

Relationships between Leader-subordinate Communication and Outcomes in Research Teams : A Leadership Application

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ABSTRACT

The relationships among leadership, leader-subordinate interpersonal communication and outcomes in research teams were investigated for six research institutes sponsored by the Korean Government. Consideration and initiating structure of leader behavior were used as leadership dimensions. Subordinate satisfaction with supervision and with work, and project success were considered as outcomes in a research team.

Leader-subordinate interpersonal communication was positively related to both of consideration and initiating structure of leader behavior. Outcomes in a research team were differently related to leader-subordinate communication according to leadership types.

INTRODUCTION

Organization is defined as a human group interacting with each other for common goals or as a network of interdependent relationships. It is composed of a leader and subordinates who are classified by the difference of power and responsibility of people within the group. Leadership is defined as the behavioral process of influencing individuals or groups toward set goals or as goal-directed

interpersonal communication (Baskin & Aronoff, 1980).

From the above definitions of organization and leadership, it becomes clear that leadership, leader-subordinate interpersonal communication and outcomes in a research team are closely related to one another. A number of studies have been conducted to identify the characteristics of leadership and leader-subordinate communication. However studies on the relationships among leadership, leader-subordinate communication and outcomes in a research team as a whole are rare and most studies on leadership and leader-subordinate communication have been conducted in advanced countries. In addition, prior studies indicate that a difference in culture makes a difference in leadership and communication (Oh, 1982).

In this study, relationships among leadership, leader-subordinate interpersonal communication, and outcomes in terms of subordinate satisfaction and project success in a research team were empirically investigated for research institutes sponsored by the Korean Government.

Leader-subordinate communication is vertical communication either from leader to subordinates or vice versa, and includes formal or informal communication. Most of the studies on communication between a leader and his subordinates have focused on formal, vertically downward and instrumental (job-related) communication (Price & Mueller, 1986). However, it is expected that not only formal, downward and instrumental but also informal, upward and expressive (non-job related) communication are also affected by leader behavior. Moreover, it is expected that informal, upward and expressive communication are also important for outcomes in research teams as well as the other communication. In this paper, leader-subordinate communication includes downward or upward, formal or informal, and instrumental or expressive communication.

Job satisfaction can be defined as the feelings a worker has about his job and can be distinguished as five dimensions of work, supervision, pay, promotions, and

coworkers (Price & Mueller, 1986). In this article, subordinate satisfaction with supervision and with work are considered as dimensions of job satisfaction in a research team because it is expected that the two dimensions are much influenced by leader-subordinate communication in a research team. Subordinate satisfaction with supervision includes supervisory style and influence, technical adequacy, human relations and administrative skills. Subordinate satisfaction with work includes intrinsic interest, variety, opportunity for learning, difficulty, amount, chances for success and control over work flow (Locke, 1976).

The two dimensions of subordinate satisfaction, and project success are considered as dimensions of outcomes in a research team. Project success is defined as the extent that the subordinate himself perceived the efficacy of the project which his team conducted recently, based on the argument that the bottom-line indicator of project success is whether key personnel associated with the project are satisfied with the overall results, and that such factors as controlling costs and meeting the schedule ultimately take a back seat to this global appraisal (Larson & Gobelli, 1989).

This research addresses the following three research questions on relationships among leadership, leader-subordinate communication and outcomes in a research team:

Question 1. What are the relationships between leadership style and leader-subordinate interpersonal communication?

Question 2. What are the relationships between leadership style and outcomes?

Question 3. What are the relationships between leader-subordinate communication and outcomes? More specifically, under a given leadership style, how does leader-subordinate communication influence outcomes?

METHOD

Sample

The data for the study were collected from individuals of small project teams of six, research institutes sponsored by the Korean Government. The sample size for each institute was determined considering the number of its researchers and research teams. The respondents of each institute were randomly selected from as many research teams as possible and all respondents were assured of anonymity.

Hypotheses

The following four hypotheses were tested to answer the above-mentioned research questions on the relationships among leadership, leader-subordinate communication and outcomes in a research team.

