Superior-Subordinate Relationships and Performance[1]

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Summary

This study is concerned with the proposition that the nature of superior-subordinate relationships in an organization, as perceived or evaluated by subordinates, affects the job performance of subordinates, whether the latter are considered as a group or as individuals. This rather widely accepted proposition was tested using four more specific hypotheses which were derived from it, and which involve certain aspects of superior-subordinate interaction, as specified in the paper. The objectives were to test the hypothesized relationships between these variables and subordinate performance, and to examine the generality of these relationships.

The Problem

Implicit in the managerial practices and training programs of many firms is the belief that high performance will accompany the application of certain "good" human relations principles. This belief appears to be held as a very general proposition applicable to all organizations, to all sub-units within an organization, to individuals within an organization, and to all important aspects of performance. The belief is encouraged by many research findings showing that some variables representative of "good" human relations practice are in fact positively and significantly

related to performance. A more careful review of available research findings, such as that of Brayfield and Crockett (1955), shows that positive associations are indeed common, but that in a great many instances there is no relationship at all, or a negative one, and that the generality of the underlying proposition accordingly is in doubt.

A good many of the neutral and negative findings (Brayfield and Crockett, 1955) can no doubt be explained away on technical grounds, leaving the original proposition unimpaired. Thus it can be argued, and often is, that a given test of the proposition failed to show the expected relationship because the performance criteria were defective, because the measures of the human relations variables were inadequate, or because some unusual characteristic of the population or the situation served to suppress or distort the expected relationship. To assess the generality of a proposition of this nature when negative instances are known, it is necessary to conduct studies in which exceptional care is taken to obtain measures of known adequacy, to replicate the test with a number of populations and a number of specific derived hypotheses, and to replicate the analysis by using alternative analytic methods. The study reported here is a modest attempt along these lines.

Hypotheses

Here we have selected for study certain variables which have been found to be positively related to job performance in previous studies (Katz, Maccoby, and Morse, 1950; Lawshe and Nagle, 1953), or are presumed to affect performance according to the human relations approach. More specifically, these independent variables fall into four areas:

superior-subordinate communication, supervisory supportiveness in relation to subordinates, mutual understanding among organizational members, and the influence of superiors and subordinates on organizational operations. After showing the relationships between the several independent variables and performance, we will examine the generality of these relationships.

In its most general form, the hypothesized relationship between the independent variables and performance rests on the premise that the nature of the superior-subordinate relationship, as perceived by the subordinates, affects the subordinates' motivation or chance to produce and, hence, also the performance of the subordinates, whether the latter are considered as a group or as individuals. Stated more specifically, this general proposition can be presented and tested in the form of the following four hypotheses:

Hypothesis One: The openness of the communication channel between the superior and his subordinates facilitates the exchange of task-relevant information, thereby facilitating job performance. Accordingly, it should be positively related to performance.

Hypothesis Two: Assuming that the superior desires to meet the objectives of the organization, the degree to which subordinates are satisfied with their superiors' supportive behavior in reference to them facilitates the acceptance of organizational objectives on the part of subordinates, thereby facilitating job performance. Accordingly, it should be also positively related to performance.

Hypothesis Three: Similarly, i.e., based on the same assumption as Hypothesis Two, the degree of mutual understanding among interacting

organizational members (both supervisory and nonsupervisory) should be positively related to performance.

Hypothesis Four: The degree to which subordinates feel that they, and their superiors, have influence over local organizational operations should be positively related to performance, on the assumption that such influence is normally desired by members, and thus it can act as an incentive with reference to performance.

