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EFFECTS OF PERFORMANCE ON LEADERSHIP, COHESIVENESS, INFLUENCE, SATISFACTION, AND SUBSEQUENT PERFORMANCE[1]

George F. Farris and Francis G. Lim, Jr.[2]

November, 1968 #358-68

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EFFECTS OF PERFORMANCE ON LEADERSHIP, COHESIVENESS, INFLUENCE, SATISFACTION, AND SUBSEQUENT PERFORMANCE[1]

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ABSTRACT

200 management students role-played the "Change of Work Procedure" case in a study designed to determine ways in which performance affects leader behavior. Through changes in the foreman's roles, groups were assigned to a High Performance, Low Performance, or Control condition. High past performance was found to increase leader supportiveness, interaction facilitation, goal emphasis, and work facilitation behaviors, as well as member influence, group cohesiveness, and satisfaction. Thus, theories of leadership should consider performance as a cause as well as an effect of leader behavior.

Behavioral scientists (See, for example, Likert; 1961; Blake and Mouton; 1964; or McGregor; 1960) have argued strongly that leadership behavior affects the performance of subordinates. Evidence for this argument has come from a number of correlational studies, for example the work at the Institute for Social Research in the early 1950's (for example, Katz and Kahn; 1952; 1960; Katz, Maccoby, Gurin, and Floor; 1951; Katz, Maccoby, and Morse; 1950; or Likert; 1961;) and from a few experiments. In one experiment, Jackson (1953) found that when supervisors of work groups were transferred to other groups, the new subordinates perceived them in substantially the same manner as the original group. Apparently the supervisors maintained their style of leadership regardless of characteristics of the group being supervised. In another study, Day and Hamblin (1964) reported that feelings of aggression and the productivity of undergraduate women in a laboratory group varied according to two dimensions of leadership: close versus general and punitive versus non-punitive.

Although the findings of these experiments indicate that leadership can affect performance, the possibility remains that the performance of the subordinates can also affect leadership. The findings of the correlational studies of leadership can be interpreted in this way. Moreover, in a recent longitudinal study, Farris (1969) found consistently stronger relationships between performance and several aspects of "leadership climate" when performance was measured first.

"Leadership climate" appeared to follow performance more than performance followed "leadership climate."

A full understanding of leadership behavior requires that it be studied as a dependent as well as an independent variable. To the extent that performance affects leadership, causal interpretations of correlations between leadership and performance should allow for the possibility that leadership behavior is affected by performance. The present study examines experimentally the effects of performance upon four aspects of leadership behavior suggested by Bowers and Seashore (1966): Support, Interaction Facilitation, Goal Emphasis, and Work Facilitation. It was predicted that each of these four leadership factors, which have been found to be positively correlated with different measures of performance, would be caused by performance.

A second set of predictions was concerned with feelings about the group and its discussion process. It was predicted that when the leader was told that his group was "high-performing" the leader and subordinates would feel more satisfied with their group and its discussion process, more cohesive, and able to be more productive in the future, and that the subordinates would feel better able to influence the discussion process.

PREDICTIONS

Hypothesis 1. Leaders told that they have high-producing groups

will be seen by their subordinates as showing more "good leadership" behavior than leaders told that they have low-producing groups. This fundamental hypothesis of the present study is based upon the assumption that positive correlations found between performance and leadership in past studies are due in part to performance affecting leadership behavior. Performance is predicted to affect leadership in four areas:

Hypothesis 1a. Support. When compared to leaders told they have low-producing groups, leaders told they have high-producing groups will be seen by their subordinates as more sensitive to subordinates' needs and feelings, more apt to give recognition for good work, more trustful of the subordinates, less punitive and critical, and less apt to exert unreasonable pressure.

Hypothesis 1b. Goal Emphasis. When compared to leaders told they have low-producing groups, leaders told they have high-producing groups will be seen by their subordinates as more apt to let subordinates know what is expected from them, maintain high performance standards, stress group pride, and stress being ahead of the competition.

Hypothesis 1c. Work facilitation. When compared to leaders told they have low-producing groups, leaders told they have high-producing groups will be seen by their subordinates as more apt to explain suggested job changes and to allow freedom in the work but less apt to decide in detail what shall be done and to impose their own preferred solutions in problem solving.

Hypothesis 1d. Interaction facilitation. When compared to leaders told they have low-producing groups, leaders told they have

high-producing groups will be seen by their subordinates as more apt to encourage speaking out, communicate clearly and effectively, emphasize teamwork, be open to influence, and to be sensitive to differences between people.

