceived task variety: "To what extent would you say that your work is routine?"; "How repetitive are your job duties?"; "Basically, people in this lab perform repetitive activities in doing their jobs."; "How many of your job tasks are the same day-to-day?"; "People in this lab do about the same job in the same way most of the time." All items were measured on a 5-point scale, where 1 = *Very Little*; 3 = *To Some Extent*; 5 = *Very Much*. Responses were reverse scored, so that a higher number indicates higher levels of perceived variety. Responses were then summed, resulting in a possible range from 5 (low) to 25 (high). Internal consistency for the measure was strong (Cronbach alpha = .86).

*Task analyzability.* Four items from the Withey et al. (1983) scale were used to assess an individual's perception of task analyzability: "To what extent is there a clearly known way to do the major types of work you normally encounter?"; "To what extent is there a clearly defined body of knowledge of subject matter that

can guide you in doing your work?"; "To what extent is there an understandable sequence of steps that can be followed in doing your work?" "To what extent can you actually rely on established procedures and practices to do your work?" The same 5-point response scale that was used for task variety was also used here. After summing responses to the four items, the possible range of scores for analyzability was 4 (low) to 20 (high). Once again, internal consistency was at an acceptable level (Cronbach alpha = .82).

These three measures were used as the predictor variables for the study, and were based upon *subordinate* responses to questionnaire items. The fourth variable, an assessment of task performance, was obtained from the subordinate's supervisor.

*Subordinate performance.* As a means of differentiating between levels of performance, supervisors were asked to rate their employees on a six-item measure (Graen, Dansereau, & Minami, 1972; Vecchio & Gobdel, 1984). On a 7-point response scale where 1 = *Unsatisfactory* and 7 = *Outstanding*, subordinates were evaluated for dependability, alertness, planning, know-how and judgment, overall present performance, and expected future performance. Item responses were summed to produce an overall performance measure (Cronbach alpha = .95). The possible range of performance scores was 6 (low) to 42 (high).

Responses on all four variables were scored so that higher numbers represented higher values of the measure.

*Analyses.* Testing hypothesis H1 would be accomplished via hierarchical multiple regression techniques (Arnold, 1982; James & Brett, 1984; Podsakoff, Todor, & Schuler, 1983). Performance would be regressed on task characteristics (analyzability and variety) and LMX, and their interactions. The specific model would be: performance = analyzability (A) + variety (V) + LMX (L) + AV + AL + VL + AVL. The presence of a significant three-way interaction (AVL) would provide evidence supporting H1, and indicate that the relationship between LMX and subordinate performance was being moderated by the task characteristics of analyzability and variety.

Providing a significant three-way interaction is found in the hierarchical multiple regression test, Howell et al. (1986) suggest that an understanding of the form of the moderating effects can be obtained by dichotomizing scores for the moderating variables, in this case analyzability and variety, and examining the relationships between LMX and performance within the cells created by crossing the dichotomized measures. Obtaining the dichotomized groups would be accomplished using the Proc Rank procedures in SAS and requesting a two-group output for each task characteristic measure. This procedure breaks the sample population into two groups of approximately equal sizes, according to response scores on the variable of interest. Thus, a two-group output for variety, for example, would generate a dichotomized split of the sample into one group where scores on this measure would be low, and a second group where the scores would be high. The same process would be used for analyzability.

Testing hypothesis H2 would then be accomplished by means of subgroup analyses, where performance would be regressed on LMX within each of the four cells obtained by crossing low/high analyzability with low/high variety. Exam-

**Table 1.** Descriptive Statistics: Means, Standard Deviations, Ranges, Reliabilities,<sup>a</sup> and Inter-item Correlations

Variable	M	SD	Observed Range <sup>b</sup> Low High	Correlations			
				1.	2.	3.	4.
1. Performance	32.23	6.03	8 to 42	[.95]			
2. LMX	18.92	3.67	7 to 25	.38***	[.79]		
3. Analyzability	16.44	2.49	8 to 20	.13	.33***	[.82]	
4. Variety	11.98	3.84	5 to 24	.23**	.13	-.15	[.86]

<sup>a</sup> Cronbach alphas are shown in brackets on the diagonal.

<sup>b</sup> The maximum possible range of scores for these variables could have been: Performance 6 to 42; LMX 5 to 25; Analyzability 4 to 20; Variety 5 to 25.  $n = 152$ .

