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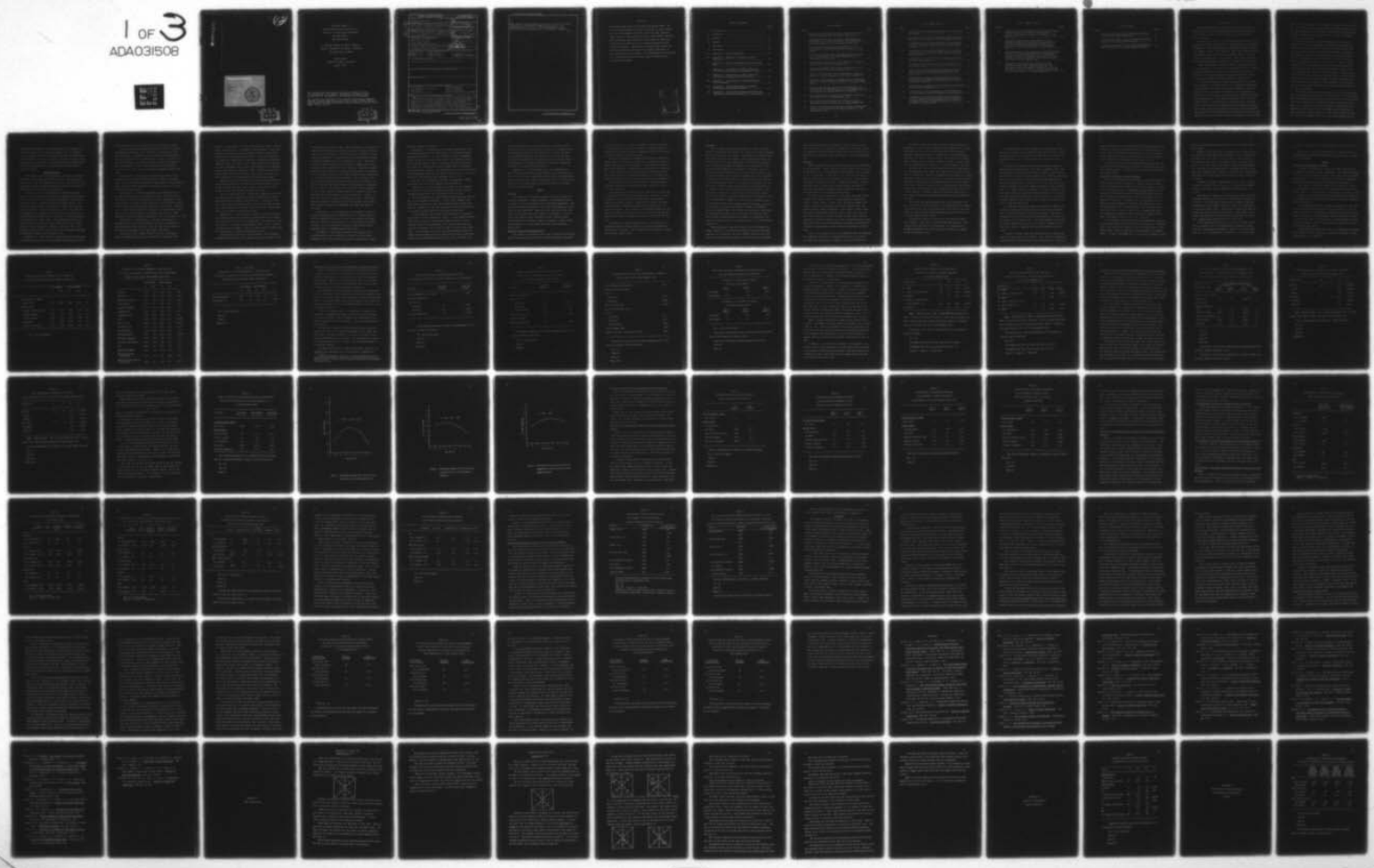

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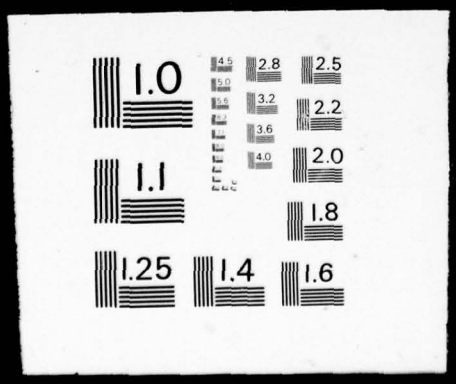

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Organizational Policy Decisions as a Function of Individual Differences and Task Design: Monitoring Tasks

J. Benjamin Forbes, Gerald V. Barrett,

Ralph A. Alexander, and James S. Phillips

The University of Akron

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The present study utilized two visual monitoring tasks. One of these was considered to require low levels of task related abilities (low demands condition), while the other required higher levels of task related abilities (high demands condition). Both performance and satisfaction were related to individual differences in ability as well as selected personality and preference measures. The congruence between

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task demands and individual abilities was found to be highly significant in determining these relationships. The consequences for job design and organizational policy decisions were discussed within a cost/benefit framework.