Hypothesis 2. Subordinates in the High Performance condition will have more influence during the discussion and be more satisfied with this influence than subordinates in the Low Performance condition. No differences are predicted for leader influence according to past performance of the group. Consistent with Tannenbaum's (1967) concept of an "expanding influence pie," it is anticipated that the leaders will maintain a relatively high degree of influence for themselves regardless of past performance, but that the subordinates will be allowed more influence when their past performance has been relatively high. Past performance will affect leadership style, which in turn will affect felt influence.

Hypothesis 3. Groups in the High Performance condition will be more cohesive than groups in the Low Performance condition. In the High Performance condition the subordinates will like each other more than in the Low Performance condition, and they will be less apt to want to change groups or leaders. Moreover, the leaders in the High Performance condition will like their subordinates better and be less apt to want to change groups. Past performance will affect leadership style which will in turn affect members' attraction to their group.

Hypothesis 4. In the High Performance condition as compared to the Low Performance condition leader and subordinates will be more satisfied with each other, with the discussion, and with the solution. Subordinates will be more satisfied with their jobs and with their fellow-subordinates. This greater satisfaction is anticipated as a consequence of the "better leadership," higher total influence, and greater group cohesiveness which will occur in the High Performance condition.

Hypothesis 5. In the High Performance condition as compared to the Low Performance condition leader and subordinates will estimate greater efforts to achieve high performance and greater increases in future production. This increase in production is anticipated as a consequence of the "better leadership," higher total influence, greater cohesiveness and greater satisfaction which will occur in the High Performance condition.

METHOD

Subjects

200 persons participated in the study as members of 50 4-man groups role playing Maier's (Maier, et al., 1957) "Change of Work Procedure" case. Subjects were male graduate students in behavioral science courses at the Massachusetts Institute of Technology's Sloan School of Management and male M.I.T. undergraduates in introductory management or behavioral science courses.[3]

Task

The "Change of Work Procedure" case involves a foreman and three workers who assemble fuel pumps in an automobile company. Maier and Hoffman (1960) describe it as follows:

> The assembly operation is divided into three positions and the workers have adopted a system of hourly rotation among the three jobs. The role-playing consists of a meeting called by the foreman to discuss the possibility of their changing their work method to one in which each man works on one position only, his best position according to time study data given to the foreman. Although theoretically the new method should increase the productivity of the workers and thus increase their piece-rate wages, the foreman's suggestion of a change to the new method usually meets with considerable resistance (p. 279).

Boredom from working on only one position is an important source of worker resistance to the suggested change.

The possible solutions to the case vary in quality and conformance to the wishes of the workers and the foreman; old (favored by the workers), new (preferred by the foreman) and integrative (an innovative solution combining positive aspects of the old and new solutions). The case has been used extensively for research purposes in the past (Maier, 1953; Hoffman, 1959; Maier and Solem, 1962; Maier and Hoffman, 1960, 1961; Hoffman, Harburg & Maier, 1962).

Performance Manipulation

The 50 groups were randomly assigned to a High Performance,

Low Performance, or Control condition by modifying the figures in the time study report given to the foreman. In addition, the roles for the foremen in the High Performance condition were modified by adding the statement: "This rate of 125% of average makes it one of the ten highest producing groups out of 50 groups in the company." In the Low Performance condition foremen were told, "This rate of 75% of average makes it one of the ten lowest producing groups out of 50 groups in the company." Foremen in the Control condition and workers in all three conditions received the standard role instructions (Maier, et al., 1957). 20 groups were assigned to the High Performance condition, 20 to the Low, and 10 to the Control.

Procedure.

The multiple-role playing procedure (Maier, 1952) was used to administer the case during regular class time. The investigator read the general instructions to all groups in each class and distributed the roles to each group member, foreman and workers being assigned roles randomly. After the members had read their roles, the groups were asked to start solving the problem and to come up with a solution in twenty minutes. A two-minute warning was given at the end of eighteen minutes and all discussion ceased at the end of twenty minutes. Roles were collected and short questionnaires were administered to the foreman and three workers in each group. Each questionnaire took about five minutes to complete.

Measurements

Perceptions of the behavior of the foreman and data on some characteristics of the decision process were obtained from each worker through the questionnaires. On his questionnaire the foreman reported the solution, perceptions of the discussion, and evaluations of the workers.[4] Most items consisted of descriptive statements followed by seven-point scales and had been used in previous correlational studies of leadership and group behavior (Fleishman, Harris and Burtt, 1955; Stogdill, 1965; Likert, 1961; various questionnaire studies of the Institute for Social Research, University of Michigan). They are summarized in Tables 1 - 5.