\*\*\*  $p < .001$ ; \*\*  $p < .01$ ; \*  $p < .05$ .

ining the results of these regressions would provide the information needed to assess the form of the moderating effects (Arnold, 1982) and evaluate H2.

Table 1 contains descriptive statistics (i.e., means, standard deviations, ranges, and inter-item correlations) for the four variables used in the study.

## Results

Hypothesis H1 predicted that task analyzability and task variety would moderate the relationship between the quality of leader-member exchange and subordinate performance. The hierarchical multiple regression used to test this hypothesis produced significant overall results ( $F = 5.49$ ,  $p < .001$ ,  $R^2 = .21$ ). Of greater interest for this study, however, was the fact that the three-way interaction between the predictor variables was also found to be significant ( $F = 4.49$ ,  $p < .05$ ). Details from this analysis are shown in Table 2 and provide support for H1. In other words, this finding indicates that task characteristics were acting as moderating agents of the LMX/performance relationship.<sup>1</sup>

To determine the form of the moderating effects, and to test the specific relationships proposed in hypothesis H2, subgroup regression analyses were then performed within the four cells of the  $2 \times 2$  matrix, obtained by crossing low/high analyzability with low/high variety (see Figure 1). Results from these analyses indicated that the significant interaction term was caused by *different* LMX/performance relationships in different cells. Specifically, only regressions in two of the cells produced significant findings. In quadrant #1, where task challenge was lowest (high analyzability/low variety), regressing performance on LMX did produce significant results:  $F = 11.78$ ,  $p < .01$ ,  $R^2 = .24$ . Similarly, the regression performed with observations falling in quadrant #4, where task challenge was highest (low analyzability/high variety), was also significant:  $F = 7.27$ ,  $p < .01$ ,

<sup>1</sup> As one reviewer noted, because the analyzability variable was computed by summing 4 questionnaire items, whereas LMX and variety had 5 items each, scaling differences may have confounded calculations of the interaction terms. In order to test for this potential confound, scores for all three IDV's were standardized to a mean of 0 and standard deviation of 1. The regression analysis was then rerun with the standardized variable and identical results were obtained.

**Table 2.** Results from hierarchical multiple regression where Subordinate Performance is regressed on Task Analyzability, Task Variety, LMX, and the interaction terms

Independent Variable	F	R <sup>2</sup>	Cumulative Change R <sup>2</sup>	
Total Model	5.49***	.21		
Analyzability (A)	3.15		.017	—
Variety (V)	11.59***		.081	.064
LMX (L)	17.78***		.178	.097
A × V	1.22		.184	.006
A × L	0.03		.185	.001
V × L	0.18		.186	.001
A × V × L	4.49*		.211	.025

$n = 152$ ; \*\*\*  $p < .001$ ; \*\*  $p < .01$ ; \*  $p < .05$ .

$R^2 = .16$ . In quadrants #2 and #3, where subordinates experienced moderate levels of task challenge, results from the regression analyses were not significant. These findings, along with other salient within-quadrant information, have been summarized in Figure 1.

According to these findings, therefore, data from the study support the form of the moderating influences hypothesized in H2. Specifically, when tasks were perceived to be either routine and offered little challenge, *or* when tasks were high in uncertainty and challenge, the relationship between LMX and subordinate performance was significant. Under these conditions there was a positive correla-

		<b>Quadrant #2</b>		<b>Quadrant #4</b>	
		<b>Moderate Task Challenge</b>		<b>Highest Task Challenge</b>	
		mean	s.d.	mean	s.d.
Low	Performance:	30.30	5.80	32.80	5.72
	LMX	: 17.43	4.17	: 18.25	4.27
		<b>Result of within-quadrant regression of Performance on LMX:</b>		<b>Result of within-quadrant regression of Performance on LMX:</b>	
		F= 3.66, n.s., n=40		F= 7.27**, R <sup>2</sup> =.16, n=40	
Task Analyzability		<b>Quadrant #1</b>		<b>Quadrant #3</b>	
		<b>Lowest Task Challenge</b>		<b>Moderate Task Challenge</b>	
		mean	s.d.	mean	s.d.
High	Performance:	32.10	7.03	34.03	5.83
	LMX	: 19.62	4.43	: 20.72	4.53
		<b>Result of within-quadrant regression of Performance on LMX:</b>		<b>Result of within-quadrant regression of Performance on LMX:</b>	
		F=11.78**, R <sup>2</sup> =.24, n=39		F= 0.01, n.s., n=33	
		Low		High	
		<b>Task Variety</b>			

