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Attribution theory in general and locus of control in particular have emerged in recent years as an important theoretical foundation and unit of analysis in the study and research of organizational behavior. Although very popular in behavioral science research as a whole, Spector (1982) recently noted that only relatively few of the well over 600 studies on locus of control are related to attitudinal, motivational, and behavioral variables in <u>organizational</u> settings.

The purpose of this study is to increase the understanding of locus of control in work settings. In particular this study investigates whether certain leader behaviors that appear to be closely related to the locus construct are, indeed, related and whether locus of control moderates these leader behaviors in accounting for subordinate perceptions of organizational effectiveness and productivity and satisfaction with supervision. It has been suggested that differentiated behavior may be the critical evidence for the validity of the internal-external (I-E) locus of control construct (Phares, 1973). Thus, this study can not only increase our knowledge and understanding of locus of control in the work place, but also provide validation evidence for the construct.

### Background for Locus of Control

Derived from attribution theory (Heider, 1958; Kelley, 1967, 1973; Kelley & Michela, 1980), locus of control is both a generalized, fairly stable expectancy, as well as a more specific expectancy arising from a particular situation. It is developed by the frequency of pervious reward in a specific situation, as well as by the frequency of similar rewards in other situations (Phares, 1973). According to Rotter (1966), when a person expects or perceives reinforcements to be contingent on one's own behavior or relatively

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permanent characteristics, an internal locus of control is demonstrated. Conversely, when such reinforcements are perceived or expected to be the result of chance, powerful others, or the complexity of the situation, the locus of control is external.

Since locus of control is portrayed as applicable across all areas of life, its behavioral implications should become important to work settings. Internals, believing that they control reinforcements through their behavior, should behave in ways to control the situation, including other persons (i.e., subordinates) in the situation. Externals, by definition, should be less active in trying to control their environment. Thus, it could be expected that subordinates' rating of leader behavior would differ for internal and external supervisors.

In previous organizational behavior research using the locus of control construct, the focus has been on subordinate locus of control as a moderator of the relation between perceived leader style and subordinate satisfaction. For example, Runyon (1973) and Mitchell, Smyser, and Weed (1973) studied the relationship between directive and participative leader style, moderated by subordinate locus of control, and satisfaction with the leader. Internals were more satisfied with a participatory style and also with supervision regardless of style. Consideration and initiating structure, rated by subordinates through the Leader Behavior Description Questionnaire-XII have also been studied, but the results have been inconclusive (Abdel-Halim, 1981; Evans, 1974).

Although the finding that subordinates, locus of control may affect their perception of leader style, these studies have limitations in that they do not test whether internality or externality is related to one's own behavior nor to behavior that is conceptually more closely related to the control aspect of the locus construct. An exception to the above is Goodstadt and Hjelle's (1973) laboratory simulation of a factory setting in which college students acted as work group supervisors. Work groups were composed of confederates who caused problems for these supervisors. Rated on the supervisory behavior they used, internal supervisors tended to use persuasion more. This provides some indication that <u>persuasive behavior</u> is a construct relevant variable.

Further investigation is needed to help determine whether persuasiveness is more germane to the locus of control construct than leadership behaviors such as participative-directive and consideration-initiating structure styles. In this study, four influence or control behaviors were of particular interest: (1) persuasiveness (uses persuasion and argument effectively), (2) influence with superiors (maintains cordial relations with superiors, has influence with them), (3) influence on overall effectiveness, and (4) influence on productivity. It was expected that supervisors higher in internality would be perceived by their subordinates as exhibiting more such controlling behaviors. Influence attempts are one means of attempting to exert control. Therefore, subordinates should rate internal supervisors higher on these four influence variables.

A second area of concern was whether locus moderates the effect of leader influence behavior on subordinate satisfaction with supervision and on subordinate perceptions of work unit overall effectiveness and productivity. Previous reasearch has not focused on the effect of a perceived leader behavior x leader locus of control interaction on subordinate satisfaction with supervision. Instead, it has concentrated on the moderating effect of subordinate locus of control on the relation of managmenet style and subordinate satisfaction (Andrisani & Nestel, 1976; Dailey, 1978; Gemmill & Heisler, 1972; Lester & Gens, 1978; Mitchell et.al., 1975). The supervision

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facet of satisfaction also has not received sufficient study (Vecchio, 1981).