Analysis

Several factor analyses were performed on the 18 leadership items using different samples of worker and observer data. In general these analyses supported Bowers and Seashore's (1966) four-factor theory. However, it was also possible to extract 2,3,5, and 6 orthogonal factors,[5] and some inconsistencies were found in factor structure according to the particular sample examined. For example, the item "unreasonable pressure for better performance" was more strongly associated with a Support factor for one sample and a Goal Emphasis factor for another sample. Because of these inconsistencies it was decided to report findings for individual items, grouped by their content into Bowers and Seashore's four factors. This grouping

was carried out so as to be as consistent as possible with the results of the factor analyses which were done.

In order to test the hypotheses, t-tests were performed comparing the High and Low Performance conditions. On all but three items, mentioned below, the groups in the Control condition scored between the High and Low groups or not significantly different from them. Therefore, their data are not shown below.

RESULTS

Validation of Experimental Manipulation

In order to determine whether the foremen responded to the information in their roles about the group's past performance, foremen were asked to indicate after the discussion how their groups had compared to others in the company before the discussion. On a five- point scale where five equals "much above average" the foremen in the High condition scored 4.4, while those in the Low condition scored 1.8 and the Controls scored 3.5 ($p < .001$). Apparently the people playing the role of foreman were consciously aware of their groups' past performance while the discussion was being conducted.

Hypothesis 1. Performance Affects Leadership. Subordinate perceptions of leader behavior are summarized in Table 1. Of 18 items describing leader behavior, results for 16 are in the predicted

direction, and results for 11 items are statistically significant at the .05 level of confidence. Performance apparently affects a wide variety of leader behaviors. Examination of the four areas of leader behavior shows that these general findings hold for all areas, but that differences between high and low performance appear to vary according to area. Past performance appears to have its greatest effects on support and its least effects on work facilitation, with goal emphasis and interaction facilitation being about equally susceptible to influence by past performance. Leaders told that their groups are high-performing are significantly more apt than leaders told that their groups are low-performing to be seen by their subordinates as sensitive, giving recognition, trusting, nonpunitive, exerting less unreasonable pressure for performance, maintaining high performance standards, stressing a feeling of pride in the group, allowing freedom, encouraging speaking out, communicating clearly, and emphasizing teamwork.

Hypothesis 2. Performance Affects Influence. Table 2 shows that Hypothesis 2 was strongly supported. In the High condition subordinates felt they had more influence in the discussion and were more satisfied with their influence than subordinates in the Low condition. No differences were found in leader influence or satisfaction with influence according to past performance. The leaders perceived that two of the three subordinates had more

influence in the High Performance condition and one had more influence in the Low Performance condition. Apparently Tannenbaum's (1967) notion of the expanding influence pie holds in this study. With high past performance subordinates' influence increased while the leader's influence remained constant.

Hypothesis 3. Performance Affects Cohesiveness. Table 3 shows that in the High Performance condition subordinates liked each other better and wanted less to change foremen than subordinates in the Low Performance condition. In neither condition were subordinates very disposed toward working with a different group of colleagues. Leaders in the High Performance condition tended to like their subordinates more and were much less prone to change work groups. Apparently past performance affects attraction to a group, and especially leader-member attraction. Probably this effect of performance on cohesiveness occurs through its effect on leader behavior, which in turn affects cohesiveness.

Hypothesis 4. Performance Affects Satisfaction. Table 4 shows that subordinates in the High Performance condition were significantly more satisfied with their fellow workers, their foreman, the discussion, and the solution than subordinates in the Low Performance condition. Subordinates in the High Performance condition also tended to be more satisfied with their jobs. The leader was significantly more satisfied with his work group and tended to be more satisfied with

the discussion and solution in the High Performance condition. Apparently past performance affects satisfaction, probably through its influence upon leader behavior.

Hypothesis 5. Performance Affects Future Production. Table 5 shows that in the High Performance condition, both the leaders and subordinates saw their groups as trying harder to achieve high performance than in the Low Performance condition, and the leaders in the High condition thought that their groups would maintain a higher standing in overall company performance. However, no significant differences were found according to experimental condition in changes anticipated in future production. These findings lead one to suspect that the differences obtained were due largely to the initial "set" about group performance created by the experimental instructions rather than to the discussion process itself. Had the discussion process affected feelings about future production, differences would have occurred according to experimental condition in anticipated changes in future production as well as in the relative standing of the groups in the company.

