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AUTHOR Hammer, Tove H.; Dachler, H. Peter
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ABSTRACT

A review of some of the basic approaches to the study of supervision in organizations leads to the conclusion that the behavioristic methodology of searching for temporal and spatial correlations between assessed events without establishing specific connections to theoretical networks has provided an inadequate basis for the understanding of the nature of supervision. A process approach to supervision which is emerging in the literature is presented. This approach combines the leadership dimensions of consideration and initiating structure with the path-goal theory of motivation. Data collected among supervisors and subordinates in a manufacturing plant for an exploratory study testing assumptions about the psychological meaning of these dimensions in terms of a path-goal theory are presented. It is suggested that the current assumptions underlying the process approach to supervision are too simplistic and an argument is made for the need to construct validation of the leadership concept. A conceptual framework which integrates supervision with Valence/Instrumentality/Expectancy theory of worker motivation, influence and power is outlined. Emphasis is put on the construction of a theoretical network within which the questions of the leadership and supervision process should be examined. (Author)

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THE PROCESS OF SUPERVISION IN THE
CONTEXT OF MOTIVATION THEORY

TOVE H. HAMMER
H. PETER DACHLER

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THE PROCESS OF SUPERVISION IN THE
CONTEXT OF MOTIVATION THEORY¹

Tove Helland Hammer H. Peter Dachler

University of Maryland

The role of the supervisor and the characteristics of those organizational members who fill this role have been the source of extensive research and much speculation in organizational and social psychology. Despite a plethora of data on leadership and supervision, however, the process or the psychological meaning of supervision remains unclear. Supervisory correlates of worker behavior and attitudes have been found, but relatively little is known about why these relationships exist and what psychological process they represent.

The definition of the concept of supervision and the understanding of the inherent psychological processes have been impaired by the heavy reliance on the behavioristic tradition of using "correlations without explanations". Locke (1970a) describes this methodology as:

Stressing both conceptually and experimentally, the temporal and spatial correlations between observed events without attempting to explain the reasons for or causes of these correlations. By implication or

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design, this policy disregards the attributes of the entities being observed and focuses solely upon the actions themselves (p. 2).¹

The extensive array of empirical findings and the conceptualizations deriving from the "behavioristic" methodology have been interesting in parts, but hardly comforting in their inconsistency and inability to provide clearer answers about the nature of supervision in organizations.

The present paper will briefly summarize the broad traditional conceptual and empirical approaches to supervision. A new approach to studying the supervision process which is emerging in the literature will be discussed and evaluated on the basis of available research and data collected by the present authors. Finally, an alternative conceptualization will be outlined which departs from the behavioristic methodology and may provide a better starting point for validating the construct of supervision.

Although this paper will use the terms leadership and supervision interchangeably, the focus of our discussion will be on formal leadership, where it is clear what position or role in an organization fulfills the functions of leadership. While the management philosophies of power equalization and participation have a direct bearing on supervision in organization, they will not be included in the current discussion since these organizational philosophies imply more than what is traditionally understood in the concept of supervision and leadership. For reasons of space, the authors decided to eliminate from the discussion a number of very interesting but more isolated research efforts concerning supervision (e.g., Pelz, 1952; Rosen, 1969; Yukl, 1971) and to concentrate on approaches to supervision which represent more programmatic research efforts.

¹An expanded version of this concept can be found in Locke, 1972.

Traditional Approaches to Supervision and Leadership

A. The trait approach: The research on supervision has moved through stages of differing emphasis on various variables. Early research efforts were devoted to discovering specific personality characteristics which distinguished leaders from non-leaders. This search for leadership traits was based on the assumption that effective leadership is a function of a trait or a combination of traits, where any leader possessing these qualities would be effective irrespective of situational, task or follower characteristics. In general, the research showed little convergence on specific characteristics of effective leaders. Attempts at finding physiological correlates of leadership effectiveness did not meet with success (Gibb, 1969). Likewise, surveys of research linking personality traits of the supervisor to work group behaviors showed lack of consistent relationships between leader personality and effectiveness (Bass, 1960; Mann, 1959; Stogdill, 1948). Other research efforts, however, have found certain personality traits and characteristics to predict managerial effectiveness (Ghiselli, 1956, 1963; Randle, 1956), indicating that the trait approach may have some merit at least in a purely predictive sense.

B. The behavior approach: The early failure to isolate specific leader traits led to a research interest in specific supervisor behaviors or supervisory styles. The Ohio State University studies of leadership and supervision isolated, through factor analytic techniques, two major dimensions of perceived leader behavior (Hemphill & Coons, 1957; Fleishman et al., 1955). The one dimension, consideration, refers to the supervisor's employee-orientation, his concern for the individual subordinate and the functioning of his work group as a social unit. The second dimension, initiation of structure, refers to

the supervisor's production orientation; his organization of the work group to achieve organizational goals.

Other researchers, using various approaches to the problem of determining effective supervisory behaviors, found that supervisors of high and low production and morale groups behaved differently towards their subordinates (Katz et al., 1950; Kahn, 1956; Likert, 1961). Supervisors of effective work groups were found to exhibit employee-centered supervision, while supervisors of ineffective groups were found to engage primarily in production-centered behavior. Later studies showed that effective supervisors engaged in both employee and production oriented behavior (Kahn & Katz, 1960), indicating that the two dimensions of leader behavior were not ends of the same continuum but rather independent factors.

Research and theory construction on the dimensionality of supervisory behavior produced a number of different dimensions purportedly contributing to work group productivity and job satisfaction. (For a good summary of this research, see Bowers & Seashore, 1966). Empirical investigations on the differential effectiveness of supervisory behaviors have produced inconsistent results for work group performance, job satisfaction, absenteeism and turnover. While the superiority of the democratic, employee-centered, open supervision has found some support (Coch & French, 1948; Mann & Hoffman, 1960; Likert, 1961; Tannenbaum, 1968), other studies have failed to support this claim (Argyle et al., 1958; Day & Hamblin, 1964; Morse & Reimer, 1956; Veen, 1972). Korman's (1966) review of research on consideration and initiation of structure shows that the relationships between these styles of supervision and worker behaviors and attitudes are often weak and inconsistent.

C. The contingency approach: Some researchers (eg. Hemphill, 1949; Fiedler, 1967) recognized that what a leader is or what he does cannot be independent of the situation in which he has to function. Therefore researchers started to look at situational moderators of the relationship between leader traits, styles, or behaviors and subordinates' attitudes and behaviors. Fiedler (1967) for example, defining leadership as an influence process, postulated that the effect of different styles of supervision and subordinates' performance is contingent upon the amount of influence a given work situation allows the supervisor to have over his subordinates. In work situations which are either highly favorable or unfavorable for the supervisor (i.e., where he enjoys high or low influence) a task oriented leadership style was hypothesized to lead to work group effectiveness. When the work situation is of intermediate favorability, a personal relationship style should be positively related to subordinates' performance. Research to test the validity of the contingency model has yielded only weak support for it. Predicted relationships between supervisory styles and work group performance across situations differing in favorability for the supervisor have not materialized, as researchers have reported insignificant results (Hill, 1969; Hunt, 1967) and relationships opposite to those predicted from the model (Graen et al., 1970; Mitchell, 1969). A recent review of the research of Fiedler and his associates concludes, in fact, that the predictive validity of the contingency model is very limited (Graen et al., 1970).