The full rationale for these hypotheses need not be elaborated here. Various, and reasonably successful, attempts have been made to derive such propositions from theories regarding psychological processes (Maier, 1954), from theories regarding group and other interactional processes (Bass, 1960; Likert, 1961), and from organizational theory (McGregor, 1960). The conclusions reached by these writers appear to be mutually compatible, for the most part, with respect to the above hypotheses. The man on the street, unaware of or disinterested in formal theory and technical terminology, could well come to the same hypotheses using ideas and experimental data that are prevalent in our society. For example, with reference to Hypothesis Two, and assuming that supervisors and subordinates generally intend to achieve the organization's objective of high productivity, one can argue that the supportive supervisor gains the confidence of his men and is thus enabled to influence them more effectively with respect to work methods and work performance; or one could argue that the supportive supervisor, by providing a secure environment, reduces the amount of energy diverted by subordinates from production to self-protective and ego-sustaining activities; or one could argue that an organizational

environment of acceptance and support increases the probability that useful ideas about the work generated by subordinates will be allowed expression and application. Other lines of "reasoning" are possible with respect to Hypothesis Two, and similar reasoning supports the other hypotheses as well.

However dubious their conceptual and theoretical status may be, such hypotheses exist as operational hypotheses both in the body of social science and in the minds of managers. Present limited empirical data is supportive of these hypotheses, but inconsistant. Empirical exploration of their validity, their predictive power, and their limiting conditions is accordingly both necessary and desirable. The following sections describe such an exploration with information on the nature of the organizational situations studied, the nature of the data used, and the statistical operations performed.

The Research Site

Our data pertain to a nation-wide organization which has a number of similar operating units located in various metropolitan areas. The main task of the organization is to transport and deliver articles from central locations to homes. Its operating unit is called a "station," and consists of receiving and sorting facilities, a loading dock, trucks, and office, and is manned by a supervisor, a secondary supervisor, a small night crew of loaders, deliverymen who work days, and in some instances a clerk or office assistant. Each station has an exclusive territory to serve. Twenty-seven such stations, averaging 43 members each, and a total of 975 individuals, comprise our population. The

stations are remarkably alike in facilities, operating policies, work methods and procedures, standardization of records, and the like, but differ considerably in performance.

Performance Criteria

1. Individual productivity. This measure is derived from company records which indicate the daily performance of the individual deliveryman as a ratio of the actual hours worked to the "allowed" hours for the assigned work computed from time study standards. In each station data are missing for a few individuals on jobs not subject to such time standards, and for new employees. Individual differences in performance are stable, and data for successive two-week periods correlate about .90 ($N = 100$). Data for a one-month period were used.

2. Station productivity. The mean productivity of station members was used to represent the productivity level characteristic of the station as a whole.

3. Individual effectiveness. Within each station, the men were rank-ordered by the supervisor according to their over-all job performance during a period just preceding the study. These judgments were made confidentially for the research staff. For each station, the ranks were normalized and reduced to a common seven-step scale. Each individual thus was given a score based on this rank scale.

4. Station effectiveness. The "over-all effectiveness" of each of the 27 stations was rated independently and confidentially, on a five-step scale, by six or more managers who had personal and direct knowledge of the operations in the stations. The raters were not members of any of the stations.

For a more detailed discussion of the criterion measures, the reader may refer to Georgopoulos and Tannenbaum (1959) and to Seashore, Indik, and Georgopoulos (1960).

Independent Variables

For each of the four hypotheses, two separate measures were used to represent the "human relations" concept in question. All were derived from responses to a paper and pencil survey questionnaire administered on location to all nonsupervisory employees at each of the 27 stations. The questionnaire items used for each hypothesis were as follows:

1. For Hypothesis One:

A. "Does your immediate supervisor ask your opinion when a problem comes up that involves your work?" (Five response alternatives from "He never asks my opinion" to "He always asks my opinion.")

B. "If you have a suggestion for improving the job or changing the set-up in some way, how easy is it for you to get your ideas across to management?" (Five alternatives from "It is very difficult to get my ideas across" to "It is very easy to get my ideas across.")

The intercorrelation between these items is $r = .62$. ($N = 27$ stations.)