Concerning the performance variables, there is some research that indicates that work units of internal supervisors would have higher overall effectiveness and productivity ratings. According to previous research, where rewards are contingent on performance (Evans, 1974; Mitchell et.al., 1975), are valued (Broedling, 1975), and where the supervisor has enough freedom to exert control, one could expect the superviosr to exert enough control or influence behavior to increase the level of overall effectiveness and productivity. Actual increases, however, may or may not occur. Regardless, if supervisors exert control or influence behavior, it may affect subordinate perceptions so that they give higher ratings on effectiveness and productivity to work units supervised by internals. Although there is a void of research on the effect of leader behavior x locus of control on work unit performance, several studies exist that support the idea that internals individually put forth more effort and perform better than do externals (Andrisani & Nestel, 1976; Heisler, 1974; Majumder, MacDonald, & Greever, 1977). Therefore, there might be a tendency for internal supervisors to have work units which would be rated higher by subordinates on overall effectiveness and productivity.

In sum, then, it is hypothesized that locus of control will account for a significant amount of the variance in persuasiveness and other influence behavior of supervisors, with internals demonstrating more influence behavior than externals. The second hypothesis is that supervisor locus of control may moderate the relation between supervisor influence behaviors and subordinate satisfaction with supervision as well as subordinate ratings of work unit overall effectiveness and productivity.

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Method

Sample

In contrast to the use of college students as subjects in much of the locus of control research, subjects participating in this study consisted of 89 supervisors and their 345 subordinates from the following types of actual organizations: manufacturing (33 percent); service (27 percent); government (12 percent); retail (4 percent) and others (24 percent). The external environment was rated by the supervisors as about what most organizations face: "some unstability and uncertainty" (53 percent of respondents) or slightly more stable and certain (25 percent). The technology level was rated as mostly medium ("somewhat sophisticated, requires skilled work", 41 percent), with some rating it's at a level between medium and high (30 percent) or high technology ("heavy commitment to research and development and employs a great number of professionals", 23 percent).

The supervisors in this sample ranged in age from 23 to 62, with a median age of 37. Subordinates' ages had a slightly wider range, from 16 to 67, with a median age of 34. As to educational level, 71 percent of the supervisors completed a college degree or graduate work/degree in contrast to 36 percent of the subordinates. Supervisors were predominantly male, 67 percent, while slightly more subordinates were female (53 percent) than male (47 percent). Forty-eight percent of the subordinates had worked one to three years for the suprvisor whose behavior they rated, 14 percent for four to five years, 12 percent for six to fifteen years, 1 percent for more than 15 years, and 25 percent for less than one year. Supervisors had the following position tenure: 44 percent, 1-3 years; 18 percent, 4-5 years; 23 percent, 6-15 years; 9 percent, more than 15 years; and 6 percent for less than one year. Thus, 75 percent of the subordinates had worked for more than one year for the

supervisor they rated and 94 percent of the supervisors had more than one year of experience in the position they held when being rated. This represents a fairly stable reference for rating behaviors.

### Measures

A number of measures were used in the study. Supervisor data were gathered on responses to Rotter's I-E scale (1966) and to the Marlowe-Crowne Social Desirability scale (Crowne & Marlowe, 1964). Subordinate data were gathered on responses rating leader influence behaviors, satisfaction with supervision, and overall effectiveness and productivity. Thus, multimethods (with multiple rater sources treated as multiple methods, see Campbell & Fiske, 1959), were used to determine whether locus of control was exhibited through behavior.

The Rotter Internal-External scale (1966) was used to assess <u>supervisor</u> locus of control. This scale has been used in the majority of studies. It is a broad guage instrument intended to attain low degrees of prediction across a wide range of potential situations, rather than high prediction in specific situations (Rotter, 1975). Because this study investigated generalized behavior, the Rotter I-E measure was felt to be suitable. This measure was used as a continuum with internality and externality at the extremes. Subjects were not dichotomized into internal and external groups through the use of arbitrary cut-off points on the scale. This is in harmony with Rotter's (1975) use of the construct:

> In neither the case of situational differences nor individual differences were we hypothesizing a typology or a bimodal distribution. Rather, we assumed that with internal-external control something approximating a normal curve described the populations that we are interested in (p. 57).