Some Comments about Traditional Approaches

It is clear that the traditional approaches to the study of leadership and supervision have uncovered some interesting relationships between supervisor characteristics, leadership styles and worker reactions. If one defines

success of a leadership study approach in terms of its ability to repeatedly (although not always consistently) account for or predict some of the variance in subordinates' attitudes, perceptions, or overt behaviors, then the traditional approaches to the study of leadership must be viewed as having been moderately successful. However, if one argues, as these authors are doing, that the success of a research approach has to be assessed in terms of its contribution to the scientific meaning of the concept being studied or to the understanding of the psychological determinants of the observed relationships, then the traditional approaches to the study of leadership have been rather disappointing. This is especially true in view of the inconsistency of research results (which detracts even from the less demanding "predictability" criterion of research success), the lack of significant breakthroughs in the understanding of the concept of leadership, and the slow, cumbersome progress delineated in the leadership literature over the considerable time span in which the traditional research approaches have been used. This is not to say that the traditional research paradigms were scientifically useless. In the absence of any systematic definition of leadership or supervision the establishment of replicable empirical relationships between leader characteristics and subordinate behavior represented a necessary precondition for the more sophisticated approaches which must follow.

The disappointing contribution to the understanding of the nature of leadership or supervision in organizations of the trait and the behavioral approaches is thus not ascribed to the emphasis that these approaches have put on supervisory traits and worker reactions. Rather, it is felt that the inconsistent results and their relatively small contribution to the delineation of the leadership concept are a consequence of the lack of recognition that

the nature of leadership or supervision cannot be understood by solely focusing on temporal and spatial correlations between observed supervisor characteristics (whether they be traits or behaviors) and observed subordinate verbal reports or over behaviors. We need to know, for example why certain managerial personality traits result in more effective management (Ghiselli, 1956, 1963; Randle, 1956) and how these traits interact with the leadership environment to result in higher values on some effectiveness criterion. The search for these underlying reasons or psychological processes requires conceptualization and operational definition of the psychological entities which may be involved in the leadership process, and the establishment of what leader and subordinate characteristics as well as environmental conditions are part of these entities or how they interact with these entities.

The contingency approaches to leadership already represent a more sophisticated view of leadership, in that leadership, rather than being defined as an absolute set of relatively static traits or styles, is conceptualized as a dynamic characteristic which should change as a function of certain situational conditions. Thus a first step in delineating the process of leadership was taken. However the contingency model, especially the widely known Fiedler contingency model (Fiedler, 1967), describes what happens to work group performance, given the existence of certain supervisory styles and situational conditions, but it does not explain how the execution of the particular leader style influences group members' behavior. In addition, although Fiedler (1967) and other leadership researchers have spoken of leadership in terms of an influence process, the research emphasis has not been on the total process as such, but has focused on limited aspects of the influencing agent. Despite the existence of a number of promising approaches to the concept of influence

is social psychology (e.g., Cartwright & Zander, 1968; Thibaut & Kelly, 1959), research efforts and conceptualizations of supervision in organizations have paid too little attention to the psychological processes inherent in the concept of influence. The objects of prediction in studies of supervisory effectiveness have been the behaviors and attitudes of the subordinates. Yet few researchers have looked at the group member as an integral part of the leadership process. Students of leadership have examined the leader and in some cases the situation, but they have largely ignored the psychology of the led. In other words, the psychological meaning or definition of supervision is likely to remain ambiguous and untractable unless subordinate motivation and attitude formation is integrated into the concept of leadership. Consequently, the influence process of supervision might be profitably analyzed within the context of a theory of worker motivation and satisfaction. Some recent research efforts have attempted to take such an approach to the study of leadership in organizations.

A Process Approach to Leadership

Evans (1970) examined the effects of supervisory consideration and initiation of structure on worker perceptions of path-goal relationships. He employed a conception of work motivation used by Georgopoulos et al. (1957), arguing that a worker's motivation to engage in a certain behavior is a function of the perceived instrumentality of that behavior (the path) for the attainment of his goals, weighted by the importance he attaches to those goals. To influence subordinates' motivation to behave in certain ways, a supervisor would have to affect subordinates' perceptions of path-goal instrumentalities, as this was hypothesized to be the crucial variable in determining a worker's motivational state (Evans, 1970, p. 280).

Evans assumed that the supervisor can affect subordinates' satisfaction by facilitating or blocking the attainment of valued outcomes and that he can affect performance by spelling out contingencies existing between effective performance and outcome attainment. He argued that supervisory behaviors falling into the dimension of consideration should indicate the availability of desirable outcomes, while initiating structure behaviors of the supervisor should affect workers' perceptions of path-goal instrumentalities. Some support for the hypothesis that supervisory behavior affects subordinates' performance and job satisfaction through its influence on perceived path-goal instrumentalities was found (Evans, 1970). In particular, supervisory consideration and initiating structure was related to worker performance and job satisfaction only when supervisory behavior was related to perceptions of path-goal instrumentalities and attitudes. When supervisory behavior was not related to subordinates' instrumentality perceptions, supervisory behavior was not related to worker performance and job satisfaction.

In hypothesizing that supervisor consideration and initiating structure would influence worker behavior and attitudes through affecting workers' instrumentality perceptions, Evans (1970) had to make assumptions about the psychological meaning of the two Ohio State leadership dimensions. He assumed that a considerate supervisor has a large arsenal of desired rewards available for distribution and that such a supervisor is willing and able to distribute these rewards differentially according to each subordinate's needs. He further assumed that a supervisor who initiates structure will spell out the contingencies which exist between work related behaviors and work related outcomes to his subordinates. The subordinates should thus be aware of these contingencies. Consequently, a supervisor who is both considerate and who in-

initiates structure should influence subordinates' perceptions of path-goal instrumentalities by spelling out contingencies between workers' behavior and the likelihood of attaining valued rewards. The validity of these assumptions, however, remains in need of research.

House (1971) expanding on the path-goal model by adding situational variables as moderators of the effects of supervisory behavior, argued that supervisory consideration and initiating structure affect worker performance and attitudes by influencing worker perceptions of path-goal relationships. However, the relationships between supervisory behavior and subordinates' behavior and attitudes are moderated by situational variables, such as the nature of the task and the influence the supervisor has upward in the organizational hierarchy. Variations in the relationships between supervisory behavior and subordinate reactions under different situational conditions come about as a function of the differential impact the various situational variables have on subordinates' perceptions. For example, House found some support for the hypothesis that the relationship between supervisory initiation of structure and subordinates' performance and attitudes is moderated by task ambiguity. The more ambiguous the task, the more positively initiation of structure is related to workers reactions, because supervisory structure supposedly clarifies path-goal relationships for subordinates with ambiguous tasks, thereby contributing to performance and job satisfaction. If the task is already structured and the task demands are obvious, however, structure from the supervisor is viewed as redundant and unnecessary by subordinates and this leads to dissatisfaction. House's (1971) research does not include direct measures of path-goal perceptions, however; only direct relationships between supervisory behavior and worker reactions are assessed. Whether or not the

supervisory behaviors affect worker perceptions of path-goal relationships in the assumed way is not yet answered by his data.

An Exploratory Study of Some Assumptions Underlying the Process Approach

According to Evans' (1970) and House's (1971) arguments a supervisor influences his subordinates' work behavior by influencing their perceptions of path-goal instrumentalities. The more the supervisor engages in certain behaviors, the more he is believed to establish and clarify the paths to the goals, and consequently, the more accurate should his subordinates' perceptions be of the path-goal contingencies existing in the work environment. Accuracy of path-goal instrumentality perceptions in this respect would mean that the perceptions held by subordinates are close to the contingencies espoused by the supervisor. When the supervisor engages in the kinds of behavior which clarify instrumentality perceptions for his subordinates one might expect that there would be agreement between supervisors and members of their work groups on perceptions of path-goal contingencies. Following this line of reasoning, a study was designed to determine the degree to which supervisory consideration and initiation of structure were related to supervisor-subordinate agreement on perceptions of behavior-outcome (path-goal) instrumentalities. The behaviors chosen for study were "being regularly present at work" and job performance.