2. For Hypothesis Two:

A. "How satisfied are you with the recognition you have received at the company for your work?" (Five alternatives from "Not at all satisfied" to "Completely satisfied.")

B. "Do you feel that your immediate supervisor will go to bat or stand up for you?" (Five alternatives from "No, he definitely won't" to "Yes, he definitely will.")

The intercorrelation between these items is r = .55. (N = 27 stations.)

3. For Hypothesis Three:

A. "To what extent do people in the different jobs in your station see eye-to-eye on things about the everyday operations of the station?" (Five alternatives from "There is no agreement" to "There is complete agreement.")

B. "How well do you think the local management of the company understands the employee's viewpoint?" (Five alternatives from "They have no understanding" to "Complete understanding of how employees think and feel.")

The intercorrelation between these items is r = .74 (N = 27 stations.)

4. For Hypothesis Four:

A. "In general, how much say or influence do the men in your station have on what goes on in the station?" (Five alternatives from "Little or no influence" to "A very great deal of influence.")

B. "In general, how much say or influence does your station manager have on what goes on in the station?" (Five alternatives from "Little or no influence" to "A very great deal of influence.")

The intercorrelation between these items is r = .55. (N = 27 stations.)

Analysis Plan

Each independent variable was paired with each of the two performance criteria from its own level of analysis. The degree of association for each pair of measures was assessed separately at three levels of analysis, as follows:

1. Individual level. Here, all data for all individuals in the study were used regardless of station membership. Product-moment correlations were then computed, with an N of 975 individuals.

2. Between-group level. A mean score was derived for each variable for each station (with the exception of the "station effectiveness" rating which provided initially a group-level score). Product-moment correlations were then computed for each pair of variables, with an N of 27 stations.

3. Intra-group level. Product-moment correlations were computed for each pair of variables separately for each station. Station N's range from 14 to 61, averaging 43. In addition, for each pair of variables, the mean of intra-group correlations was computed, after weighting each component correlation by its own station N. The variability of each set of correlations was assessed with the technique described by Snedecor (1948). In addition, a sign test was performed on each set of correlations to assess the probability that positive and negative relationships occurred randomly.

The resulting data are displayed in Tables 1 through 4, together with the results of significance tests. All signs are adjusted so that more of one variable corresponds to more of the other, e.g., if more productivity is associated with more openness of communication, this is represented with a positive sign.

Results

Hypothesis One: The ease or freedom of usage of the communication channel between superiors and subordinates will be positively related to performance.

The results which test this hypothesis are presented in Table 1. At the group level of analysis, the correlations between the communication variables (extent superior asks subordinates their opinion about work problems, and ease with which subordinates can get their ideas across to superiors) and group performance, measured by the station effectiveness ratings, are as predicted and statistically significant. When using station productivity as the measure of group performance, however, the relationships are in the right direction, but not statistically significant.

Insert Table 1 about here

At the individual level of analysis, Table 1 shows that all of the obtained relationships which test Hypothesis One are in the predicted direction, regardless of which of the two communication and two performance measures are considered. Moreover, three of the four relationships are statistically significant. However, the size of the individual correlations is very small for prediction purposes, ranging between .038 and .167.

Regarding the intra-group level of analysis, Table 1 shows three kinds of information relevant to the hypothesis under study. First, it shows the average intra-group correlation for the 27 stations studied. Second, it shows the range of the obtained 27 intra-group correlations,

i.e., how widely the correlations based on data about individuals in the particular aeparate stations vary from station to station. And third, it shows the number of stations for which the obtained relationships at this level are in the hypothesized direction (number of stations with plus sign), and the number for which the relationships are in the opposite direction (number of stations with minus sign).