Reliability of the I-E scale for this sample was moderately high with a coefficient alpha of .73.

Following the recommendation of Ganster, Hennessey and Luthans (1983), the Marlowe-Crowne Social Desirability Scale (Crowne & Marlow, 1964) was administered to both supervisors and subordiantes in order to ascertain whether social desirability (SD) response bias might better explain the results than did locus of control. This was a precaution primarily for subordinate responses, because Rotter's I-E scale was designed with a forcedchoice format to reduce correlations with the Marlowe-Crowne (Rotter, 1975). Reliability of the SD scale was sufficiently high, with coefficient alpha for subordinate data at .83 and for supervisors at .81. Because all correlations of SD with any other variable in this study were either nonsignificant or less than .20 (See Table 1), social desirability was not deemed to be a problem and thus was not further utilized in this study.

The entire Leader Behavior Description Questionnaire-XII (Stogdill, 1963) was administered to subordinates. The entire LBDQ-XII was administered to heed Evans' (1974) caution that responses to subscales administered separately may not be psychometrically equivalent to responses made when the entire instrument is administered. Responses to two of the subscales, persuasiveness and influence with superiors, were used for this study. The alphas were .86 and .76, respectively. Since the primary concern in this study was the match between leader behavior and leader locus of control, scores were averaged across subordinates, a procedure thought to have the effect of obscuring the effects of personality differences among subordinates on the perception of leadership behavior (Durand & Nord, 1976). In addition to the LBDQ, subordinates were asked to respond to how much influence they felt their supervisor had on the overall effectiveness and productivity of their unit.

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These questions concerning supervisor influence supplemented the Nott scales (1972) and had alphas of .87 and .85 respectively.

The criterion variables consisted of the satisfaction with supervision subscale from the Job Descriptive Index (Smith, Kendall, & Hulin, 1969), with an alpha of .75, and the two performance subscales from Mott's (1972) organizational effectiveness questionnaire. The latter had alphas of .74 for overall effectiveness and .71 for productivity.

### Analysis Procedures

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The data collected from the above measures were used for correlational and simple and hierarchical multiple regression analyses to investigate the relationship between supervisory locus of control and leader influence behavior, as perceived by subordinates. By utilizing the supervisors' rating of their own locus in relation to subordinates' rating of leader influence behavior, the problem of method variance, which potentially exists in studies utilizing subordinate locus as a moderator of subordinate perceived leader beavior, was avoided.

Correlations were computed for independent and dependent variables. In separate regressions, the four leader influence behaviors were then regressed on locus of control to determine the relationship. Subsequently, in a series of three-stage hierarchical multiple regressions, each of the four dependent variables was regressed on each leader behavior moderated by locus of control.

For the regressions, the group means were used for subordinate data. This average leadership style (ALS), which assumes homogeneity of leader behaviors, is congruent with the generalized locus of control construct which esr a that supervisors will/will not generally exhibit behavior intended to be controlled. The group level of analysis was deemed most appropriate to the nature of this study. Were specific predictions on interest here, then an

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analysis of dyadic leader-subordinate relationships would be more appropriate (Vecchio, 1982; Graen & Schiemann, 1978; Dansereau, Cashman, and Graen, 1973). Group means were also intended to control for differences in work group size.

### Results

It was first determined whether locus of control (LOC) related to leader influence behavior, as perceived by subordinates. The expectation was that if locus of control governs behavior and discriminates between internals and externals, this difference would be confirmed in subordinate perceptions and ratings of leader behavior.

# Insert Table 1 about here

Correlations of LOC with leader behaviors shown in Table 1 indicates that leaders who were self-rated as internals were also rated by subordinates as significantly higher in persuasiveness, influence on superiors, and influence on overall effectiveness. Although not statistically significant, the correlation (-.10, p < .09) was in the direction of internality for influence on productivity. The LBDQ measured variables, persuasiveness and influence on superiors, are highly correlated with each other, but do correlate higher with internality than do the variables for performance influence.

# Insert Table 2 about here

Locus of control is most closely related to persuasiveness, accounting for .0853 (p < .001) of the variance. Table 2 presents the results of the regressions of the four influence variables on LOC. As shown, LOC accounts for nearly as much of the variance in influence with superiors (.0785, p <.001) as with persuasiveness, but is not significant for either influence on

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overall effectiveness nor productivity.