Method

Setting and Subjects

The present study was part of a larger investigation of organizational behavior conducted in a medium sized manufacturing plant located in the Eastern United States. Subjects were 483 non-supervisory employees and their super-

visors (31), which represented 66% of the total plant work force. Of the 31 supervisor-subordinate work groups studied, 8 were office work groups and 23 were work groups directly engaged in the production process (shop work groups). All supervisory subjects and the majority of the non-supervisory subjects were male.

Procedures and Measures

The variables required for the study were assessed with two separate questionnaires. Non-supervisory subjects completed their questionnaire on company time, while supervisors completed their measures on their own time and returned it to the researchers at the University of Maryland in a pre-stamped envelope. Participation for both groups was voluntary. A considerable amount of time was spent explaining the study to all employees and assuring the confidentiality of their responses. Employees were asked to put their names on their questionnaire so that supervisor-subordinate work groups could be identified.

The instruments used in this study came in part from a study designed to construct and validate an expectancy-instrumentality-task goal model of work motivation (Dachler & Mobley, in press). The measures were developed on the basis of previous instruments used in instrumentality theory research and interviews with supervisory and non-supervisory workers of the participating plant. The measures were thus developed for the particular sample of interest and consisted of items which were relevant to the respondents. (For a detailed account of the questionnaire development, see Dachler and Mobley, in press).

Supervisory behavior. The non-supervisory respondents completed the Leader Behavior Description Questionnaire (Fleishman et al., 1955). The consideration and initiation of structure scales each consisted of 20 items.

Reliability estimates of internal consistency (based upon average interitem correlations using the Spearman-Brown Formula) for the two dimensions were: (a) consideration: $r = .83$; (b) structure: $r = .78$. The intercorrelation between the two dimensions was: $r = -.30$ ($p = <.01$), which is somewhat higher than those reported by Evans (1970) for a utility work and a hospital sample ($r = .16$ and $r = .01$, respectively) but in line with Fleishman's (1957) report of $-.33$ for a production work sample.

Instrumentality measures. Subordinates' perceptions of the degree to which being present at work is instrumental in attaining certain outcomes (or goals) was assessed by having each respondent rate, on a five-point, verbally anchored scale, his perceived chances of getting each of 56 outcomes given that he was regularly present at work. Response alternatives ranged from "extremely poor chance" to "very good chance". The present outcomes fell into six general categories: pay, supervision, promotion, working conditions, the work itself and non-work-related outcomes, such as outside interests and family related outcomes.

Performance-outcome instrumentality was measured by having each non-supervisory worker rate his perceived chances of getting each of 45 outcomes given that he was working at each of five specific levels of performance. Eleven outcomes which appeared in the "being regularly present" instrumentality measure were excluded in the assessment of the performance-outcome instrumentalities, since they seemed less relevant as outcomes attainable by performance.

The supervisors completed identical behavior-outcome contingency measures, except that a sixth response alternative of "Don't know" was available. Each supervisor rated his subordinates' chances of outcome attainment, given that

they were regularly present at work, and given that they worked at each of five levels of performance.

Analysis

To examine the relationships between supervisory behavior and subordinate accuracy of instrumentality perceptions, each supervisor's consideration and structure score was related to the agreement between the supervisor and his subordinates on behavior-outcome contingencies. The unit of analysis was the work-group, and leadership scores were mean scores across perceptions of the leader by his subordinates. By using an average score across subordinates, it is assumed that the individual supervisor possesses a stable leadership style. It has been argued that this is not necessarily valid since a supervisor may show variations in behavior depending upon the individual subordinate's needs and goals, and that therefore subordinates' description of their supervisor's behavior should not be averaged into an overall description of leader behavior (Graen et al., 1972). Unfortunately, the particular analyses which were necessary to establish the degree of supervisor-subordinate agreement on instrumentality perceptions made it very difficult to use individual responses rather than average estimates of those responses. Furthermore, the use of mean scores across subordinates has been the most frequent manner with which supervisory consideration and structure have been assessed (Fleishman, 1971).

Supervisor-subordinate agreement was assessed by an index of congruence. In developing the index of congruence, the approach of obtaining discrepancy scores between the ratings of the supervisor and his subordinates was rejected. The utility of a discrepancy score has been questioned by several investigators (e.g. Bereiter, 1963; Cronbach & Furby, 1971; Lord, 1956; Manning & DuBois,

1962; McNemar, 1958), criticizing it as unreliable and giving rise to spurious correlations. Instead an index of agreement was obtained in the form of a Pearson's Product Moment Correlation of supervisor ratings of the instrumentalities for being present and for performance with subordinates' ratings of these variables across the 56 and 45 outcomes, respectively. The congruence indices were computed in the following manner: (a) subordinates' ratings of instrumentalities were obtained by computing the mean rating of each behavior-outcome contingency over subordinates for each supervisor; (b) the supervisor's ratings of behavior-outcome contingencies were correlated with the mean of his subordinates' ratings across all outcomes; (c) the correlations of agreement were converted into Fisher's z-scores. The transformed z-score constituted the index of congruence for each supervisor-subordinate work group.

By using the mean of subordinates' ratings as the score entering into the correlation, the assumption was made that subordinates under one supervisor agree on behavior-outcome contingencies. Inter-rater reliability estimates among subordinates computed for instrumentality perceptions within each work group showed that this assumption was a reasonable one (Spearman-Brown reliability estimates for the 31 work groups ranged from .23 to .93 with .82 being the median estimate).

Since the sample of supervisors and subordinates employed in this study included office workers as well as workers engaged in the production process proper, all analyses involving the behavior of being at work regularly were done separately on the office and shop work groups, as well as on the total sample. Since it was felt that the shop jobs were more structured than the office jobs, and following House's (1971) arguments that the existing structure of a task may have a bearing on how employees react to the initiation of struc-

ture by the supervisor, separate analyses were undertaken for the office and shop groups. Differences between blue and white collar workers in attitudes and perceptions of leader behavior have been found in other samples (House, 1971).

Perceptions of performance-outcome instrumentalities were not assessed for office employees and their supervisors, since the type of work engaged in by the present office sample (typing, filing, accounting) did not allow specification of various discrete and easily understood performance levels. Therefore, all analyses involving performance-outcome instrumentality perceptions are performed on the 23 shop work groups only.

Results

Relationships between supervisory behaviors and supervisor-subordinate agreement on the instrumentality of being present at work for outcome attainment are shown in Table 1. Supervisor-subordinate agreement on instrumentality of being present correlate .54 ($p < .01$) with supervisory consideration for the total sample, while the correlations are .51 (n.s.) and .52 ($p < .05$) for the office and shop samples, respectively. The relationships between instrumentality of being present congruence and supervisory structure, on the other hand, are negative and significant for the total sample ($-.44$, $p < .05$) and negative but too low to reach significance for the office and shop sub-samples ($-.57$, n.s. and $-.40$, n.s., respectively).

