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The Impact of Intelligence and Experience On the Performance of Army Line and Staff Officers

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26 May 1979

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A thesis submitted to the University of Washington in partial fulfillment of the requirements for the degree of Master of Science, Social Psychology

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SECURITY CLASSIFICATION OF THIS PAGE *(When Data Entered)*

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
4. TITLE *(and Subtitle)* THE IMPACT OF INTELLIGENCE AND EXPERIENCE ON THE PERFORMANCE OF ARMY LINE AND STAFF OFFICERS		5. TYPE OF REPORT & PERIOD COVERED Thesis-Master of Science Social Psychology
		6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s) Mitchell McGeever Zais Captain, Infantry, U.S. Army 265-80-7278		8. CONTRACT OR GRANT NUMBER(s)
9. PERFORMING ORGANIZATION NAME AND ADDRESS Student, HQDA, MILPERCEN (DAPC-OPP-E) 200 Stovall Street, Alexandria, VA 22332		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
11. CONTROLLING OFFICE NAME AND ADDRESS HQDA, MILPERCEN, ATTN: DAPC-OPP-E 200 Stovall Street Alexandria, VA 22332		12. REPORT DATE 25 May 1979
		13. NUMBER OF PAGES 108
14. MONITORING AGENCY NAME & ADDRESS *(if different from Controlling Office)*		15. SECURITY CLASS. *(of this report)* Unclassified
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE

16. DISTRIBUTION STATEMENT *(of this Report)*

Approved for public release: Distribution unlimited

17. DISTRIBUTION STATEMENT *(of the abstract entered in Block 20, if different from Report)*

18. SUPPLEMENTARY NOTES

19. KEY WORDS *(Continue on reverse side if necessary and identify by block number)*

Line
Staff
Performance
Stress
Experience
Intelligence

20. ABSTRACT *(Continue on reverse side if necessary and identify by block number)*

This study investigates the impact of intelligence and experience on the performance of Army line commanders and staff officers, as well as the degree to which these relationships are moderated by the subordinate's perception of stress in his relationship with his boss. A model is postulated which provides an explanation for the inconsistent and variable correlations between intelligence and performance obtained in numerous organizational studies.

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Unclassified

SECURITY CLASSIFICATION OF THIS PAGE *(When Data Entered)*

(6) The Impact of Intelligence and Experience on the Performance of Army Line and Staff Officers.

by

(10) Mitchell McGeever Zais

A thesis submitted in partial fulfillment
of the requirements for the degree of

(9) Master's thesis, ~~Master of Science~~ (12) 442 p.

University of Washington

1979

Approved by _____

(Chairperson of Supervisory Committee)

Program Authorized
to Offer Degree Psychology

Date (11) 25 May ~~29~~79

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Abstract

THE IMPACT OF INTELLIGENCE AND EXPERIENCE ON THE PERFORMANCE OF ARMY LINE AND STAFF OFFICERS

By Mitchell McGeever Zais

Chairman of the Supervisory Committee: Professor Fred E. Fiedler
Department of Psychology

This study investigates the impact of intelligence and experience on the performance of Army Line commanders and staff officers, as well as the degree to which these relationships are moderated by the subordinate's perception of stress in his relationship with his boss. A model is described which provides an explanation for the inconsistent and variable correlations between intelligence and performance obtained in numerous organizational studies.

The subjects in this study consisted of 45 line company commanders and 47 battalion staff officers from nine Army battalions whose performance was evaluated by their immediate superior, the battalion commander.

It was shown that intelligence and performance were positively correlated for line officers and negatively correlated for staff officers. The opposite effect was found for experience which was negatively correlated with performance for line officers and posi-

tively for staff officers. The best line officers were bright and inexperienced while the best staff officers were less intelligent but experienced.

Under low stress with boss, intelligence and performance were positively correlated for line personnel, while for staff officers, intelligence and performance were unrelated. Conversely, under high boss stress, intelligence had no impact on line officer performance but for staff officers was negatively correlated with performance.

Experience was found to interact with boss stress in exactly the opposite manner as intelligence. Under low boss stress experience and performance were negatively correlated for line officers and uncorrelated for staff officers. However, under high boss stress experience had no effect on line officer performance but was positively correlated with performance for staff officers.

These results were explained through analysis of the work demands for line and staff positions. In this sample, staff work requires rigid adherence to regulations, and standard operating procedures. The staff officer is viewed as an extension of his boss's will and any leaway for innovation is subsumed by the boss. Further, the need for standardization of staff procedures across diverse and widespread military units mandates strict adherence to uniform procedures. The staff officer is effective to the degree that he follows and knows the dictates of these procedures (experience) and ineffective to the degree that he creatively innovates within his job (intelligence).

The line commander's job is characterized by high demands for creativeness. His primary responsibilities are the building of unit morale, motivation and esprit-de-corps; establishment and maintenance of military order and discipline, publication and enforcement of policies and standards, development and implementation of training plans, and the efficient allocation and utilization of his subordinate personnel. His intelligence may thus aid him in the accomplishment of his job, while experience may be a hinderence as it may suggest solutions to past problems that are not compatible with present situations.

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ACKNOWLEDGMENTS

I would like to thank Dr. Fred E. Fiedler, Chairman of my supervisory committee, for his astute direction, understanding support, and for his friendship these past two years. Thanks are also due to the members of my supervisory committee, Drs. John P. Keating, Andrew R. Davidson, John A. Drexler and Charles Hill, for their support and cooperation. Additionally, I would like to thank Captains William A. Knowlton, Jr., Robert Curry and David H. Petraeus, who provided invaluable assistance in the data collection. Finally, thanks are due Major General Richard E. Carazos, Commander of the 9th Infantry Division, Fort Lewis, Washington, and his officers who participated in this study.

DEDICATION

This study is dedicated to my father whose support and inspiration lighted the way.

I. INTRODUCTION

This study investigates the contribution of intelligence and experience to the effectiveness of individuals in military leadership and in staff positions. It is one of a series of investigations in organizational settings which explore the effect of stress with the superior on the individual's ability to use his intelligence and his experience in the performance of the task. The study compares company commanders and battalion staff officers, that is, personnel who routinely are rotated between command and staff positions at the same level of the organization and have the same general background and training. Differences in their behavior and performance thus can generally be assumed to be a function of position occupancy rather than selection or self-selection for one or the other type of position.

Intelligence and experience typically are the most important variables considered in recruiting or selecting personnel for management or senior staff positions. We almost always prefer the most intelligent and most experienced job applicants to those who are dull and inexperienced. Yet, the empirical evidence supporting the value of intelligence and experience is tenuous. Further, almost all previous investigations in this area have focused on the performance of line personnel to the virtual exclusion of staff personnel. In light of the increasing role of the

staff officer in formal organizations this omission is indeed perplexing.

Line and Staff Personnel

While some organization theorists have discussed the role and performance of staff personnel, (Sampson, 1955; Hampton, Summer & Webber, 1968; Filley & House, 1969) there is little consensus on an operational definition of a staff position that will clearly distinguish it from a line position. Filley and House provide three important characteristics which differentiate line and staff positions.

1. While line personnel contribute directly to the primary objectives of the organization, staff executives contribute through the provision of such auxillary services as supply or inventory control, personnel management, financial management, or legal advice. Clearly, however, in a law firm legal services would constitute a line function since the application of law is the primary function of the organization.

2. The chain of command typically passes directly from line position to line position. Staff members may well have supervisory responsibility. In fact, the chief of a staff section may have many subordinates directly under his control. This supervisory responsibility, however, is outside the direct line of control that runs from the highest to the lowest echelons of the organization. Thus, the authority of the chief of a staff section will

not extend beyond his section, while the authority of a line manager will extend to all line sections below his hierarchical level.

3. The final distinction between line and staff is that the organization designates positions as line and staff.

The line and staff members in the specific organizations with which this study deals (Army battalions) conform to this definition of line and staff as advanced by Filley and House. The chain of command is from the battalion commander to company commanders down to platoon leaders and noncommissioned platoon sergeants and squad leaders. The line commanders contribute directly to the function of the battalions, e.g., in a medical battalion the company commanders are responsible for the provision of medical services and line commanders in an artillery battalion provide artillery fire. Staff positions in these organizations typically involve responsibility for coordinating, training, providing personnel services, or logistical and maintenance support. There is clear delineation within the organizations between line and staff positions. In fact, line personnel wear distinctive uniform insignia.

There are only a few studies which provide empirical support for the existence of true differences between line and staff personnel. Porter (1963) found that staff members had lower levels of job satisfaction than line mana-

gers. Similarly, Mitchell (1970) found that U.S. Air Force field commanders were more satisfied than their peers in staff assignments. Porter and Henry (1964) found that line personnel were more inner-directed than staff personnel who put more importance on other-directed behavior. Zajonc and Wolfe (1966) found that staff members have wider communication networks within the organization than line personnel; that staff members had "a differentiated, more complex, less segmented and more highly organized cognitive structure" (Potter, 1977) than did line personnel. Finally, they found that staff members seemed to identify more with the organization than did line personnel. Zajonc and Wolfe attributed these differences to the position the employees held within the organization rather than to other factors such as education or hierarchical level. This is an important issue in this study as there are no significant differences in background, training or selection between the line and staff members on any variables in this study. They are neither exclusively "line types" nor "staff types."

Intelligence and Performance

Numerous attempts have been made to correlate intelligence and executive task performance. Extensive reviews of the literature by Mann (1959), Campbell, Dunnette, Lawler and Weick (1970) and Stogdill (1974) have shown that these studies yielded weak and inconsistent correlations in the range of .20 to .30, indicating that overall, the

leader's intelligence plays a relatively minor role in determining performance. This is in striking contrast to the implicit assumption made in almost all bureaucratic organizations that there is a strong and direct relationship between intelligence and performance. "Intelligence is generally defined as the ability to cope with problems in a rational manner by planning, organizing, coordinating, and evaluating alternative modes of action, through the use of innate cognitive abilities" (Butcher, 1968, cited in Potter, 1978). Since this is an almost perfect description of the functions of the executive, the low correlation are doubly intriguing. Why is the relationship between intelligence and performance so weak? What can be done to increase the strength of this correlation so that the intellectual resources of the organization's personnel can best be exploited? Finally, is intelligence an equally valuable attribute in both line and staff positions?

There is reason to believe that varying jobs place varying intellectual demands on job incumbents and that there is a somewhat restricted range of intellectual levels for which performance at any one job will be optimal. As an illustration of this principle, consider a job which places rather low demands on the intellectual abilities of the worker, for example, a quality control inspector on an assembly line. The work is extremely repetitious and structured. Obviously, if the worker is too dull he may be

unable to perform the task. But if the worker is too bright he will become bored, disinterested, and inattentive, and the quality of his performance will deteriorate. Hypothetical performance curves for these two jobs of varying intellectual demand are shown in Figure 1.

Note that as the average intellectual abilities of the job incumbents in both positions rise performance also rises. However, individuals who are too bright do not feel challenged, nor stimulated in their work, lose interest and motivation and performance drops. This hypothesized function between intelligence and performance suggests that there is a optimum intelligence level for every job, and that individuals whose intellectual abilities are significantly above or below that level perform less well than their better matched co-workers.

Admittedly, this proposed relationship between intelligence and performance is simplistic. It does not consider other variables which moderate performance, e.g., motivation (Blades, 1976), experience (Csoka, 1974), education (Chemers, Rice, Sundstrom & Butler, 1975), or group relations (Fiedler & Meuwese, 1963). But with other moderating variables being controlled it is proposed that this model presents a reasonable representation of the relationship between intelligence and performance.

This optimum intelligence level model also suggests that performance will be <u>positively</u> correlated with

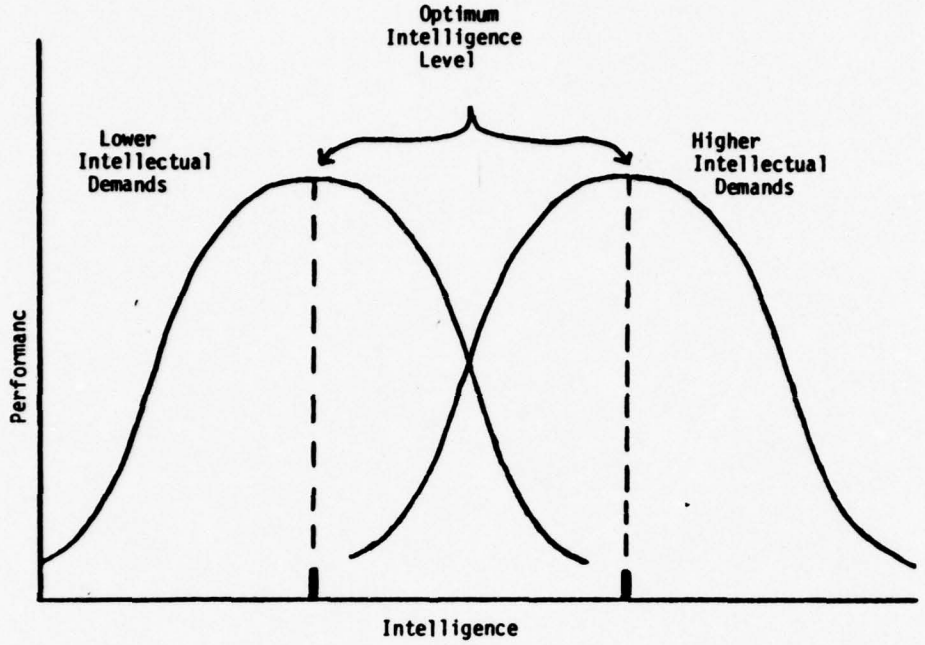

Figure 1. Theoretical construct showing optimum intelligence levels for jobs with lower and higher intellectual demands.

intelligence if the average intelligence level of a group is lower than optimal for that particular job; if the average intelligence level is higher than optimal, performance will be negatively correlated with intelligence; and if the average intelligence level is near the optimum intelligence than performance will be unrelated to intelligence. This model may help to explain the empirical studies which, as already noted, have shown weak and inconsistent relationships between intelligence and performance.

Conversations with high ranking military leaders, as well as the author's own experience, suggest that the optimum intelligence level for staff officers at the battalion level is lower than the optimum intelligence level for line commanders.

It may well be that for some jobs there is no upper limit to the optimum intelligence level. As Miner (1957) suggests:

> At the highly skilled level, many individuals in actual fact write their own job specifications and set for themselves the degree of intellectual demand. There is no upper bound for a physician or business executive or research scientist. The job is as complex intellectually as the individual is willing and able to make it.