Insert Table 3 about here

Table 3 presents the results of hierarchical multiple regressions of the criterion variables on the four influence behaviors. As shown, LOC had a moderator effect in only one case, on the relationship of supervisor influence on productivity and subordinate satisfaction with supervision, accounting for an additional .0385 (p < .05) of the variance in this facet of satisfaction. LOC also had a significant main effect in explaining overall effectiveness when the independent variables of influence on overall effectiveness and influence on productivity were in the equations. For neither of the LBDQ measures of persuasiveness nor influence with superiors did LOC have a moderator effect, nor did it have a significant main effect.

### Discussion and Conclusions

In this study, as in previous research, locus of control was found to account for only a small proportion of the variance in the leader influence behaviors. Phares (1973) previously addressed the criticism that locus accounts for so little variance by responding that even though not a great deal of variance is explained, it <u>consistently</u> does so across studies and that this consistency is evidence of the robustness of the locus of control construct. Since locust of control is only one dimension of cognitive complexity, the small proportion of variance accounted for may be as high as can be expected. To account for more of the variance, according to Phares, we would need more information about the situation and about reinforcement in the situation. Thus, at least from a consistency criterion, this study provides additional support for the robustness of the locus of control construct.

The major concern of the study was whether the leader's locus of control accounted for a significant amount of the variance in construct related leader influence variables as perceived by the subordinates. Of the four examined, locus was more important in explaining persuasiveness than in explaining influence on superiors, overall effectiveness or productivity. Extending the previous laboratory study by Goodstadt and Hjelle (1973) to actual work settings, this study lends support to their research, which indicated that internal supervisors tended to use persuasion more than did externals. Furthermore, supervisor persuasiveness, as an independent variable, accounted for .41 (p < .001) of the variance in subordinate satisfaction with supervision. To understand the complexity of these relationships, further analysis (e.g. path analysis) is suggested for the future.

Although this study adds to the knowledge about locus of control and the supervision facet of satisfaction, other factors cannot be ruled out as possible determinants (e.g., the I-E of subordinates). Further research could address the issue of a subordinate-supervisor I-E match. Situation complexity has also been mentioned as a neglected area of research on locus of control (Rotter, 1975; Spector, 1982).

One important finding in this study was that supervisor locus of control seems to serve as a moderator of the relation between subordinates' perceptions of supervisor influence on productivity and the criterion variable, satisfaction with supervision. This provides some support for the notion that supervisors' locus of control may be congruent with their behaivor and thus helps to validate the construct. Data now are needed, such as other indicators of influence on productivity, archival or observational, to further verify the occurrence of the leader influence behavior.

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In addition, the significance of this interaction supports previous spculation and research that indicates internals hold expectancies that effort leads to rewards or reinforcements. Spector (1982) notes that internals hold expectancies that effort will lead to good performance and good performance to reward. Given this conclusion, one could expect internals to behave to influence productivity. According to the construct, one could expect the occurrence of this influencing behavior only in situations where rewards are contingent on performance and where the supervisors value the rewards. A weakness of most locus of control studies, including this one, is that no identification was made of rewards valued by the supervisors. Thus, although one could speculate that subordinate satisfaction with supervision is a reinforcement to the supervisor for behaving to influence productivity, the results do not really indicate this to be the case. If the dependent variables in this study are perceived by all supervisors to be salient rewards, one would not expect differentiation of behavior of internals and externals. Of course, other unidentified rewards might still underlie differentiated behavior. Regardless, this study does provide additional support for the locus of control construct that internals and externals demonstrate different degrees of control behavior. It also points up the need for research on the part that the situation plays in research on locus of control.

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# TABLE 1

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# Descriptive Statistics and Correlations Among Variables

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Ι.	1. Locus of Control <sup>a</sup>	7.06	3.77									
2.	Persuasiveness	3.55	.61	2]###								
Э.	Infl. on Superiors	3.69	.51	22***	.63***							
4	Infl. on Overall Effectiveness	3.42	.75	12*	.51***	.4444						
5.	Infl. on Productivity	3.40	.85	10	***74.	.38***	***l6 <b>*</b>					
6.	Overall Effectiveness	3.88	•50	11+	.21***	.24***	.27***	.27***				
7.	Productivity	3.96	.57	<b>60*-</b>	60°	.15**	.14*	.16**	.77***			
æ.	Satis. with Supervis.	37.45 9.70		-,13#	***67"	.36***	.39###	.37###	.29***	.16###		
9.	Superv. Soc. Desir.	19.45 5.53	5.53	60•								
10.	Sub. Soc. Desir.	10.01	5.97		•05	•08	•06	•08	•05	10.	•03	VN
	•		•		,					:		,

<sup>a</sup>lower or negative correlations are indicative of internal locus of control; more positive indicate external locus.

