

Authority and Democracy in Organizations¹

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Participativeness as a style of supervision is considered as a dependent variable. The data do not directly support the initial hypotheses in any important way, but several findings of interest emerge indirectly from a more detailed, multivariate analysis. First, supervisory behavior in these terms is probably influenced significantly by affect between supervisor and subordinates. Second, when affect is not a factor, supervisory style is more rational, with participativeness depending on the training of the subordinates and their perceived capacity to contribute constructively to decision-making. Third, the measurement of participativeness in research affects theoretical development in an important way, since the technical and professional level of subordinates probably has a significant effect upon their objective level of participation but not upon the degree of participation as reported by them. Fourth, the latter finding is significant for the much more common body of research in which participation is treated as an independent variable; it may help to clear up many puzzling and inconsistent findings in that tradition. Lastly, the data analysis suggests a new normative and descriptive conceptualization of democracy in the workplace, which is offered in conclusion as a competitor of the power-equalization approach.

INTRODUCTION

For the most part, by far, supervisory style on the autocratic-democratic dimension has been treated as the independent variable in hypotheses (e.g., participativeness is a cause of morale). Recently, however, there have

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been a few research efforts in which leadership style has been considered instead to be a dependent variable, and this paper is in that small but promising tradition. Previous excursions into the latter territory include efforts by Lowin and Craig (1968);³ Blankenship and Miles (1968); Heller and Yukl (1969); Rossel (1970); Bowers (1973); Vroom and Yetton (1973);⁴ and Pfeffer and Salancik (1975). Most of these scholars take explicit note of the difference in focus and urge increased research attention to the causes rather than the effects of styles of leadership.

The justification for these departures from the main stream is fourfold:

1. Participation has been found in at least some situations to affect (a) satisfaction and morale (Coch & French, 1948; Morse & Reimer, 1956; Kahn, 1960; Likert, 1961, pp. 16-20; Seashore & Bowers, 1963; Wilson, 1968; Mohr, 1971; Kohn & Schooler, 1973; White & Ruh, 1973), (b) productivity and other dimensions of effectiveness (Likert, 1961, pp. 26-60, 89-96), and (c) political behavior outside of work (Kohn & Schooler, 1973, pp. 97, 101, 114-116). Therefore, there are both normative and empirical theoretical grounds for inquiring into how it itself occurs.

2. To many, participation in relevant work decisions is a valued end in itself, an aspect of the basic right of self-determination, and therefore a worthy object of inquiry.

3. Because of its fundamental importance, universality, and durability, the autocratic-democratic dimension makes a splendid social science dependent variable. It is worth investigating for the sake of basic knowledge about human social behavior, even in the absence of immediate applied objectives.

4. Lastly, most efforts to affect various outcomes through the medium of human relations have utilized the training approach, sometimes in the T-group seminar or the classroom, sometimes as instruction, coaching, or consultation in the organization itself—always with the object of changing directly the existing propensities and practices of supervisors and managers. However, according both to casual observation and careful review (Tannenbaum, 1966, p. 80; Likert, 1967, p. 80; Campbell & Dunnette,

³Lowin and Craig are interested not so much in the general explanation of leadership style as in the possibility of a reversal of the usual causal hypothesis, i.e., the possibility that the performance of subordinates determines linearly the style of supervision rather than vice versa. A more reasonable hypothesis with respect to participativeness, perhaps, is that satisfactory performance reinforces whatever supervisory style is being used, i.e., the autocrat would continue to be autocratic, etc.

⁴Vroom and Yetton do not attempt to explain the general or dominant mode of decision-making behavior of individual supervisors or managers, as is the case here. Rather, they take a smaller unit of analysis, the mode (autocratic, participative, etc.) employed in making one particular decision. The latter approach is an important one and the two different approaches should be mutually informative.

1968; Dunnette & Campbell, 1968a, pp. 1-27; 1968b, pp. 41-44; Argyris, 1968a, pp. 28-40; 1968b, p. 45; Buchanan, 1969), these methods have not been highly successful in changing the face of supervision in society. Moreover, reading the evaluative literature does not impart optimism that the gains will be substantially accelerated in the future. If the gains are to be greater, complementary approaches are in order.

Accordingly, the present research treats style of supervision as a dependent variable. It assumes that there exists in the world of work natural, spontaneous variation along the autocratic-democratic dimension whose determinants can be discovered by research. Given knowledge of the determinants, it should be possible to increase participativeness indirectly by manipulating such contextual factors as job content, organizational structure, information, and the fit between people, rather than relying solely on instruction to change the course of behavior (cf. Kahn, 1974, pp. 499-500).

The general plan of this presentation is first to consider bivariate hypotheses and results (the apparent impact of each of several predictors upon supervisory style), second to consider the possibility of interaction among some predictors in producing effects on leadership, third, to explore in depth a puzzling interactive finding, and last, to consider the implications of the findings both for human relations theory and for conceptions of democracy.

To sketch briefly the results, the data do not directly support the initial hypotheses in any important way, but several findings of interest emerge indirectly from a more detailed, multivariate analysis. First, supervisory behavior in these terms is probably influenced significantly by affect between supervisor and subordinates. Second, when affect is not a factor, supervisory style is more rational, with participativeness depending on the training of the subordinates and their perceived capacity to contribute constructively to decision-making. Third, the measurement of participativeness in research affects theoretical development in an important way, since the technical and professional level of subordinates probably has a significant effect upon their objective level of participation but not upon the degree of participation as reported by them. Fourth, the latter finding is significant for the much more common body of research in which participation is treated as an independent variable; it may help to clear up many puzzling and inconsistent findings in that tradition. Lastly, the data analysis suggests a new normative and descriptive conceptualization of democracy in the workplace, which is offered in conclusion as a competitor of the power-equalization approach.

The data were collected from the members of 144 work groups in 13 local health departments, which were selected randomly from among all such agencies in the U.S. serving a population greater than 400,000 as reported in the 1960 census. The groups originally selected for inclusion com-

prised all that met the following requirements: The supervisor must have been in that position for at least 1 year; at least three subordinates and at least one-half the total group must have been in their positions for 1 year; and none of the subordinates could have been supervisors of other subordinates at that time. A mail questionnaire—pertinent items from which appear in the Appendix—was constructed and pretested in one local health department; then multi-item indices were created by Likert item analyses and scaling techniques (Selltiz, Jahoda, Deutsch, & Cook, 1963, pp. 366-370) and the data were collected during 1969-1970. A total of 181 groups were identified as eligible in the 13 departments, but 37 were subsequently eliminated either because the supervisor failed to respond or because fewer than half of the subordinates responded. The 144 remaining groups represent an effective response rate of 80%.

The elements of analysis include groups of custodians, laboratory glass washers, dog catchers, clerks, sanitary inspectors, public health nurses, dentists, physicians, and many others.

TWO-VARIABLE RELATIONSHIPS

The focal dependent variable—the phenomenon to be explained—is the dimension of supervisory style running from autocratic to democratic, frequently referred to below by the more compact designation, “participativeness.” It is conceptually defined as the extent to which influence over the outcome of important supervisory decisions is shared by the supervisor and the subordinates, rather than being completely retained by the supervisor,⁵ and is operationally defined here by five questionnaire items to subordinates, as shown in the Appendix.⁶

A large number of factors characterizing the organization, the job, the supervisor, the subordinates, and the fit between supervisor and subordinates were explored for evidence of their effects on participativeness. They are introduced here with minimal discussion but with citations to the previous work that suggested the hypotheses. In addition, many variables were included on intuitively reasonable grounds, even though no previous research indicated their likely importance.