As indicated before, within the battalion staff officers and line commanders are drawn from the same pool of officers and their intellectual abilities are therefore equal. If in fact lower intellectual demands are placed on

the staff officer and higher intellectual demands are made on the line officer, the following hypothesis is suggested:

Hypothesis 1. The correlation between intelligence and performance for staff officers is different than that for line commanders.

Intelligence, Performance and Stress with the Boss

The question of the relationship between intelligence and performance was recently reopened by Fiedler and Leister's (1977) test of a "Multiple Screen Model" which postulates that the leader's intelligence must pass through "screens" of variable permeability to flow from the leader to the members of the group in order to affect group performance. Unless the screens are permeable, permitting the products of the leader's intelligence to pass through, the leader's intelligence cannot affect group performance. Four of the screen variables tested by Fiedler and Leister were (a) the leader's motivation, (b) his experience and background knowledge, (c) the stress in the relationship with the leader's superior, and (d) the group's acceptance of the leader. As the model predicted, each of these variables accounted for a significant portion of the variance in the correlation between leader performance and intelligence. Most important of these, however, appeared to be stress with boss, the variable which constitutes the major moderator in the present study.

A study of Army mess halls by Blades (1976) demonstrated that a leader with a low motivational level will not utilize his intelligence to the extent that a highly motivated leader will. Blades showed that there was a high correlation between intelligence and rated performance of the dining hall for motivated mess stewards who had the support of their subordinates, while the correlation was low and insignificant for unmotivated mess stewards who lacked the support of their subordinates.

Another study supporting the Multiple Screen Model showed that a leader's intelligence also interacts with his experience in influencing performance. Csoka (1974) suggested that the intelligent leader without requisite experience will not understand the task well since he lacks the necessary background, while the experienced but less intelligent leader will be unable to integrate his experience in a manner to facilitate application to his current task. Also, Chemers, Rice, Sundstrom, and Butler (1975) found that less intelligent leaders derive less benefit from training than their more intelligent peers.

Another important variable which moderates the impact of a leader's intelligence on his job performance is the leader's relations with his group. Fiedler and Meuwese (1963) in a review of studies of three military organizations (Army tank crews, B-29 bomber crews, and anti-aircraft artillery crews), found that there was a generally high

positive correlation between a leader's intelligence and his job performance when the groups were cohesive. The correlations were low or slightly negative when the groups were uncohesive. A group is defined as cohesive if one or both of the following conditions are present in the group: The members feel attracted to the group or the members are adjusted to the group and are free of interpersonal tension.

Stress also has been shown to affect the intelligence-performance relationship. As Potter (1978) hypothesized, it is possible that different sources of stress may be differentially related to job performance, and may differentially moderate the intelligence-performance relationship. Evidence for this was demonstrated by Silverman (1977) who presented two groups of subjects with a memory task. One group was told they would receive an electric shock irrespective of their performance on the task. The other group was told they would be shocked only if their performance was unsatisfactory. Silverman found that performance increased for the second group who had some control over whether or not they would be shocked, while performance was impaired for those subjects who had no control over the outcome.

The two studies most germaine to this inquiry investigated the moderating effect of stress with one's superior on the use of intelligence in job performance. They yielded, however, somewhat contradictory and puzzling

results. In the first, Fiedler and Leister (1977) showed in a study conducted with 158 Army infantry squad leaders that there was a moderate and highly significant ($r = .51$, $n = 28$, $p \leq .01$) correlation between intelligence and job performance when stress with the superior was low (one SD below $\bar{X}$), but when stress with the superior was high (one SD above $\bar{X}$), there was no correlation between intelligence and performance ($r = .07$, $n = 27$, ns). Further, they showed that the level of stress with the superior was a stronger determinant than leader-subordinate relations in determining the degree to which the leader was able to use his intelligence to increase his job performance. When his relationship with his superior is stressful, neither motivation nor experience enable the leader to use his intelligence to affect his performance.

The other study in which stress with boss emerged as the most important moderator variable was conducted with a large U.S. Coast Guard Headquarters staff (Potter, 1978). In this study it was demonstrated that under conditions of high stress with boss caused by conflicting demands and the withdrawal of resources on the part of the boss, intelligence was negatively correlated with performance ($r = -.27$, $n = 48$, $p \leq .01$). When this stress with the boss was low, intelligence was not significantly correlated with performance. In other words, under this kind of stress with boss, intelligence may even be detrimental to performance. This

Table 1

Correlation of Intelligence and Performance
Under High and Low Boss Stress

	High Boss Stress (N)	Low Boss Stress (N)	Fisher's Z Significance of The Difference
Squad Leaders[1]	-.01	.51***	2.01**
	(27)	(28)	
Coast Guard Staff[2]	-.27**	.16	2.20**
	(48)	(60)	

**$p \leq .05$

***$p \leq .01$

1 Stress above or below 1SD.

2 Stress above or below mean.

type of stress was called by Potter "double-bind stress" inasmuch as the subordinate found himself caught between the superior's demand for production while the superior at the same time withheld information and guidance considered crucial in the performance of the task.

In essence, while the Fiedler and Leister study shows that low stress enables the leader to use his intelligence to advantage, the Potter study showed that under low stress the individual's performance in a staff position will be unaffected by his intelligence. Thus, under low stress with boss, the leader profits from intelligence and the staff officer does not lose by it. Under high stress the leader does not lose by intelligence while for the staff officer intelligence is detrimental. Table 1 summarizes these somewhat conflicting results. The question that arises is, what is it about certain jobs that makes intelligence sometimes have a negative impact under high boss stress and sometimes no effect under high boss stress? Similarly, under low boss stress, what is it about certain jobs that causes intelligence to have either no impact on performance or else a positive effect? Put another way, why is it that for squad leaders intelligence has no impact or a positive impact on performance, while for Coast Guard staff intelligence has no effect or a negative effect on performance?

Assuming the differential impact of boss stress on the intelligence-performance relationship as shown in the Fiedler and Leister, and Potter studies, the following hypothesis is advanced.

Hypothesis 2. Line and staff officers will differ in the intelligence-performance correlation under conditions of high and low double-bind stress.

Experience and Performance

It is nearly an article of faith in all fields of organizational endeavor that few attributes of an executive are more valuable than experience. This virtually unchallenged assumption, that increased experience will necessarily result in higher levels of performance, is the foundation stone of organizational policies so pervasive and so basic that we do not recognize the assumption as such. It is the justification for a multitude of expensive organizational practices which may or may not have value to the organization. Government and industry spend millions of dollars annually recruiting experienced personnel. Many jobs are closed to personnel without any evidence that the required experience contributes to performance.

Does experience really contribute to success, and if not, how can those jobs or those individuals that will not profit from training or experience be identified? The answer to this question has potent implications for the

most effective preparation, assignment, and utilization of personnel in formal organizations.

The results of previous studies on the effect of experience on leader performance present a puzzle. Intuitively one assumes a direct correlation between experience and performance. Yet, "in the leadership literature as a whole, the impact of experience on performance is consistently minimal" (Potter, 1977). In studies conducted in 13 civilian and military organizations across multiple levels of organizational hierarchy, Fiedler (1970) reported a median correlation of -.12 between years of leadership experience and management performance or group effectiveness! Subsequent analyses of other studies (Csoka & Fiedler, 1972; Bons & Fiedler, 1976) have supported this relationship.

These findings do not, however, address the issue of the relative impact of experience on the performance of line personnel versus its impact on staff personnel.

There is reason to suspect that experience interacts differentially with performance for various jobs just as intelligence does. As Fiedler (1978) has suggested, one of the functions of experience is to provide a basis for the job incumbent to recall solutions to previous problems. If the job is structured by a multitude of regulations, laws, and procedures, then experience will provide expertise in applying the appropriate specified solutions to any given problem. An example of this might be the job of a corporate

tax lawyer or accountant which to a very high degree is structured by a maze of complex regulations, procedures, and laws. Experience in these jobs will increase knowledge of and the ability to use the intricate structure of legal and accounting machinery. In this kind of job, analogous to the battalion staff officer's position, experience would be positively correlated with performance. On the other hand, if the job is characterized by a low degree of structure and high demands for creativity, experience may not be the appropriate resource on which to draw for problem solving or guidance in behavior. It may be difficult or even impossible to match current problems with past solutions. Consider for example the job of an advertising executive or popular music composer. It is unlikely that past successes could be repeated using the solutions that were previously appropriate. Such jobs, as those of an executive in which the task and the criterion for success are broadly defined, will not benefit from experience. In fact, having ready-made solutions at hand may invite their inappropriate application to current dilemmas; experience may then become a detriment to performance. Thus, most great composers, writers and scientists have done their most original work in their youth. The unstructured job, calling for creative and original solutions to complex problems, corresponds to the position of a company commander whose roles and tasks are certainly much less predetermined

and specified than those of the staff officer. The following model portrays this hypothesized interaction between experience and performance.

As shown on the diagram in Figure 2, as experience increases, for jobs requiring intricate procedures, performance also increases. However, for jobs requiring a high degree of creativity experience would have either no impact or even a deleterious effect.

This model might then explain the perplexing low and even negative correlations between experience and performance revealed in previous research. For some jobs the correlation is positive, for some jobs it is negative, and the net result is that they cancel each other out. This argument, extended to Army line and staff positions, suggests the following hypothesis:

Hypothesis 3. The correlation between experience and performance for staff officers differs for line commanders.

Experience, Performance and Stress with the Boss

Several studies have shown an interaction between the subordinate's relationship with his boss and his use of experience in the performance of his job (Leister, 1975; Potter, 1978). Lazarus (1966) has suggested that a person reacts to stress by narrowing his focus on his environment. Further, he posits that under high stress the individual may resort to defensive coping mechanisms (experience)

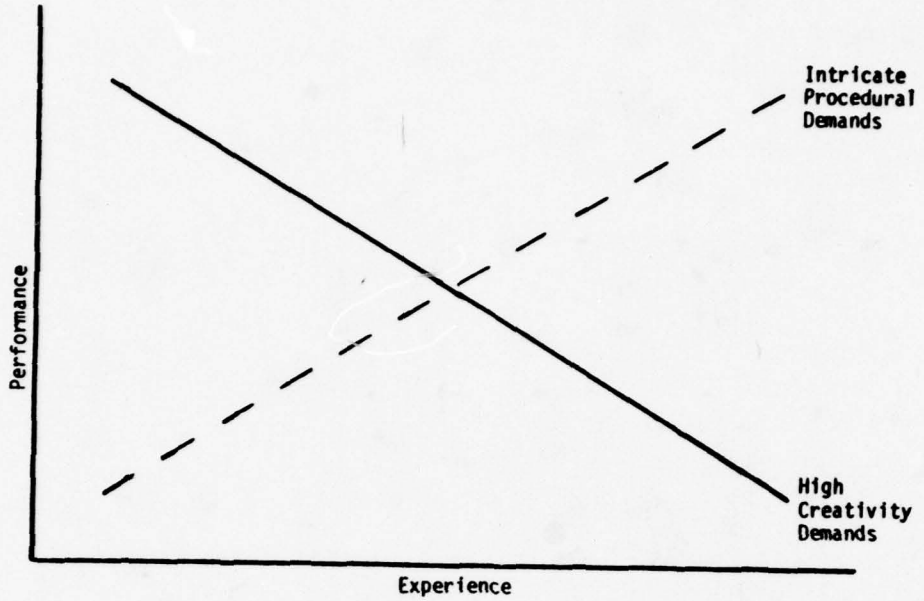

Figure 2. Theoretical construct showing the interaction between experience and performance for jobs characterized by intricate procedural demands and high creativity demands.

while under low stress the individual is more likely to adopt a problem solving mode (intelligence). To the extent that experiential repertoire provides the proper response or correct solutions to problems, stress will not damage performance. For individuals without the requisite repertoire of experience which enables them to reach for a problem's solution, a narrowed focus becomes detrimental and performance suffers.

In a study of U.S. Army enlisted personnel, Berkum (1964) showed that recently trained recruits performed better than experienced sergeants where stress was low, but the sergeants performed significantly better than the recruits when stress was high. Fiedler and Leister (1977) in a study of Army squad leaders found experience was unrelated to performance under low stress with superior, while under high boss stress experience was positively correlated with performance ($r = .40$, $n = 27$, $p \leq .05$). Similarly, in the study of Coast Guard staff personnel, Potter (1978) found that experience was unrelated to performance under low double-bind stress while performance was significantly correlated with experience ($r = .44$, $n = 48$, $p \leq .001$) under high double-bind stress. This suggests the following:

Hypothesis 4. For both line commanders and staff officers, experience is positively correlated with performance when double-bind stress is high.

II. METHOD

Subjects

This study involved nine Army battalions. A battalion typically consists of three combat or line companies as well as a headquarters company which includes the battalion staff elements, and a support company. The latter provides logistic and combat support to the line elements. A battalion is commanded by a Lieutenant Colonel who has a Major as executive officer. Subjects included in this study were company commanders of nine battalions plus available staff officers from each battalion. With the exception of two First Lieutenants, all 45 company commanders held the rank of Captain. The 47 Battalion staff officers included 3 Majors, 24 Captains, 14 First Lieutenants, and 4 Second Lieutenants. Ages ranged from 20 to 41, with a mean age for company commanders of 28.2 years, and for staff officers of 28.8 years. The difference is not significant. The possible effects of the greater distribution in the ranks of staff officers did not effect the conclusions as will be shown in the discussion section. When staff captains ($n = 25$) were compared to commanders with captain's rank ($n = 42$) there were no significant differences in either intelligence or experience ($\bar{X} = 30.2$ and 31.4, $t = .97$; and $\bar{X} = 86.9$ and 81.3, $t = -.77$; respectively).

Data Collection

A questionnaire and an intelligence test (Appendix A) were administered to all available line (Appendix B) and staff (Appendix C) officers in each battalion in the sample. The experimenter administered the intelligence test and directed the subjects to complete the remainder of the questionnaire at their own pace at the testing site. Subjects were told prior to administration of the questionnaire about the general nature of the research and the confidentiality of individual responses. They were advised that they could leave the room at any time if they did not wish to participate, and that any questionnaire items could be omitted if they desired to do so. All chose to participate.

Tests and Questionnaires

Experience was determined by asking each subject to indicate how many years and months he had served on active duty. Since it is Army policy to rotate personnel between line and staff assignments, total military service is considered the best measure of an individual's experience in the organization. This ranged from 1.3 years, to 19.6 years, with a mean of 6.6 years. Line officers averaged 6.7 years of service while staff officers averaged 6.6 years. The difference is not significant. Time in service was partitioned into a low, medium and upper third with less than 62 month (n = 33) service considered low, 66 to 94 months

medium (n = 34), and 99 or more months (n = 22) high experience.