Insert Table 1 about here

Table 1
Correlations Between the Indices of Congruence for Present Instrumentality
and Supervisor Consideration and Structure for the Total, Office and Shop
Samples

Sample	Index	Consideration	Structure	N
Total				31
	Present Instrumentality Congruence	.54**	-.44*	
	Revised Present Instrumentality Congruence	.60**	-.43*	
Office				8
	Present Instrumentality Congruence	.51	-.57	
	Revised Present Instrumentality Congruence	.64**	-.72*	
Shop				23
	Present Instrumentality Congruence	.52*	-.40	
	Revised Present Instrumentality Congruence	.56**	-.37	

*p < .05

**p < .01

The index of congruence which was employed to examine the relationships between supervisory behavior and work group agreement was calculated across all 56 outcomes used in this study. However, it is possible that the effects of supervisory behaviors on subordinate instrumentality perceptions are more pronounced with regard to outcomes over which the supervisor has in fact some control. From the list of 56 outcomes, 25 were selected by the researchers on an a priori basis as being more than others under the supervisors' control, and a revised congruence index was computed on the basis of these outcomes. Correlations between supervisory behavior and the revised index of congruence are shown in Table 1. They show basically the same pattern of relationships as the correlations involving the original index.

Analyses of the relationships between supervisory behavior and supervisor-subordinate agreement on performance-outcome contingencies were done for 45 outcomes across all five levels of performance as well as separately for each level of performance. The analyses for each level was undertaken to try to establish for what specific level(s) of performance subordinates would be in congruence with their supervisors on behavior-outcome probabilities. In other words, for what specific level(s) of performance would behavior-outcome contingencies be most accurately perceived by subordinates. The results of these analyses are presented in Table 2. When the congruence index is computed using all five levels of performance, supervisor-subordinate agreement correlates .55 ($p < .01$) with supervisory consideration and $-.36$ (n.s.) with structure. It should be remembered that these correlations are based on the shop work groups only. When performance instrumentality is broken down by levels of performance, however, it is only for the third level of performance that supervisor-subordinate agreement is significantly related to supervisory behaviors.

Insert Table 2 about here

When the congruence index is recalculated across only those outcomes over which the supervisor has some control, as defined a priori by the researchers, supervisor-subordinate agreement and supervisory consideration are again positively related, while congruence and structure are negatively related. Again, only the correlations for the middle level of performance are significant.

The pattern of relationships found indicates that although supervisory consideration and structure may have a bearing upon how workers perceive behavior-outcome contingencies, this relationship may not come about quite the way it has been assumed. There is little indication that structure clarifies path-goal instrumentalities. Rather, the data seem to indicate that the more the supervisor initiates structure, the more divergent his subordinates' instrumentality perceptions are from his own. The more considerate the supervisor is perceived to be, on the other hand, the more his subordinates seem to agree with him on their perceptions of instrumentalities. The fact that this pattern of results held up for different kinds of behaviors (presence at work, job performance) over two different sub-samples with widely different work tasks using two versions of the congruence model strengthens the belief that these were not random findings. A partial corroboration of these findings can be found in the results reported by Graen, Dansereau and Minami (1972). These researchers found supervisory consideration to correlate .45 ($p < .01$) and .30 ($p < .01$) for a managerial staff and an office staff sample, respectively, with subordinates' perceived chances that working harder would result in higher performance ratings. Initiation of structure, on the other hand, was not found to be significantly related to behavior-outcome contingencies.

Table 2

Correlations Between Indices of Congruence for Performance Instrumentality
and Supervisor Consideration and Structure for 23 Work Groups

Index	Consideration	Structure
Performance Instrumentality Congruence, all levels of performance	.55**	-.36
Performance Instrumentality Congruence, Level 1	.04	.15
Level 2	.28	-.05
Level 3	.55**	-.42*
Level 4	.02	.15
Level 5	-.09	.12
Revised Performance Instrumentality Congruence	.36	-.26
Level 1	.19	-.03
Level 2	.40	-.21
Level 3	.53**	-.42*
Level 4	.40	-.32
Level 5	.28	-.24

*p < .05
**p < .01

Discussion

Evaluation of the Current Process Approach

In seeking to understand the relationships obtained in this study, as well as the data presented by Evans (1970), House (1971) and Graen et al. (1972) one is confronted by the lack of explicit conceptualization concerning the nature of the two leadership dimensions of consideration and structure and their impact on worker motivation and job attitudes. Evans (1970) and House (1971), for example, had to make vague and probably oversimplified assumptions in order to relate the two leadership dimensions to path-goal motivation variables and to explain the observed correlations. Looking at the present data and those reported by Graen et al. (1972) additional assumptions, equally vague and simplified, could be made.

There is no reason why it could not be argued, for example, that the consideration behaviors of the supervisor as well as his structuring behaviors can communicate to, or serve as cues for, subordinates as to what the behavior-outcome contingencies may be in the organization. When the supervisor helps his subordinates attain a desired outcome, such as praise or an exciting work task, and the supervisor does this for people who are regularly present at work, or who perform at a certain level, but not for others, the subordinates are actually experiencing behavior-outcome contingencies. Thus, as rewards are provided by considerate supervisors contingent upon certain subordinates' behaviors, workers may become aware of the instrumentality of their behavior for outcome attainment. The effects of work experience on the strengths of perceived instrumentalities have been indicated by Graen (1969) and Dachler & Mobley (in press). Evans (1970) also report evidence that consideration is

related to instrumentality perceptions, a finding which was replicated by Hammer (1972).

The fact that supervisor-subordinate agreement on perceived instrumentalities was related to consideration only for the middle level of performance may be related to the finding that the mean level of performance among the five possible performance levels for which employees indicated their highest motivation (as indexed by the maximum expected utility) was 3.48 (Dachler & Mobley, in press). Furthermore interviews with both supervisors and subordinates conducted as a preliminary step to the questionnaire development, indicated that the middle (third) level of performance was the level at which the majority of employees worked, and this performance level was considered quite acceptable by many of the supervisors. Thus, if the middle performance level was considered a norm, then respondents in the present sample may have experienced behavior-outcome relationships more for the middle level of performance than for the extreme ends of the performance level continuum.

So far, the relationships observed between the supervisory dimensions of consideration and structure and path-goal or behavior-outcome motivation variables have been interesting and interpretable after the fact with the help of some simple assumptions. Unfortunately, due to the lack of specific conceptualization about the psychological meaning of consideration and structure and their causal relations to the psychological entities involved in worker motivation, these relationships are of limited value in helping us define the nature of supervision and its causal influence on worker attitudes and behaviors. Thus, for example, there is little basis upon which one might investigate whether the negative relationships between structuring behavior and supervisor-subordinate agreement on behavior-outcome contingencies are mainly due to the

lack of independence between consideration and structure ($r = -.30, p < .01$), or whether additional assumptions about the psychological meaning of the structure dimension might "explain" the obtained relationships.

As was argued earlier, merely looking at correlations between observed events provides insufficient basis for defining the nature of supervision. This is particularly true in the case where it is not clear what psychological phenomena or construct these observed events represent. Since the Ohio State leadership dimensions were derived from successive factor analyses of responses to a large pool of items, which were not derived from a well specified construct or universe (Loevinger, 1957), it is not clear what construct or psychological phenomena these leadership dimensions are actually measuring. Similarly, the psychological meaning of the terms "path" and "goal", as these terms have been used in researching work motivation (Miner & Dachler, 1973), is still very vague. Therefore attempts to combine two theories which have emerged from different traditions and which are rather meager in their conceptualization of the phenomena they supposedly describe, is not likely to lead to rapid progress in understanding the nature of leadership and supervision in organizations (Miner & Dachler, 1973).