On the whole, the results at the intra-group level are very similar to the relationships obtained at the individual level of analysis. Accordingly, Hypothesis One receives approximately equal support at the intra-group level as at the individual level. However, the specific correlations obtained for the 27 stations at the intra-group level range rather widely in size, apart from the fact that many are not statistically significant, and some are in a negative direction. While providing certain support for the hypothesized relationships, these results also indicate that the relationships do not hold for all stations or organizational groups. Therefore, their generality is correspondingly limited.

Considering all of the results from all three levels of analysis which test Hypothesis One, as shown in Table 1, it may be concluded that this hypothesis is on the whole supported by the empirical evidence at hand, especially in terms of the direction of the obtained relationships. However, many of the correlations are small in size, some being nonsignificant. Judging from the significant correlations obtained, it appears that the hypothesis receives better support at the individual and intra-group levels of analysis than at the group level; at the former two levels, it receives approximately equal support. This particular

finding might be due to a tendency for superior-subordinate communication to occur on a person-to-person basis in the situation studied. Similarly, at the between-group level, the hypothesis receives better support when the effectiveness ratings are used as the measure of group performance than when productivity is used as the measure; in the latter case the relationships are not statistically significant. The relationships at the intra-group level vary considerably from station to station, so that their generality across stations may be questioned. Finally, the hypothesis receives better support in relation to one of the two communication variables (extent superior asks subordinates their opinion about work problems) studied, regardless of level of analysis.

In view of these findings, it may be asserted that the hypothesized relationships here tested are borne out by the preponderance of the evidence, but their generality across groups, with reference to different measures of performance, and across different levels of analysis, cannot be taken for granted or assumed to be true in all cases.

Hypothesis Two: The degree to which subordinates are satisfied with their supervisors' behavior in reference to them will be positively related to performance.

The first tests of this hypothesis, the between-group correlations, show that the results are all in the predicted direction (Table 2). However, while both measures of the independent variable are significantly correlated with the dependent variable, effectiveness; only one of the two correlations with productivity is significantly correlated with the dependent variable productivity.

Insert Table 2 about here

The second set of tests of this hypothesis (Table 2), the individual level correlations, shows that all relationships are positive and significant, as predicted, but the size of the correlations are not large. At the intra-group level (Table 2), using the weighted average intra-group correlations as tests of the hypothesis, we find similar results, in terms of size and direction of relationship, to those found at the individual level. We also find that all four of the sign tests of the hypothesis show that the majority of relationships in individual stations are in the predicted direction, although there is a rather wide range of variability in the correlations across stations and across operational measures.

In summary, the results show general support for the second hypothesis at all three levels of analysis. Hypothesis Two is more clearly supported, however, when the effectiveness ratings are used as the operationalization of the dependent variable than when the productivity measure is used. The size of the correlations is larger at the group level of analysis, but more relationships are significant at the individual level of analysis.

Hypothesis Three: The degree of mutual understanding among organizational members will be positively related to performance.

The between-group correlation coefficients (Table 3) show positive support for the present hypothesis, with three of the four relationships being statistically significant. The various individual level tests of the hypothesis show only general directional support for the hypothesis.

However, relatively few of the tests show significant probability levels. In Table 3, for example, the distributions of intra-group level correlations have means very near zero, though the majority of the signs are positive and in agreement with the hypothesis. In summary, the hypothesis receives good support at the group-level of analysis, moderate support at the individual level, and little support at the intra-group level.

Insert Table 3 about here

Hypothesis Four: The degree to which subordinates feel that they and their superiors have influence over local organizational operations will be positively related to performance.

Insert Table 4 about here

In Table 4, we find that the between-group level analyses show strong over-all support for Hypothesis Four. Whether productivity or effectiveness is used as the operational measure of job performance, the group level analyses show positive and significant relationships. The individual level analyses show general, though less strong, support for the hypothesis; but the size of the relationships, as with Hypothesis Three, tends to be quite small. The intra-group level analyses show a picture similar to that obtained for Hypothesis Three--only one of the four sign tests yields a significant result.