Abstract

The present study utilized two visual monitoring tasks. One of these was considered to require low levels of task related abilities (low demands condition), while the other required higher levels of task related abilities (high demands condition). Both performance and satisfaction were related to individual differences in ability as well as selected personality and preference measures. The congruence between task demands and individual abilities was found to be highly significant in determining these relationships. The consequences for job design and organizational policy decisions were discussed within a cost/benefit framework.

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Introduction

This report describes a study conducted in an attempt to further clarify the relationships among individual differences and job design which have been identified by the authors in earlier research.

Historically, research on job design has been moving in the direction of greater appreciation of the importance of individual differences. While early approaches completely ignored such factors (Walker & Guest, 1952; Herzberg, 1966), more recent research has established the role of both demographic group differences (Turner & Lawrence, 1965; Blood & Hulin, 1967), and individual need strengths (Hackman & Lawler, 1971; Hackman & Oldham, 1975).

Even the most recent research, however, consists primarily of correlations of self-reports of satisfaction with self-reports of task attributes as moderated by self-reports of needs. In addition, controlled experimental studies are notably lacking in job design research (Barrett, Dambrot, & Smith, 1975).

The research program, of which the present study is a part, has attempted to investigate the role of individual differences in job design in more depth than earlier research, using data from both field and laboratory situations, and systematically manipulating job structural attributes in the laboratory studies. Initial exploratory field studies established the role of individual abilities in determining job satisfaction and intended future service among Naval monitoring and maintenance personnel. Among sonar, radar, and electronics personnel, those with higher job related abilities indicated shorter periods of intended future service in the Navy and lower levels of satisfaction with the work

itself and with supervision. In addition, intended future service and job satisfaction were found to be significantly related. The personality dimension of extraversion was also negatively related to future intended service (Barrett, Bass, O'Connor, Alexander, Forbes, & Cascio, 1975).

Two earlier laboratory studies examined a wider range of individual difference dimensions as related to performance and satisfaction on simulations of monitoring and maintenance tasks. In the monitoring study, two tasks were developed: one high in job complexity, variety, responsibility, and external feedback, and one low in these four job structural attributes (Barrett, Forbes, Alexander, O'Connor, & Balascoe, 1975). General intellectual ability and perceptual style measures were strongly related to performance and performance decrements in both tasks, but were negatively related to work satisfaction. Higher scores on extraversion were associated with more errors and greater performance decrement in terms of signals detected, but there was no relationship with satisfaction. Other measures of work orientation and job structural preferences were also related to performance and satisfaction.

The present study was a continuation of the research described above. The general objectives of the study were: (1) to replicate the relationships between general intellectual ability and perceptual style and performance on a moderately complex visual monitoring task, (2) to explore other ability measures as predictors of performance on such tasks, (3) to investigate the relationships of these abilities and performance on a very simple monitoring task, (4) to test the hypothesis that the relationship between ability

and satisfaction depends on the match between task demands, and individual perceptual and cognitive capacitites, and finally, (5) to attempt to replicate and extend the relationships between other individual difference measures of personality traits, work orientation, job structural attribute preferences, and the work outcomes of performance and satisfaction which were found in earlier research.

Major Hypotheses

Based upon a review of literature in the areas of monitoring performance; individual differences; arousal, activation, and mental effort; and task design and motivation (Forbes, 1975), the following primary hypotheses relating individual differences to performance and satisfaction were proposed.

Performance on two visual monitoring tasks was measured. One task merely required the detection of signals embedded within other visual noise, the other required analysis of the position of the same type of signals relative to earlier signals. The first task required only "discrimination," while the second required "reasoning" (Pribram & McGuinness, 1975). The first set of hypotheses was concerned with the empirical verification of the relationships between various individual difference measures and performance on these tasks. These measures have been suggested by the literature previously reviewed by earlier research (Barrett, Forbes, Alexander, O'Connor, & Balascoe, 1975), and by analyzing the tasks in terms of the ability taxonomy developed by Theologus, Romashko, and Fleishman (1970).