The need for construct validation. The assessment of the concept of leadership and supervision involves validation of measures under circumstances which, at the present at least, make it impossible to accept a set of operations as an adequate definition of what is to be measured. In view of the lack of acceptable criteria for the concepts of leadership and supervision, the meaning of these constructs has to be established through the process of construct validation (Cronbach & Meehl, 1955), a validation process which requires the existence of a nomological network. In other words "...to make

clear what something is means to set forth the laws in which it occurs (Cronbach & Meehl, 1955, p. 290)", whether or not these laws have their origin in some theory, in the implications of previous research, in hunches, or in plain common sense. In addition, Dulany (1968) points out that the more articulated a theoretical network is, the richer is the resulting network of experimental or empirical relationships, and the fewer are the competing alternative explanatory systems against which the theoretical network of interest must be evaluated (Platt, 1964). Dulany (1968) argues that:

strong inference to hypothetical states [in the present case the concepts of supervision and motivation] logically requires a fairly complex network of experimental observations that are derivable from a fairly complex network of theoretical propositions and not from available alternatives. The need for richness is unusually great where there is such strong impetus from other theories, strategies, and methodologies to find those alternatives. Strong support for hypotheses....will not come from a few observations and scraps of cognitive conjecture (p. 382).

Within the logic of construct validation, it is clear that conceptualizations of supervision and leadership in organizations are at best vague and inarticulated and at worst non-existent. It is to this state of affairs that a sizable part of the existing inconsistency and uninterpretability of leadership and supervision research results can be attributed.

Alternative Conceptualization of the Leadership and Supervision Process

Rather than testing a few isolated hypotheses concerning leadership, or trying to integrate different theories, each of which was developed for a different purpose and was based on different assumptions, "the development of any construct [may demand] ...that investigators occasionally sit back and think about their constructs, the appropriateness of research directions, and the basic logic of their endeavors (Guion, 1973, p. 121)". Thus one can

look at leadership or supervision in organizations as a "problem" which needs a solution. What do we know about these constructs and how can this knowledge be integrated into a broad conceptualization of the psychological phenomena involved in leadership and supervision?

Leadership as a multi-faceted concept. The existing psychological as well as the sociological and "management" literature contains a number of broad statements concerning the psychological process that may be involved in leadership and supervision in organizations. For example, the process of supervision has been described as bringing about the accomplishment of organizational objectives, while at the same time satisfying subordinates' needs and goals (Likert, 1962; Mann, 1965; Tannenbaum, 1968). The supervisor must act upon his subordinates in such a way that they comply with his demands for certain types of behaviors which will be instrumental in accomplishing organizational goals. Other researchers have defined the leadership process directly as an influence process (e.g., Bennis et al., 1958; Fleishman, 1971; Fiedler, 1967; Katz & Kahn, 1966). Effective leadership in this framework is the result of a process of exerting influence over subordinates which brings about compliance to leader demands.

Thus, a leader is effective due to his influence on factors which in part may determine subordinates' motivation for certain behaviors as well as their attitudes. It has been argued that a main source of a supervisor's influence over his subordinates in an organization is his ability to control the reward system of that organization (Bennis et al., 1958; French & Raven, 1968; Katz & Kahn, 1966; Levinger, 1959). Locke (1970b) has argued that a supervisor can influence his subordinates' work related behavior by facilitating or blocking the subordinate's attainment of valued outcomes. Jacobs (1970) views

the influence process of leadership as a social exchange paradigm. Based on Homans' (1958) conceptualization of the interaction between persons as an exchange of material and non-material goods, Jacobs (1970) postulates that the supervisor is granted the power to influence subordinates in exchange for valued outcomes and events over which the leader has control.

In summary, there have been theorists who have broadly described effectiveness of a leader or supervisor in attaining organizational objectives such as production, commitment, low turnover and absenteeism in terms of his ability to exert influence. Influence, in turn, is seen as a function of the supervisor's ability to provide subordinates with events and conditions which will satisfy, or at least provide the opportunity to satisfy, their needs and basic values or motives. Thus the concept of leadership contains the concepts of power, influence and employee motivation, in addition to the traditional factors which have been looked at in leadership research. While these variables are not completely new to the area of leadership, they have too often either been presented on a macro level and in very general terms and thus have not been articulated sufficiently for systematic empirical testing, or they have been underemphasized or largely ignored by people doing research on leadership and supervision in organizations. Therefore, in view of the requirements for construct validation outlined earlier, it may be useful to bring together the already existing macro-analyses of organizational leadership and supervision and to refine these conceptualizations in order to allow a systematic validation (definition) of the leadership and supervision process. For the purposes of this paper we will attempt to outline this conceptual approach.

Integrating leadership, power and motivation. The concepts of power and influence have been analyzed with reference to the psychological changes one person can produce in another and ultimately with reference to whether these effected psychological changes result in the desired changes in behavior. Psychological change is often defined in terms of a person's cognitions and evaluations, changes in goals, or changes in the relative assessment of a person's own values and needs (Cartwright & Zander, 1968; French & Raven, 1968; Pollard & Mitchell, 1972; Thibaut & Kelly, 1959). It is precisely these psychological concepts which the Valence-Instrumentality-Expectancy (VIE) theories of work motivation (Campbell et al., 1970; Dachler & Mobley, in press; Graen, 1969; Lawler, 1971; Miner & Dachler, 1973; Mitchell & Biglan, 1972; Vroom, 1964) deal with. VIE theory maintains that intentional, goal directed behavior is a function of the perceived consequences of alternative behaviors, the valence of these consequences, and beliefs about the likelihood of being able to actually engage in the various alternative behaviors. These perceptions and beliefs in turn are assumed to be in part a function of the work environment and the experiences people have had in the work situation including experiences with regard to their supervisor. The evaluation of or the anticipated satisfaction with the various consequences of behavioral alternatives are assumed to be a function of the nature of these consequences and the degree to which these consequences are in congruence with a person's values and motive states.

While the VIE conceptions of employee motivation is still a rather rudimentary theory of conscious, intentional behavior, it has achieved a comparatively high level of specificity in the statements of its component postulates. Furthermore, the research results based upon hypotheses derived from VIE theory,

although not always clear with regard to the meaning of some of the postulated component processes. have been encouraging (Dachler & Mobley, in press; Graen, 1969; Miner & Dachler, 1973; Mitchell & Biglan, 1972). In general then, VIE theory of motivation in combination with the goal theory approaches to motivation (Locke, 1968; Ryan, 1970) provide a fairly explicitly stated theoretical network into which both the concepts of power and influence as well as the role of the supervisor and the role of the subordinate can be integrated. Thus supervisory characteristics (e.g., behaviors, traits, motives, needs and values) take on psychological meaning by specification of their relationships with subordinates' motivational components and behavior. This approach should allow the isolation of supervisory characteristics which have a bearing, directly or through their impact on subordinates' environments, on employees' cognitions about supervisory characteristics, about expectancies and instrumentalities as well as on employee goals, motives, values and attitudes.

This theoretical network should provide a number of testable hypotheses with the help of which the interaction of the concepts of leadership, power or influence, and subordinate motivation can be empirically examined. We will briefly outline some of the research questions which would follow from such a conceptual approach.

Hypotheses on the leadership-power-motivation interactions. It has been argued that the perceptual components of VIE theory have different origins (see, for example, Lawler, 1972). The valence attached to a given work outcome is assumed to be a function of the individual worker's system of values or needs. Instrumentality perceptions have their basis in the particular work situation (Do contingencies exist?), while expectancy perceptions are a function of both the work environment and individual worker's characteristics

(Are there situational obstacles to work goal attainment; Am I able to perform at a given level?). Given some understanding of the bases of subordinates' motivational cognitions, an immediate research concern would be the identification of supervisory characteristics or behaviors which have a bearing on worker perceptions of those motivational components that are not rooted entirely in the worker's value system. Specific classes of supervisory behaviors are expected to influence subordinates' instrumentality and expectancy perceptions. Thus, for example, behaviors which show subordinates that contingencies exist such as the distribution of rewards and punishments contingent upon the subordinates' own work related behavior should have an effect upon the subordinates' instrumentality perceptions. Supervisory behavior which facilitates or blocks subordinates' work goal attainment, such as, for example, ensuring that tools and equipment are in working conditions, supplying the subordinates with ample material to do a job, or teaching the subordinates improved work methods, are expected to influence subordinates' expectancy perceptions.

