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MEANING AND FUNCTION OF MILITARY EXPERIENCE

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for

Contracting Officer's Representative
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| 20. ABSTRACT (Continue on reverse side if necessary and identify by block number) A recently-proposed "cognitive resource" theory of leadership effectiveness explains the role of cognitive resources such as intellectual abilities, technical competence, and job-relevant knowledge (experience) in determining group performance. This research note examines one aspect of the theory: the conditions under which the leader's intellectual abilities and experience contribute to performance on the part of the group. Empirical evidence suggests that leaders' intellectual abilities contribute to (over) | | |

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20. ABSTRACT

performance when leaders play a directive role in relatively stress-free conditions, and when their abilities match the requirements of the task. Under stress, however, leaders fall back on previously-learned skills and behaviors i.e. on experience gained in the course of time in the organization.



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MEANING AND FUNCTION OF MILITARY EXPERIENCE

Aims of the Project

The major aim of this project is the development of a new leadership theory which fills some major gaps in our current understanding of leadership. "Cognitive Resource Theory" postulates the conditions under which the intellectual abilities, technical competence, skills, and job-relevant knowledge of leaders and group members contribute to organizational performance. The theory proposes an integrated model of how leadership performance is affected by the several elements of the leadership process. These elements are such cognitive abilities as intelligence, task-relevant skills and knowledge, leader personality and behavior as well as the leadership situation. The work promises to have major practical as well as theoretical implications. Most important among the former is that a better understanding of the conditions under which intellectual abilities and other cognitive resources are utilized will enable us to make more efficient and cost-effective use of available manpower. The implications for theory are that this is the first systematic attempt to introduce intellectual abilities and other cognitive variables into a theory of leadership which is related to an existing and well established theory, the contingency model.

Background

We recruit and select leaders and group members at great expense, and we devote an even greater portion of our resources to training and personnel development. It is obvious that the abilities for which we select, and the skills we develop, are often poorly utilized. The project has produced further evidence extending our understanding of the leadership process in organizations.

The work has progressed at a relatively rapid pace, given the available resources. One laboratory experiment nears completion. We have completed a pilot study for another experiment which is to be conducted this fall, and extensive analyses have been undertaken on previously conducted research. This report summarizes the more important findings and briefly describes work in progress. The hypotheses of cognitive resource theory are here briefly presented.

Predictions of the Theory

Cognitive resource theory advances seven major hypotheses:

- (a) intellectual abilities determine the quality of the leader's plans, decisions and strategies.
- (b) directive leader behavior is required for communicating the leader's plans, decisions and action strategies to the group;
- (c) a supportive group will implement these plans, decisions and strategies;
- (d) the group will be effective to the extent to which the leader and group members possess the particular abilities the task requires.

- (e) the leader's directive behavior is in part determined by the interaction of the leader's task or relationship-motivation (LPC) and situational control, i.e., the contingency model.
- (f) If the leader is not directive, the abilities of supportive group members contribute to performance.

The theory further postulates that

- (g) stress, especially with the boss, distracts the leader and focuses the leader's intellectual abilities on problems (e.g., anxieties about his or her adequacy) not relevant to the task. Under these conditions, a directive leader's intellectual abilities will correlate negatively with task performance, while the leader's job-relevant and overlearned knowledge ("experience") correlates positively with performance.

Major Activities

Study 1.

An ongoing laboratory experiment tested 40 3-person and 4-person teams. They were to assume that their hypothetical aircraft made an emergency landing in the middle of a desert. The survivors find various items in the plane and they are required to rank these 10 items that are most likely to assure their survival. The leader was privately instructed to play a directive or nondirective role, and either given or not given technical information of the value of the 10 listed articles.

This experiment is the dissertation project of CPT Dewey Blyth, now at West Point, and a master's thesis project of Susan Murphy, and is being written up at this time.

Study 2. Leaders who are more intellectually able make better plans and action strategies under conditions of low stress.

A preliminary test based on data from a previous study by Mai-Dalton, enabled us to determine whether relatively more intelligence leaders make more task-relevant responses. The study asked participants to role-play their part under supposedly stressful or less stressful conditions. This study provided weak but significant results in the expected direction.

We are now planning a laboratory experiment, using an In-Basket test, to explore this problem with stronger stress manipulations and more sophisticated measures of mental abilities and social skills. We hope to use ROTC cadets as subjects this coming fall.