Some Observations on the Results

Certain observations hold generally for all four of the hypotheses:

1. There is consistent evidence that, in this organization taken as a whole, a high level of performance tends to be positively associated with:

A. openness of communication channels between superiors and subordinates;

B. subordinates' satisfaction with supervisors' supportive behavior;

C. a relatively high degree of mutual understanding of others' viewpoints and problems among those that work together; and

D. a relatively high degree of local influence and autonomy on work-related matters.

2. On the other hand, it is also clear that: The hypothesized relationships are not equally supported at all three levels of analysis, either in terms of the size or in terms of the statistical significance of the relationship, or both; the different criteria do not always behave in the same manner in relation to the same independent variable; and the same independent variable does not always yield the same relationship with all criterion variables or with the same criterion variable at all levels of analysis.

3. Considering all of the results together (Tables 1 through 4), it may be stated that the hypothesized relationships receive better over-all support at the between-group and at the individual levels of analysis than at the intra-group level (with the exception of Hypothesis One, for which more of the individual and intra-group level correlations are significant than the between-group correlations).

4. The relationships at the between-group level of analysis are in all cases larger than the corresponding relationships at the individual level of analysis. However, some of the "smaller" individual level correlations are statistically significant, while some of the "larger" between-group correlations are not. Still, the predicted associations at the individual level of analysis are invariably modest in size, the largest being +.167, and the smallest being virtually zero (+.038).

5. None of the predicted relationships are supported without exception in all stations, i.e., at the intra-group level of analysis. For each relationship there are instances of sign reversal, and there are numerous instances in which the intra-group correlations approach the limits of chance variation.

6. The variations in degree of relationship found at the intra-group level tend to exceed the limits that would hold if each group were composed of members representative of the total population of individuals. This finding strongly suggests the presence of some interactional phenomenon within each station that not only generates absolute differences in scores between stations, but also generates nonrandom differences in relationships among scores.

7. One might expect, either on grounds of theory or on grounds of measurement difficulties, that some of our independent variables would predict our criteria better than others, or that one or another of our criteria might prove more predictable. While there are certain differences of these kinds, all of the criterion measures are, to some extent, predictable from one or more of the independent variables used,

and each independent variable produces at least one instance of significant predictive power in relation to each of the criterion measures. At the same time, it is apparent from the results that superior-subordinate relationships (or human relations variables) effect performance in complex, rather than simple, ways. Their effects on performance depend, in part, upon the level of conceptualization and analysis employed, upon the particular criterion measures used, and upon the specific measures of superior-subordinate relation in which one is interested.

Discussion

This discussion will focus upon the issues of research strategy and analysis method raised by the foregoing material, rather than upon the content of the particular propositions embodied in the data. The issues with which we shall be concerned here are three: (1) group versus individual levels of analysis, (2) replication and sampling in correlational studies, and (3) the generality of the intra-group level correlations.

Regarding the first issue, we have found that the correlations generated by the same data at the individual level and at the group level of analysis differ in magnitude, and sometimes also in significance level. Recent contributions on this issue, primarily in the sociological literature, suggest that we may soon see an adequate clarification of the reasons for this common phenomenon, and a means may be eventually devised to separate the conceptual from the purely statistical elements in it (Blau, 1960; Davis, Spaeth, and Huson, 1961). For the moment, however, we cannot know whether the larger correlations obtained at the

between-group level arise (a) because of reduction of measurement error relative to variance through the averaging process, or (b) because the between-group level correlations refer to conceptually different variables, and thus reflect the end result of a system of variables completely different from that operating at the individual level. The rarity in the literature of reversed relationships and significant sign changes, when comparing individual and group level data, suggest that both factors are probably operating, with the statistical factors serving to maintain compatible signs, and the "different" variable systems being in fact interdependent and compatible on the whole.