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### TABLE 2

### Regressions of Subordiante Perceptions of Leader Influence Behaviors on Supervisor Locus of Control

	oendent Variables: Leader Influence Behavior	Independent Variable: Supervisor Locus of Control		
		<u>R</u> <sup>2</sup>	F	P
1.	Persuasiveness	.0853	7.7421,83	.0008
2.	Influence on Superiors	•0785	7.0731,83	.0015
3.	Influence on Overall Effectiveness	•0296	<sup>2.443</sup> 1,80	.0933
4.	Influence on Productivity	.0315	2.5991,80	.0806

### TABLE 3

Hiearchical Multiple Regressions: Supervisor Locus of Control as a Moderator of Supervisor Influence Behavior as Perceived by Subordinates

Dependent Variables: $\Delta R^2$						
Independent Variables Overall Effectiveness Productivity Satis. w. Supervision						
1.	Persuasiveness	•12 <b>*</b> **	.04*	.4 <u>1</u> ***		
2.	Locus of Control	•03	.02	.00		
3.	Interaction	.01	.00	•02		
1.	Influence on Superiors	•09***	•05*	.21***		
2.	Locus of Control	.04	.02	.00		
3.	Interaction	.00	•00	•01		
1.	Infl. on Overall Effect	10***	•01	.28***		
2.	Locus of Control	•05*	.04	.01		
3.	Interaction	.00	.00	.03		
1.	Influence on Productivi	tv .10***	.01	.24***		
2.	Locus of Control	.05*	.04	.01		
3.	Interaction	.00	.00	.04*		

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

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N=85, utilizing group means for subordinate responses.

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Director Civilian Personnel Division (OP-14) Department of the Navy 1803 Arlington Annex Washington, DC 20350

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Chief of Naval Operations Assistant, Personnel Logistics Planning (Op-987H) The Pentagon, 5D772 Washington, DC 20350

### MPRDC

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Naval Material Command NAVMAT-OOK J.W. Tweeddale Washington, DC 20360

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Naval Material Command (MAT-03) Crystal Plaza #5 J.E. Colvard Room 236 2211 Jefferson Davis Highway Arlington, VA 20360

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LIST 5 BUMED

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CDR William S. Maynard Psychology Department Naval Regional Medical Center San Diego, CA 92134

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No.

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Naval Postgraduate School ATTN: Professor John Senger **Operations** Research and Administrative Science Monterey, CA 93940

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U.S. Naval Academy. ATTN: CDR J. M. McGrath Department of Leadership and Law Annapolis, MD 21402

Professor Carson K. Eoyang Naval Postgraduate School, Code 54EG Department of Administration Sciences Monterey, CA 93940

Superintendent ATTN: Director of Research Naval Academy, U.S. Annapolis, MD 21402

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LIST 7 HRM List 7 (Continued)

Officer in Charge Human Resource Management Detachment Naval Air Station Alameda, CA 94591

Officer in Charge Human Resource Management Detachment Naval Submarine Base New London P.O. Box 81 Groton, CT 06340

Officer in Charge Human Resource Management Division Naval Air Station Mayport, FL 32228

Commanding Officer Human Resource Management Center Pearl Harbor, HI 96860

Commander in Chief Human Resource Management Division U.S. Pacific Fleet Pearl Harbor, HI 96860

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Commanding Officer Human Resource Management School Naval Air Station Memphis Millington, TN 38054

Human Resource Management School Neval Air Station Memphis (96) Millington, TN 38054 Commanding Officer Human Resource Management Center 1300 Wilson Boulevard Arlington, VA 22209

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Officer in Charge Human Resource Management Detachment COMNAVFORJAPAN FPO Seattle 98762 P4-5/A16 Sequential by State/City

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Naval Military Personnel Command HRM Department (NMPC-6) Washington, DC 20350 (2 copies)

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