The Organization. Whole organizations are believed to tend toward homogeneity in their style of human relations (Likert, 1961, pp. 222-236;

⁵Thus, “participativeness,” as employed here, does not include the concept of autonomy over one’s own work.

⁶In computing such scores, the general pattern followed is first to average across the items in the index for each individual subordinate (or supervisor), then to average the averages across subordinates in a group, and lastly, in the few cases where it is appropriate, to average the group’s score with that of the supervisor.

1967, pp. 45-56, 116-127). It was therefore proposed that the more bureaucratized the organization in general, especially as perceived by the supervisor, the less participative would be the style of supervision. The measurement of *Bureaucratization* was based on the work of Hall (1961).

The Task of the Group. Technological aspects of the job being performed are widely believed to affect interpersonal relationships. Accordingly, the *manageability* (roughly, the routineness) of the task, the *interdependence* of workers, and the difficulty of communication on the job (e.g., the *noise* level) were included as independent variables.⁷ The reasoning and research that would support such hypotheses were reviewed in detail in an earlier publication (Mohr, 1971) and will not be repeated here.

The Supervisor. The background and attitudes of the supervisor must be expected to influence his or her⁸ style of supervision, although hypotheses to this effect, and their justification, are not as clearly articulated in the literature on organizations as one would desire. Blankenship and Miles (1968, pp. 114-119) found a strong positive relationship between the supervisor's hierarchical level and a variant of participativeness—"reliance on subordinates." In the present study, given the modest sample size, it was considered advisable not to risk the kind of variability that might result from including groups of managers as well as groups of operatives; therefore, hierarchical level is not pertinent as a predictor. However, one would expect the same kinds of results from other descriptors of the supervisor's "level"—salary, education, social class, and technical and professional attainment. Measurements of all of these variables were included, as well as characteristics more weakly denoting social and occupational status, such as the supervisor's age and tenure on the job.

A few paper-and-pencil measures of personality traits were also included in the supervisor questionnaire, with particular emphasis on author-

⁷"Required labor commitment" (Rossel, 1970) would no doubt have been included as well, had Rossel's article appeared somewhat earlier. It is a promising explanatory force intervening between technological characteristics and behavioral outcomes that should figure prominently in future empirical work.

⁸The terminology "his or her" and its variants will appear frequently in this paper, not simply as a reasonable acknowledgment that both sexes occur in the world of work, but also because 83 (about 58%) of the supervisors in the study were female and 61 were male. The female supervisors were predominantly in charge of groups of public health nurses and clerical workers. It is worthy of note that although many of us in the academic culture may tend to think about findings in the human relations literature as applying to men on the job, several of the basic pieces of research involved women primarily, e.g., the Relay Assembly Test Room at Hawthorne (Roethlisberger & Dickson, 1939), the study by Coch and French (1948), that by Morse and Reimer (1956), and the League of Women Voters studies summarized by Likert (1961, pp. 140-161). It is also noteworthy that the results have in general been corroborated in studies of male workers, although explicit comparisons have not been carried out. In the present research, extensive pointed analysis of possible differences due to sex turned up nothing of substantial interest. It appears at this point, then, that many of the important strains of existing organization theory are applicable to both men and women in organizations.

itarianism,⁹ which might be expected to have a powerful influence on degree of autocratic behavior. Further, Woodward (1965, p. 177) concluded that communication with subordinates was hampered by insecurity—being uncertain whether one would be considered to have done a good job or a poor job. Thus, “uncertainty of performance expectations” was measured, as well as certain other aspects of what might loosely be called the supervisor’s feeling of psychological security. One of the latter is the supervisor’s *status concern*. Although the variable does not appear to have been used in this context previously, it is quite reasonable to expect that willingness to allow subordinates to help make decisions depends to some extent on whether or not the supervisor is preoccupied with status and status recognition.

Another variable that would seem intuitively to have substantial importance, although it receives very little attention in the human relations literature, is the supervisor’s view of the subordinates’ *decision-making potential*—in the supervisor’s opinion, can the group contribute constructively to the choice process, or not?

The Group of Subordinates. The size of the work group should have some effect, presumably negative (Likert, 1967, p. 97), but there is reason to expect that the effect may not be strong (Hall, Haas, & Johnson, 1967). It is true that informality may become more difficult in larger groups and that size tends to increase the time-and-trouble costs of participative decision-making (cf. Olson, 1968, pp. 53-54), but a supervisor might also find it more difficult to make all the decisions alone as the scope of the group task enlarges.

Two other group characteristics, related to one another, may be expected to have substantial effect. One is the *desire to participate*. Likert (1961, pp. 92-93) reports on several studies in which it was found that workers who had a greater desire to participate, who had a greater need for independence, or who viewed their participation as “right and proper” responded more favorably than others to participative supervision. The logic is extended slightly here to hypothesize that the supervisor will therefore tend to use participative techniques more with those who prefer them and less with those who do not. Another type of subordinate dimension, related to the desire to participate, is social and occupational status level. It is to be expected that the more professional work groups, as well as those characterized by higher social class levels, education levels, salary levels, and so forth, will be less subject to autocratic supervisory styles than their counterparts at lower status levels (Holtz, 1969, cited by Argyris, 1973, p. 145).

⁹I am most grateful for the collaboration of John P. Kirscht in constructing the measure of authoritarianism used in the research. For a thorough analysis of the dimension as a social-psychological force, see Kirscht and Dillehay (1967).

group (i.e., the average desire of the subordinates) to participate and the social-occupational status level of the group. The intuitive connection between these variables and participativeness is compelling, yet the correlation of participativeness with "desire" is $r = .16$ and the strongest correlation involving a subordinate status variable is $r = .21$ (where the predictor is *professional level*). We leave these findings momentarily, but the analysis of statistical interactions in subsequent sections will in some measure both vindicate the original hypotheses and illuminate the uneventful cast of these initial results.

The low correlation between participativeness and manageability ($r = -.18$) is also surprising in view of previous findings reported in the literature on technology and structure. Since the result is probed elsewhere in great detail (Mohr, 1971), it will not be reviewed here extensively. Briefly, however, it is concluded (a) that the specific operational findings of previous technology-structure research are not so incompatible with the present findings as might appear at first glance, and (b) that there are not really convincing theoretical grounds for hypothesizing a connection between the particular aspect of technology (routineness) and the particular aspect of structure (participativeness) studied here.

It is well to note, before looking at the corroborative side of Table I, that participativeness as measured has no statistical properties that would make it unsuitable as a focal dependent variable (it is quite normally distributed with a mean of 3.4 on a scale of 1 to 5 and a standard deviation of 0.63). Furthermore, there is reasonable agreement among the subordinates within a group on their supervisor's style—most of the observed variance in the ratings reported by individual subordinates occurs between supervisors rather than within work groups ($F = 3.27$; $p < .001$; $df = 143, 886$). The causal variables that are meaningfully correlated with participativeness above the level $r = .2$ (statistical significance at the .05 level is reached at approximately $r = .18$) are: the interdependence of tasks among group members, the noise level at the workplace, the decision-making potential of the group as perceived by the supervisor, the bureaucratization of the health department in terms of hierarchy, rules, and procedures, as perceived by the supervisor, the supervisor's technological level, the average professional level of the subordinates in the group, and the supervisor's concern about status. None of the individual correlations is high, but since the predictors are not highly correlated among themselves, they combine to yield a moderately strong multiple correlation, $R = .53$ ($R^2 = .29$).