**Figure 1.** The Relationship between LMX and Subordinate Performance within the Four Task-Contingency Quadrants

tion between the quality of dyadic interaction and the level of performance, such that higher LMX scores were coincident with higher levels of subordinate performance. Conversely, when tasks fell into a more moderate range of uncertainty and challenge, there were no significant relationships between LMX and performance. Thus, support was found for the specific effects hypothesized in H2.

It should be noted, however, that the analyses reported above used raw LMX scores. That is, the quality of leader-member exchange was calculated by simply adding together responses to the five items from the LMX instrument. Although this is the customary methodology used in a majority of extant LMX research, it deviates somewhat from the original premise of Graen's theory, namely that differences in leader/subordinate exchange relationships will emerge within a work group. Therefore, to examine whether similar results would be obtained using within group differences in dyadic exchanges, a second set of analyses were run. For these analyses, an individual's within-group-LMX score was computed by subtracting the work group's mean LMX from the subordinate's raw score (cf. Graen et al., 1982, or Scandura & Graen, 1984).

Following this calculation and using these within-group LMX scores, the same analyses described above were rerun, producing almost identical results. The overall hierarchical regression used to test H1 was once again significant ( $F = 5.81, p < .001$ ), although the three-way interaction was not quite as strong ( $F = 3.33, p < .07$ ). Results of the subgroup regressions within the cells of the  $2 \times 2$  matrix were also strikingly similar. The analyses performed with observations in quadrants 1 & 4 were significant ( $F = 15.26, p < .001$ , and  $F = 4.18, p < .05$ , for quadrants 1 & 4, respectively), but analyses run with observations in quadrants 2 & 3 were, once again, not significant ( $F = 2.39, n.s.$ , and  $F = .079, n.s.$ , for quadrants 2 & 3, respectively). Therefore, based on results from this second set of analyses, it would appear that task characteristics continue to moderate the relationship between LMX and subordinate performance regardless of whether the quality of dyadic exchange is measured with raw scores or with scores based on within-group variations.

## Discussion

The dyadic perspective of leadership espoused in Graen's LMX theory has been gaining in recognition and popularity (Vecchio & Gobdel, 1984), in part because it has identified an aspect of leadership that has been largely overlooked in other models (Dienesch & Liden, 1986). Yet despite the popularity and the increase in studies employing the dyadic technique, several unresolved issues remain. The purpose of the current investigation was to examine one of these unresolved issues, specifically, the relationship between the quality of leader-member exchange and subordinate performance.

As reported earlier, results from previous studies of the LMX/performance relationship have been equivocal. In some studies the relationship has been significant; in others it has been either weak or not significant. In an attempt to understand these conflicting results, the current investigation adopted a contingency posture and expanded the framework around which the relationship has been examined to include the potential effects of moderating agents, namely characteristics of a subordinate's task.

Results from the field study provided evidence that moderating agents were, in fact, affecting the conditions within which significant LMX/performance relationships were likely to emerge. Analyses indicated that the task characteristics of analyzability and variety interacted with LMX in predicting the level of subordinate performance. When subordinates were assigned tasks that were either routine and not very challenging, or when the tasks had very high levels of uncertainty, the quality of leader-member exchange was significantly related to the level of subordinate performance. Under these task conditions, higher performance was coincident with higher LMX scores. Conversely, when subordinates were responsible for tasks that had a more manageable level of uncertainty and challenge, the relationship between LMX and performance did not materialize. Under these task conditions, there was no statistical difference in the performance levels of subordinates with low or high quality dyadic interactions.

These findings have both theoretical and practical implications. From the theoretical standpoint, though Graen's LMX perspective has a great deal of intuitive appeal, several researchers have been concerned about inconsistencies in results from earlier studies (Dienesch & Liden, 1986; Miner, 1980; Vecchio & Gobdel, 1984). Data from the current investigation indicate that a plausible explanation for at least some of these inconsistencies may have been due to the equivocal effects of uncontrolled moderating agents. Thus, the development and refinement of the LMX model, called for by Dienesch & Liden (1986), might benefit from the adoption of a more contingency-based posture. Toward that end, future research might examine the impact of additional moderating agents such as work group norms and peer pressures, technology and environmental conditions, work climate, and corporate culture, to name a few.