Intelligence was measured by the Wonderlic Personnel Test Forms V and B. This is a 12-minute test of 50 items including analogies, analyses of geometric figures, arithmetic problems, disarranged sentences, sentence parallelism with proverbs, similarities, logic, definitions, judgment, spatial relations and direction following. In industrial and business organizations the mean score for the test is 21.77 out of a possible 50. Reported test-retest reliability is between .82 and .94 for immediate retest. Internal consistency as measured by odd-even reliability correlations range from .88 to .94 (Wonderlic, 1975).

The overall median score for this sample of subjects was 30.83 (88th percentile) which corresponds to a Wechsler-Bellevue score of about 112, well above the average. Scores ranged from 12 to 42, with a standard deviation of 5.2. The mean for company commanders was 30.9 and for staff officers was 29.9 (difference ns). Subjects were classified as having high intelligence if they scored 34 or higher on the test (n = 25), medium intelligence for scores 30 to 33 (n = 30), and low intelligence if they scored 29 or lower (n = 35).

The two forms of the test, V and B, are considered equivalent in that the means for the two forms are nearly

identical (Form B, n = 39, $\bar{X}$ = 30.1; Form V, n = 53, $\bar{X}$ = 30.6, ns).

Double-bind stress. A global measure of the stress with boss was obtained by having the subjects respond to a single item, seven-point, bi-polar scale in response to the following question:

> Describe the stressfulness of your relations with your immediate superior.

Little			Moderate			High
1	2	3	4	5	6	7

Although this is not similar to the operationalization used by Potter (1978) in his assessment of double-bind stress, the justification for the use of this measure will be explained at the end of this section. Double-bind stress is defined by leadership behaviors which the subordinate perceives as stressful. It presumably occurs when the superior (here the battalion commander) pushes for high performance but is seen at the same time as withholding guidance, information, freedom of action, and support. "Unlike stress which results from a challenge which the subordinate hopes to meet, this type of stress seems to arise from a situation over which the subordinate has no control." Potter (1978)

Responses on this measure ranged from 1 to 7 with an overall mean of 3.31 and a standard deviation of 1.81. The

means for company commanders and for staff officers were respectively 3.53 and 3.09 (ns). As in the Fiedler and Leister (1977) study subjects were classified as high in double-bind stress if they scored one standard deviation above the mean, five or higher (n = 12), medium if they scored two to four (n = 41), and low if they scored one standard deviation below the mean, one (n = 17).

Leader behavior was assessed using a 26-item scale developed from selected items from the Leadership Behavior Description Questionnaire (LBDQ) Form XII (Stogdill, 1963). Item selection was based on a factor analysis of the 31 items used in the study of Coast Guard staff personnel (Potter, 1977). Subjects were directed to respond to the following instructions: "Below are a series of statements which describe ways in which your boss may behave. Read each statement and indicate how often your boss behaves in this way." Responses ranged from 1 (never) through 4 (sometimes) to 7 (always). A varimax analysis of the 26 items identified five factors accounting for more than five per cent of the variance each and which in total accounted for 96.5% of the variance. These five factors are:

Boss freedom. This most significant factor has an eign value of 9.29 and accounts for 60.8% of the variance in the LBDQ scale. The six items with factor loadings greater than .50 are:

Loading	Item
.82	He always allows members complete freedom in their work.
.79	He permits members to use their own judgment in solving problems.
.77	He allows the group a high degree of initiative.
.74	He lets members do their work the way they think best.
.58	He trusts the members to exercise good judgment.
.53	He puts suggestions made by the group into operation.

Boss competence. This second factor, which seems to assess the subordinate's perception of the superior's competence and calmness, accounts for 16.6% of the scale variance and has an eigen value of 2.54. The five items in this factor, three with negative loadings, are:

Loading	Item
-.69	He gets swamped by details.
.65	He remains calm when uncertain about certain events.
-.64	He gets confused when too many demands are placed on him.
.63	He gives advance notice of change.
-.54	He gets things all tangled up.

Boss structure. The third factor seems to be a measure of the degree to which the boss provides appropriate structure in defining the task. The four items with loadings

greater than .50, which account for 8.1% of the scale variance and have an eigen value of 1.24 are:

Loading	Item
.79	He lets members know what is expected of them.
.66	He makes sure that his part in the group is understood by the group members.
.60	He keeps work moving at a rapid pace.
.54	He maintains definite standards of performance.

Boss push. The fourth factor is a measure of the degree to which the boss pushes or pressures his subordinates to work harder and increase performance. The three items on this factor account for 5.8% of the scale variance and have an eigen value of .89.

Loading	Item
.80	He asks members to work harder.
.75	He needles members for greater effort.
.65	He pushes for increased work performance.

Boss tolerance for uncertainty. The final factor measures the superior's ability to tolerate uncertainty and delay. The two items of this factor account for 5.2% of the variance and have an eigen value of .79.

Loading	Item
.67	He is able to tolerate postponement and uncertainty.
.61	He accepts delay without becoming upset.

To determine which leader behaviors produced stress with the subordinate a multiple regression analysis was performed using the five previously defined factors as the independent variables with the global measure of stress with boss as the dependent variable. The two boss behaviors which accounted for a significant portion of the variance in the subordinate's perception of the stressfulness of his relationship with his boss are: (a) the boss pushes for performance ($\beta = .32$, $p \leq .01$) while (b) withholding the freedom to act ($\beta = -.37$, $p \leq .05$). The other identified boss behaviors; boss is competent and calm, boss provides appropriate structure, and boss tolerates uncertainty, were unrelated to the global measure of stress with the boss ($\beta = .09$, $-.14$, and $.09$, respectively). The multiple R^2, or explained variance in boss stress based on boss behaviors was .27, a highly significant value ($F = 6.35$; $df = 5,86$; $p \leq .001$). These two behaviors, pushing for performance, while withholding freedom to act, conforms precisely to Potter's (1978) definition of double-bind stress, even though the items which measure this dimension are different.[1]

---

[1]Guttman (1944) provides an example of how items can have differing meaning for diverse groups of subjects:

> ". . . a sample of items of satisfaction with Army life which formed a scale for combat outfits in the Air Force did not form a scale for men in the technical schools of the Air Force. The structure of camp life for these two groups was too different for the same items to have the same meaning in both situations."

In this instance, the items which provided a measure of double-bind stress for Coast Guard staff personnel at the district level were not the same items which measured double-bind stress in Army battalions.

Criterion Measures

Each company commander and staff officer was rated by his battalion commander on an 8-item questionnaire, each item having five responses ranging from "Greatly exceeds job requirements" (5) to "Does not meet job requirements" (1) (Appendix D). This performance measure was developed by Bons (1974) for use with military leaders. Three items illustrating the rating scale are:

> The way he organizes his people and specifies ways of getting the job done.
>
> The way he handles his job when demands are extra heavy or when he finds himself under severe pressure.
>
> His rapport with his subordinates without becoming overly familiar.

A factor analysis of the eight items using varimax rotation resulted in one significant factor with an eigen value of 5.1 and which accounted for 86% of the variance. Loadings on this factor ranged from .26 to .87 with six of the eight items loading above .50. The scale was therefore assumed to be unidimensional and all eight items were summed to produce a single performance score. Scores ranged from 40 to 12, with a mean of 33.4, a median of 34.3, and a standard deviation of 5.86. The Spearman-Brown split-half reliability of the scale was .98. The mean for company commanders and for staff officers was almost identical (33.4 and 33.3, respectively).

III. RESULTS

Similarity of Line and Staff

The lack of any significant differences in any variables between line commanders and staff officers, with the exception of Boss Push reflects the fundamental interchangeability of the officers who occupy the two types of positions (Table 2). As mentioned earlier, unit commanders are chosen from the pool of available staff officers within the battalion and upon completion of their command assignment will typically resume staff duties within the battalion. This rotation between line and staff assignments is a continuous pattern in an Army officer's career and is basic to the concept of "professional development." Thus, any differences between the two groups should not be due to different types of officers being in each group, but rather to the characteristics of the line or staff positions.

Intercorrelation of Variables

Table 3 presents a correlation matrix which includes all the variables in this study. As can be seen, performance is not significantly correlated with any of the other variables; specifically, there is no correlation between either intelligence ($r = -.03$, $n = 89$), or experience ($r = .01$, $n = 89$). This result is consistent with findings by Mann (1959), Campbell, Dunnette, Lawler, and Weick (1970), and Fiedler (1970). Second, the perception of double-bind stress is unrelated to rated performance ($r = -.18$, $n = 91$),

Table 2

Variable Means and Two Tailed Tests of

Significance for Line and Staff Positions

Variable	Mean Line (N)	Mean Staff (N)	T-Value
Performance	33.4 (45)	33.3 (46)	.06
Intelligence	30.9 (44)	29.9 (47)	.94
Experience	80.1 (44)	78.6 (46)	.18
Double-Bind Stress	3.53 (45)	3.09 (46)	1.17
Boss Freedom	28.7 (45)	31.3 (47)	-1.73
Boss Competence	24.8 (45)	25.5 (47)	- .63
Boss Structure	20.5 (45)	21.1 (47)	- .65
Boss Push	14.2 (45)	11.7 (47)	3.12 ***
Boss Tolerates Uncertainty	6.96 (45)	7.96 (47)	-1.77

*** $p \leq .01$

Table 3

Intercorrelation Matrix for All Variables [a]

Variable	1	2	3	4	5	6	7	8	9
1. Performance	1.0								
2. Intelligence	.03	1.0							
3. Experience	-.01	-.03	1.0						
4. Double-Bind Stress	-.18	-.08	.09	1.0					
5. Boss Freedom	-.16	.06	-.09	-.42***	1.0				
6. Boss Competence	-.03	.21*	-.06	-.27**	.72***	1.0			
7. Boss Structure	.15	.05	-.22*	.31**	.73***	.62***	1.0		
8. Boss Prod Push	-.06	-.07	.07	.35***	-.19	-.16	.05	1.0	
9. Boss Tolerates Uncertainty	.01	-.08	-.11	-.22**	.57***	.54***	.42***	-.27**	1.0

* $p \leq .05$

** $p \leq .01$

*** $p \leq .001$

Note. N varies between 89 and 92

a See Methods section for variable Labels and descriptions.

experience ($r = .09$, $n = 89$), or intelligence ($r = -.08$, $n = 89$). Third, the boss behaviors with the highest correlations with double-bind stress are Boss Freedom ($r = -.42$, $n = 92$, $p \leq .001$) and Boss Push ($r = .35$, $n = 92$, $p \leq .001$), the boss behaviors which multiple regressive analysis reveal primarily account for the variance in boss stress. Finally, with the exception of Boss Push, all boss behaviors are significantly intercorrelated. This would seem to indicate that there is a component in perceptions of boss behavior which reflects a generally positive or negative affect on the part of the subordinate toward his boss (see Table 3).

Effects of Intelligence on Performance

Hypothesis 1 stated that the correlation between intelligence and performance would differ for staff officers and for line commanders. Figure 3 shows the interaction between intelligence and performance for line and staff officers over low, medium, and high levels of intelligence. A simple, two-way analysis of variance yields a significant interaction, ($F = 3.28$, $df = 2,85$, $p \leq .05$).

This figure, indicating that intelligence has a positive effect on the performance of line commanders, while being deleterious to the performance of staff personnel, represents the middle portion of Figure 1 between the two optimum intelligence levels where staff positions place lower intellectual demands upon individuals than line positions.

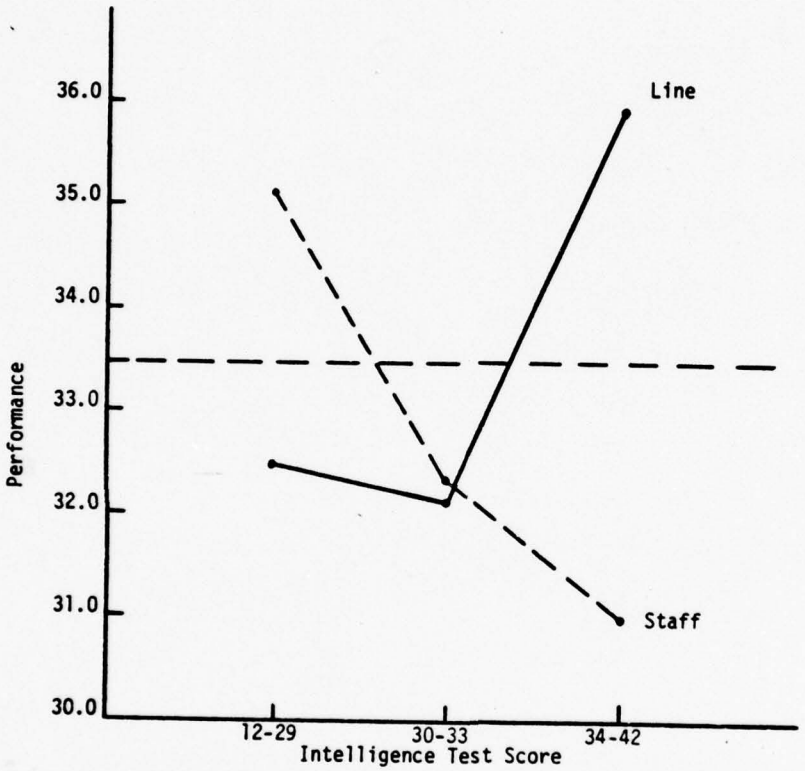

Figure 3. The effect of intelligence on performance of company commanders and battalion staff officers.

The correlations between intelligence and performance do differ for line ($r = .18$, $n = 44$, ns) and staff ($r = -.23$, $n = 46$, ns). Although neither correlation by itself is significant the difference in the correlations (Fisher's Z) is marginally significant ($z = 1.92$, $p = .055$).

Hypothesis 2 stated that for both line commanders and staff officers there would be a significant difference in the intelligence-performance correlation under conditions of high and low double-bind stress. Figure 4 shows the correlations (converted to Z) between intelligence and performance over three levels of double-bind stress for line commanders and staff officers. As previously stated, double-bind stress is conceptualized as occurring when the superior (here the battalion commander) pushes for high performance but at the same time is seen as withholding guidance, information and support.