INTERACTIVE RELATIONSHIPS

At the outset it was proposed that the complexity of the organizational setting in which supervisory style occurs would be reflected in a corre-

sponding complexity of findings. Especially, it was hypothesized that the determinants of participativeness would not be simply additive in their effects, but would interact in a number of ways to produce various levels of autocracy or democracy. For example, routineness of task might affect participativeness in large work groups but not in small ones, or the status concern of the supervisor might affect participativeness in bureaucratically administered agencies, but not in the less formalized ones. Surprisingly enough, with one important exception, almost no such interaction was observed.

That one exception, however, was dramatic. A substantial number of relationships among the important variables in the study shifted widely with differences in the status distance between supervisor and subordinates. Moreover, a pattern of fluctuation was observed in connection with both social and occupational distance, as measured by a variety of indicators, in spite of the fact that many of the indicators were not highly intercorrelated.¹⁰ The interaction was most striking in connection with perceived class differential (see Appendix), and we will proceed to use that variable as a primary source of illustrative findings in the ensuing discussion, in spite of the fact that only 30 cases are sometimes involved.¹¹

The extent of the impact of a marked status difference between supervisor and subordinates may be gauged initially by comparing the subdiagonal matrix in Table II with Table I, noting the difference in magnitude between correlations based on all 144 work groups and those based on the 30 groups in which the supervisor considers himself or herself to be in a higher social class than some of the subordinates (the mean among those 30 groups is 52% of the subordinates considered to be lower in social class; the standard deviation is 27%). Using the same eight predictors of participativeness as previously, the coefficient of determination for this subset of 30 cases is substantially higher than in the full data set— $R^2 = .72$, as compared with $R^2 = .29$ for the set of all cases.

Obviously, supervisory style is more predictable when the supervisor and subordinates differ in status than when they are equal (correlations for

¹⁰For example, $r = .09$ between status distance in terms of technological level and the percent of subordinates perceived by the supervisor to be in a lower social class.

¹¹The same trends in the data are observed, but not so dramatically, with technological status difference and also with social class difference computed directly rather than perceptually, that is, by subtracting the average subjectively determined class of the subordinates from that of the supervisor. The perceived (by the supervisor) class differential appears to constitute the widest status differential measured that occurs in any substantial number of the work groups. Further, although sampling variability as a responsible factor cannot be ruled out completely, the more pronounced pattern produced by this particular contextual conception can also be attributed most reasonably to a more meaningful role for the supervisor's perception of reality than for objective reality itself.

Table II. Product-Moment Correlations Among Selected Variables for 83 Equal-Status and 30 Unequal-Status Work Groups^a

	1	2	3	4	5	6	7	8	9	10
1. Participativeness	—	.28	-.31	.15	-.19	.20	.01	.04	-.05	.11
2. Interdependence	.32	—	-.01	.36	.01	.22	-.17	.14	-.28	.22
3. Noise	-.15	.07	—	.10	.19	-.07	-.06	-.04	-.02	.06
4. Decision-making potential	.62	.66	.06	—	.03	.12	-.13	.13	-.50	.22
5. Bureaucratization	-.41	.11	.12	-.17	—	-.10	.09	-.13	.14	-.02
6. Technological level (supervisor)	.58	.47	.02	.45	-.10	—	-.63	.51	-.25	.30
7. Manageability	-.50	-.55	-.14	-.56	.15	-.56	—	-.69	.23	-.31
8. Professional level (subordinate)	.60	.50	.09	.55	-.13	.57	-.66	—	-.27	.38
9. Status concern	-.52	-.30	.23	-.32	.35	-.18	.45	-.35	—	-.26
10. Desire to participate	.36	.36	.04	.33	.07	.36	-.60	.59	-.27	—

^aCorrelations for equal-status groups are above the diagonal; correlations for unequal-status groups are below the diagonal.

the 83¹² groups in which zero class difference is reported by the supervisor are also shown in Table II, above the diagonal). Note that we have not found greater *participativeness* when status is unequal, but greater *predictability* of participativeness. Why should this greater predictability occur?

EXPLAINING THE INTERACTIONS

For one of the displayed predictors—the supervisor's status concern—a straightforward explanation is available. This psychological orientation would not necessarily affect participative behavior much when the supervisor and subordinates are otherwise equal in status; the status loss is not serious when sharing influence with equals. However, when the distance is great, the supervisor's concern about maintaining status would become an obstacle to participativeness; the status concern is in effect activated as a causal force by the status difference. Thus, the change in correlations (from $r = -.05$ to $r = -.52$) involving this predictor is understandable.¹³

Let us now probe the findings for explanations of the remaining interactions and draw out their theoretical implications. The conclusions finally reached, being unexpected, must be considered to be promising hypotheses, convincing even as hypotheses largely to the extent that many details of the data point together in the same direction and few point elsewhere.

Considering correlations in the subset of 30 unequal-status work groups as compared with the set of all groups, the best clue bearing on the improved predictability of supervisory style lies in the occupational status of the subordinates. As a correlate of participativeness, the subordinates' professional level within their current occupation changes in strength from $r = .04$ in the equal-status work groups to $r = .60$ in the subset of 30 groups. The importance of the shift is enhanced in that variables that would seem to be theoretically similar to subordinate level fare similarly: The manageability of the task moves from $r = .01$ in the equal-status work groups to $r = -.50$ in the unequal-status groups, the technological level of the supervisor moves from $r = .20$ to $r = .58$, and the perceived decision-making potential of the subordinates from $r = .15$ to $r = .62$ (with these small subsample sizes, a difference in correlations of .45 is statistically significant beyond the .05 level). This is the general result that calls for explanation. Why should subordinate occupational status be strongly asso-

¹²Together with the unequal-status workgroups, this makes a total of 113. Unfortunately, 31 supervisors did not respond to the questionnaire item on perceived class differential.

¹³It is not only social class distinctions that activate one's status concern, apparently. The change in correlations is about the same when status difference is measured as a distance of four or more units on the technology-level scale ($N = 22$).

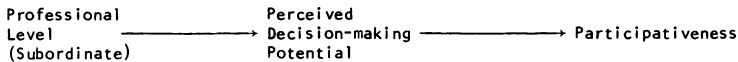


Fig. 1. Rational supervision: a causal chain.

ciated with supervisory behavior when the status gap between supervisor and subordinates is high, but hardly at all when the status gap is low? The data suggest two quite different and complementary explanations.

Rational Supervision—A Substantive Explanation. It is reasonable to seek a theoretically significant mechanism through which subordinate level affects participativeness when it does and to question whether that link might vary in strength according to the presence and absence of status gaps. The perceived decision-making potential of the subordinates fills the requirements for such a mechanism extremely well. The causal chain referred to is shown in Figure 1.

To the extent that this link is important as an explanation of the statistical interaction, it suggests that decisions about influence sharing become more “rational” in moving from an equal- to an unequal-status situation, in the Weberian sense of rationality as applied to bureaucratic organizations. Participativeness in the presence of status gaps is determined in substantial measure by utility. The supervisor not only invites or discourages participation on the basis of perceived subordinate decision-making potential, but judges the decision-making potential of the subordinates on the basis of their professional status rather than personal likes and dislikes. The indications are, in other words, that when there is no status distance between supervisor and subordinates, personal affect—interpersonal strains and affinities—interferes with the utilitarian conduct of supervision. Openness to affective relationships leads, for better or worse, to violation of one of the important Weberian bureaucratic characteristics, impersonality. When there is a status distance, however, affective forces have less probability of developing. Interaction is more businesslike. Interpersonal considerations, by being less prevalent, tend to interfere less with supervisory perception of how the best results will be achieved. In a word, decisions about influence sharing become universalistic.