Study 3. Prediction of leader behavior.

One of the hypotheses advanced by cognitive resource theory states that the leader's directive behavior is predicted by the interaction of the leader's LPC score and situational control. Data from five different studies have been analyzed to test this prediction. The studies were of (a) 48 army messhalls, (b) 105 army squad leaders, (c) 40 public health volunteer teams, (d) 40 4-man ROTC teams which had to decipher as many coded messages (cryptograms) as possible in a 30-minute period, and (e) 54 3-man teams of ROTC cadets engaged in two creative tasks (developing a new basis for paying ROTC cadets, and inventing a fable to illustrate the need for a standing peace-time army).

We found that task structure played a major role in determining the magnitude and direction of the correlation between LPC and the leader's directive behavior. The analysis involved the following steps.

1. The structure of the group task was rated in each of the studies by five independent raters.
2. Four sub-groups of leaders were created in each of the studies by dividing both intelligence scores and situational scores at the median. The

four-celled design is shown in Figure 1 below.

Figure 1

The four cell experimental design of Study 3

| | | INTELLIGENCE | |
|------------------------|------|--------------|-----|
| | | High | Low |
| SITUATIONAL CONTROL | High | : | : |
| | Low | : | : |

When the studies were arrayed on the basis of their task structure, we found that the correlation coefficients between leader LPC and directive behavior decreased monotonically from most structured to least structured group tasks (messhall, squad leaders, cryptogram, public health teams, ROTC creativity tasks.) The resulting curve is shown on Figure 2. This figure shows the magnitude of the correlations between leader's LPC score and the leader's directive behavior on the vertical axis, and the type of group on the horizontal axis.

The LPC score of leaders predicted the behavior of the relatively more intelligent leaders in each sample, but did not predict directive behavior of relatively less intelligent leaders. Further analyses are underway.