Hypothesis 1. Leader-subordinate interpersonal communication in a research team is positively related to the two dimensions of leadership - consideration and initiating structure.

Hypothesis 2. Performance in a research team in terms of subordinate satisfaction with supervision and with work and project success is positively related to the two leadership dimensions.

Hypothesis 3. Leadership style makes a difference in leader-subordinate interpersonal communication and in each dimension of outcomes in a research team.

Hypothesis 4. Each dimension of outcomes in a research team is positively related to leader-subordinate interpersonal communication and their relationships are different according to the leadership style.

Instrument

To measure leader-subordinate interpersonal communication, a scale modified from the instrument developed by Penley & Hawkins (1985) was prepared. The communication scale composed of 22 items measures the extent that leaders or

subordinates communicate information each other.

The Leader Behavior Description Questionnaire (LBDQ) Form XII (Stogdill, 1963) were used to measure consideration and initiating structure. Subordinate satisfaction with supervision and with work were measured by the scale modified from the instrument developed by Smith et al. (Price & Mueller, 1986). Project success was measured by a scale consisting of eight items indicating the extent to which subordinates themselves perceived the efficacy of the project which their team conducted recently. All instruments to measure leadership, leader-subordinate communication and outcomes of a research team consist of the seven-point Likert scale multi-items.

Analysis

To test the relationships between leader-subordinate communication and leadership (Hypothesis 1), and the relationships between outcomes in a research team and leadership (Hypothesis 2), two-way analysis of variance (ANOVA) was used. Leaders can be classified according to the scores for their consideration and initiating structure, using the Ohio State scales (Stogdill, 1963).

To test difference according to leadership style in leader-subordinate interpersonal communication and in each dimension of outcomes in a research team (Hypothesis 3), Scheffe's test was applied. The whole sample was divided into four groups according to two-by-two categorization of leader behavior, and then regression analysis was applied to each subsample to test the relationships between each dimension of outcomes and the communication in a research team (Hypothesis 4).

RESULTS AND DISCUSSION

Table 2 reports two-way ANOVA results of the relationships between the two dimensions of leadership and leader-subordinate communication (Hypothesis 1) and between the leadership dimensions and each dimension of outcomes (Hypothesis

2). This table includes two main effects of consideration and initiating structure as well as an effect that is due to interaction of the two variables.

For leader-subordinate communication, the two main effects accounted for significant differences among the four groups defined by the possible combinations of high and low consideration and initiating structure of leader behavior and there was no significant univariate F for the interaction effect in Table 2. The results shown in Table 2 suggest that leader-subordinate communication is positively related to both consideration and initiating structure of leader behavior, and consideration more influences leader-subordinate communication than initiating structure does.

For each dimension of outcomes in a research team (Hypothesis 2), the results shown in Table 2 suggest that (1) subordinate satisfaction with supervision is positively related to both of consideration and initiating structure of leader behavior, (2) subordinate satisfaction with work is positively related to initiating structure but not significantly related to consideration of leader behavior, and (3) project success is positively related to both dimensions of leader behavior.

Table 2 also reports ONEWAY results of relative effectiveness of different leadership types provided by the Scheffe's test for significant difference between pairs of group means (Hypothesis 3).

Leadership style was significantly related to leader-subordinate communication and to each dimension of outcomes in a research team, and made a difference in leader-subordinate communication, and subordinate satisfaction and project success among leadership types (Hypothesis 3).

Table 2. Results from ANOVA and ONEWAY Analysis of the Relationships between Leadership, and Leader-subordinate Communication and Outcomes