This interpretation is supported by a tabulation of solutions to the case produced by the groups in each experimental condition. The High Performance groups produced 7 high quality integrative solutions and 13 lower quality old and new solutions. The Low Performance groups produced 10 integrative solutions and 10 lower quality solutions. Thus, no significant differences occurred in

solution quality (and therefore probable future performance) according to past performance, and the tendency was for low past performance to be associated with a higher quality solution.[6]

Control Groups

In all but three instances the groups which received the standard instructions scored between the groups in the High and Low conditions or not significantly different from them. These findings add support to the validity of the experimental manipulations. In both experimental conditions the leader placed more stress on being ahead of the competition than in the control condition, as one would expect. However, in the control condition the leader was more apt to decide in detail about work activities, and the subordinates estimated that their future production would change less favorably than in either experimental condition. These differences are not readily explainable and may have been due to chance.

A Crude Re-examination of Fiedler's Theories

An important aspect of Fiedler's (1965) theories of leadership is the ability of the effective leader to be sensitive to differences between people. Two types of information were available in this study which allowed a crude test of whether this leadership trait is caused by past group performance. First a comparison was made between the High and Low performance conditions in the leader's being "sensitive to differences between people." (See Table 1.)

Leaders who were told that they had high-performing groups were seen by their subordinates as more sensitive to differences between people, but this difference did not quite reach the .05 level of significance ($p = .06$).

Several items in the leader's questionnaire asked him to rate his three subordinates on 7-point scales on four characteristics: being an idea man, being a trouble maker, having influence in the discussion, and promotability. A tabulation was made of differences each leader saw between his subordinates on each of these scales. A comparison of leaders in the High and Low performance conditions showed no differences on the average in the extent to which they saw differences between their men. A tendency occurred in only one instance for past performance to affect the leader's sensitivity of differences between his men. Leaders in the Low Performance condition saw greater differences between their men as trouble-makers than did leaders in the High Performance condition. Taken together these two analyses suggest, but certainly do not demonstrate, that a leader's sensitivity to differences between people may be in part due to the past performance of his subordinates as a group.

Comparison with Day and Hamblin's Findings

Day and Hamblin (1964) found differences in group productivity as a consequence of two dimensions of leadership which they varied experimentally: closeness and punitiveness. In the present study measurements were made of several characteristics of leader behavior

dealing with closeness of supervision (e.g., unreasonable pressure, decides in detail, imposes own solution, allows freedom, encourages speaking out) and punitiveness (is punitive, sensitive to needs and feelings, gives recognition for good work, stresses group pride). Our findings indicate that performance affects leader behavior on these dimensions of closeness and punitiveness (See Table 1). Together with those of Day and Hamblin they show that performance both causes and is caused by these characteristics of leadership.

DISCUSSION

The findings of this study show that past performance affects most aspects of leader behavior, especially his support, interaction facilitation, and goal emphasis. Moreover, high past performance and the resulting leader behavior are associated with greater subordinate influence in decision making, greater group cohesiveness, and higher satisfaction. No clear relationships were found between past performance, associated leader behavior, and estimates of subsequent changes in group performance.

Although these findings are based upon a laboratory experiment involving role playing, two factors suggest that they may be generalized to "real-world" leadership situations. First, the particular case employed was designed to simulate a real situation and has been used extensively in previous research. Second, the results of this study are consistent with those of a recent longitudinal field study by

Farris (1969) which found stronger relationships between performance and organizational factors when performance was measured first.

To the extent that these findings can be generalized, they indicate that we should extend our theories of leadership and leadership training practices to account for ways in which leader behavior can (and perhaps should) occur as a consequence of past performance. Moreover, we should be especially careful in interpreting single-point-in-time correlations between leadership and performance as indicating that leadership causes performance. Clearly the causal direction can be the other way as well.

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FOOTNOTES

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2. The authors are grateful for the assistance of Eldon E. Senner and James R. Stinger in various phases of this research. A portion of this research is based upon a dissertation submitted in partial fulfillment of the requirements for the Master of Science degree by the junior author in June, 1968.

3. The authors are grateful to Thomas J. Allen, William H. Gruber, David A. Kolb, Donald G. Marquis, and Irwin M. Rubin for allowing their classes to participate in the study.