Figure 2

FIGURE 2

CORRELATIONS (z) BETWEEN INTELLIGENCE AND PERFORMANCE

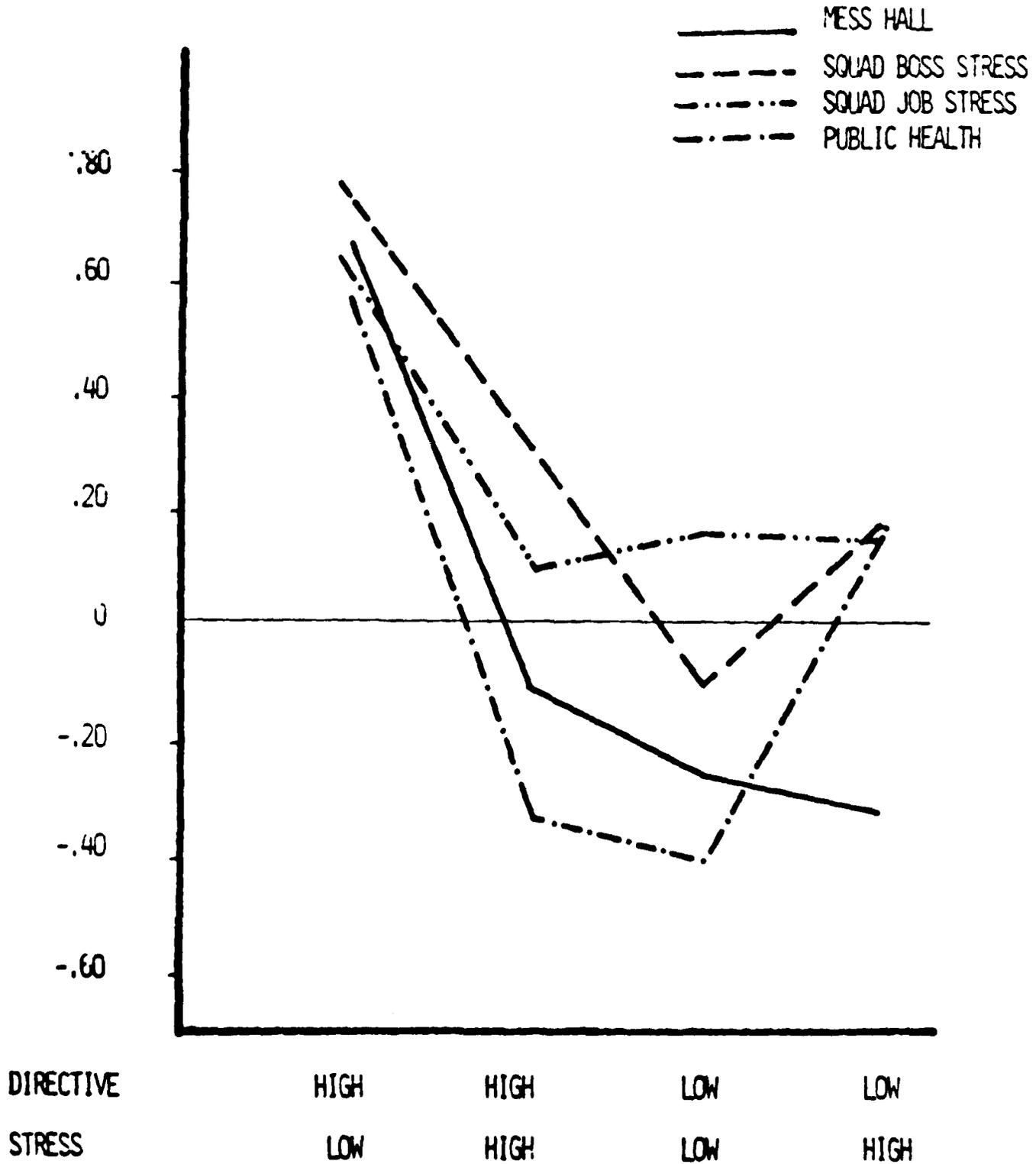


FIGURE 2. Correlations (in z-transforms) between leader intelligence scores and performance of leaders or groups led by relatively directive and less directive leaders in relatively stress-free and stressful environments.

Study 4. Conditions under which leader and member abilities appear incompatible in contributing to performance.

The previous quarterly report showed that the intellectual abilities of leaders contributed to group performance only when the leader was directive and had high situational control. Leader abilities of nondirective leaders did not contribute to performance, nor did the abilities of leaders who lacked group support or situational control.

Thus, leader intelligence contributed to performance in only one fourth of the groups. A similar analysis considered the conditions under which the abilities of group members contribute to performance. Our findings thus far indicate that the group members' intellectual abilities contributed only when the leader is (a) nondirective and (b) has high situational control (e.g., a supportive group). These effects were relatively weak. The average correlations between performance and the leader's and the group members' intelligence within the four conditions (refer to Figure 1) are shown on Table 1. Note that this table summarizes the results of four different studies.

Table 1

Correlations averaged over four studies between performance and the leader's and the group members' intelligence in groups with directive or nondirective leaders, and high or low group support.

| | <u>Directive Leader</u> | | <u>Nondirective Leader</u> | |
|-------------------------|-------------------------|-------------------|----------------------------|-------------------|
| | Group Support High | Group Support Low | Group Support High | Group Support Low |
| Leader IQ x Performance | .58 | .16 | -.34 | .02 |
| Member IQ x Performance | -.04 | -.21 | .38 | .07 |

In other words, the leader's abilities contributed only when the leader was directive and had high group support; the group member abilities also contributed in only one of the four conditions: when the leader was non-directive and group support was high, (e.g., high control). Members' abilities were effectively utilized only in groups with nondirective leaders and high member support (also high situational control).

Discussion

This research program makes possible the development of new approaches for supplementing and increasing the power of present selection and training efforts. It is now highly likely that we shall be able to develop methods for increasing the performance of already available personnel by teaching them how to design their jobs and their immediate work environment so that they can make full use of their abilities, competence, and experience. Methods for teaching leaders how to modify their jobs and leadership environment have been successful in improving leadership performance.

Most current theories largely ignore the leader's or the group members' abilities and job-relevant knowledge in their formulation of the group process, even though leader abilities and job-related experience are probably the two most important determinants of selection and promotion decisions. (An exception is recent work on cognitive complexity by Streufert). Our own studies also are now utilizing more sophisticated measures of intellectual functions.

Current research is under way to elaborate the cognitive resource model, and to incorporate such other cognitive variables as technical competence and experience. We propose to conduct further experiments to make specific and more definitive tests that permit causal interpretation.

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