From a practical side, findings from the study suggest that oft times equifinality exists and that multiple avenues for achieving desirable outcomes might be available. For example, the fact that significant task moderators were found indicates that high quality exchanges between subordinates and leaders are not a prerequisite for higher levels of performance. Under certain conditions, a leader may be able to control the levels of task variety and analyzability and thereby create situational contingencies that could act as substitutes for a high quality leader-member exchange.

These results have other implications, however, especially if one recalls the rationale and motivations upon which differentiated leader-member relationships are formed. As Graen suggests, the quality of the dyadic interaction is predicated on an *exchange* between the leader and the subordinate (Dansereau et al., 1975; Graen & Cashman, 1975; Graen et al., 1972). Subordinates are only willing to invest additional time and effort if they believe they will receive something of value in exchange. Similarly, leaders will only be motivated to develop higher-quality relationships *if* subordinates are able to reciprocate with something that is necessary for the leaders to perform their jobs successfully, or if the subordinates can offer something that is personally valued by the leaders.

This being the case, not all situations will have the requisite conditions where a *differentiated* relationship between leader and subordinate is likely to materialize. As an example, for a leader to have the opportunity to treat subordinates in a differentiated way, it is necessary to have a certain amount of organizational

power, autonomy, and resource control (Dienesch & Liden, 1986). In organizations where subordinates are represented by a union, it may actually be a violation of the labor contract for the leader to treat employees differently. In other words, a realistic opportunity for a leader to differentiate exchange relationships may not be possible.

Similarly, differentiated exchanges may be less likely to emerge if there is a lack of trust between leaders and subordinates or if peer group pressure threatens to ostracize a fellow subordinate for "rate-busting" and doing more work than the group deems acceptable. Under these conditions, a subordinate may actually refrain from even attempting to develop a high quality exchange because of the negative peer-group overtones associated with it.

Finally, it should be kept in mind that developing and maintaining a high quality exchange with subordinates consumes a leader's time, effort, and emotional resources. Dansereau et al. (1975) posit that because these resources are limited, there will be constraints on the number of high quality dyads a leader can feasibly sustain. Dienesch & Liden (1986) postulate that certain work groups may actually reach their "full-quota" of high quality dyads, making it very difficult for new employees, or employees currently with low quality exchanges, to obtain the more desirable status, even if they were motivated to do so.

If a non-contingent view of the LMX model were applied to the situations just described, then managers might be predisposed toward accepting lower levels of performance, for example, from those subordinates unable or unwilling to achieve high-LMX status. On the other hand, if a situationally contingent perspective is adopted, as suggested by results from the current study, then managers of low-LMX subordinates may still be able to elevate performance through the use of job redesign techniques. By coordinating the levels of task analyzability and variety to fit the situational contingencies discussed above, managers may be able to engage substitutes for LMX and still achieve more desirable levels of performance from low-LMX group members.

Although the results from this investigation are consistent with leadership theories adopting a contingency perspective, and offer a feasible explanation for some of the inconsistencies in previous LMX studies, there are certain limitations that need to be pointed out. First, this was a cross-sectional study and there is no statistical basis for arguing causal relationships among any of the variables. Second, the items used to measure subordinate performance were "soft," in that they relied on a manager's subjective evaluation of his/her employees. Although a subjective assessment of subordinate performance is more the rule than the exception in real organizations and although this same instrument has been used in previous research (Graen et al., 1972; Vecchio & Gobel, 1984), some may feel that more objective measures would have been preferable.

However, the criticism typically leveled at the use of soft performance measures is that they are more inclined to be correlated with LMX than "hard" objective criteria. If we assume this to be the case, then the fact that nonsignificant LMX/performance relationships were found in two of the quadrants, even though soft performance measures were used, makes these findings even more noteworthy. In other words, if significant results were found under all task con-

ditions, then the use of these subjective measures would have been more suspect. Because this was not the case, it could be argued that the typical concerns over the use of hard versus soft performance criteria is, at least to some degree, minimized.