Hypothesis 1: There will be a significant positive relationship between performance on the embedded-figures measure of per-

ceptual style and overall performance on both monitoring tasks.

Earlier research has shown that perceptual style as measured by embedded-figures-type tests relates to performance on visual monitoring tasks. Furthermore, the primary ability requirement in both tasks appeared to be "flexibility of closure" or "ability to identify or detect a previously specified stimulus configuration which is embedded in a more complex sensory field" (Theologus et al., 1970, p. 152), which is measured by embedded-figures-type tests.

Hypothesis 2: Performance on the Mihal and Barrett (1976) adaptation of the Selective Attention Test (Gopher and Kahneman, 1971) will be significantly related to performance on both monitoring tasks, such that those who make fewer errors on Part I will show higher overall performance.

"Activation," or vigilant readiness, was hypothesized to be an important determinant of performance during a monitoring task. This state is related to the ability to inhibit responses to irrelevant stimuli. Omissions on the first part of the Selection Attention Test provide an operational measure of this ability. Theologus et al., (1970) define "selective attention" as "the ability to perform a task in the presence of distracting stimulation or under monotonous conditions without significant loss in efficiency" (p. 154).

Hypothesis 3: Performance on a rod-and-frame measure of perceptual style will be significantly related to performance on both monitoring tasks, such that those who make fewer errors on the rod-and-frame measure will show higher performance.

This test is less clearly related to ability requirements than the embedded-figures test or the Selective Attention Test;

however, it does relate to both of these measures (Mihal & Barrett, 1976), and in addition, is probably a better measure of the task-relevant physiological arousal patterns typical of field independents than the embedded-figures test. It has been described as a measure of inhibition of responses to irrelevant distraction (Kahneman, 1973) and seems to tap a "body sensitivity" component of field independence not related to performance on the embedded-figures test (Barrett & Thornton, 1968). Therefore, the rod-and-frame measure should also relate to the vigilant activation pattern required for the maintenance of effective performance.

Hypothesis 4: Extraversion will be significantly related to performance decrement on the simple discrimination task, but not the more complex reasoning task. That is, those who are more extraverted will show greater decrement over time.

This is a replication of a fairly well established relationship which has been explained in terms of insufficient arousal among extraverts on simple repetitive tasks. It was felt, however, that with a more complex task, effort will be more salient than input arousal and, therefore, the extraversion relationship will be less likely to reach significance.

Hypothesis 5: The following individual difference measures will each be significantly related to performance on the complex monitoring task, but not on the simple task: (a) Selective Attention--Part II, (b) memory (Picture-Number Test), and (c) general reasoning ability (Wesman). That is, higher scores on these tests will be positively related to performance levels.

These abilities were felt to be related to the information processing requirements of the complex task, but unrelated to the

requirements of the simple task. The second part of the Selective Attention Test measures the ability to quickly reorient attention. This ability is referred to by Theologus et al., (1970) as "time sharing," defined as "the ability to utilize information obtained by shifting between two or more channels" (p. 156). The task of a busy air traffic controller is given as an example of an activity requiring a high level of this ability. The present complex monitoring task involves a constantly changing frame of reference (i.e., the position of the last signal) against which the position of the present signal must be evaluated. Such information must be maintained and utilized simultaneously for two different signals. Obviously, short-term memory or "memorization" (Theologus et al., 1970, p. 130) should also contribute to the performance of such a task; however, neither ability is relevant if the task requires only signal detection and not evaluation. Finally, it was felt that in the complex monitoring task only, a broad band measure of general reasoning ability might account for performance variance beyond that attributable to those more specific abilities.

Hypothesis 6: In the simple task, performance will be significantly predicted by the combination of (a) signal detection ability (embedded-figures test), and (b) activation and arousal measures (Selective Attention--Part I, rod-and-frame, and extraversion), and this combination will be a significantly better predictor than the embedded-figures test alone.

Performance on the simple monitoring task requires both signal detection and the ability to overcome the performance decrement, and it was assumed that these two performance require-

ments are somewhat independent.

Hypothesis 7: Performance on the complex task will be significantly predicted by the combination of the following sets of independent variables: (a) signal detection ability (embedded-figures test), (b) activation and arousal (rod-and-frame, Selective Attention--Part I), and (c) time sharing (Selective Attention--Part II), memorization (Picture-Number Test), and general reasoning ability (Wesman). The combination of (a + b) will account for significantly more variance than (a) alone and (a + b + c) will account for significantly more variance than (a + b).