This reasoning suggests that both links diagrammed in Figure 1 would be weaker when taken under conditions of equal rather than unequal status. For the 83 groups in which the supervisor reported no social class difference between himself or herself and the subordinates, the correlation between decision-making potential and participativeness is $r = .15$, whereas in the unequal-status situation the corresponding correlation is $r = .62$. Supervisory style does indeed follow perceptions of decision-making potential more when status is unequal than when it is equal. But, in addition, the

correlation between the subordinates' professional level and their perceived decision-making potential differs in the equal- and unequal-status subsets— $r = .12$ and $r = .55$, respectively. This contrast demonstrates that the level of the subordinates can have quite different implications in different contexts and helps explain why subordinate level, which is practically unrelated to supervisory style when status is equal, becomes so prominent a predictor when status is unequal—it tends much more in the latter case to determine perceptions of decision-making potential.¹⁴

In sum, the data on supervision in health departments suggest that the predictability of supervisory style is enhanced by reducing the interference of interpersonal considerations, which are highly complex, thus allowing organizational considerations to have greater influence over behavior. This conclusion is suggested by and is consistent with the present data, but is by no means demonstrated by the data. On this basis, it might not deserve substantial emphasis. As it happens, however, the finding corroborates Fiedler's conclusion, after much repeated careful research, that "Psychological distance appears to lead to better role relations and emphasis on the task" (Fiedler, 1960, p. 603). Both Fiedler's finding and that of the present study are somewhat counterintuitive. At a minimum they suggest that the phenomena of social and psychological distance deserve serious attention in the consideration of intraorganizational relations.

The Zone of Retained Authority—An Artifactual Explanation. The dimension "perceived decision-making potential" goes about halfway toward explaining the increased power of subordinate level as a predictor of supervisory style in the unequal-status context. A different set of forces, operating simultaneously, accounts for the remainder.

The data suggest that the increased explanatory power is due not only to meaningful substantive effects of the independent variables but also to a change in the accuracy with which subordinate responses to questionnaire items measure the *actual* participativeness of the supervisor. In this light, the statistical interaction observed is partly due to a distortion in measurement—to an artifact of the present data set rather than a theoretical connection. To this extent, the finding might seem to be trivial; on the contrary, it leads to unexpected hypotheses on the importance both of subordinate level and of a new factor, which we label the "zone of retained authority." The latter means the collection of matters in which the subordinate feels it

¹⁴Nor is it the case that subordinate level is simply interacting with other variables indiscriminately and artificially as the result of some peculiarity of the current data set. One would expect the correlations of subordinate level with the manageability of the job, for example, to be stable across the equal- and unequal-status subsets, and it is stable— $r = -.69$ and $-.66$, respectively—and similarly with the supervisor's technological level, $r = .51$ and $.57$, respectively.

appropriate to exercise influence, and the degree of influence he or she feels it appropriate to retain and exercise. Readers will recognize this concept as the complement of the "zone of indifference," identified by Barnard (1938, pp. 161-171).

More than a decade ago, Vroom (1960, p. 10) distinguished between "psychological participation, or the amount of influence an individual perceives he has on decision-making, and objective participation, or the amount of influence he actually does have on decision-making." Furthermore, the two dimensions were not highly intercorrelated in Vroom's study (1960, p. 27). Nevertheless, the distinction has for some reason not become a conspicuous part of the theory or even the measurement of participativeness in organizational research, and the issue of why the two should be different has not been addressed theoretically (perhaps it is felt by many to be obvious).

Let us propose that the divergence of psychological from objective participation depends upon one's zone of retained authority, that is, the feeling of participation is affected not only by objective supervisory behavior but by the zone of retained authority as well—by one's expectations and desires for participation. Inaccuracies in reporting objective supervisory behavior would occur particularly (a) among subordinates with quite large zones of retained authority, who would exaggerate a moderate amount of participation downward (it would seem annoyingly insufficient to them), and (b) among subordinates with quite small zones of retained authority, who would exaggerate a moderate amount of participation upward (a little participation goes a long way).

It has long been proposed theoretically, and also found empirically, that professional or other status level is correlated with dimensions such as the zone of retained authority (see, for example, Kavanagh, 1972; Argyris, 1973, pp. 145, 149, 153, and studies cited there by Holtz (1969), Blai (1964), and Kohn & Schooler (1969); and White and Ruh, 1973, pp. 506-507, and studies cited there). On this basis, we should in general not expect a strong association between professional level and *reported* (i.e., psychological) participation because lower-level employees will frequently exaggerate the absolute level of participation upwards and higher-level employees will exaggerate it downwards. The low correlations of indicators of employee level with participation in this study are therefore not at all surprising; the measure used here is reported participation, whereas strong correlations are to be expected only with actual, or objective participation.

On the other hand, the high correlation obtained between employee level and participation in the 30 unequal-status work groups is explained by the fact that the measurement distortion referred to is not as serious there—in the unequal-status groups, reported participation more nearly reflects the

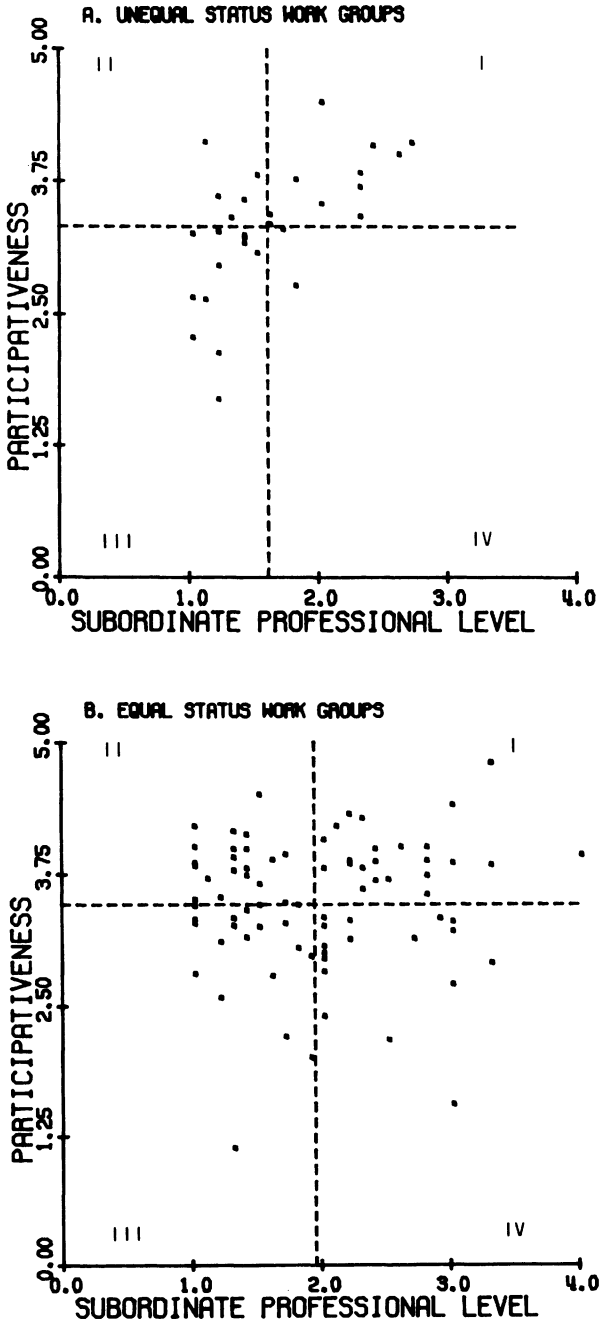


Fig. 2. Plots of participativeness on subordinate professional level.