Figure 4, interestingly enough, provides support for two conclusions. First of all, it supports the general notion that double-bind stress has a deleterious effect on the use of intelligence. This is clearly indicated by the negative slopes of the lines for both line and staff, (i.e. the greater the double-bind stress the lower or more negative the correlation between intelligence and performance). This figure also supports the previously expressed idea that company command positions place higher intellectual demands upon the job incumbents than do staff positions. One

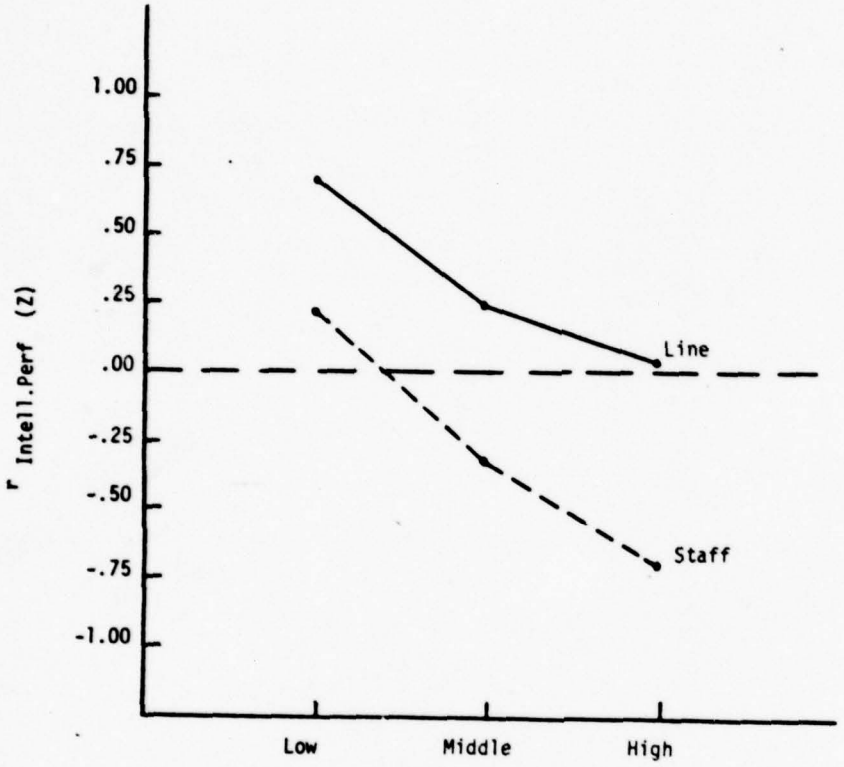

Figure 4. The effect of double-bind stress on the correlation of company commanders' and staff officers' performance with intelligence.

suggested reason is that under low double-bind stress the individual is free to use his intelligence. Since the line commander, as already posited, needs his intellectual abilities to perform effectively, his intelligence is correlated positively with performance when double-bind stress is low. For the staff officer, whose job by its structured nature does not demand creative use of intellect, there is no correlation between his intelligence and performance in those conditions when he is free to use his intellectual abilities. Conversely, under conditions of high double-bind stress, when the line commander is unable to meet the intellectual demands of his job the correlation between intelligence and performance is reduced to zero; while in the same stressful conditions the staff officer misuses his intelligence because creativeness and originality interfere with the job.

Further, these results support the Fiedler-Leister data and the Potter data as reported in Table 1. The squad leader sample (line) of Fiedler and Leister corresponds to the line company commanders. The Coast Guard staff corresponds to the battalion staff officer sample. In both comparable groups, line and staff, the correlations are nearly identical. However, the small size of the battalion line and staff samples cause the correlations to be non-significant. The compatibility of these results lends weight to argument that whether or not intelligence has a beneficial, detrimen-

tal, or no effect on performance is contingent not only upon stress in the subordinate's relationship with his superior but also upon the structuredness of the job. In highly procedural and structured jobs intelligence at best seems to have no effect; in unstructured and ambiguous jobs intelligence at worst seemingly has no impact (see Table 4).

The correlations between intelligence and performance for line commanders under conditions of low double-bind stress ($r = .56$, $n = 7$, ns) and for staff officers under high double-bind stress ($r = -.56$, $n = 9$, $p \leq .10$) are significantly different ($Z = 1.96$, $p \leq .05$).

Effects of Experience on Performance

Hypothesis 3 stated that the relationship between experience and performance would differ for staff officers and for line officers. Figure 5 shows this interaction between experience and performance for line and staff officers. A simple two-way analysis of variance yields a significant interaction ($F = 3.01$, $df = 2,85$, $p = .05$). As the figure indicates, experience enhances the performance of staff personnel while it appears to degrade the performance of line officers.

The correlations between experience and performance for line commanders ($r = -.26$, $n = 44$, $p \leq .10$) and for staff officers ($r = .20$, $n = 45$, ns) differ. Although neither correlation by itself is significant, the difference

Table 4

Correlation of Intelligence and Performance
Under High and Low Boss Stress

	High Boss Stress (N)	Low Boss Stress (N)	Fisher's Z Significance of the Difference
Line			
Squad Leaders [1]	-.01 (27)	.51*** (28)	2.01**
Company Commanders [1]	.06 (13)	.56 (7)	.97
Staff			
Coast Guard Staff [2]	-.27*** (48)	.16 (60)	2.20**
Battalion Staff [1]	-.56* (9)	.17 (9)	1.39

* $p \leq .10$

** $p \leq .05$

*** $p \leq .01$

1. Stress above or below 1SD.
2. Stress above or below mean.

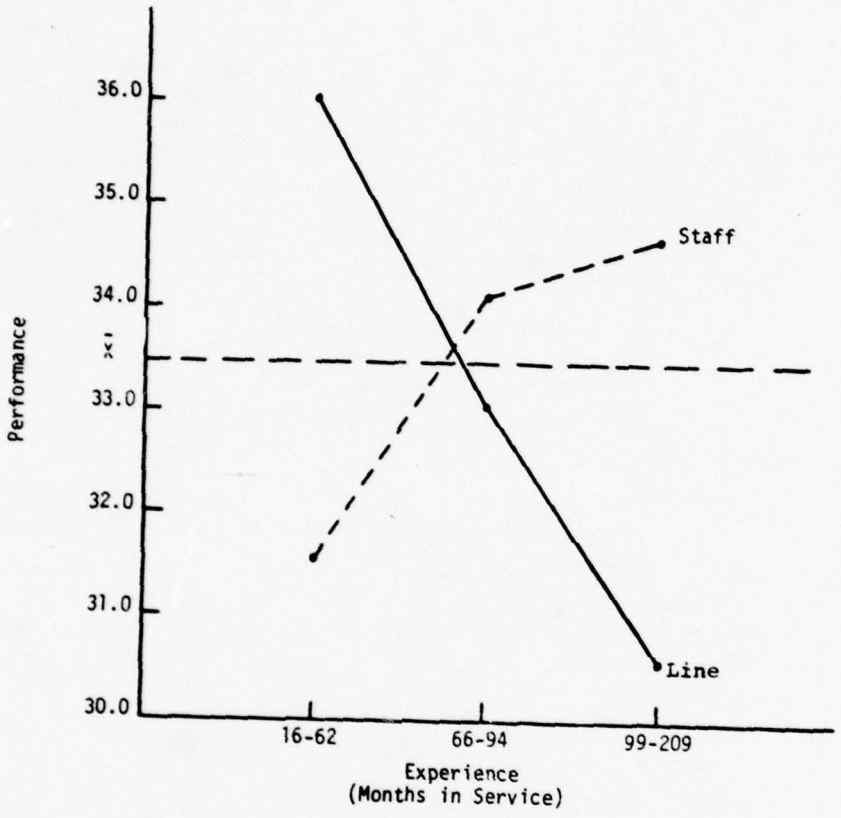

Figure 5. The effect of experience on performance of company commanders and battalion staff officers.

in the correlations (Fisher's Z) is significant ($Z = 2.14$, $p \leq .05$).

Hypothesis 4 stated that experience is positively correlated with performance for both line commanders and staff officers when double-bind stress is high. Figure 6 shows the correlations (converted to Z) between experience and performance over three levels of double-bind stress for line commanders and staff officers. This figure is practically a mirror image of the interaction of intelligence and double-bind stress (Figure 4). Staff officers' experience has an increasingly positive correlation with performance as double-bind stress increases. For company commanders under conditions of low double-bind stress, experience is strongly negatively correlated with performance. As double-bind stress increases the magnitude of this negative relationship decreases. For line commanders under high double-bind stress and for staff officers under low double-bind stress, experience has no effect on performance. But, experience is beneficial to staff officers under high double-bind stress and detrimental to line officers under low double-bind stress. The difference in the correlations between experience and performance for line commanders under conditions of low double-bind stress ($r = -.86$, $n = 8$, $p \leq .01$) and for staff officers under high double-bind stress ($r = .49$, $n = 9$, ns) (like the correlation between intelligence) is highly significant ($Z = 2.85$, $p \leq .01$).

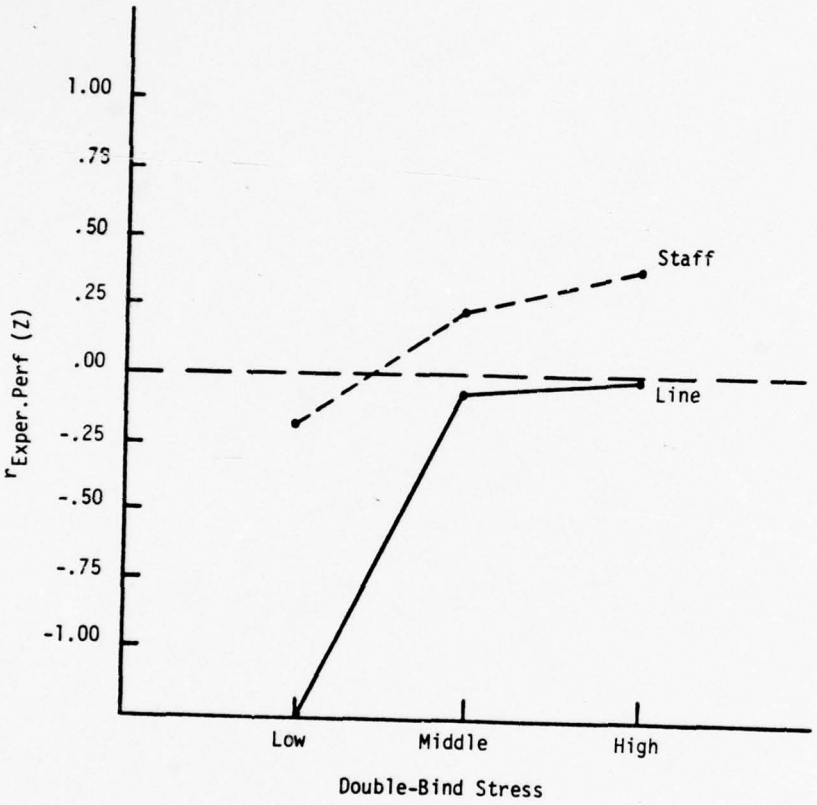

Figure 6. The effect of double-bind stress on the correlation of company commanders' and staff officers' performance with experience.

The relationship between experience and performance under varying levels of boss stress for battalion staff officers is very similar to those results obtained by Fiedler and Leister (1977) and in the Potter (1978) study. However, the data for company commanders are different as Table 5 clearly shows. Plausible explanations for these divergent results shall be presented in the next section.

These results imply that the best line commanders at the battalion level are bright and young while the most effective staff officers are less intelligent and more experienced. In other words, the best line officers make the worst staff officers and the best staff officers are the worst commanders! This is the case as is shown in Figure 7.

A simple analysis of variance shows this interaction to be highly significant ($F = 8.02$, $df = 1,46$, $p \leq .01$).

The difference in performance for intelligent, inexperienced officers and for less intelligent, experienced officers is significant and marginally significant for line and staff respectively. This is shown on Table 6.

Alternative Explanations

It might be argued that the strikingly different effect of intelligence and experience on the performance of line and staff officers could be an artifact of the differences in rank between line and staff personnel; i.e., all but two of 44 rated unit commanders were Captains, while at the

Table 5

Correlations of Experience and Performance
Under High and Low Boss Stress

	High Boss Stress (N)	Low Boss Stress (N)	Fisher's Z Significance of the Difference
Squad Leaders [1]	.40** (27)	.09 (28)	1.17
Coast Guard Staff[2]	.44*** (48)	.03 (54)	2.22**
Battalion Staff [1]	.42 (9)	-.13 (9)	1.00
Company Commanders [1]	-.04 (12)	-.86*** (8)	2.25**

** $p \leq .05$

*** $p \leq .01$

1. Stress above or below 1 SD
2. Stress above or below mean

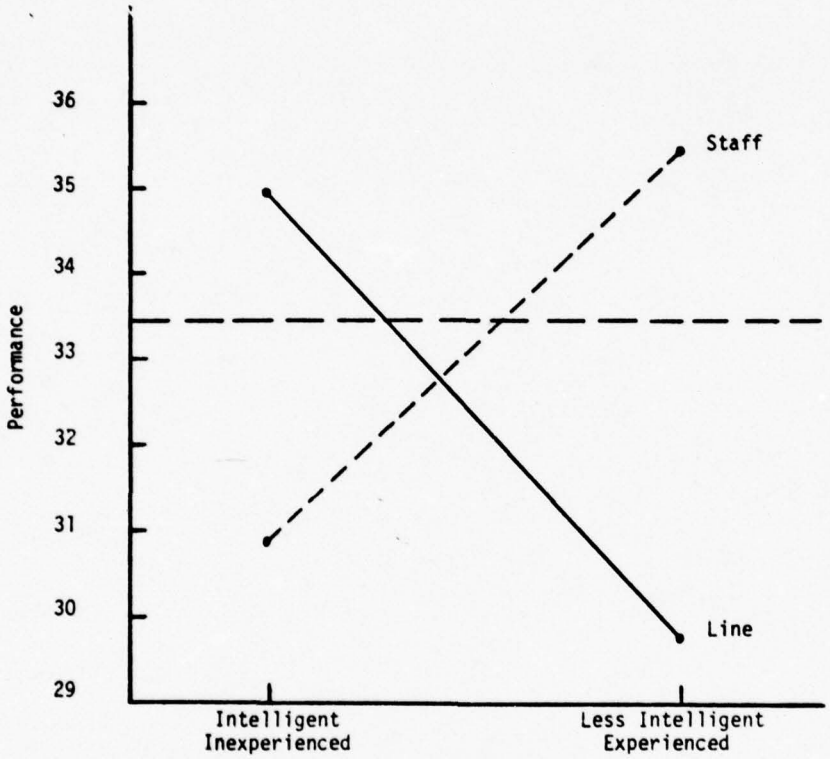

Figure 7. Mean performance scores for intelligent, inexperienced officers and less intelligent, experienced officers.