Certain supervisory behaviors can also be hypothesized to represent a source of subordinates' beliefs about the influence power of their supervisor. French & Raven (1968) have argued that the basis of a supervisor's influence on subordinates' cognitions and behavior have their origin in the needs or desires subordinates have for attaining or avoiding certain outcomes. Applied to our present concerns, subordinates' perceptions of their supervisor's reward and coercive power can be hypothesized to be a function of the supervisor mediating positive and negative outcomes, respectively, in the subordinates' life space (i.e., his rewarding and punishing behavior). Perceptions of the supervisor's expert power have their basis in the supervisor's expertise in

areas important to effectively dealing with problems. Thus a relationship between the supervisor's technical competence or problem solving behavior and his subordinates' beliefs about his expert power can be expected.

In a similar fashion, the subordinates' perceptions of other power bases, such as referent power or legitimate power can be hypothesized to be functions of different classes of supervisory behaviors. Just as a given class of supervisory behavior can be postulated to influence subordinates' perceptions of motivational components and supervisory power, relationships between perceptions of supervisory power and subordinate motivation and subsequent behavior can be hypothesized. For example, the more expert power the supervisor is perceived to have, the more he should influence his subordinates' expectancy perceptions because he should be seen as a work goal facilitator. Likewise, when the supervisor is perceived to have reward or coercive power he is seen to control the distribution of certain work related outcomes. When the attainment of these outcomes are perceived by subordinates to be contingent upon their behavior, it can be expected that subordinates' perceptions of supervisory power should be related to their behavior at work.

Thus, by systematically relating employee perceptions concerning the influence potential or power of the supervisor to the cognitions postulated by VIE theory and goal theories of motivation and by analyzing supervisor characteristics which have meaning in terms of employees' cognitions, values, and goals as specified by the cognitive motivation theories and by power and influence hypotheses, a series of interrelated hypotheses on supervisory characteristics, influence, and subordinate motivation should emerge. In this way the theoretical network defining the nature of supervision can be examined by testing the series of interrelated hypotheses. Thus the properties of the

construct of leadership or supervision become apparent. As the "causal behavior" of these properties with respect to subordinate behavior and attitudes is set forth through specific and interrelated hypotheses and through the empirical consequences of these hypotheses, the construct of supervision is defined.

In conclusion, understanding of the construct of leadership or supervision in organizations is directly tied to the process of construct validation since we do not have agreed upon criteria of supervision. Construct validation requires a richly articulated network of theoretical sentences in order to obtain a wide array of interrelated empirical consequences. The existence of a number of testable and interrelated hypotheses derived from the theoretical network defining the concept of supervision, offers the possibility of a richness of empirical findings which apparently are not forthcoming with the traditional behavioristic approach to the understanding of leadership and supervision in organizations. To integrate the relatively articulated VIE theories and goal theories of motivation with the existing conceptions of power and influence and to analyze the role of supervision in terms of these concepts may provide an excellent starting point for attempting to establish a more precise scientific definition of the nature of leadership and supervision in organizations.

References

- Argyle, M., Gardner, G., & Cioffi, F. Supervisory methods related to productivity, absenteeism and labor turnover. Human Relations, 1958, 11, 23-40.
- Bass, B. Leadership, psychology and organizational behavior. New York: Harper, 1960.
- Bennis, W. G., Berkowitz, N., Affinito, M., & Malone, M. Authority, power and the ability to influence. Human Relations, 1958, 11, 143-157.
- Bereiter, C. Some persistent dilemmas in the measurement of change. In C. W. Harris (Ed.) Problems in measuring change. University of Wisconsin Press, Madison, 1963.
- Bowers, D. G., & Seashore, S. E. Predicting organizational effectiveness with a four-factor theory of leadership. Administrative Science Quarterly, 1966, 11, 238-263.
- Campbell, J. P., Dunnette, M. D., Lawler, E. E., III, & Weick, K. E., Jr. Managerial behavior, performance and effectiveness. New York: McGraw-Hill, 1970.
- Cartwright, D., & Zander, A. Group dynamics: Research and theory. (2nd ed.) New York: Harper and Row, 1968.
- Coch, L., & French, J. R. P. Overcoming resistance to change. Human Relations, 1948, 1, 512-532.
- Cronbach, L. J., & Furby, L. L. How should we measure "change" - or should we? Psychological Bulletin, 1970, 74, 68-80.
- Cronbach, L. J., & Meehl, P. B. Construct validity in psychological tests. Psychological Bulletin, 1955, 52, 281-302.

- Dachler, H. P., & Mobley, W. H. Construct validation of an expectancy-instrumentality-task goal model of work motivation: Some theoretical boundary conditions. Journal of Applied Psychology, in press.
- Day, R. C., & Hamblin, R. L. Some effects of close and punitive supervision. American Journal of Sociology, 1964, 69, 499-510.
- Dulaney, D. Awareness, rules and propositional control, in D. T. Dixon and D. Horton (Eds.). Verbal behavior and general behavior theory. Englewood Cliffs, N.J.: Prentice-Hall, 1968.
- Evans, M. G. The effects of supervisory behavior on the path-goal relationship. Organizational Behavior and Human Performance, 1970, 5, 277-298.
- Fiedler, F. E. A theory of leadership effectiveness. New York: McGraw-Hill, 1967.
- Fleishman, E. A. The measurement of leadership attitudes in industry. Journal of Applied Psychology, 1957, 37, 153-158.
- Fleishman, E. A. Twenty years of consideration and structure. Paper presented at the Southern Illinois Centennial Event symposium. "Contemporary Development in the Study of Leadership", April 29-30, 1971.
- Fleishman, E. A., Harris, E. F., & Burt, H. E. Leadership and supervision in industry. Columbus, Ohio: Bureau of Educational Research, Ohio State University, 1955.
- French, J. R. P., & Raven, B. The bases of social power. In D. Cartwright and A. Zander (Eds.). Group dynamics: Research and theory. New York: Harper and Row, 1968.
- Georgopoulos, B. S., Mahoney, G. M., & Jones, N. W. A path-goal approach to productivity. Journal of Applied Psychology, 1957, 41, 345-353.

- Ghiselli, E. E. Correlates of initiative. Personnel Psychology, 1956, 9, 311-320.
- Ghiselli, E. E. Managerial talent. American Psychologist, 1963, 8, 631-642.
- Gibb, C. A. Leadership. In G. Lindzey and E. Aronson (Eds.). Handbook of Social Psychology, Vol. 4. Addison-Wesley, 1969.
- Graen, G. B. Instrumentality theory of work motivation: Some experimenter results and suggested modifications. Journal of Applied Psychology. Monograph, 1969, 53-2.
- Graen, G. B., Dansereau, F., Jr., & Minami, T. Dysfunctional leadership styles. Organizational Behavior and Human Performance, 1972, 7, 216-236.
- Graen, G. B., Alvarez, K., Orris, J. B., & Martella, J. A. Contingency model of leadership effectiveness: Antecedent and evidential results. Psychological Bulletin, 1970, 75, 285-296.
- Guion, R. M. A note on organizational climate. Organizational Behavior and Human Performance, 1972, 9, 120-126.
- Hammer, T. H. An empirical investigation of some assumptions underlying the hypothesized effects of consideration and initiation of structure on worker cognitions. Unpublished Masters Thesis, University of Maryland, June, 1972.
- Hemphill, J. K. Situational factors in leadership. Columbus, Ohio: Bureau of Educational Research, Ohio State University, Monograph No. 32, 1949.
- Hemphill, J. K., & Coons, A. E. Development of the leader behavior description questionnaire. In R. M. Stogdill & A. E. Coons (Eds.). Leader behavior: Its description and measurement. Columbus, Ohio: Bureau of Business Research, 1957.