In connection with the second of the above issues, Kish (1957) has argued that, contrary to optimistic folklore among social scientists, relational measures are about as much subject as are separate variables to distortions arising from biased sampling. Our data show that there does not exist a magnitude of correlation between two variables, A and B, which can be said with confidence to hold equally well for all of the stations in the study. One can reasonably suppose that the variations in obtained intra-group correlations would have been much greater indeed if, instead of highly similar sub-groups, we had studied a random sample of all existing work groups of all firms and industries. In efforts to formulate or test propositions concerning human relations in work groups, it appears to be desirable to resolve this problem either by experiments conducted so carefully that all intrusive contaminants are controlled, or by insistence upon systematic replication on a scale not now seriously contemplated by most researchers, or, ideally, by using multivariate systems in which all significant relationships are specified.

The last phrase introduces our final comment concerning the last of the above three issues. Here we deal with a practicable, but relatively ineffective, means for dealing with relationships which are presumed to be generalizable to all relevant situations, but which in fact appear to have limited generality. This approach is the common one of searching, however randomly, for a limited number of crucial "conditioning" or contingent variables that serve to suppress, in certain situations, the relationship being studied. The method here, in the absence of theory as a guide, is the examination of the aberrant cases in hopes of stumbling upon some information useful in explaining why an expected relationship is small or absent. We tried this in the present analysis, but without success. The magnitude of variance on the measures used in each of the stations has no apparent bearing on our results. We find no variables, other than some directly correlated with our test variables, which could serve to explain the deviant cases.

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Footnotes

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Table 1

Tests for Hypothesis One

Relationship Between Openness of Superior-Subordinate Communication Channel and Individual and Group Performance

Independent Variable	Correlations for Between-Group Level (N = 27) Effectiv.	Productiv.	Individual Level (N = 975) Effectiv.	Productiv.
Extent superior asks subordinates about work problems	.481**	.166	.167**	.136**
***.95 confidence intervals	(+.10,+.73)	(-.22,+.52)	(+.10,+.23)	(+.07,+.20)
Ease with which subordinates get ideas across to superiors	.396*	.222	.038	.109*
***.95 confidence intervals	(+.02,+.65)	(-.16,+.55)	(-.02,+.10)	(+.04,+.17)

Intra-Group Level

(N within groups is variable. Average N = 43. There are 27 stations.)

	Weighted Average Intra-Group Correlation and Range of Correlation		Number of Stations with Plus or Minus Correlations			
	Effectiv.	Productiv.	Effectiv. +	Effectiv. -	Productiv. +	Productiv. -
Extent superiors ask subordinates about work problems	+.197 (c) (+.894 to -.477)	+.128 (c) (+.524 to -.393)	21**	6	19**	8
Ease with which subordinates can get ideas across to superiors	+.041 (c) (+.428 to -.303)	+.132 (c) (+.452 to -.368)	18	9	20**	7

*Significant relationship p .05 (one tailed).
**Significant relationship p .01 (one tailed).
***As computed from Pearson, E. S. and Hartley, H. O. (1954).

(a), (b), (c), (d): These symbols represent the probability that the obtained distribution of correlations could have arisen by chance from a sampling of a population having a correlation equal to the weighted average intra-group correlations shown above. "(a)" represents a low probability (p = .00 to .05), "(b)" a low probability (p = .06 to .20), "(c)" a moderate probability (p = .21 to .70), and "(d)" a high probability (p = .71 and over).

Table 2

Tests for Hypothesis Two

Relationship Between the Degree to which Subordinates are Satisfied With their Superior's Supportive Behavior and Individual and Group Performance

Independent Variable	Correlations for Between-Group Level (N = 27) Effectiv.	Between-Group Level (N = 27) Productiv.	Individual Level (N = 975) Effectiv.	Individual Level (N = 975) Productiv.
Subordinate satisfaction with recognition by superior	+.459**	+.332*	+.159**	+.105*
***.95 confidence intervals	(+.09,+.72)	(-.06,+.62)	(+.09,+.21)	(+.04,+.17)
Immediate superior "goes to bat" for subordinates	+.483**	+.214	+.158**	+.146**
***.95 confidence intervals	(+.10,+.73)	(-.17,+.54)	(+.09,+.21)	(+.08,+.21)

Intra-Group Level

(N within groups is variable. Average N = 43. There are 27 stations.)