Table 6

Mean Performance Scores for Intelligent, Inexperienced Officers and Less Intelligent, Experienced Officers

Position	Intelligent Inexperienced (n)	Less Intelligent Experienced (n)	T Value
Line	34.9 (11)	29.8 (12)	2.14**
Staff	30.9 (14)	35.4 (13)	-1.96*

* $p \leq .10$

** $p \leq .05$

staff level there were five Second Lieutenants, 14 First Lieutenants, and 3 Majors, in addition to the 24 staff Captains. Again, however, an analysis of the correlations by rank show that this is unlikely. As Table 7 shows, intelligence is negatively correlated with performance for staff personnel of all ranks, while experience was positively correlated with performance for staff personnel of all ranks. The signs of all correlations are just the opposite for captain commanders.

Another explanation might focus on the differences in the variable means for the various ranks. However, only for experience is there any significant effect for rank differences. Since promotion within the Army is, to a large extent, contingent upon length of service, this finding is not surprising. As one can see from Table 8, a one-way analysis of variance reveals no relationship between rank and any of the other variables in this study.

An alternative explanation for the negative but non-significant correlation between experience and performance for line commanders ($r = -.26$, $n = 44$, ns) focuses on the role of the company commander who occupies a unique place in the military ethos. Only in the role of command is a military leader challenged to his utmost, facing the greatest demands of his career, and bearing the weightiest responsibility commensurate with his rank. Command at each hierarchical level is invariably a prerequisite for

Table 7

Correlation of Performance with Intelligence and Experience over all Ranks

Rank	Intelligence		Experience	
	Line (n)	Staff (n)	Line (n)	Staff (n)
2LT.		-.23 (5)		.93* (4)
1LT.	- (2)	-.08 (14)	- (2)	.16 (14)
CPT.	.22 (42)	-.36* (24)	-.27* (42)	.26 (24)
MAJ.		- (3)		- (3)
TOTAL	.18 (44)	-.23 (46)	-.26* (44)	.20 (45)

* $p \leq .10$

Table 8

Variable Means and F Probability

(Oneway Analysis of Variance) for Different Ranks

Variable	Mean 2LT (n)	1LT (n)	CPT (n)	MAJ (n)	F Probability Level
Performance	34.8 (5)	33.2 (16)	33.2 (67)	35.0 (3)	.89
Intelligence	26.4 (5)	28.8 (16)	30.9 (67)	32.0 (3)	.15
Experience	41.2 (4)	48.6 (16)	83.4 (67)	203.7 (3)	.00
Doublebind Stress	2.25 (4)	3.25 (16)	3.32 (68)	4.67 (3)	.39
Boss Freedom	32.0 (5)	29.3 (16)	30.0 (68)	29.7 (3)	.92
Boss Competence	25.0 (5)	23.4 (16)	25.5 (68)	27.3 (3)	.54
Boss Structure	24.0 (5)	20.2 (16)	20.8 (68)	19.0 (3)	.26
Boss Push	12.4 (5)	12.8 (16)	13.0 (68)	14.0 (3)	.96
Boss Tolerates Uncertainty	9.80 (5)	7.88 (16)	7.16 (68)	8.33 (3)	.16

promotion. Not all are priviledged to command above the company level and an officer while in a command position has more status than when he holds a staff job. Ordinarily, an officer will have at the most one command assignment at each rank; thus an Army Captain can expect to occupy a leadership position (company command) only for 18 months during his eight years as a Captain. Since command positions are seen as prestigious, and as a prerequisite for advancement, competition for command or line positions among officers who have not commanded is keen. One might then assume that those officers who are chosen for command early in their career are identified as the "sharp" young officers, the fast risers, the most capable. This might then account for the high performance scores for the less experienced line officer, while those who are not afforded the opportunity to command early are seen by their superiors as less competent and hence are rated lower.

This explanation, while plausible, does not seem to hold for this sample. The mean intelligence and experience of captains in line and staff positions were very similar and not significantly different ($\bar{X}$ = 31.4 and 30.2 and $\bar{X}$ = 81.3 and 86.9, respectively). Whether the company commander's experience is the cause or the effect of poor performance is by no means established and needs to be further investigated. As previously shown, however, line and staff officers do use experience differently.

Boss Behaviors

The various boss behaviors, derived from a factor analysis of the LBDQ items, have already been described and it was shown how these boss behaviors affected perceptions of stress. One naturally asks, therefore, which behaviors on the part of the boss facilitate the use of his subordinates' intelligence and experience? To answer this question the five previously identified boss behaviors were partitioned, as double-bind stress, one standard deviation above and below the mean. Correlation coefficients were computed to show the relationships between intelligence and performance, and experience and performance for both line and staff officers under high and low conditions of specified boss behaviors. These results are summarized in Table 9.

The results reveal that, in general, line commanders are able to use their intellectual resources when they perceive their boss as being competent and in control. Perhaps this implies that line commanders attribute competence to bosses who allow them to utilize their intelligence, although in this case, it is impossible to determine causality. Experience seems to impair performance for these commanders, however, when the boss is seen as pushing for performance while allowing little freedom of action (double-bind stress) and tolerating little uncertainty and delay.

Staff officers, on the other hand, appear to misuse their intelligence when the boss does not push for perform-

Table 9

Correlation of Performance with Intelligence and Experience Under Various Boss Behaviors[1]

Boss Behaviors		Intelligence		Experience	
		Line (N)	Staff (N)	Line (N)	Staff (N)
Boss Freedom	Hi	.26 (4)	-.36 (13)	-.07 (4)	.02 (13)
	Low	.12 (12)	-.52 (7)	-.45 (11)	.26 (6)
Boss Competence	Hi	.85** (6)	-.28 (14)	-.57 (6)	.00 (14)
	Low	.34 (11)	.57 (5)	-.40 (11)	-.41 (4)
Boss Structure	Hi	.32 (8)	-.11 (13)	-.37 (7)	.01 (13)
	Low	-.16 (12)	-.42 (9)	.22 (12)	.51** (20)
Boss Push	Hi	-.03 (18)	-.21 (6)	-.50** (18)	.34 (6)
	Low	.02 (7)	-.51* (14)	.28 (7)	.23 (14)
Boss Tolerates Uncertainty	Hi	.28 (6)	-.04 (12)	-.15 (6)	.09 (12)
	Low	-.06 (9)	.04 (8)	-.46 (10)	.58 (7)

[1] Behaviors above or below 1SD

* $p \leq .10$

** $p \leq .05$

ance, does not provide appropriate structure, and allows little freedom. In other words, when the boss doesn't tell him what to do, doesn't emphasize doing anything, yet withholds freedom of action, the staff officer may use his intelligence to generate creative problem solutions which are seen by the boss as inappropriate. However, it seems that in the absence of appropriate guidance from the boss (low Boss Structure), the staff officer is able to use his experience to determine appropriate behaviors, i.e., adherance to the prescribed rules and procedures.

In sum, it seems that specific boss behaviors do not have as large an impact on the use of intelligence and experience by line and staff officers as does the perception of stress in their relationship with the boss. In other words, it's not so much what the boss does, but instead how much stress he generates in his relationships with his subordinates that determines how their intelligence and experience will impact on performance.

IV. DISCUSSION

Intelligence and Performance

This study found (a) that the intelligence of line and staff officers has a different effect on the performance of these officers and (b) that stress with the boss (double-bind stress) moderates these relationships. The explanation for these findings and the predicted results were based on a model postulating an optimum level of intelligence for specific jobs.

Staff work within Army battalions is routinized to a very high degree. Regulations and standard operating procedures cover almost every contingency which the staff officer is likely to encounter in his day-to-day activities. To fulfill his duties he need only recognize his current situation or problem and apply the appropriate regulation or procedure. The staff officer is effective to the degree to which he follows the explicitly prescribed rules relative to his own staff assignment. The more intelligent staff officer at the battalion level is perhaps more likely to innovate and to rely upon his own judgment to solve problems. The necessity for standardizing the diverse types of Army battalions throughout the world sharply discourages innovation and personal judgment. Instead of increasing performance levels, the creative use of intelligence may then cause deviations from the mandatory or recommended procedures and impair performance.

Further, innovation is discouraged from another source, the commander. In the military ethos, the staff officer is seen as "an extension of the commander." He takes no actions, issues no policy, nor coordinates any activities outside his own staff section, except with the superior's approval. Everything the staff officer does that affects the organization is done "in the name of the commander." When the staff officer speaks, he speaks "for the commander." Therefore, it is incumbent upon the commander to exercise close supervision over his subordinate staff officers so that their actions will in fact be an extension of his will. As a result, any latitude which exists in the staff officer's job which is not limited by regulations and SOP's is pre-empted by the commander. Again, creativity and innovation are greatly restricted and their application may, in fact, lower performance in the eyes of the commander, who ultimately is the judge of performance.

On the other hand, the job of the cfficer in a leadership position of a company is significantly less structured than that of the battalion staff officer. His primary functions include the establishment and enforcement of policies and standards, the maintenance of military discipline and esprit de corps, the organization and allocation of his personnel resources, and the training and motivation of his subordinates. These functions demand innovation and creativity. The line commander's intelligence then appears

to aid him in the accomplishment of his job. This suggests that the optimum intelligence level for company commanders is higher than that for battalion staff officers and that the average intelligence level for junior officers is somewhere between the two optimum intelligence levels.

Additionally, this study reconciles apparent differences in the Fiedler and Leister (1977) study and the Potter (1978) study. While Fiedler and Leister found that, depending upon boss stress, intelligence helped performance or had no effect, Potter found that intelligence had no effect or hurt performance. The present investigation explains these differences through an examination of job characteristics, specifically, the procedural and creative demands of the job. Intelligence can be positively correlated with performance only when (a) stress with the boss is low and (b) when the job requires the creative use of intellect at a level greater than the intellectual level of the job incumbent (squad leaders and company commanders). In jobs which (a) the intellectual demands of the position are lower than the abilities of the job incumbents, and which (b) are characterized by a high degree of structure and routine, (Coast Guard staff and battalion staff), intelligence will have an increasingly detrimental effect on performance as double-bind stress increases.

Experience and Performance

The results of this study confirm that experience has a different effect on the performance of line and staff personnel, and that double-bind stress moderates these relationships. These findings again are explained through an analysis of the characteristics of a staff job and a line position at the battalion level.

As previously suggested, the staff officer's job at the battalion level is highly governed by standardized procedures and regulations; he is effective to the degree to which he adheres to prescribed procedures and methods. The longer he is in the military the more familiar he becomes with "the Army way" of doing things, i.e. the regulations, steps and procedures inherent in any staff position, the more effective he becomes. Thus, for the staff officer, experience is slightly but not significantly correlated with performance ($r = .20$, $n = 45$). This is consistent with Potter's (1978) finding that Coast Guard staff performance improved with experience ($r = .18$, $n = 140$, $p = .03$). For the line commander, on the other hand, whose approach to the job must be creative and innovative, experience is slightly negatively correlated with performance ($r = -.26$, $n = 44$, ns)

The interpretation of Figure 6 and Table 7 showing the effect of double-bind stress on the correlation of perform-

ance with experience for company commanders and staff officers again relates to the nature of the tasks involved, in line positions and staff positions. As previously shown, the individual in a staff position will benefit from experience because of the intricate procedural demands inherent in such a position (Figure 2). Under high stress the staff officer will abandon his creative and intellectual skills and will focus on what he knows best, what his experience has taught him (Lazarus, 1966). Experience is the appropriate resource (as opposed to intelligence) in this intricately structured and procedural job. There is, therefore, a positive correlation between the staff officer's experience and his performance, the more experienced officer being most familiar with the intricate procedural demands of the job. On the other hand, the staff officer in the low stress condition is free to use his intellectual resources and presumably does so. Since this is the inappropriate source of guidance for behavior there is no correlation between his experience and his performance in this condition.

Consider the line officer. Under the high stress condition, he, too, will abandon his creative and intellectual skills in order to fall back on his experience. But in his case, where the job is characterized by high creativity demands, experience is the inappropriate reference for job effectiveness. As a result, there is no correlation between experience and performance. Explaining the extreme

negative correlation between experience and performance for line commanders under low double-bind stress conditions is somewhat speculative. Possibly under low stress the more experienced commanders relax in the job and do not try as hard. This is consistent with Berkum's (1964) finding that recruits outperformed experienced sergeants when stress was low.

In essence, neither intelligence nor experience contribute to the performance of staff officers under conditions of low double-bind stress, as was also shown by Potter. Also, neither intelligence nor experience affect line performance under conditions of high double-bind stress. When the line officer can use his intellect to aid his performance, experience serves as an obstacle. In contrast, when the staff officer can use his experience to aid performance, high intelligence has a negative effect.

Summary of Results

Several tentative conclusions can be drawn from this study. First, the optimum intelligence level model (Figure 1) may account for the results of this and previous studies. It suggests why intelligence can be positively, negatively, or not correlated with performance for any single job, depending upon the average intelligence level of the job incumbents and the optimum intelligence level for the job. If the average intelligence level is below optimum, intelligence and performance will be positively

correlated; if the average intelligence level is above optimum, intelligence and performance will be negatively correlated; and if the average intelligence level is near optimum, intelligence and performance will be unrelated. Further, the results suggest that intelligence can have a positive impact only on jobs requiring the creative use of intellect, and this seems possible only when double-bind stress is low. Intelligence has a detrimental effect on jobs requiring a high degree of standardization and routine when double-bind stress is high.

Figure 2 portrays the effect of experience on jobs characterized by high demands for creativity and originality and on jobs requiring rigid adherence to standard operating procedures and regulations. It seems experience has a negative impact on the former and a positive effect on performance in the latter. This model also helps to explain the puzzling results of previous investigations of the effect of experience on performance. Additionally, it appears that experience will have a positive impact on performance only on jobs requiring a high degree of standardization and intricate procedural guidance and only when double-bind stress is high. Finally, the results suggest that experience will have a negative effect on performance in jobs requiring the creative use of intellect when stress with the boss is low. However, this speculation, unlike the other findings, is not supported by previous research.

Practical implications. Although this study used as subjects military line and staff personnel at battalion level, the findings may generalize to other positions with similar distinguishing characteristics, i.e., high demands for creativity and intellectual abilities, or intricate procedural demands. Similarly, the optimum intelligence level model may be appropriate for other jobs. Bearing this in mind, the practical implications discussed may be applicable to organizations other than military.

The implications of this study concern the most effective assignment and utilization of personnel within the organizational setting.

The most significant conclusion is that the intellectual abilities of individuals need to be matched with the intellectual demands of the job. Some people who are either too dull or too bright for a specific job will not perform as well as those whose mental abilities are at the optimum intellectual level for that particular job. This is intuitively sensed by many personnel managers who reject job applicants who are "over-educated" or appear "too smart" for the job.

Secondly, it is suggested that personnel managers need to analyze jobs for structural and procedural demands and creative and intellectual demands. The more experienced personnel can then be assigned to positions wherein their familiarity with the system can be of value as opposed to

positions where experience may be an obstacle to original thinking.