true, objective condition. This may be seen by comparing the two scatterplots in Figure 2 and noting that a conspicuous difference between them is in the occurrence of data points in the lower right-hand quadrant, quadrant IV. In the unequal-status groups (Figure 2a), there are fewer points in quadrant IV simply because in those groups there is an absence of the downward-exaggerating, highest-level subordinates—none is higher than 2.7 on the professionalism scale (the horizontal scale in the figure). Physicians, dentists, engineers, etc. would almost never be considered in a lower social class than their supervisors and therefore do not occur as subordinates in the unequal-status subset. The horizontal scale is truncated at a strategic point and a lack of downward exaggeration of participativeness results. When the data points above the professionalism level of 2.7 in Figure 2b are simply transferred to Figure 2a (thus artificially adding physicians, etc. to the unequal-status subset) and the correlation for the latter subset is illustratively recomputed, it is reduced by approximately half, from $r = .60$ ($N = 30$) to $r = .35$ ($N = 46$).

Figure 3 depicts, in schematic form, the proposed causal relationships among the major variables for any given degree of status distance.

In general, the correlation between the zone of retained authority itself and average psychological participation should be near zero. This is a complex result that would not occur because of the theoretical irrelevance of one variable for the other, but because of a standoff between two opposing trends. These may be visualized with the help of the causal diagram in Figure 3. The pure, direct impact of the zone of authority on reported participativeness should be negative—the larger the zone, the lower the rating of a given level of actual participativeness. But it should be

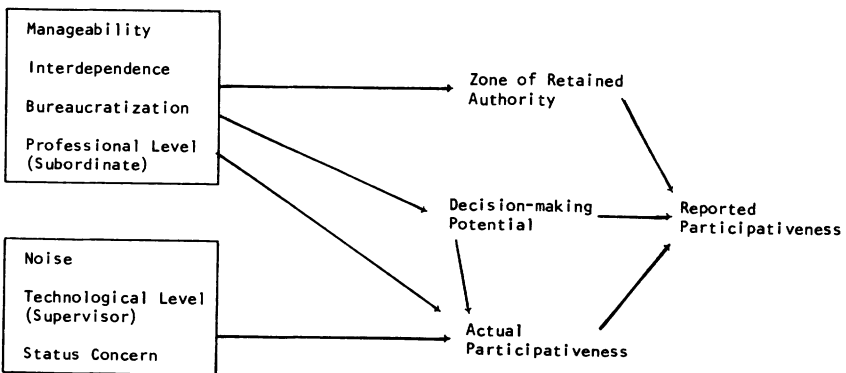


Fig. 3. Causal diagram of the major variables for a given degree of status distance.

positive insofar as the relationship is due purely to common antecedent effects—tracing both dimensions back to their common causes in the upper rectangle of the diagram. That is, individuals with a large zone of retained authority are generally high-level employees in complex technologies, the very ones who also would normally experience a high level of objective participation and report it as such. We did not measure the zone of retained authority and so cannot check the data for the expected near-zero correlation, but we did measure a related variable that should behave in much the same fashion—the subordinates' desire to participate.¹⁵ Checking the equal-status subset, we do indeed find the correlation between the desire to participate and reported participativeness to be small, $r = .11$ ($N = 83$). Moreover, we now have an explanation for the correlation $r = .16$ between these two variables in the full sample of work groups, which was much lower than anticipated and quite perplexing when only bivariate results were considered.

If actual rather than reported participativeness had been measured, we should have observed a moderate or strong association between subordinate level and supervisory style rather than a weak one, even when subordinates at all levels were included in the computations. We did not, unfortunately, measure participation objectively. Furthermore, since style has rarely been treated as a dependent variable, these two dimensions have rarely been juxtaposed in the research of others. In the only exception known to me, Blankenship and Miles (1968, pp. 114-119) did find a moderate association between hierarchical level and "reliance on subordinates" (an approximation of participativeness). Therefore, one must suspect that "reliance" in their study was not measured by report of the subordinates. In fact, it was measured by report of the supervisor. Thus, their finding of a moderate association is consistent with the present theoretical suggestions.

In sum, we conclude that subordinate level does affect the actual degree of participation experienced. This true relationship was not manifested by a strong product-moment correlation in our equal-status work groups because of the distortion inherent in measuring participation by self-report. The distortion is readily explicable using the concept of zones of retained authority. The true relationship was, however, evident in the unequal-status work groups. That occurred because there were no really high-level subordinates in that subset to generate serious downward exaggeration of the level of participation experienced.

¹⁵The dimensions differ in at least two important respects. The desire to participate evokes even a small area of desired influence and captures intensity of feeling about the right to such influence; the zone of authority also prominently captures the breadth of the area—the range of decisions over which influence is desired. Further, the zone of retained authority would naturally include autonomy over one's own work as well as participation in supervisory-type decisions.

Before gathering together the various strands explored in the empirical results of the survey, a word of explanation is necessitated by the repeated reference to psychological participation as a distortion of measurement. I have not meant to leave the impression that it is *merely* to be considered a poor operationalization of the variable in which we have true theoretical interest. On the contrary, psychological participation is definitely of interest in its own right, and may well be a more important determinant of some ultimate outcomes, such as morale and effectiveness, than is objective behavior. Whether it is or not is a complex problem, but treatment of the question is both lengthy and tangential. A few suggestions follow in the concluding section, but detailed treatment must be left as a separate undertaking.

IMPLICATIONS

The implications of the findings will be considered in two parts: implications for descriptive human relations theory and implications for definitions of democracy and, on that basis, for normative human relations theory.

Descriptive Theory. The analysis suggests that no single factor among those usually studied is likely to emerge as an accurate predictor of objective participation in a random collection of work groups. However, the conclusion was indirectly reached that interpersonal considerations—strains and affinities between the supervisor and subordinates—must play a large role. Participativeness appears to follow affect. It may well be that these strains and affinities are too numerous and costly to measure in survey research and must therefore comprise a large residual or random error category, but even for surveys some thought given to such measurement might be profitable. Simply asking the supervisor a question or two about likes and dislikes with regard to the subordinates might pay large dividends in terms of the proportion of variance in participativeness explained. If so, much would have been learned not only about organizational behavior but about democratic interpersonal behavior in general.

When the supervisor and subordinates are markedly unequal in important stratifying characteristics, the interference of purely interpersonal forces is decreased, allowing supervisory style to follow a more rational course. The supervisor then seems to decide about participation in decision-making, positively or negatively, on the basis of a perception of the potential of the group for contributing to good decisions, and this perception is in turn influenced by the objective qualifications of the subordinates.

A second significant finding of the study in the descriptive category is that the conceptualization of participativeness has importance for theory.

We may conclude that whereas the professional level of subordinates probably does have substantial impact upon their degree of actual participation, particularly when affect is not a mitigating factor, it does not have a clear and simple impact upon their psychological participation. The latter is markedly conditioned by individual zones of authority.