- Hill, W. The validation and extension of Fiedler's theory of leadership effectiveness. Academy of Management Journal, March, 1969, 33-47.
- Homans, G. C. Social behavior as exchange. American Journal of Sociology, 1958, 63, 507-606.
- House, R. J. A path-goal theory of leadership effectiveness. Administrative Science Quarterly, 1971, 16, 321-338.
- Hunt, J. G. A test of the leadership contingency model in three organizations. Organizational Behavior and Human Performance, 1967, 2, 290-308.
- Jacobs, T. O. Leadership and exchange in formal organizations. Human Resources Research Organization, 1970.
- Kahn, R. L. The prediction of productivity. Journal of Social Issues, 1956, 12, 41-49.
- Kahn, R. L., & Katz, D. Leadership in relation to productivity and morale. In D. Cartwright & A. Zander. Group dynamics: Research and theory, (2nd. ed.) Evanston, Ill.: Row, Peterson, 1960.
- Katz, D., & Kahn, R. L. Human organization and worker motivation. In L. R. Trip (Ed.). Industrial productivity. Madison, Wisc.: Industrial Relations Research Association, 1951.
- Katz, D., & Kahn, R. L. The social psychology of the organization. New York: Wiley, 1966.
- Katz, D., Maccoby, N., & Morse, N. C. Productivity, supervision and morale in an office situation. Detroit, Mich.: Darel Press, Inc., 1950.
- Korman, A. K. "Consideration, "Initiating Structure" and organizational criteria - a review. Personnel Psychology, 1966, 19, 349-362.
- Lawler, E. E., III. Pay and organizational effectiveness: A psychological view. New York: McGraw-Hill, 1971.

- Levinger, G. The development of perceptions and behavior in newly formed social power relationships. In D. Cartwright (Ed.). Studies in social power. Institute of social research, University of Michigan, Ann Arbor, Michigan, 1959.
- Likert, R. New patterns of management. New York: McGraw-Hill, 1961.
- Locke, E. A. Towards a theory of task motivation and incentives. Organizational Behavior and Human Performance, 1968, 3, 157-189.
- Locke, E. A. The concept of causality in contemporary psychology. Paper presented at the meeting of the American Psychological Association, Miami, 1970. (a)
- Locke, E. A. The supervisor as "motivator". His influence on goal setting. In B. M. Bass, R. Cooper, and J. A. Haas, (Eds.). Managing for accomplishment. Lexington, Mass.: D. C. Heath and Co., 1970. (b)
- Locke, E. A. Critical analysis of the concept of causality in behavioristic psychology. Psychological Reports, 1972, 31, 175-197.
- Locke, E. A. The nature and consequences of job satisfaction. In M. D. Dunnette (Ed.). Handbook of Industrial and Organizational Psychology. Rand McNally, in press.
- Loevinger, J. Objective tests as instruments of psychological theory. Psychological Reports, 1957, 3, 635-694.
- Lord, F. M. Problems in the measurement of growth. Educational and Psychological Measurement, 1956, 16, 421-457.
- McNemar, Q. On growth measurement. Educational and Psychological Measurement, 1958, 18, 47-55.

- Mann, F. C. Toward an understanding of the leadership role in formal organizations. In R. Dubin, G. C. Homans, F. C. Mann, and D. C. Miller, Leadership and productivity. San Francisco: Chandler, 1965.
- Mann, F. C., & Hoffman, R. Automation and the worker. New York: Holt, 1960.
- Mann, R. D. A review of the relationship between personality and performance in small groups. Psychological Bulletin, 1959, 56, 241-270.
- Manning, F. W. H., & DuBois, P. H. Correlational methods in research on human learning. Perceptual and Motor Skills, 1962, 25, 287-321.
- Miner, J. B., & Dachler, H. P. Personnel attitudes and motivation. Annual Review of Psychology, 1973, 24, 379-402.
- Mitchell, T. R. Leader complexity, leadership style and group performance. Unpublished doctoral dissertation. Urbana: University of Illinois, 1969.
- Mitchell, T. R., & Biglan, A. Instrumentality theories: Current uses in psychology. Psychological Bulletin, 1971, 76, 432-453.
- Morse, N. C., & Reimer, E. The experimental change of a major organizational variable. Journal of Abnormal and Social Psychology, 1956, 52, 120-129.
- Pelz, D. C. Influence: A key to effective leadership in the first-line supervisor. Personnel, 1952, 29, 209-217.
- Platt, J. R. Strong inference. Science, 1964, 164, 347-353.
- Pollard, W. E., & Mitchell, T. R. Decision theory analysis of social power. Psychological bulletin, 1972, 78, 433-446.
- Randle, C. W. How to identify promotable executives. Harvard Business Review, 1956, 34, 122-134.
- Rosan, N. A. Leadership change and work-group dynamics: An experiment. Ithaca, N. Y.: Cornell University Press, 1969.

- Ryan, T. A. Intentional behavior. New York: Ronald Press, 1970.
- Stogdill, R. M. Personal factors associated with leadership. Journal of Psychology, 1948, 25, 35-71.
- Student, J. R. Supervisory influence and work group performance. Journal of Applied Psychology, 1968, 52, 188-194.
- Tannenbaum, A. S. Control in organizations. New York: McGraw-Hill, 1968.
- Thibaut, J. W., & Kelley, H. H. The social psychology of groups. New York: Wiley, 1959.
- Veen, P. Affects of participative decision-making in field hockey training: A field experiment. Organizational Behavior and Human Performance, 1972, 7, 288-307.
- Vroom, V. H. Work and motivation. New York: Wiley, 1964.
- Yukl, G. Toward a behavioral theory of leadership. Organizational Behavior and Human Performance, 1971, 6, 414-440.

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Organizational Development Work Unit
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Washington, DC 20330

1 Research and Analysis Division
AF/DPXYR Room 4C200
Washington, DC 20330

1 AFHRL/MD
701 Prince Street
Room 200
Alexandria, VA 22314

1 Personnel Research Division
AFHRL
Lackland Air Force Base
Texas 78236 (124)

1 AFISR (NL)
1400 Wilson Boulevard
Arlington, VA 22209

1 CAPT Jack Thorpe, USAF
Department of Psychology
Bowling Green State University
Bowling Green, Oh 43403

Marine Corps

- 1 COL George Caridakis
Director, Office of Manpower Utilization
Headquarters, Marine Corps (A01H)
MCB
Quantico, VA 22134
- 1 Dr. A. L. Slafkosky
Scientific Advisor (Code Ax)
Commandant of the Marine Corps
Washington, DC 20380
- 1 Mr. E. A. Dover
Manpower Measurement Unit (Code A01M-2)
Arlington Annex, Room 2413
Arlington, VA 20370

Coast Guard

- 1 Mr. Joseph J. Cowan, Chief
Psychological Research Branch (P-1)
U.S. Coast Guard Headquarters
400 Seventh Street, SW
Washington, DC 20590