Theoretical implications. The theoretical implications of this study are consistent with previous research (Potter, 1978). First of all, stress which is perceived by subordinates as stemming from their relationship with their boss, wherein the boss pushes for performance yet withholds information, guidance and freedom, has a negative impact on the ability to use intelligence. At the same time, this double-bind stress positively affects the ability to use experience.

Secondly, it appears that even though intelligence and experience perform a similar function (i.e., provide a basis on which to make decisions about behavior) they are used in very different ways. Some situations seem to require that intelligence be used to guide behavior and other situations require that experience be used for maximum effectiveness. The substitution of one for the other may impair performance.

How does an individual decide whether to use his experience or his intellect? In some cases the decision is made for him. If the subordinate is subjected to pressure, especially from his boss, he cannot use his intelligence. We cannot however, endorse the eradication of boss pressure, for this stress stimulates the use of experience. In sum then, it seems that if the job requires the creative use of intellect and if the job incumbents have the necessary mental skills, it is inappropriate for the boss to pressure

them. On the other hand, if the job is routine and procedural and if subordinates are experienced, stress from the boss will improve performance.

This study is only one step toward unraveling the complex knot which intertwines experience, intelligence and their effect on specific jobs. Much work will need to be done to answer such questions as, "What functions of intellect are degraded by stress? Why is stress necessary to stimulate the use of experience? How does one determine the creative and intellectual demands of a job? How does one assess the routineness and procedural demands of a job? and How is the optimum intelligence level for a specific job measured? Hopefully, this study will stimulate research to answer these important questions.

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APPENDIX A

WONDERLIC PERSONNEL TEST

WONDERLIC

PERSONNEL TEST

FORM V

NAME ..... Date .....
(Please Print)

READ THIS PAGE CAREFULLY. DO EXACTLY AS YOU ARE TOLD. DO NOT TURN OVER THIS PAGE UNTIL YOU ARE INSTRUCTED TO DO SO.

This is a test of problem solving ability. It contains various types of questions. Below is a sample question correctly filled in:

REAP is the opposite of

1 obtain, 2 cheer, 3 continue, 4 exist, 5 sow ..... [5]

The correct answer is "sow." (It is helpful to underline the correct word.) The correct word is numbered 5. Then write the figure 5 in the brackets at the end of the line.

Answer the next sample question yourself.

Gasoline sells for 23 cents per gallon. What will 4 gallons cost? ..... [___]

The correct answer is 92¢. There is nothing to underline so just place "92¢" in the brackets.

Here is another example:

MINER MINOR — Do these words have

1 similar meaning, 2 contradictory, 3 mean neither same nor opposite? ..... [___]

The correct answer is "mean neither same nor opposite" which is number 3 so all you have to do is place a figure "3" in the brackets at the end of the line.

When the answer to a question is a letter or a number, put the letter or number in the brackets. All letters should be printed.

This test contains 50 questions. It is unlikely that you will finish all of them, but do your best. After the examiner tells you to begin, you will be given exactly 12 minutes to work as many as you can. Do not go so fast that you make mistakes since you must try to get as many right as possible. The questions become increasingly difficult, so do not skip about. Do not spend too much time on any one problem. The examiner will not answer any questions after the test begins.

Now, lay down your pencil and wait for the examiner to tell you to begin!

Do not turn the page until you are told to do so.

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Form V

1. In the following set of words, which word is different from the others?
   1 copper, 2 nickel, 3 aluminum, 4 wood, 5 bronze [___]
2. Which word below is related to bear as calf is to cow?
   1 chick, 2 cub, 3 fawn, 4 trout, 5 fox [___]
3. Most of the items below resemble each other. Which one is least like the others?
   1 July, 2 February, 3 April, 4 Tuesday, 5 June [___]
4. In 20 days a boy saved one dollar. What was his average daily saving? [___]
5. HYPOCRITE HYSTERICAL — Do these words have
   1 similar meaning, 2 contradictory, 3 mean neither same nor opposite? [___]
6. Are the meanings of the following sentences: 1 similar, 2 contradictory, 3 neither similar nor contradictory? Look before you leap. Think today and speak tomorrow [___]
7. Assume the first 2 statements are true. Is the final one: (1)true, (2)false, (3)not certain?
   The flute is in tune with the harp. The harp is in tune with the viola. The viola is in tune with the flute. [___]
8. In the following set of words, which word is different from the others?
   1 beef, 2 mackerel, 3 veal, 4 bacon, 5 hot dog [___]
9. Are the meanings of the following sentences: 1 similar, 2 contradictory, 3 neither similar nor contradictory? Never look a gift horse in the mouth. You cannot make a silk purse out of a sow's ear. [___]
10. Most of the items below resemble each other. Which one is least like the others?
    1 suspicion, 2 unbelief, 3 doubt, 4 resolve, 5 misgiving [___]
11. SUPPORT is the opposite of
    1 maintain, 2 sustain, 3 cherish, 4 desert, 5 prop [___]
12. Assume the first 2 statements are true. Is the final one: (1)true, (2)false, (3)not certain?
    These puppies are normal dogs. All normal dogs are active. These puppies are active. [___]
13. How many of the five items listed below are exact duplicates of each other? [___]

7362	7363
62738	63738
527182	527182
918264	918264
1628357	1638357

14. Gasoline is 12.5 cents a gallon. How many gallons can you buy for a dollar? [___]
15. DECEPTION is the opposite of
    1 falsehood, 2 trickery, 3 frankness, 4 finesse, 5 fabrication [___]
16. Assume the first 2 statements are true. Is the final one: (1)true, (2)false, (3)not certain?
    All red-headed boys like candy. Charles is red-headed. He likes candy. [___]
17. A dealer bought some cars for $2500. He sold them for $2900, making $50 on each car. How many cars were involved? [___]
18. ABSURD ACCEDE — Do these words have
    1 similar meaning, 2 contradictory, 3 mean neither same nor opposite? [___]
19. Two of the following proverbs have similar meanings. Which ones are they? [___]
    1. You catch more flies with honey than with vinegar.
    2. The wheel that does the squeaking is the wheel that gets the grease.
    3. A fly follows the honey.
    4. Sweet appears sour when we pay.
    5. Too swift arrives as tardy as too slow.
20. In the following set of words, which word is different from the others?
    1 little, 2 small, 3 tiny, 4 spacious, 5 precise [___]
21. ADORN is the opposite of
    1 garnish, 2 ornament, 3 embellish, 4 bedeck, 5 deface [___]
22. Are the meanings of the following sentences: 1 similar, 2 contradictory, 3 neither similar nor contradictory? Words are always bolder than deeds. Stabs heal, but bad words never. [___]
23. Two of the following proverbs have a similar meaning. Which ones are they? [___]
    1. Once bitten, twice shy.
    2. No one is happy all his life long.
    3. Hitch your wagon to a star.
    4. Fortune favors the brave.
    5. All men have the same share of happiness.
24. A rectangular bin, completely filled, holds 640 cubic feet of grain. If the bin is 8 feet wide and 10 feet long, how deep is it? [___]
25. ANGER is the opposite of
    1 fury, 2 vexation, 3 forbearance, 4 displeasure, 5 resentment [___]
26. Assume the first 2 statements are true. Is the final one: (1)true, (2)false, (3)not certain?
    These boys are normal children. All normal children are big eaters. These boys are big eaters. [___]
27. A boy is 10 years old and his sister is twice as old. When the boy is 16 years old, what will be the age of his sister? [___]

Form V

28. Are the meanings of the following sentences: 1 similar, 2 contradictory, 3 neither similar nor contradictory? All comedies are ended at marriage. The man who expects comfort in this life must be born deaf, dumb, and blind. [___]

29. In the following set of words, which word is different from the others?
1 odor, 2 scent, 3 sour, 4 spice, 5 fume [___]

30. ABSCOND ABSENCE — Do these words have
1 similar meanings, 2 contradictory, 3 means neither same nor opposite? [___]

31. Four of the following 5 parts can be fitted together in such a way as to make a triangle. Which 4 are they? [___]

32. RETREAT RETRIEVE — Do these words have
1 similar meaning, 2 contradictory, 3 mean neither same nor opposite? [___]

33. Which number in the following group of numbers represents the smallest amount?
.999 999 9 1 2 .88 [___]

34. Are the meanings of the following sentences: 1 similar, 2 contradictory, 3 neither similar nor contradictory? A friend in need is a friend indeed. A faithful friend is a strong defense [___]

35. When the price of gasoline increased from 16.4 cents to 20.5 cents, what was the percent increase in cost of the gasoline? [___]

36. APPEAL is the opposite of
1 beseech, 2 entreat, 3 request, 4 deny, 5 invoke [___]

37. Two of the following proverbs have similar meanings. Which ones are they? [___]
1. Every effect becomes a cause.
2. The cautious seldom make mistakes.
3. Two dogs will kill a lion.
4. A threefold cord is not quickly broken.
5. Water falling day by day wears the hardest stone away.

38. Suppose you arrange the following words so that they make a complete sentence. If it is a true sentence, mark (T) in the brackets; if false, put an (F) in the brackets.
always Lightning follows thunder [___]

39. A clock was exactly on time at noon on Monday. At 8 P.M. on Tuesday it was 64 seconds slow. At that same rate, how much did it lose in ½ hour? [___]

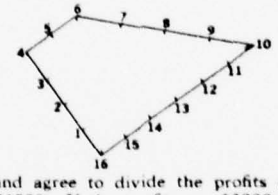
40. ENDURE is the opposite of
1 allow, 2 bear, 3 suffer, 4 sustain, 5 foil [___]

41. If 3½ tons of coal cost $35, what will 4½ tons cost? [___]

42. Are the meanings of the following sentences: 1 similar, 2 contradictory, 3 neither similar nor contradictory? Politeness is excellent, but it does not pay the bill. Cash is virtue. [___]

43. Which number in the following group of numbers represents the smallest amount?
.222 .9 .73 .2 .4 .49 [___]

44. This geometric figure can be divided by a straight line into two parts which will fit together in a certain way to make a perfect square. Draw such a line by joining 2 of the numbers. Then write these numbers as the answer. [___]



45. Three men form a partnership and agree to divide the profits equally. X invests $6500, Y invests $2000, and Z invests $1500. If the profits are $3000, how much less does X receive than if the profits were divided in proportion to the amount invested? [___]

46. What is the next number in this series? 16 4 1 .25 [___]

47. Two of the following proverbs have similar meanings. Which ones are they? [___]
1. No one is wise all the time.
2. A word to the wise is sufficient.
3. The doors of wisdom are never shut.
4. 'Tis wisdom sometimes to seem a fool.
5. The greatest good is wisdom.

48. ADROIT ADEPT — Do these words have
1 similar meanings, 2 contradictory, 3 mean neither same nor opposite? [___]

49. In printing an article of 24,000 words, a printer decides to use two sizes of type. Using the larger type, a printed page contains 1200 words. Using the smaller type, a page contains 1500 words. The article is allotted 17 full pages in a magazine. How many pages must be in the small type? [___]

50. One number in the following series does not fit in with the pattern set by the others. What should that number be? 1/1000 1/100 1/10 0 1/10 10 [___]

APPENDIX B

COMPANY COMMANDER QUESTIONNAIRE

University of Washington
Organizational Research

LEADER EFFECTIVENESS SURVEY

Personnel: Fred E. Fiedler, Professor of Psychology; CPT Mitchell Zais, Research Assistant; CPT William Knowlton, Research Assistant
Phone: 206-543-2314

One of the most important assets of any organization is its leadership talent. A project is currently being run in your unit to see if the effectiveness of leaders can be increased. This survey is being made as part of this project. On the following pages you will be asked a number of questions concerning both your leadership situation and your relationship with your immediate supervisor and/or subordinate. We believe that this survey will help extend our knowledge of the conditions influencing a leader's effectiveness. The quality of the results, however, will be no better than the accuracy of the responses you provide us.

This study is not being conducted by the Army, but it is being undertaken with the Division's permission. The questionnaire should take you approximately 30-45 minutes to complete. Your participation in this study is completely voluntary. We hope you will help us in this project, but, of course, you are free to decline to participate or to omit answering particular sections of the survey. If you have any questions, please feel free to contact Dr. Fiedler, CPT Zais, or CPT Knowlton at the number listed above.

We assure you that all answers you provide us will be held in strict confidence and will be used for research purposes only (do not put your name on the survey). No one within the Division will ever see your responses, and our final report of this research (which will be available to you) will provide only summary information from which no individual responses can be identified.

We will be grateful for your assistance. Please begin by indicating your position, company/battery, and battalion designations below. This information will be used for administrative purposes only.

Position _____

CO/BTRY _____

BN _____

BIOGRAPHICAL INFORMATION

1. Estimate the months you have spent in the following positions:
   1. BN Primary Staff _____
   2. Co. CDR (or equivalent) _____
   3. Co. XO _____
   4. Platoon Leader _____

2. Total time on active duty: _____ years _____ months

3. Present duty position: BTRY/CO CDR _____ ISG _____

4. I was assigned to my present position (check one):
   1. _____ before the first sergeant was assigned to his job.
   2. _____ after the first sergeant was assigned to his job.

5. The total time I have worked with the first sergeant is
   _____ years _____ months

6. The total time I have worked in my present position is
   _____ years _____ months

7. Age: _____ Rank: _____

Untrustworthy	: 1 : 2 : 3 : 4 : 5 : 6 : 7 : 8 :	Trustworthy	_____
Considerate	: 8 : 7 : 6 : 5 : 4 : 3 : 2 : 1 :	Inconsiderate	_____
Nasty	: 1 : 2 : 3 : 4 : 5 : 6 : 7 : 8 :	Nice	_____
Agreeable	: 8 : 7 : 6 : 5 : 4 : 3 : 2 : 1 :	Disagreeable	_____
Insincere	: 1 : 2 : 3 : 4 : 5 : 6 : 7 : 8 :	Sincere	_____
Kind	: 8 : 7 : 6 : 5 : 4 : 3 : 2 : 1 :	Unkind	_____
		TOTAL	_____

Describe the relationship between you and your group. Circle the number which best represents your response to each item.

	Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
1. The people I supervise have trouble getting along with each other.	1	2	3	4	5
2. My subordinates are reliable and trustworthy.	5	4	3	2	1
3. There seems to be a friendly atmosphere among the people I supervise.	5	4	3	2	1
4. My subordinates always cooperate with me in getting the job done.	5	4	3	2	1
5. There is friction between my subordinates and myself.	1	2	3	4	5
6. My subordinates give me a good deal of help and support in getting the job done.	5	4	3	2	1
7. The people I supervise work well together in getting the job done.	5	4	3	2	1
8. I have good relations with the people I supervise.	5	4	3	2	1

TASK STRUCTURE

Circle the number in the appropriate column.