This finding has wider theoretical significance as well, for it may be extended to the more common case in which participation is the independent variable, rather than the dependent. The *effects* of supervisory style may also differ, in other words, according to whether participation is conceptualized and measured as objective or psychological. In this light, it is quite possible that many disappointing and inconsistent findings of prior research may now be understood. Let us digress to consider just one suggestive example.

White and Ruh were most puzzled to find, contrary to their hypothesis, that participation had no greater impact upon job satisfaction and motivation among workers with favorable attitudes toward participating than among those with relatively unfavorable attitudes. The above analysis suggests that their hypothesized difference would probably have emerged empirically had they conceptualized and measured participation in objective terms, but instead they used reported participation, as in the present research. Psychological participation is an important variable, but because it is so dependent upon expectations it inevitably becomes confounded with satisfaction—in *all* groups. The reason is that asking how much one participates relative to expectations is very nearly the same as asking how satisfied one is with the level of participation experienced. This spurious confounding of the two variables, participation and satisfaction, must unquestionably obscure a statistical interaction such as that anticipated by White and Ruh.

In short, it is imperative henceforth to be specific rather than vague about psychological vs. objective participation in the development and testing of descriptive hypotheses.

Democracy and Authority. The significance of the zone of retained authority lies in its effect on the measurement of participation. We have seen that when we ask people about democracy, many appear to respond not in absolute terms, but in terms of a personal zone of authority. How do we define it? Given goals such as morale, self-determination, and individual development, what do we mean by participative or democratic management?

Clearly, we do not mean simply the act of participation—sitting in when decisions are being made. Analysts have concluded, in fact, that participation alone has often led to a more insidious manipulation of employees (Leavitt, 1965, pp. 1152-1153), a smoother despotism of the managers (Mulder, 1971, pp. 34-35).

Rather, democratic management concerns a distribution of the real opportunity or power to exert influence through the act of participation. Coming to grips with this distinction has led organization theorists to introduce and accept the term “power equalization” (Leavitt, 1965, pp. 1153-1167), the idea being that if power is equalized, then the real opportunity to influence is guaranteed. Manipulation becomes unlikely and might just as probably proceed up the hierarchy as down.

In truth, however, power equalization is impractical (compare Strauss, 1963, p. 80; Adizes, 1971, pp. 159-164, 251-255; Perrow, 1972, pp. 170-175). Even if one takes the norm of equalization to mean something less than complete equalization, we still do not know how unequal the distribution of power should be, nor who is to determine when the appropriate unequal distribution has been achieved.

On the other hand, the lesson of zones of authority is that there exists an empirical distribution of *unequal* but *legitimized* power—legitimized, that is, from the bottom upwards. Some areas are in a subordinate’s zone of retained authority but some are not, that is, as subordinates we frequently adopt the following attitude: “You have the expertise or information or responsibility in this area, so you should exercise the major influence—there are other areas in which participation and influence are far more important to me.” Considering legitimized power, then, the fact that it is indeed legitimized makes equalization far less urgent a matter.

In fact, there would seem to be a logical choice to be made, in defining democratic leadership, between attempting to specify arbitrarily what specific distance toward equalization constitutes “democracy,” on one hand, and allowing the participants to define democracy themselves, on the other. If power is to be dispersed widely and democratically and the question arises, “To whom, over what?” one reasonable answer is to pass over equalization as a norm altogether and to follow at least roughly the empirical distribution of legitimized authority that always exists. “Democracy” would thus be attained when the distribution of influence matched precisely the empirical distribution of legitimized power.

Zones of authority are best followed as a guide not by guessing at them, but by documenting them. They will vary from one work group to another, even though the tasks performed in the various groups may be similar, and will in fact vary within the same work group over time. They might not only evolve, but may be influenced by, for example, libertarian reformers. Furthermore, the measurement of the concept should entail careful dimensionalization as a prelude to the operational mapping of zones of authority in organizations. It is complex, not unidimensional. Although operationalizations must no doubt vary among applications, four sub-dimensions are suggested at present.

a. The size of the zone, i.e., the number of content areas over which authority is felt to be retained. Hopefully, these “areas” could be put in terms that are general enough to apply to most jobs, not just one, e.g., changes in equipment or tools, hiring of new group members, quantity of output, and working hours.

b. The degree of authority felt to be retained in an area (Strauss, 1963, pp. 61-62). Some of the scale points would be (1) none, (2) the right to be heard, (3) having a vote, (4) the right to be part of a decision by consensus and to help shape the outcome, (5) having a veto, (6) having final decision rights, and (7) having exclusive dominion.

c. The intensity with which this degree of authority is felt to be retained—how strongly people feel about it.

d. The extent of group agreement on the degree of authority retained in an area.

We have had the idea of zones of authority around for decades (Barnard, 1938, pp. 161-171) and have done too little with it. What is suggested by analysis of the present data is a normative conception of participation that conforms to it. This would lead to a new emphasis for research in which participativeness as a variable is for many theoretical purposes not simply some observed or reported actions, but some fit between actions and expectations. The measurement of participative management, then, would depend not only on overt behaviors of the manager and the group, but on other facts as well, namely, empirically determined zones of subordinate-retained authority.

As a concluding note, it is of some importance to consider the ideological implications of what might be called a “zone-of-authority model” of democracy. Many will sense the danger, for example, that zones of authority can be manipulated from above and the resultant despotism then termed “democracy” (the concern would apply with respect to relatively powerless groups in a society, as well as to subordinates in a formal organization). Or, a group so long accustomed to subjugation as to be content with it might in these terms be considered a democracy. There is no logical guarantee against such empirical outcomes, but a moment’s thought suggests several observations. Taking the power-equalization model as an alternative, we are confronted similarly with the possibility of manipulation. Indeed, it is the well-accepted reality that people have been widely deluded to believe that they possess more power of self-government than they do in fact possess. The combination of this phenomenon with the realistic impossibility of equalizing power in large, complex groups has led social scientists simply to give up on democracy as a productive analytical concept, opting instead for terms like “polyarchy” (Dahl, 1956, pp. 63, 74). Second we must keep in mind the conceptual distinction (although it might

be difficult at times to discern operationally) between a state in which some authority over oneself is ceded to others by free choice, which may be called a democracy (in fact, any agreement to majority rule is in this category), and a state in which one is merely satisfied with a certain degree of subordination ultimately understood as coercive, which should not be called a democracy. There is a distinction, in effect, between division of labor and domination. Further, the above outcomes are less of a danger when subordinates or relative have-nots are asked, and asked repeatedly (as is implied by the present model), to delimit their own zones of authority, especially considering the possibility that they can be influenced by change agents as well as by defenders of the status quo. Lastly, the zone-of-authority model is a democratic model of democracy. It does not impose an interpretation of self-government upon people; it depends upon them to define it for themselves. Certainly, the fundamental decision as to what constitutes a democratic distribution of authority must be democratic.

APPENDIX

Measurement of the Variables

1. *Participativeness*. Five items in the subordinate questionnaire (also used in the supervisor questionnaire to measure his or her participativeness upward). The response categories were: Highly accurate, Fairly accurate, Borderline, Rather inaccurate, and Very inaccurate, the respondent having been asked to indicate in these terms how well each item characterized his or her work situation—how accurate each item was as a description of his or her situation.