	Weighted Average Intra-Group Correlation and Range of Correlation: Effectiv.	Weighted Average Intra-Group Correlation and Range of Correlation: Productiv.	Number of Stations with Plus or Minus Correlations: Effectiv. +	Effectiv. -	Productiv. +	Productiv. -
Subordinate satisfaction with recognition received from superior	+.196 (b) (+.637 to -.248)	+.087 (b) (+.754 to -.303)	23**	4	15	12
Immediate superior "goes to bat" for subordinates	+.169 (c) (+.554 to -.165)	+.132 (d) (+.418 to -.321)	23**	4	19**	8

Same footnote as for Table 1.

Table 3

Tests for Hypothesis Three

Relationship Between the Degree of Mutual Understanding Among Organizational Members and Individual and Group Performance

Independent Variable	Correlations for Between-Group Level (N = 27) Effectiv.	Between-Group Level (N = 27) Productiv.	Individual Level (N = 975) Effectiv.	Individual Level (N = 975) Productiv.
Men see eye-to-eye about every-day operation of station	+.470**	+.327*	+.041	+.069*
***.95 confidence intervals	(+.11,+.71)	(-.06,+.61)	(-.02,+.10)	(+.01,+.13)
Local management's understanding of employee's viewpoint	+.438**	+.311	+.061	+.132**
***.95 confidence intervals	(+.08,+.68)	(-.07,+.60)	(-.01,+.12)	(+.07,+.20)

Intra-Group Level

(N within groups is variable. Average N = 43. There are 27 stations.)

	Weighted Average Intra-Group Correlation and Range of Correlation Effectiv.	Productiv.	Number of Stations with Plus or Minus Correlations Effectiv. +	Effectiv. -	Productiv. +	Productiv. -
Men see eye-to-eye about every-day operation of the station	+.030 (c) (+.367 to -.535)	+.024 (c) (+.497 to -.497)	16	11	14	13
Local management's understanding of employee's viewpoint	+.007 (c) (+.448 to -.386)	+.131 (d) (+.415 to -.293)	18	9	21**	6

Same footnote as for Table 1.

Table 4

Tests for Hypothesis Four

Relationship Between the Degree to which Employees feel that They and Their Superiors can Influence Local Organizational Operation and Individual and Group Performance

Independent Variable	Correlations for Between-Group Level (N = 27) Effectiv.	Between-Group Level (N = 27) Productiv.	Individual Level (N = 975) Effectiv.	Individual Level (N = 975) Productiv.
Influence the men have on operations of station	+.448**	+.400*	+.041	+.144**
***.95 confidence intervals	(+.08,+.69)	(+.03,+.65)	(-.02,+.10)	(+.08,+.21)
Influence station manager has on operations of station	+.453**	+.419*	+.082*	+.130**
***.95 confidence intervals	(+.08,+.70)	(+.05,+.66)	(+.02,+.15)	(+.07,+.19)

Intra-Group Level

(N within groups is variable. Average N = 43. There are 27 stations.)

	Weighted Average Intra-Group Correlation and Range of Correlation Effectiv.	Productiv.	Number of Stations with Plus or Minus Correlations Effectiv. +	Effectiv. -	Productiv. +	Productiv. -
Influence the men have on operations of station	+.048 (d) (+.608 to -.421)	+.107 (c) (+.627 to -.321)	15	12	20**	7
Influence station manager has on operations of station	+.062 (c) (+.334 to -.455)	+.030 (c) (+.423 to -.559)	17	10	16	11

Same footnote as for Table 1.