	Usually True	Sometimes True	Seldom True
1. Is there a blueprint, picture, model, or detailed description available of the finished product or service?	2	1	0
2. Is there a person available to advise and give a description of the finished product or ser-fice, or how the job should be done?	2	1	0
3. Is there a step-by-step procedure, or a standard operating procedure which indicates in detail the process which is to be followed?	2	1	0
4. Is there a specific way to subdivide the task into separate parts or steps?	2	1	0
5. Are there some ways which are clearly recognized as better than others for performing this task?	2	1	0
6. Is it obvious when the task is finished and the correct solution has been found?	2	1	0
7. Is there a book, manual, or job description which indicates the best solution or the best outcome for the task?	2	1	0
8. Is there a generally agreed understanding about the standards the particular product or service has to meet to be considered acceptable?	2	1	0
9. Is the evaluation of this task generally made on some quantitative basis?	2	1	0
10. Can you and your group find out how well the task has been accomplished in enough time to improve future performance?	2	1	0

Describe the stressfulness of your relations with the following people:

	Little				Moderate		High
1. Your peers	1	2	3	4	5	6	7
2. Your immediate superior	1	2	3	4	5	6	7
3. Your subordinates	1	2	3	4	5	6	7

POSITION POWER

Circle the number which best represents your answer.

1. Can you directly or by recommendation administer rewards and punishments to your subordinates?

2	1	0
Can act directly or can recommend with high effectiveness	Can recommend but with mixed results	NO

2. Can you directly or by recommendation affect the promotion, demotion, hiring or firing of your subordinates?

2	1	0
Can act directly or can recommend with high effectiveness	Can recommend but with mixed results	NO

3. Do you have the knowledge necessary to assign tasks to subordinates and instruct them in task completion?

2	1	0
YES	Sometimes or in some aspects	NO

4. Is it your job to evaluate the performance of your subordinates?

2	1	0
YES	Sometimes or in some aspects	NO

5. Do you have some official title of authority given by the organization (for example, foreman, department head, commander)?

2	0
YES	NO

STRESS WITH SUBORDINATES AND IMMEDIATE SUPERVISOR

How much stress or tension do you feel on your job as a result of your subordinates behaving in the following way?

My subordinates in general	None			Moderate			Extreme
1. The people I supervise have trouble getting along together.	1	2	3	4	5	6	7
2. My subordinates are not reliable or trustworthy.	1	2	3	4	5	6	7
3. My subordinates do not cooperate with me in getting a job done.	1	2	3	4	5	6	7
4. Interpersonal conflicts occur between me and my subrodinates.	1	2	3	4	5	6	7

How much stress or tension do you feel on your job as a result of your immediate supervisor behaving in the following way?

5. He acts unfriendly or unapproachable.	1	2	3	4	5	6	7
6. He does not inform me of what he expects of me.	1	2	3	4	5	6	7
7. He does not permit me to use my judgment in solving problems.	1	2	3	4	5	6	7
8. He becomes unpleasant with me when he is under pressure.	1	2	3	4	5	6	7
9. He pressures me to work harder.	1	2	3	4	5	6	7
10. He sets deadlines which are extremely difficult to meet.	1	2	3	4	5	6	7
11. He does not pay attention to my suggestions.	1	2	3	4	5	6	7
12. He shows interest in my work.	1	2	3	4	5	6	7
13. He does not notify me of changes.	1	2	3	4	5	6	7
14. He places me in competition with others at my level.	1	2	3	4	5	6	7
15. He tries to dictate how I handle my subordinates.	1	2	3	4	5	6	7
16. He doesn't provide me with needed information to perform my job properly.	1	2	3	4	5	6	7
17. He uses my performance evaluation as a threat.	1	2	3	4	5	6	7

How often are the following statements true for your job?

	Never			Sometimes			Always
a. I have to do things that should be done differently.	1	2	3	4	5	6	7
b. I am not clear as to what my responsibilities are.	1	2	3	4	5	6	7
c. I work under incompatible policies and guidelines.	1	2	3	4	5	6	7
d. It is not clear who has the authority to make decisions.	1	2	3	4	5	6	7
e. I receive conflicting job demands from different people.	1	2	3	4	5	6	7
f. I am not clear as to how things should proceed.	1	2	3	4	5	6	7

Rate your present job on how much overall stress it places on you.

No Stress 1 2 3 4 5 6 7 Extreme Stress

How satisfied are you with your present job?

Extremely Dissatisfied 1 2 3 4 5 6 7 Extremely Satisfied

How much effort do you expend on your job?

Minimum 1 2 3 4 5 6 7 Maximum

YOUR IMMEDIATE SUPERVISOR

Below are a series of statements which describe ways in which your boss may behave. Read each statement and indicate how often your boss behaves in this way.

		HOW OFTEN DOES YOUR BOSS BEHAVE LIKE THIS?						
		Never	Almost Never	Infrequently	Sometimes	Frequently	Almost Always	Always
1.	He is friendly and approachable.	1	2	3	4	5	6	7
2.	He lets group members know what is expected of them.	1	2	3	4	5	6	7
3.	He allows members complete freedom in their work.	1	2	3	4	5	6	7
4.	He worries about the outcome of any new procedure.	1	2	3	4	5	6	7
5.	He asks members to work harder.	1	2	3	4	5	6	7
6.	He gets confused when too many demands are made on him.	1	2	3	4	5	6	7
7.	He does little things to make it pleasant to be a member of the group.	1	2	3	4	5	6	7
8.	He encourages the use of uniform procedures.	1	2	3	4	5	6	7
9.	He permits members to use their own judgment in solving problems.	1	2	3	4	5	6	7
10.	He remains calm when uncertain about certain events.	1	2	3	4	5	6	7
11.	He needles members for greater effort.	1	2	3	4	5	6	7
12.	He gets things all tangled up.	1	2	3	4	5	6	7
13.	He puts suggestions made by the group into operation.	1	2	3	4	5	6	7
14.	He lets members do their work the way they think best.	1	2	3	4	5	6	7
15.	He drives hard when there is a job to be done.	1	2	3	4	5	6	7

		HOW OFTEN DOES YOUR BOSS BEHAVE LIKE THIS?						
		1 Never	2 Almost Never	3 Infrequently	4 Sometimes	5 Frequently	6 Almost Always	7 Always
16.	He gets swamped by details.	1	2	3	4	5	6	7
17.	He makes sure that his part in the group is understood by the group members.	1	2	3	4	5	6	7
18.	He allows the group a high degree of initiative.	1	2	3	4	5	6	7
19.	He is able to tolerate postponement and uncertainty.	1	2	3	4	5	6	7
20.	He pushes for increased work performance.	1	2	3	4	5	6	7
21.	He gives advance notice of changes.	1	2	3	4	5	6	7
22.	He maintains definite standards of performance.	1	2	3	4	5	6	7
23.	He trusts the members to exercise good judgment.	1	2	3	4	5	6	7
24.	He keeps the work moving at a rapid pace.	1	2	3	4	5	6	7
25.	He accepts delays without becoming upset.	1	2	3	4	5	6	7
26.	He becomes anxious when he cannot find out what is coming next.	1	2	3	4	5	6	7

APPENDIX C

STAFF OFFICER QUESTIONNAIRE

University of Washington
Organizational Research

LEADER EFFECTIVENESS SURVEY

Personnel: Fred E. Fiedler, Professor of Psychology; CPT Mitchell Zais, Research Assistant; CPT William Knowlton, Research Assistant
Phone: 206-543-2314

One of the most important assets of any organization is its leadership talent. A project is currently being run in your unit to see if the effectiveness of leaders can be increased. This survey is being made as part of this project. On the following pages you will be asked a number of questions concerning both your leadership situation and your relationship with your immediate supervisor and/or subordinate. We believe that this survey will help extend our knowledge of the conditions influencing a leader's effectiveness. The quality of the results, however, will be no better than the accuracy of the responses you provide us.

This study is not being conducted by the Army, but it is being undertaken with the Division's permission. The questionnaire should take you approximately 30-45 minutes to complete. Your participation in this study is completely voluntary. We hope you will help us in this project, but, of course, you are free to decline to participate or to omit answering particular sections of the survey. If you have any questions, please feel free to contact Dr. Fiedler, CPT Zais, or CPT Knowlton at the number listed above.

We assure you that all answers you provide us will be held in strict confidence and will be used for research purposes only (do not put your name on the survey). No one within the Division will ever see your responses, and our final report of this research (which will be available to you) will provide only summary information from which no individual responses can be identified.

We will be grateful for your assistance. Please begin by indicating your position, company/battery, and battalion designations below. This information will be used for administrative purposes only.

Position _____

CO/BTRY _____

BN _____

AD-A070 156 ARMY MILITARY PERSONNEL CENTER ALEXANDRIA VA F/G 5/10
THE IMPACT OF INTELLIGENCE AND EXPERIENCE ON THE PERFORMANCE OF--ETC(U)
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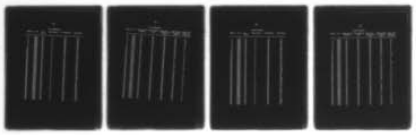

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BIOGRAPHICAL INFORMATION

1. Estimate the months you have spent in the following positions:
   1. BN CDR _____
   2. BN XO _____
   3. BN Primary Staff _____
   4. Co. CDR (or equivalent) _____

2. Total time on active duty: _____ years _____ months

3. Present duty position: BN CDR ___ BN STAFF OFF ___

4. The total time I have worked in my present position is
   _____ years _____ months

5. Age: _____ Rank: _____

6. Source of Commission: USMA ____ ROTC ____ OCS ____

LEAST PREFERRED COWORKER

Think of the person with whom you have been able to work least well. This may be someone you work with now, or someone you knew in the past. It does not have to be the person you like least well, but should be the person with whom you had the most difficulty in getting a job done. Describe this person as he or she appears to you.

Example

In describing the person with whom you least like to work, if you ordinarily think of him/her as being quite neat, you would put an "X" in the space marked 7, like this:

Very Neat : ___ : X : ___ : ___ : ___ : ___ : ___ : Very Untidy
8 7 6 5 4 3 2 1

If you ordinarily think of this person as being only slightly neat, you would put your "X" in space 5:

Very Neat : ___ : ___ : ___ : X : ___ : ___ : ___ : ___ : Very Untidy
8 7 6 5 4 3 2 1

If you think of this person as being very untidy (or not neat), you would put your "X" in space 1:

Very Neat : ___ : ___ : ___ : ___ : ___ : ___ : ___ : X : Very Untidy
8 7 6 5 4 3 2 1

Look at the words at both ends of the line before you mark your "X". Remember there are no right or wrong answers. Work rapidly; your first answer is likely to be the best. Do not omit any items, and mark each item only once.

			Scoring
Pleasant	: ___ : ___ : ___ : ___ : ___ : ___ : ___ : ___ :	Unpleasant	_____
	8 7 6 5 4 3 2 1		
Friendly	: ___ : ___ : ___ : ___ : ___ : ___ : ___ : ___ :	Unfriendly	_____
	8 7 6 5 4 3 2 1		
Rejecting	: ___ : ___ : ___ : ___ : ___ : ___ : ___ : ___ :	Accepting	_____
	1 2 3 4 5 6 7 8		
Tense	: ___ : ___ : ___ : ___ : ___ : ___ : ___ : ___ :	Relaxed	_____
	1 2 3 4 5 6 7 8		
Distant	: ___ : ___ : ___ : ___ : ___ : ___ : ___ : ___ :	Close	_____
	1 2 3 4 5 6 7 8		
Cold	: ___ : ___ : ___ : ___ : ___ : ___ : ___ : ___ :	Warm	_____
	1 2 3 4 5 6 7 8		
Supportive	: ___ : ___ : ___ : ___ : ___ : ___ : ___ : ___ :	Hostile	_____
	8 7 6 5 4 3 2 1		
Boring	: ___ : ___ : ___ : ___ : ___ : ___ : ___ : ___ :	Interesting	_____
	1 2 3 4 5 6 7 8		
Quarrelsome	: ___ : ___ : ___ : ___ : ___ : ___ : ___ : ___ :	Harmonious	_____
	1 2 3 4 5 6 7 8		
Gloomy	: ___ : ___ : ___ : ___ : ___ : ___ : ___ : ___ :	Cheerful	_____
	1 2 3 4 5 6 7 8		
Open	: ___ : ___ : ___ : ___ : ___ : ___ : ___ : ___ :	Guarded	_____
	8 7 6 5 4 3 2 1		
Backbiting	: ___ : ___ : ___ : ___ : ___ : ___ : ___ : ___ :	Loyal	_____
	1 2 3 4 5 6 7 8		

Untrustworthy	: 1 : 2 : 3 : 4 : 5 : 6 : 7 : 8 :	Trustworthy	____
Considerate	: 8 : 7 : 6 : 5 : 4 : 3 : 2 : 1 :	Inconsiderate	____
Nasty	: 1 : 2 : 3 : 4 : 5 : 6 : 7 : 8 :	Nice	____
Agreeable	: 8 : 7 : 6 : 5 : 4 : 3 : 2 : 1 :	Disagreeable	____
Insincere	: 1 : 2 : 3 : 4 : 5 : 6 : 7 : 8 :	Sincere	____
Kind	: 8 : 7 : 6 : 5 : 4 : 3 : 2 : 1 :	Unkind	____

TOTAL ____

Describe the relationship between you and your group. Circle the number which best represents your response to each item.

	Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
1. The people I supervise have trouble getting along with each other.	1	2	3	4	5
2. My subordinates are reliable and trustworthy.	5	4	3	2	1
3. There seems to be a friendly atmosphere among the people I supervise.	5	4	3	2	1
4. My subordinates always cooperate with me in getting the job done.	5	4	3	2	1
5. There is friction between my subordinates and myself.	1	2	3	4	5
6. My subordinates give me a good deal of help and support in getting the job done.	5	4	3	2	1
7. The people I supervise work well together in getting the job done.	5	4	3	2	1
8. I have good relations with the people I supervise.	5	4	3	2	1

TASK STRUCTURE

Circle the number in the appropriate column.