Other DOD

- 1 Lt. Col. Austin W. Kibler, Director
Human Resources Research Office
Advanced Research Projects Agency
1400 Wilson Boulevard
Arlington, VA 22209
- 1 Mr. Helga Yeich, Director
Program Management, Defense Advanced
Research Projects Agency
1400 Wilson Boulevard
Arlington, VA 22209
- 1 Dr. Ralph R. Canter
Director for Manpower Research
Office of Secretary of Defense
The Pentagon, Room 3C980
Washington, DC 20301

Other Government

- 1 Dr. Lorraine D. Eyde
Personnel Research & Development
Center
U.S. Civil Service Commission
Room 3458
1900 E. Street, N. W.
Washington, DC 20415 (124)
- 1 Dr. Vern Urry
Personnel Research & Development
Center
U.S. Civil Service Commission
Washington, DC 20415 (12)

Miscellaneous

- 1 Dr. Scarvia Anderson
Executive Director for Special
Development
Educational Testing Service
Princeton, NJ 08540 (123)
- 1 Dr. Richard C. Atkinson
Stanford University
Department of Psychology
Stanford, CA 94305
- 1 Dr. Bernard M. Bass
University of Rochester
Management Research Center
Rochester, NY 14627
- 1 Mr. H. Dean Brown
Stanford Research Institute
333 Ravenswood Avenue
Menlo Park, CA 94025
- 1 Mr. Michael W. Brown
Operations Research, Inc.
1400 Spring Street
Silver Spring, MD 20910
- 1 Century Research Corporation
4113 Lee Highway
Arlington, VA 22207

- 1 Dr. Kenneth E. Clark
University of Rochester
College of Arts and Sciences
River Campus Station
Rochester, NY 14627
- 1 Dr. Rene' V. Dawis
University of Minnesota
Department of Psychology
Minneapolis, MN 55455 (123)
- 1 Dr. Norman R. Dixon
Associate Professor of Higher Education
University of Pittsburgh
617 Cathedral of Learning
Pittsburgh, PA 15213 (12)
- 1 Dr. Robert Dubin
University of California
Graduate School of Administration
Irvine, CA 92664 (124)
- 1 Dr. Marvin D. Dunnette
University of Minnesota
Department of Psychology
1492 Elliott Hall
Minneapolis, MN 55455 (12)
- 2 ERIC
Processing and Reference Facility
4033 Rugby Avenue
Bethesda, MD 20014 (23)
- 1 Dr. Victor Fields
Department of Psychology
Montgomery College
Rockville, MD 20850
- 1 Dr. Edwin A. Fleishman
American Institutes for Research
8555 Sixteenth Street
Silver Spring, MD 20910
- 1 Mr. Paul P. Foley
Naval Personnel R&D Laboratory
Washington Navy Yard
Washington, DC 20374 (12)
- 1 Dr. Albert S. Glickman
American Institutes for Research
8555 Sixteenth Street
Silver Spring, MD 20910
- 1 Dr. Duncan N. Hansen
Florida State University
Center for Computer-Assisted Instruction
Tallahassee, FL 32306
- 1 Dr. Richard S. Hatch
Decision Systems Associates, Inc.
11428 Pockville Pike
Rockville, MD 20852
- 1 Dr. M. D. Havron
Human Sciences Research, Inc.
Westgate Industrial Park
7710 Old Springhouse Road
McLean, VA 22101
- 1 Human Resources Research Organization
Division #3
P.O. Box 5787
Presidio of Monterey, CA 93940
- 1 Human Resources Research Organization
Division #4, Infantry
P. O. Box 2086
Fort Benning, GA 31905
- 1 Human Resources Research Organization
Division #5, Air Defense
P.O. Box 6057
Fort Bliss, TX 79916 (123)
- 1 Human Resources Research Organization
Division #6, Library
P.O. Box 428
Fort Rucker, AL 36360
- 1 Dr. Lawrence B. Johnson
Lawrence Johnson & Associates, Inc.
200 S. Street, N. W., Suite 502
Washington, DC 20009
- 1 Dr. Norman J. Johnson
Carnegie-Mellon University
School of Urban & Public Affairs
Pittsburgh, PA 15213 (123)
- 1 Dr. E. J. McCormick
Purdue University
Department of Psychological Sciences
Lafayette, IN 47907 (12)

- 1 Dr. Robert R. Mackie
Human Factors Research, Inc.
6780 Cortona Drive
Santa Barbara Research Park
Goleta, CA 93017
- 1 Mr. Edmond Marks
109 Grange Building
Pennsylvania State University
University Park, PA 16802 (12)
- 1 Dr. Leo Munday
Vice President
American College Testing Program
P.O. Box 168
Iowa City, IA 52240
- 1 Mr. Luigi Petrullo
2431 North Edgewood Street
Arlington, VA 22207
- 1 Dr. Robert D. Pritchard
Assistant Professor of Psychology
Purdue University
Lafayette, IN 47907 (123)
- 1 Dr. Joseph W. Rigney
Behavioral Technology Laboratories
University of Southern California
3717 South Grand
Los Angeles, CA 90007
- 1 Dr. Leonard L. Rosenbaum, Chairman
Department of Psychology
Montgomery College
Rockville, MD 20850 (234)
- 1 Dr. Benjamin Schneider
University of Maryland
Department of Psychology
College Park, MD 20742 (12)
- 1 Dr. Arthur I. Siegel
Applied Psychological Services
Science Center
404 East Lancaster Avenue
Wayne, PA 19087
- 1 Mr. Emanuel P. Somer, Head
Motivational & Survey Research Division
Psychological Research Department
Naval Personnel R&D Laboratory
Washington Navy Yard
Washington, DC 20374 (124)
- 1 Dr. David J. Weiss
University of Minnesota
Department of Psychology
Minneapolis, MN 55455 (123)
- 1 Dr. Anita West
Denver Research Institute
University of Denver
Denver, CO 80210
- 1 Assistant Chief for Research (Code 400)
Office of Naval Research
Arlington, VA 22217 (5)
- 1 Director of Research (Code 401)
Office of Naval Research
Arlington, VA 22217 (5)
- 1 Director (Code 460)
Naval Applications & Analysis Division
Office of Naval Research
Arlington, VA 22217 (5)
- 1 Deputy Chief Scientist
Office of Naval Research Area Office
207 West 24th Street
New York, NY 10011 (5)
- 1 Head of Manpower Training & Reserve
Group (Op-964D)
Room 4A538, The Pentagon
Washington, DC 20350 (5)
- 1 Assistant to the Assistant Deputy
Chief of Naval Operations (Manpower)
(Op-01B22)
Room 4E473, The Pentagon
Washington, DC 20350 (5)
- 1 Deputy Director, Program Management
Office
Naval Material Command (O3PB)
Room 863, Crystal Plaza #6
2221 Jefferson Davis Highway
Arlington, VA 20360 (5)
- 1 Program Administrator, Personnel and
Training Support
Naval Material Command (93424)
820 Crystal Plaza #6
2221 Jefferson Davis Highway
Arlington, VA 20360 (5)

- 1 Special Assistant for Enlisted Force
Analysis
Naval Bureau of Personnel (Ax)
Room 2611, Arlington Annex
Washington, DC 20370 (5)
- 1 Head, Project Volunteer Coordination
Branch
Naval Bureau of Personnel (A25)
Room 2603, Arlington Annex
Washington, DC 20370 (5)
- 1 Special Assistant to the Chief of Naval
Personnel
Naval Bureau of Personnel (Je)
Room 2403, Arlington Annex
Washington, DC 20370 (5)
- 1 Dr. Charles A. Ullmann
Director Behavioral Sciences Studies
Information Concepts Incorporated
1701 No. Ft. Myer Drive
Arlington, VA 22209

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