The next set of hypotheses involved the proposed relationships among abilities, task demands, and satisfaction.

Hypothesis 8: On the simple task, there will be a significant negative relationship between the primary required ability (embedded-figures test) and satisfaction with the task.

This task demands only signal detection and even this requirement is not extremely demanding. In fact, pilot subjects had been found to perform at near 100% detection under certain conditions. Therefore, it was felt that only those with lower levels of perceptual ability would be challenged by this task.

It was proposed that various task rquirements are additive with respect to their demands for effort. It was further hypothesized that a measure of task-related capacity would be curvilinearly related to satisfaction on the complex task such that those with moderately high levels of ability would be most satisfied. It was assumed that those individuals whose abilities exceeded the task demands would be under-aroused, while those whose abilities were overloaded may exert more effort initially, but

effort and performance would quickly fall off (Buckner, 1963). It was felt that the best measure of task-related capacity might be empirically defined as that combination of abilities which best predicted performance during the first hour of the task. This measure represented a compromise attempt to obtain a reliable measure of performance under fairly attentive conditions. Therefore, the following was proposed:

Hypothesis 9: On the complex task, that combination of abilities which best predicts performance during the first hour of the task will show a significant curvilinear relationship with satisfaction such that those with moderate levels of task-related capacity will be most highly satisfied and report the highest levels of general arousal.

Method

Subjects

The subjects were 100 male students from the University of Akron who responded to campus newspaper advertisements offering $2.50 per hour for participation in a psychology experiment. Subjects were randomly assigned to one of two task complexity conditions (50 per condition). Only males were used due to the existence of sex differences with respect to variables of interest such as perceptual styles (Silverman, 1970), activation and arousal patterns (Broverman, Klaiber, Kobayashi, & Vogel, 1968), and performance on visual monitoring tasks (Waag, Halcomb, & Tyler, 1973).

Apparatus and Stimulus Presentation

The stimuli to be monitored were rear projected onto 23-inch square opaque plexiglass screens by Kodak Ektagraphic slide pro-

jectors (Model E-2). In order to minimize visual alerting cues as slides changed, slides were presented alternately from two projectors with dissolve controls (MacKenzie Model AD-2) adjusted to minimize changes in light intensity.

Each slide presented 60 randomly distributed irregular geometric shapes. A signal was defined as a triangle or circle included among these 60 visual stimuli. The stimuli were approximately one centimeter in diameter when projected onto the screen. The screens themselves were divided into six sectors by three lines which crossed the screens intersecting in the center and forming 60^{o} angles with each other (see Instructions, Appendix A).

Four subjects were run simultaneously. Each subject was seated in a booth which prevented him from having any contact with other subjects.

Each slide was presented for seven seconds after which time it "dissolved" into the next stimulus slide. The rate of slide presentation was controlled by an Optisonics Sound-o-matic I cassette programmer-recorder. There were 30 slides containing relevant signals randomly distributed within each set of two trays (160 slides). The location of the relevant symbol was randomly distributed across the area of the screen with an approximately equal number of signals occurring in each of the six sectors.

Responses were made by pressing one of seven buttons on a Lafayette response console placed on the table top between the subjects and the screen. The responses were recorded by a Lafayette Recorder (Model 76103).

The Tasks

Both vigilance tasks involved monitoring slides for three one-hour sessions for the presence of triangles or circles embedded within the 60 irrelevant stimuli. The complex task differed from the simple task only with respect to the demand placed upon cognitive abilities. In the simple task, the subject was required only to detect and report the presence of a triangle or circle. The complex task required, in addition to detection, that the subjects evaluate the position of the signal with respect to the previously detected similar signal. Specifically, if a detected triangle was in the same "sector" as the previously detected triangle, and had moved closer to the center of the screen, the subject was to respond by pressing the button that corresponded to the number of the sector in which the movement occurred. Similarly, if a circle was in the same sector but farther from the center of the screen, the sector number was to be indicated. Finally, if the detected triangle or circle was in a different area of the screen but had not moved appropriately with respect to the previous signal, the subject was merely to report its presence (as in the simple task). Thus, while the perceptual requirements of both tasks were identical, the complex task required moderately complex decision-making with respect to the present location of a signal relative to a previous signal (see Instructions, Appendix A).