- When some important matter comes up that concerns me, my supervisor seeks out my ideas on the question before a decision is made.
- All in all, I have very little influence in supervisory decisions that affect my work group in important ways. (Scoring reversed)
- Our supervisor is inclined to accept the opinions of the work group in important decisions about job-related matters.
- I get few opportunities, if any, to participate in the supervisory decisions that affect the significant aspects of my job. (Scoring reversed)
- If I had a suggestion for improvement to make, it would be difficult for me to get a real hearing on it from my supervisor. (Scoring reversed)

2. *Bureaucratization*. Three items in the supervisor questionnaire. The response categories were as for Participativeness.

- In this health department, rules and regulations govern almost all employee activities.
- In this health department there is a lot of emphasis on establishing and following specific work procedures.
- This health department works a lot like the army; almost all matters, large and small, go in lines through the proper channels.

3. *Noise*. One item in the subordinate questionnaire and one in the supervisor questionnaire. The response categories were as for Participativeness.

- When I talk with my supervisor, we have to raise our voices to be heard above the noise around us.
- When I talk with one of my subordinates, we have to raise our voices to be heard above the noise.

4. *Interdependence*. Two items in the subordinate questionnaire combined with two in the supervisor questionnaire. The response categories were as for Participativeness.

- Mine is pretty much a one-person job; there is little need for checking or working with others. (Scoring reversed)
- To do this job properly, I must collaborate extensively with others.
- My subordinates have one-person jobs; they have little need to check or to work with others. (Scoring reversed)
- To do their jobs properly, my subordinates must collaborate extensively with others.

5. *Manageability*. An average of three quantities: (a) the average of the subordinate scores (reversed) on the technological level scale (see below), (b) the average of materials technology ratings for uniformity, complexity, and analyzability (see Perrow, 1967, pp. 194-198) supplied by three public health consultants—a psychologist, a sanitarian, and a physician—and based on a written description of the group's task supplied by each supervisor, and (c) the average score on three items on materials technology in the supervisor questionnaire. The response categories for both the supervisor and the public health consultant items were as for Participativeness. The items rated by the consultants were:

- Uniformity: The material worked on is about the same from case to case and from time to time. Examples: an assembly line part, windows to be washed.

- Complexity: The material worked on is not simple in nature; in fact, it is very complex. Examples: a computer to be designed or repaired, regional planning, air traffic control. (Scoring reversed)
- Analyzability: The material worked on is very well understood by science and technology.

The items in the supervisor questionnaire were:

- There are hardly any exceptional cases in the things my subordinates work on; almost nothing is unusual.
- Actually, there is nothing very intricate or complicated about the work my subordinates do.
- Little judgment should be necessary in the work of my subordinates; there are standard ways of solving the problems that might arise.

6. *Authoritarianism*. Ten items in the supervisor questionnaire (the same scale was also used to measure authoritarianism in the subordinates). The response categories were: Agree strongly, Agree (but without strong feelings or assurance in the matter), Undecided, Disagree (but without strong feelings or assurance in the matter), Disagree strongly.

- There would be no juvenile delinquents if parents would just insist on strict obedience from their children.
- World poverty can be eliminated. (Scoring reversed)
- As young people grow up they ought to try to carry out some of their rebellious ideas and not just get over them and settle down. (Scoring reversed)
- The minds of today's youth are being corrupted by the wrong kind of literature.
- Members of religious sects who refuse to salute the flag or bear arms should be treated with tolerance and understanding. (Scoring reversed)
- We should be grateful when we have leaders who tell us exactly what to do and how to do it.
- Sex offenders should be treated with expert care and understanding rather than punishment. (Scoring reversed)
- One of the best assurances for peace is for us to have the biggest bomb and not be afraid to use it.
- The facts on crime and sexual immorality suggest that we will have to crack down harder if we are going to save our moral standards.
- In the final analysis, parents generally turn out to be right about things.

7. *Status Concern.* Five items in the supervisor questionnaire. The response categories were as for Authoritarianism.

- The supervisor’s job is to decide; if he lets his subordinates make the decisions, there is not much need for a supervisor.
- A supervisor needs to maintain the status of his position by making up his own mind on things and issuing authoritative decisions.
- Generally speaking, it does not make much sense for a supervisor and his subordinates to try to treat one another as social equals at work.
- A supervisor should not have to explain the reasons for a decision to a subordinate.
- It is proper that my social status within the organization should be quite a bit higher than the status of the people I supervise.

8. *Uncertainty of Performance Expectations.* Three items in the supervisor questionnaire. The response categories were as for Participativeness.

- As far as my work is concerned, things change so fast that it is hard for me to tell whether I am doing a good job or not.
- Too many people at higher levels supervise my work.
- The standards used to judge my job performance are not at all clear.

9. *Social Class.* One item in both the supervisor and subordinate questionnaires. The response categories were: Middle class, Working class, Other (please specify). A response such as, “The middle class and the working class are the same things,” which occurred frequently, was assigned a score intermediate between middle class and working class.

- There is quite a bit of talk these days about different social classes. Most people feel that they belong either to the Middle Class or to the Working Class. What would you say about your own social class association? Would you say that you are closer to the Middle Class or the Working Class?

10. *Desire to Participate.* Three items in the subordinate questionnaire. The response categories were as for Authoritarianism.

- I have my own job to do; I would just as soon the supervisor did not try to involve me in making decisions. (Scoring reversed)
- Employees like myself should have a voice in deciding how their work will be organized.

—People in positions like mine should be able to give their opinions about operations and policies at work, and not just carry out duties as assigned.

11. *Decision-Making Potential.* Two items in the supervisor questionnaire. The response categories were as for Participativeness.

—With employees like the ones I supervise, the supervisor can generally make much better decisions alone than he can with their participation. (Scoring reversed)

—Generally speaking, the group I supervise would probably make work-related decisions that would be as good as my own or better.

12. *Professional Level.* Based on a job title supplied by each respondent, responses to items specifying length and type of training and education of all types, the organizational title of the work group, and the supervisor's written description of the job performed by the group. "Professional" was taken to mean formal institutional (school) training in an applied field and the receipt of a degree, certificate, license, etc., in that field. The four or fewer levels of professionalism were specified for public health nursing, clinic nursing, sanitation, dental public health, health education, laboratory, clerical, and manual trades. All coding conformed to the following: 1 = no special training for that work field, 2 = has had special training for that work field but is not a professional, 3 = is a professional in that field, 4 = is a highest professional in that field.

13. *Technological Level.* Based on the same information as Professional Level. Scored for both supervisor and subordinates in the following eight categories, with one point added for being a supervisor in one's own technical field.

1. School clerk, maintenance man, janitor, dog catcher, animal control man, glass washer, typist, steno, file clerk, lab aide, helper, switchboard operator, key punch operator, medical transcriber, X-ray readings clerk, dental aide or assistant, nursing assistant, clinic aide;
2. Home health aide, data processing operator, lab technician, homemaker, X-ray technician, radiological technician, vision-hearing screener, sanitarian aide, senior clerk, statistical clerk, supply clerk, account clerk, payroll clerk, vital records clerk, equipment mechanic;
3. Clinic nurse, dental hygienist, staff nurse, registered nurse, project nurse;

4. Public health representative or investigator, welfare case worker, secretary to group director, medicare representative;
5. Public health nurse, physical therapist, occupational therapist, dental technician, sanitarian, environmentalist, housing inspector, accountant;
6. Nursing service consultant, health educator, nutritionist, laboratorian, medical technician, statistician, social worker, community service coordinator, administrative officer;
7. Public health engineer;
8. Psychologist, dentist, physician, veterinarian.