4. In 24 of the groups (12 High Performance and 12 Low Performance), an additional student was randomly assigned to serve as an observer and complete a questionnaire virtually identical with that of the workers. Results from these untrained observers were very similar to those of the workers in describing foreman behavior, but quite different in questions which ascribed feelings to the foreman and workers. For details, see Lim,(1968).

5. When two factors were extracted, the first appeared to be a combination of Interaction Facilitation and Support, while the second combined Goal Emphasis and Work Facilitation. When three factors were extracted, they appeared to be (1) Interaction Facilitation and Support, (2) Goal Emphasis, and (3) Work Facilitation and Close Supervision.

6. This tendency reached statistical significance for the first 24 groups who participated in this study (see Lim, 1968), but was reversed for the last 16 groups. We are currently attempting to determine reasons for these differences.

Table 1

HYPOTHESIS 1. LEADER BEHAVIOR AS A FUNCTION OF PAST PERFORMANCE

Behavior Characteristic	Mean Amount of Behavior Characteristic: Past Performance High	Past Performance Low
Support		
Sensitive to needs and feelings of workers	5.1	4.2*
Gives recognition for a job well done	4.2	2.9***
Has trust and confidence in his men	5.1	4.2**
Punitive or critical of group's performance	1.8	3.6***
Exerts unreasonable pressure for better performance	2.8	3.5*
Goal Emphasis		
Lets group members know what is expected of them	4.2	4.4
Maintains high performance standards	5.1	3.9***
Stresses a feeling of pride in the group	4.6	3.1***
Stresses being ahead of competing work groups	4.6	3.9
Work Facilitation		
Gives reasons for suggested changes on the job	5.3	4.9
Allows members freedom and autonomy in their work	4.8	4.1*
Decides in detail what shall be done and how	2.4	2.8
Tries to impose his preferred solution on the group	4.2	4.2
Interaction Facilitation		
Encourages speaking out and listens with respect	5.5	4.9*
Communicates clearly and effectively	4.8	4.1*
Emphasizes that people work together as a team	4.0	3.3*
Open to influence from his workers	4.8	4.6
Sensitive to differences between people	4.0	3.4

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

Table 2

HYPOTHESIS 2, INFLUENCE AS A FUNCTION OF PAST PERFORMANCE

Measure of Influence or Satisfaction with Influence	Mean Amount of Influence or Satisfaction with Influence: Past Performance High	Past Performance Low
Subordinate perception of own influence	4.6	4.2*
Leader perception of Worker #1's influence	4.2	5.4
Leader perception of Worker #2's influence	4.5	4.2
Leader perception of Worker #3's influence	4.8	4.0*
Subordinate satisfaction with own influence	5.2	4.5**
Leader's perception of own influence	4.6	4.8
Subordinates' perception of foreman's influence	4.1	3.8
Leader's satisfaction with own influence	4.1	4.4

*$p < .05$
**$p < .01$

Table 3

HYPOTHESIS 3. COHESIVENESS AS A FUNCTION OF PAST PERFORMANCE

Statement	Mean Agreement with Statement: Past Performance High	Low
By Subordinates:		
I like the workers in my group	6.2	5.9*
If same work with different group, I'd move	1.9	2.0
If same work under different foreman, I'd move	2.5	3.2*
By Leaders:		
I like the men with whom I work	5.2	4.6
If supervise different group, same work, I'd move	2.2	4.0***

*$p < .05$
***$p < .001$

Table 4

HYPOTHESIS 4. SATISFACTION AS A FUNCTION OF PAST PERFORMANCE

Satisfaction with	Mean Amount of Satisfaction: Past Performance High	Low
By Subordinates:		
Fellow workers	6.1	5.6**
Foreman	5.3	4.6*
Job	5.5	5.1
Discussion	4.6	3.8*
Solution	5.5	4.8**
By Leader:		
Work group	5.5	3.8***
Discussion	5.1	4.4
Solution	5.2	4.7

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

Table 5

HYPOTHESIS 5. FUTURE PRODUCTION AS A FUNCTION OF PAST PERFORMANCE

Estimate	Mean Estimate Past Performance	
	High	Low
By Subordinates:		
Group tries hard to achieve high performance	5.3	4.6**
Changes in individual production	3.5	3.5
Changes in future production of group	3.7	3.7
By Leader:		
Group tries hard to achieve high performance	4.5	2.8***
Future performance standing of group in company	4.6	2.8***
Changes in future production of group	4.0	3.9

**$p < .01$
***$p < .001$

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