These particular tasks were chosen so that the demands for mental capacity of the simple task would be far below the total capacity of all subjects, while the demands imposed by the complex task should exceed the capacity of some subjects and demand

less than total capacity from others. Previous studies using two similar tasks, one slightly less demanding, the other slightly more demanding than the present complex task, with subjects from the same pool, indicated that this would be a reasonably demanding task.

Procedure

Subjects reported on three different days for the three phases of the experiment. Before beginning, subjects were told that they would only be paid if they completed the experiment and were asked to sign an agreement to that effect. The first day consisted of three to four hours of paper-and-pencil testing. This pretesting took place in groups of up to 20. During this session, subjects completed a test battery which assessed general and specific abilities, personality variables, work orientation, motivation, and preferences for job structural attributes.

The test battery consisted of: The Wesman Personnel Classification Test (Wesman, 1965), The Group Embedded Figures Test (Witkin, Oltman, Raskin, & Karp, 1971), The Picture-Number Test (Kipnis, 1962), The Protestant Ethic Scale (Blood, 1969), The Sensation Seeking Scale (Zuckerman; Kolin, Price, & Zoob, 1964), The Maudsley Personality Inventory (Knapp, 1962), The Survey of Work Values (Wollack, Goodale, Wijting, & Smith, 1971), The Job Orientation Inventory (Blood, 1973), The Job Attitude Scale (Saleh, 1964, 1971), and The Work Itself/Work Environment Preference Questionnaire (a modification of the instrument described by Cascio, 1973).

Four or five groups of two to four subjects were run each week. The complexity condition was changed from day to day in order to minimze the possibility of sampling bias across conditions.

The second session took place during the week following the pretesting. It was always conducted in the afternoon and included individual testing on the Rod and Frame Test (Witkin, Lewis, Hertzman, Machover, Meissner, & Wapner, 1954) and the Selective Attention Test (Mihal & Barrett, 1976). The Attribute Preference Scale (Barrett, Bass, O'Connor, Alexander, Forbes, & Cascio, 1975) was also administered at this time. A training session followed.

Subjects were seated in the booths and given the instructions for the monitoring task. After all subjects had read the instructions to themselves, they put on headphones and listened to a standard taped review of the instructions. A 20-minute training session followed in which slides were presented exactly as in the experimental task. However, for the first 24 slides during the training session, the correct response was communicated to the subjects by a taped program. Subjects' responses during the latter part of the training session were monitored to ensure that they understood the task.

The actual experimental task was run in the morning of the day following the training session. All subjects were run between 8:30 and 11:30 A.M. due to the possibility that time of day might effect the relationships between extraversion and performance on vigilance tasks (Eysenck, 1967).

Subjects were seated at their booths and asked to remove their watches. They then reviewed the task instructions. Upon finishing the review of the instructions, the subjects put on headphones through which white noise was transmitted at subjectively comfortable levels.

The experimental session consisted of three one-hour vigils. Each hour's stimuli were presented by three pairs of slide trays. The end of each pair of trays was indicated by the occurrence of two blank slides. At the end of each hour, there was a short break.

Following the three-hour task, the subjects were administered the Morale Scale (Scott, 1967; Scott & Rowland, 1970), the Job Descriptive Index Work Scale (Smith, Kendall, & Hulin, 1969), the Attribute Description Scale (Barrett, Bass, O'Connor, Alexander, Forbes, & Cascio, 1975), and the Work Itself/Work Environment Description Questionnaire (Cascio, 1973). After completing these measures, subjects were given general feedback on their performance, i.e., "above average," "average," or "below average." They then read a debriefing statement which asked them not to discuss the task with other students and informed them that if they left a mailing address, they would be sent a summary of results of the study. They were then paid.

Performance measures consisted of percentage of signals detected, percentage of correct detections, and average response time. The first measure allows a more meaningful comparison of performance on the two tasks since signal detection was the only requirement on the simpler task. The second measure applies only to the more demanding task where signal type, movement, and location were relevant. Response time was also measured for both tasks.

In many vigilance tasks, the mean proportion of signals detected is rather high (e.g., 80-90%). This results in skewed distributions which require normalizing transformations. Therefore,

arcsin transformations of percentage of signals detected and percentage of correct detections were used as the performance criteria. Such transformations stabilize within cell variances to satisfy analysis of variance assumptions and tend to normalize the distribution of proportion measures (Winer, 1971).

In similar earlier studies, false detections were found to be rather rare and appeared to be primarily associated with random response patterns. Therefore, this criterion was not used in the present study.