14. *Perceived Class Differential*. Based on the supervisor's own subjective social class plus the following additional item in the supervisor questionnaire, to which the response categories were: Number in Middle Class, Number in Working Class, and Other (please specify).

—What would you say about the social class of your subordinates? According to your own judgment and impressions, how many in the specified group would you associate with the Middle Class and how many with the Working Class?

REFERENCES

- ADIZES, I. *Industrial democracy: Yugoslav style*. New York: Free Press, 1971.
- ARGYRIS, C. Issues in evaluating laboratory education. *Industrial Relations*, 1968, 8, 28-40.
- (a)
- ARGYRIS, C. A rejoinder to Dunnette and Campbell. *Industrial Relations*, 1968, 8, 45. (b)
- ARGYRIS, C. Personality and organization theory revisited. *Administrative Science Quarterly*, 1973, 18, 141-167.
- BARNARD, C. I. *The functions of the executive*. Cambridge: Harvard University Press, 1938.
- BERGER, J., COHEN, B. P., & ZELDITCH, M., JR. Status conceptions and social interaction. *American Sociological Review*, 1972, 37, 241-255.
- BLAI, B. An occupational study of job satisfaction and need satisfaction. *Journal of Experimental Education*, 1964, 32, 383-388.
- BLANKENSHIP, L., & MILES, R. E. Organizational structure and managerial decision behavior. *Administrative Science Quarterly*, 1968, 13, 106-120.
- BOWERS, D. G. OD techniques and their results in 23 organizations: The Michigan ICC study. *Journal of Applied Behavioral Science*, 1973, 9, 21-43.
- BUCHANAN, P. C. Laboratory training and organizational development. *Administrative Science Quarterly*, 1969, 14, 466-480.
- CAMPBELL, J. P., & DUNNETTE, M. Effectiveness of T-group experiences in managerial training and development. *Psychological Bulletin*, 1968, 70, 73-104.
- COCH, L., & FRENCH, R. P., JR. Overcoming resistance to change. *Human Relations*, 1948, 1(4), 512-532.
- DAHL, R. A. *A preface to democratic theory*. Chicago: University of Chicago Press, 1956.
- DUNNETTE, M., & CAMPBELL, J. P. Laboratory education: Impact on people and organizations. *Industrial Relations*, 1968, 8, 1-27. (a)

- DUNNETTE, M., & CAMPBELL, J. P. A response to Argyris. *Industrial Relations*, 1968, 8, 41-44. (b)
- FIEDLER, F. E. The leader's psychological distance and group effectiveness. In D. Cartwright, & A. Zander (Eds.), *Group dynamics* (2nd edition). Evanston: Row Peterson, 1960.
- FIEDLER, F. E. *A theory of leadership effectiveness*. New York: McGraw-Hill, 1967.
- HALL, R. H. An empirical study of bureaucratic dimensions and their relation to other organizational characteristics. Unpublished PhD dissertation. Columbus: Ohio State University, 1961.
- HALL, R. H., HAAS, J. E., & JOHNSON, N. J. Organizational size, complexity, and formalization. *American Sociological Review*, 1967, 32, 903-911.
- HELLER, F. A., & YUKL, G. Participation, managerial decision-making, and situational variables. *Organizational Behavior and Human Performance*, 1969, 4, 227-241.
- HOLTZ, W. L. Occupation and self-actualization. The expression of maturity-directed predispositions in the work situation. Unpublished Master's thesis. Austin: University of Texas, 1969.
- KAHN, R. L. Productivity and job satisfaction. *Personnel Psychology*, 1960, 13, 275-287.
- KAHN, R. L. Organizational development: Some problems and proposals. *Journal of Applied Behavioral Science*, 1974, 10, 485-502.
- KAVANAGH, M. J. Leadership behavior as a function of subordinate competence and task complexity. *Administrative Science Quarterly*, 1972, 17, 591-600.
- KIRSCHT, J. P., & DILLEHAY, R. C. *Dimensions of authoritarianism*. Lexington: University of Kentucky Press, 1967.
- KOHN, M. L., & SCHOOLER, C. Class, occupation, and orientation. *American Sociological Review*, 1969, 34, 659-678.
- KOHN, M. L., & SCHOOLER, C. Occupational experience and psychological functioning: An assessment of reciprocal effects. *American Sociological Review*, 1973, 38, 97-118.
- LEAVITT, H. J. Applied organizational change in industry: Structural, technological and humanistic approaches. In J. G. March (Ed.), *Handbook of organizations*. Chicago: Rand McNally, 1965.
- LIKERT, R. *New patterns of management*. New York: McGraw-Hill, 1961.
- LIKERT, R. *The human organization: Its management and value*. New York: McGraw-Hill, 1967.
- LOWIN, A., & CRAIG, J. R. The influence of level of performance on managerial style: An experimental object-lesson in the ambiguity of correlational data. *Organizational Behavior and Human Performance*, 1968, 3, 440-458.
- MOHR, L. B. Organizational technology and organizational structure. *Administrative Science Quarterly*, 1971, 16, 444-459.
- MORSE, N., & REIMER, E. The experimental change of a major organizational variable. *Journal of Abnormal and Social Psychology*, 1956, 52, 120-129.
- MULDER, M. Power equalization through participation? *Administrative Science Quarterly*, 1971, 16, 31-39.
- OLSON, M., JR. *The logic of collective action*. New York: Schocken, 1968.
- PERROW, C. A framework for the comparative analysis of organizations. *American Sociological Review*, 1967, 32, 194-208.
- PERROW, C. *Complex organizations: A critical essay*. Glenview, Illinois: Scott, Foresman, 1972.
- PFEFFER, J., & SALANCIK, G. R. Determinants of supervisory behavior: A role set analysis. *Human Relations*, 1975, 28, 139-154.
- ROETHLISBERGER, F. J., & DICKSON, W. J. *Management and the worker*. Cambridge: Harvard University Press, 1939.
- ROSSEL, R. D. Institutional and expressive leadership in complex organizations. *Administrative Science Quarterly*, 1970, 15, 306-317.
- SEASHORE, S. E., & BOWERS, D. G. *Changing the structure and functioning of an organization*. Ann Arbor: Institute for Social Research, 1963.

- SELLTIZ, C., JAHODA, M., DEUTSCH, M., & COOK, S. *Research methods in social relations*. New York: Holt, Rinehart and Winston, 1963.
- STRAUSS, G. Some notes on power-equalization. In H. J. Leavitt (Ed.), *The social science of organizations: Four perspectives*. Englewood Cliffs, New Jersey: Prentice-Hall, 1963.
- TANNENBAUM, A. S. *Social psychology of the work organization*. Belmont, California: Wadsworth, 1966.
- VROOM, V. H. *Some personality determinants of the effects of participation*. Englewood Cliffs, New Jersey: Prentice-Hall, 1960.
- VROOM, V. H., & YETTON, P. W. *Leadership and decision-making*. Pittsburgh: University of Pittsburgh Press, 1973.
- WHITE, J. K., & RUH, R. A. Effects of personal values on the relationship between participation and job attitudes. *Administrative Science Quarterly*, 1973, 18, 506-514.
- WILSON, T. P. Patterns of management and adaptation to organizational roles: A study of prison inmates. *American Journal of Sociology*, 1968, 74, 146-157.
- WOODWARD, J. *Industrial organization: Theory and practice*. London: Oxford University Press, 1965.

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