Dependent Variable	Cell Means								Two-way ANOVA (F)			ONEWAY	
	Low C		High C		Low S		High S		C	S	CxS	F Value	Scheffe Results ^a
	Type I (n=71)	Type II (n=29)	Type III (n=27)	Type IV (n=72)	Type I (n=71)	Type II (n=29)	Type III (n=27)	Type IV (n=72)					
Communication	3.43 (0.91)	3.77 (0.95)	4.60 (0.80)	5.13 (0.76)	88.8**	10.6**	0.5	52.2**	I, II < III < IV				
(Outcomes) Supervision Satisfaction	3.19 (0.92)	3.74 (0.73)	4.75 (0.77)	5.20 (0.85)	127.4**	13.9**	0.2	73.4**	I < II < III, IV				
Work Satisfaction	3.89 (1.31)	4.36 (1.07)	3.77 (1.38)	4.67 (1.13)	0.2	12.5**	1.2	6.2**	I, III < IV				
Project Success	4.39 (1.03)	4.86 (0.77)	4.77 (0.96)	5.34 (0.66)	9.7**	14.6**	0.1	14.4**	I, III < IV				

a: Significant differences between pairs of group means at the .05 level.

n: Number of Cases

(): Standard Deviation

C: Showing Consideration

S: Initiating Structure

CxS: Interaction of Showing Consideration (C) and Initiating Structure (S)

** : p < 0.01

Table 3 reports results regression analysis of the relationships between leader-subordinate communication and each dimension of outcomes in a research team (Hypothesis 3). Each dimension of outcomes was positively related to leader-subordinate communication, for entire sample, and differently related to the communication according to leadership styles.

Table 3. Regression Results of the Relationships between Communication and Outcomes in a Research Team

Dependent Variable	Leadership Type	Communication			R ²
		B	β	Const.	
Supervision Satisfaction	Entire Sample	0.78	0.72**	0.89	.51
	Type I (Low C, Low S)	0.43	0.43**	1.71	.18
	Type II (Low C, High S)	0.48	0.62**	1.93	.39
	Type III (High C, Low S)	0.35	0.37*	3.12	.14
	Type IV (High C, High S)	0.52	0.47**	2.51	.22
Work Satisfaction	Entire Sample	0.36	0.32**	2.66	.10
	Type I (Low C, Low S)	0.37	0.26*	2.63	.07
	Type II (Low C, High S)	0.54	0.48*	2.32	.23
	Type III (High C, Low S)	0.28	0.16	2.47	.03
	Type IV (High C, High S)	0.30	0.20	3.10	.04
Project Success	Entire Sample	0.38	0.45**	3.24	.20
	Type I (Low C, Low S)	0.32	0.29*	3.28	.08
	Type II (Low C, High S)	0.14	0.17	4.35	.03
	Type III (High C, Low S)	0.35	0.29	3.17	.08
	Type IV (High C, High S)	0.26	0.30*	3.98	.09

*: $p < 0.05$

** : $p < 0.01$

CONCLUSION

The overall results suggest that (a) leader-subordinate communication in a research team is positively related to the two dimensions of leadership, (b) subordinate satisfaction with supervision in a research team is positively related not only to the two dimensions of leadership but also to leader-subordinate interpersonal communication for any leadership style, (c) subordinate satisfaction with work in

a research team is positively related not only to initiating structure of leader behavior but also to leader-subordinate interpersonal communication under low consideration of leader (Type I & II). (d) project success in a research team is positively related not only to the two dimensions of leadership but also to leader-subordinate interpersonal communication for Type I (low C, low S) and Type IV (high C, high S) leader. The results of the study indicate that leadership, leader-subordinate interpersonal communication and outcomes in a research team are closely associated with one another as hypothesized.

One of the major findings of this study is that subordinate satisfaction and project success in a research team are significantly related to not only leadership but also leader-subordinate communication and they are differently influenced from leader-subordinate communication according to leadership types. This result suggests that outcomes in a research team can be made better by improving communication between a leader and his subordinates even under given leadership style.

This study extends the present scope of organizational communication literature in R&D settings by integrating leader-subordinate communication, leadership and outcomes. However, this study, cross-sectional and correlational in nature, was unable to capture in a systematic manner the dynamic nature of the relationships among leader-subordinate communication, leadership and outcomes in a research team. Furthermore, many situational factors- such as characters of task and subordinates, and organizational culture- which are believed to moderate the relationships between leader-subordinate communication and outcomes, were not investigated in this study.

Therefore, the relationships found in this study should be considered as exploratory and should not be generalised in other research settings before further systematic investigation is undertaken in different situations.

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