A third potential limitation of the study deals with possible range restrictions on the task characteristic measures. As reported in Table 1, the maximum possible range of task analyzability was from 4 to 20 (based on 4 items and a 5-point response scale); the maximum range for task variety was 5 to 25 (based on 5 items and a 5-point response scale). In these data, the mean analyzability score was skewed toward the upper end of the range (16.44) whereas the mean variety score was skewed toward the lower end (11.98). In other words, on an overall basis, the tasks evaluated in this study had moderate to high analyzability and moderate to low variety.

From a psychometric standpoint, it would have been desirable if the tasks performed by these employees had followed a more normal distribution curve along the analyzability and variety continua. However, if there had been a serious psychometric problem with restriction of range, it would have manifested itself and had the greatest statistical impact at the extremes of the measures. In other words, if the data had shown nonsignificant LMX/performance relationships at the extremes of task analyzability/task variety (quadrants 1 & 4), then there would be more reason to be concerned over possible range limitations. But this was not the case. Instead, tasks falling in quadrants 2 & 3, the areas between the extremes, were the ones where results were not significant. Therefore, concerns about range restrictions affecting the credibility of these findings should be somewhat reduced. Nevertheless, it would be desirable for future studies to test for the moderating effects of analyzability and variety in settings where a greater variance and a more normal distribution of task scores were present.

Finally, it should be noted that although there was statistical evidence to support the argument for moderating effects, the strength of the 3-way interaction was clearly not overwhelming (i.e., incremental variance for the 3-way  $R^2 = .025$ ). The main effect contributions for variety (incremental  $R^2 = .064$ ) and LMX (incremental  $R^2 = .097$ ) were substantively larger and should not be disregarded. That is to say, all things being equal, a high quality leader-member exchange was associated with higher levels of subordinate performance. Similarly, all things being equal, the greater the level of variety, the higher the level of subordinate performance.

On the other hand, as Kerlinger (1986) indicates, some statisticians suggest that interpretation of main effects in the presence of a significant interaction is not possible and that if done, could lead to incorrect conclusions. Kerlinger states that "a general rule is that when an interaction is significant, it may not be appropriate to try to interpret main effects because the main effects are not constant but vary according to the variables that interact with them" (p. 242). Similarly, Hays (1963) argues that, "the estimated effects of any given treatment [main effect] are not 'best bets' about any randomly selected individual when interaction effects are present; the best prediction entails knowing the other treatment or treatments administered" (p. 392).

In other words, though a significant main effect may provide information about the *average* relationship between a predictor and criterion variable, the presence of a significant interaction term indicates that the relationships between predictor and criterion changes depending on the level of the other predictor variable(s) composing the interaction term. The importance of this conditional relationship was reflected in the current study by the fact that LMX and performance were only significantly related in two of the four task quadrants. In the other two quadrants, the relationship was not significant. This distinction would have been all but lost by focusing on the main effects instead of the contingent effects associated with the interaction term.

To summarize, the purpose of this study was to examine Graen's theory of leader-member exchange from a contingency perspective. Results indicate that the task characteristics of analyzability and variety moderated the relationship between the quality of dyadic exchange measured by LMX and a subordinate's performance. When tasks were perceived to be either very routine or very non-routine, significant differences in performance were found between low- versus high-quality dyads. For subordinates who perceived that their tasks fell in the mid-ranges of routinization, however, there were no significant performance differences associated with the quality of dyadic interaction.

These results offer a viable explanation for some of the inconsistent findings in previous LMX studies, and suggest that it may be constructive to expand the underlying structure of the theory to incorporate and specifically recognize the possible effects of moderating variables. Although the current study focused on differences in task characteristics and performance, future investigations should examine the impact of other situational contingencies (e.g., work group, culture, climate, technology, etc.) as well as other outcome measures (e.g., turnover, absenteeism, organizational citizenship, job satisfaction, etc.).

Graen's theory of LMX has been shown to be robust across a number of settings, at different hierarchical levels, and useful in predicting a variety of relevant organizational outcomes. However, in its current state, the model may be somewhat oversimplified (Dienesch & Liden, 1986). Results from this investigation suggest that a productive and worthwhile area for developmental efforts would be through the adoption of a contingency posture and an expansion of the model to specifically include the impact of moderating agents.

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