	Usually True	Sometimes True	Seldom True
1. Is there a blueprint, picture, model, or detailed description available of the finished product or service?	2	1	0
2. Is there a person available to advise and give a description of the finished product or service, or how the job should be done?	2	1	0
3. Is there a step-by-step procedure, or a standard operating procedure which indicates in detail the process which is to be followed?	2	1	0
4. Is there a specific way to subdivide the task into separate parts or steps?	2	1	0
5. Are there some ways which are clearly recognized as better than others for performing this task?	2	1	0
6. Is it obvious when the task is finished and the correct solution has been found?	2	1	0
7. Is there a book, manual, or job description which indicates the best solution or the best outcome for the task?	2	1	0
8. Is there a generally agreed understanding about the standards the particular product or service has to meet to be considered acceptable?	2	1	0
9. Is the evaluation of this task generally made on some quantitative basis?	2	1	0
10. Can you and your group find out how well the task has been accomplished in enough time to improve future performance?	2	1	0

Describe the stressfulness of your relations with the following people:

	Little			Moderate			High
1. Your peers	1	2	3	4	5	6	7
2. Your immediate superior	1	2	3	4	5	6	7
3. Your subordinates	1	2	3	4	5	6	7

POSITION POWER

Circle the number which best represents your answer.

1. Can you directly or by recommendation administer rewards and punishments to your subordinates?

2	1	0
Can act directly or can recommend with high effectiveness	Can recommend but with mixed results	NO

2. Can you directly or by recommendation affect the promotion, demotion, hiring or firing of your subordinates?

2	1	0
Can act directly or can recommend with high effectiveness	Can recommend but with mixed results	NO

3. Do you have the knowledge necessary to assign tasks to subordinates and instruct them in task completion?

2	1	0
YES	Sometimes or in some aspects	NO

4. Is it your job to evaluate the performance of your subordinates?

2	1	0
YES	Sometimes or in some aspects	NO

5. Do you have some official title of authority given by the organization (for example, foreman, department head, commander)?

2	0
YES	NO

STRESS WITH SUBORDINATES AND IMMEDIATE SUPERVISOR

How much stress or tension do you feel on your job as a result of your subordinates behaving in the following way?

My subordinates in general	None			Moderate			Extreme
1. The people I supervise have trouble getting along together.	1	2	3	4	5	6	7
2. My subordinates are not reliable or trustworthy.	1	2	3	4	5	6	7
3. My subordinates do not cooperate with me in getting a job done.	1	2	3	4	5	6	7
4. Interpersonal conflicts occur between me and my subrodinates.	1	2	3	4	5	6	7

How much stress or tension do you feel on your job as a result of your immediate supervisor behaving in the following way?

5. He acts unfriendly or unapproachable.	1	2	3	4	5	6	7
6. He does not inform me of what he expects of me.	1	2	3	4	5	6	7
7. He does not permit me to use my judgment in solving problems.	1	2	3	4	5	6	7
8. He becomes unpleasant with me when he is under pressure.	1	2	3	4	5	6	7
9. He pressures me to work harder.	1	2	3	4	5	6	7
10. He sets deadlines which are extremely difficult to meet.	1	2	3	4	5	6	7
11. He does not pay attention to my suggestions.	1	2	3	4	5	6	7
12. He shows interest in my work.	1	2	3	4	5	6	7
13. He does not notify me of changes.	1	2	3	4	5	6	7
14. He places me in competition with others at my level.	1	2	3	4	5	6	7
15. He tries to dictate how I handle my subordinates.	1	2	3	4	5	6	7
16. He doesn't provide me with needed information to perform my job properly.	1	2	3	4	5	6	7
17. He uses my performance evaluation as a threat.	1	2	3	4	5	6	7

How often are the following statements true for your job?

	Never			Sometimes			Always
a. I have to do things that should be done differently.	1	2	3	4	5	6	7
b. I am not clear as to what my responsibilities are.	1	2	3	4	5	6	7
c. I work under incompatible policies and guidelines.	1	2	3	4	5	6	7
d. It is not clear who has the authority to make decisions.	1	2	3	4	5	6	7
e. I receive conflicting job demands from different people.	1	2	3	4	5	6	7
f. I am not clear as to how things should proceed.	1	2	3	4	5	6	7

Rate your present job on how much overall stress it places on you.

No Stress 1 2 3 4 5 6 7 Extreme Stress

How satisfied are you with your present job?

Extremely Dissatisfied 1 2 3 4 5 6 7 Extremely Satisfied

How much effort do you expend on your job?

Minimum 1 2 3 4 5 6 7 Maximum

YOUR IMMEDIATE SUPERVISOR

Below are a series of statements which describe ways in which your boss may behave. Read each statement and indicate how often your boss behaves in this way.

		HOW OFTEN DOES YOUR BOSS BEHAVE LIKE THIS?						
		Never	Almost Never	Infrequently	Sometimes	Frequently	Almost Always	Always
1.	He is friendly and approachable.	1	2	3	4	5	6	7
2.	He lets group members know what is expected of them.	1	2	3	4	5	6	7
3.	He allows members complete freedom in their work.	1	2	3	4	5	6	7
4.	He worries about the outcome of any new procedure.	1	2	3	4	5	6	7
5.	He asks members to work harder.	1	2	3	4	5	6	7
6.	He gets confused when too many demands are made on him.	1	2	3	4	5	6	7
7.	He does little things to make it pleasant to be a member of the group.	1	2	3	4	5	6	7
8.	He encourages the use of uniform procedures.	1	2	3	4	5	6	7
9.	He permits members to use their own judgment in solving problems.	1	2	3	4	5	6	7
10.	He remains calm when uncertain about certain events.	1	2	3	4	5	6	7
11.	He needles members for greater effort.	1	2	3	4	5	6	7
12.	He gets things all tangled up.	1	2	3	4	5	6	7
13.	He puts suggestions made by the group into operation.	1	2	3	4	5	6	7
14.	He lets members do their work the way they think best.	1	2	3	4	5	6	7
15.	He drives hard when there is a job to be done.	1	2	3	4	5	6	7

	HOW OFTEN DOES YOUR BOSS BEHAVE LIKE THIS?						
	Never	Almost Never	Infrequently	Sometimes	Frequently	Almost Always	Always
16. He gets swamped by details.	1	2	3	4	5	6	7
17. He makes sure that his part in the group is understood by the group members.	1	2	3	4	5	6	7
18. He allows the group a high degree of initiative.	1	2	3	4	5	6	7
19. He is able to tolerate postponement and uncertainty.	1	2	3	4	5	6	7
20. He pushes for increased work performance.	1	2	3	4	5	6	7
21. He gives advance notice of changes.	1	2	3	4	5	6	7
22. He maintains definite standards of performance.	1	2	3	4	5	6	7
23. He trusts the members to exercise good judgment.	1	2	3	4	5	6	7
24. He keeps the work moving at a rapid pace.	1	2	3	4	5	6	7
25. He accepts delays without becoming upset.	1	2	3	4	5	6	7
26. He becomes anxious when he cannot find out what is coming next.	1	2	3	4	5	6	7

APPENDIX D

EVALUATION REPORT

CO/BTRY ____ BN ____ Position _____

In comparison to all individuals I know of in a similar position, I rate this individual as follows: (circle one)	Greatly exceeds job requirements	Exceeds job requirements	Meets job requirements	Needs improvement on job requirements	Does not meet job requirements
1. The way he carries out administrative actions required of him as a leader of a unit in keeping with SOP's and REG's.	5	4	3	2	1
2. The way he knows and understands the personal problems of subordinates and considers their suggestions and feelings.	5	4	3	2	1
3. His rapport with his subordinates without becoming overly familiar.	5	4	3	2	1
4. His technical proficiency with the available methods, techniques and equipment necessary to to the job.	5	4	3	2	1
5. The extent to which he takes the initiative to propose and carry out innovations relating to the job and to the supervision of his people.	5	4	3	2	1
6. The way he organizes his people and specifies ways of getting the job done.	5	4	3	2	1
7. The way he works with unit officers and NCO's and yourself to accomplish the mission.	5	4	3	2	1
8. The way he handles his job when demands are extra heavy or when he finds himself under severe pressure.	5	4	3	2	1

Rated Individual's Name _____

APPENDIX E

RAW DATA: VARIABLES IN STUDY

Line Commanders

Case #	ID #	IQ Score	Boss Stress	Performance	Experience
1	2131	42	1	39	73
2	2132	25	4	34	55
3	2133	28	2	40	68
4	2134	34	4	40	55
5	2135	21	6	38	56
6	2232	27	1	32	116
7	2233	28	4	32	85
8	2234	36	4	39	55
9	2235	36	3	24	72
10	2331	34	3	40	78
11	2332	38	5	38	62
12	2333	34	6	32	-0
13	2334	30	6	33	72
14	2335	25	4	36	58
15	2431	25	3	25	120
16	2432	38	3	32	54
17	2433	30	1	36	79
18	2434	34	4	36	54
19	2435	36	5	27	91
20	2436	19	3	29	83
21	2531	30	1	35	68
22	2532	32	4	40	134
23	2533	36	2	37	66
24	2534	38	5	38	80
25	2535	41	1	40	41
26	2536	30	7	40	135
27	2537	36	2	37	79
28	2631	21	6	31	43
29	2632	32	5	35	100
30	2633	27	6	34	94
31	2731	32	3	26	71
32	2732	37	2	37	54
33	2733	25	3	40	60
34	2734	20	1	38	66
35	2831	32	2	27	56
36	2832	29	4	37	69
37	2833	34	3	36	138
38	2834	28	6	19	86
39	2835	27	6	32	66
40	3131	-0	1	20	134
41	3132	33	7	18	99
42	3133	27	1	33	116
43	3134	28	2	28	66
44	3135	36	3	36	104
45	3136	28	4	25	113

Line Commanders

Case #	ID #	Boss Allows Freedom	Boss Remains Calm	Boss Provides Structure	Boss Pushes for Performance	Boss Tolerates Uncertainty.
1	2131	39	27	28	5	7
2	2132	33	30	25	13	8
3	2133	34	27	23	14	10
4	2134	30	28	24	16	6
5	2135	30	27	19	16	6
6	2232	35	30	20	13	12
7	2233	21	25	18	8	9
8	2234	23	21	19	15	9
9	2235	27	23	17	17	7
10	2331	26	23	20	15	5
11	2332	24	21	19	20	2
12	2333	24	20	24	18	8
13	2334	28	20	22	21	2
14	2335	16	8	23	16	3
15	2431	30	29	22	13	8
16	2432	34	28	23	8	9
17	2433	36	33	23	5	13
18	2434	15	30	22	17	9
19	2435	21	26	18	7	3
20	2436	31	24	25	16	8
21	2531	30	29	18	12	5
22	2532	29	23	20	13	6
23	2533	33	31	20	7	11
24	2534	35	28	22	14	6
25	2535	29	29	21	16	7
26	2536	32	24	15	10	7
27	2537	35	30	25	15	6
28	2631	26	21	15	16	10
29	2632	34	22	20	13	8
30	2633	20	20	15	16	6
31	2731	33	26	24	21	6
32	2732	36	28	23	14	7
33	2733	31	21	20	18	7
34	2734	39	27	27	20	11
35	2831	32	29	22	13	9
36	2832	35	28	22	15	9
37	2833	24	18	21	18	3
38	2834	26	29	18	15	7
39	2835	19	24	20	13	7
40	3131	29	18	21	17	3
41	3132	10	22	10	20	2
42	3133	30	22	17	12	5
43	3134	34	20	22	16	6
44	3135	31	21	14	13	7
45	3136	22	25	18	11	8

Staff Officers

Case #	ID #	IQ Score	Boss Stress	Performance	Experience
1	2122	33	2	33	79
2	2123	31	1	40	31
3	2124	33	2	40	88
4	2125	28	4	37	75
5	2126	27	4	36	81
6	2222	12	2	35	74
7	2223	30	6	31	28
8	2224	32	4	32	120
9	2225	35	1	37	57
10	2227	34	7	-0	62
11	2322	33	3	33	42
12	2323	26	1	35	84
13	2324	31	4	40	133
14	2327	31	1	38	52
15	2329	28	1	40	80
16	2422	21	6	30	73
17	2423	28	2	34	42
18	2424	29	7	34	172
19	2522	25	4	40	-0
20	2523	26	2	39	114
21	2525	39	2	38	90
22	2526	32	3	40	235
23	2622	30	1	33	190
24	2623	36	2	23	41
25	2624	28	2	30	55
26	2625	34	5	22	40
27	2626	25	1	33	16
28	2627	32	5	31	68
29	2722	32	3	25	103
30	2723	29	1	32	102
31	2724	31	1	29	30
32	2725	18	2	39	114
33	2726	23	-0	33	23
34	2727	30	4	40	32
35	2822	34	2	34	73
36	2823	34	2	36	56
37	2824	35	4	31	204
38	2825	30	5	30	44
39	2826	30	2	26	66
40	2827	39	2	29	72
41	2828	33	2	29	52
42	3122	31	3	38	43
43	3123	33	4	36	44
44	3124	24	5	31	125
45	3125	25	7	39	102
46	3126	31	2	29	49
47	3127	33	6	12	61

Staff Officers

Case #	ID #	Boss Allows Freedom	Boss Remains Calm	Boss Provides Structure	Boss Pushes for Performance	Boss Tolerates Uncertainty
1	2122	37	27	24	13	5
2	2123	40	27	24	11	10
3	2124	36	31	24	11	8
4	2125	39	35	26	16	4
5	2126	32	24	20	10	9
6	2222	26	22	19	15	6
7	2223	30	23	21	14	9
8	2224	24	24	18	14	7
9	2225	35	31	24	10	8
10	2227	35	31	20	16	11
11	2322	39	30	26	10	12
12	2323	35	31	26	12	13
13	2324	19	11	14	17	2
14	2327	39	31	23	3	7
15	2329	34	27	23	11	8
16	2422	28	24	23	16	4
17	2423	32	27	18	8	10
18	2424	37	26	23	11	11
19	2522	14	9	17	15	4
20	2523	33	22	17	10	6
21	2525	34	28	23	14	11
22	2526	28	26	14	11	7
23	2622	34	27	23	10	8
24	2623	37	30	23	18	10
25	2624	35	29	22	12	8
26	2625	32	25	23	12	9
27	2626	38	30	27	12	12
28	2627	34	30	21	10	8
29	2722	31	28	21	14	9
30	2723	41	32	26	3	13
31	2724	0	0	0	0	0
32	2725	35	26	22	8	8
33	2726	34	25	24	13	8
34	2727	26	18	21	12	9
35	2822	34	29	23	13	5
36	2823	32	30	24	11	8
37	2824	24	30	20	20	7
38	2825	26	23	21	9	6
39	2826	39	33	22	5	12
40	2827	38	33	25	9	7
41	2828	32	27	24	13	8
42	3122	38	23	23	13	8
43	3123	23	26	19	15	5
44	3124	28	15	16	17	12
45	3125	17	15	17	11	5
46	3126	34	27	21	10	10
47	3127	22	22	16	12	7