Statistical Treatment and Power Analysis

Most of the hypotheses involved testing the significance of simple product moment correlations. Based on earlier studies, these relationships were expected to be fairly strong. A correlation of .40 was chosen as a reasonable *a priori* estimate of the strength of the expected linear relationships between abilities and performance and satisfaction. With such an effect size, a sample of 46 subjects is required for a .80 probability of rejecting the null hypothesis given that the alternative is true for a two-tailed test of significance at the .05 level (Cohen, 1969, Table 3.4.1, p. 99). Cohen (1969) recommends 80% power as representing a reasonable ratio between the probabilities of Type II and Type I errors of 4:1 (i.e., .20/.05).

In the complex task, curvilinear relationships were hypothesized between ability and satisfaction and activation. The magnitude of this effect was expected to be of the same order as that found between cognitive complexity and satisfaction by Standing (1971). In fact, the present use of a controlled laboratory study

and more reliable predictors argued for an even stronger expected relationship.

Standing (1971) found that the proportion of variance in the Job Descriptive Index Work Scale accounted for by a second order polynomial was .136 (Table 9, p. 47), most of which was due to the quadratic term (.131). This proportion of variance corresponds to an F-test effect size index, f, equal to approximately .40. The test of the significance of the quadratic term in the regression equation, using deviations about the full second order polynomial as the error term, would involve 1 and n - 3 degrees of freedom.

According to Cohen's (1969) Table 8.4.1 (p. 374), .80 power to detect an effect size of .40, at a = .05, with the numerator of the F-ratio equal to one, requires 26 subjects (at a = .01, n = 38).

Combinations of predictors involved a hierarchical multiple regression procedure in which sets of independent variables, as specified in the hypotheses, were entered in order of expected relevance and the increment in R^2 was tested for significance at each step (Cohen, 1968). Controlling for ability effects was accomplished through partial correlation. Power tables are not readily obtainable for such multivariate statistics, and therefore, a priori power analysis was not carried out.

Strong experimental effects (i.e., due to the task itself) were not expected due to the hypothesized existence of large individual differences in response. However, a "medium" effect size (d = .5) is detectable by a t-test (a = .05) with a power

of .80 with 50 subjects per condition (Cohen, 1969, Table 2.4.1., p. 52).

Based upon these power considerations, a sample size of 50 subjects per condition was chosen as providing at least .80 power for all hypotheses.

Results

Differences on Dependent Variables

In terms of percentage of signals detected, there were no significant differences across conditions. Total percent detected was .879 in the low demands condition and .861 in the high demands condition (t = -.79, ns). An analysis of variance by condition, hour, and time within each hour is presented in Appendix B.

With respect to average response time, there was a significant difference, however, with the times being much lower in the simpler task (1.77 seconds versus 2.75 seconds, t = 7.62, $p < .001$).

Levels of job satisfaction were comparable across conditions, as measured by the Job Descriptive Index-Work Scale and the Morale Scale (see Table 1).

Two instruments designed to measure perceptions of job structural attributes were administered following the task. The results from the Work Itself/Work Environment Questionnaire are presented in Table 2. The high demands task was described as higher in learning new skills, job difficulty, decision-making, and job/person fit; however, the low demands task was perceived as higher on order and goal clarity.

On the Attribute Description Scale, no significant differences were found on the job structural attributes of feedback, variety, responsibility, or complexity.

Table 1

Comparison of Post-Task Measures of Satisfaction and General Arousal Across Task Demand Conditions[a]

	Low Demands		High Demands		
	M	SD	M	SD	t
Job Descriptive Index:					
Work Scale	19.02	14.86	19.80	13.65	.27
Morale Scale:					
General Affective Tone	3.72	1.32	3.94	1.29	.83
General Arousal	3.70	1.55	3.68	1.67	-.05
Job Complexity	3.44	1.33	3.65	1.28	.78
Job Worth	3.77	1.58	3.92	1.33	.51
Personal Competence	4.48	1.39	4.56	1.23	.29

[a] $\underline{n}_{.}$ = 50 per condition.

Table 2

Comparison of Post-Task Measures of Job Structural Attributes as Assessed by the Work Itself/Work Environment Questionnaire Across Task Demand Conditions[a]

	Low Demands		High Demands		
	M	SD	M	SD	t
Variety	1.90	.95	2.08	1.09	.88
Attention	3.46	1.22	3.66	1.21	.83
Learning New Skills	1.30	.58	1.68	.89	2.53*
Task Identity	3.72	1.40	3.70	1.22	-.08
Internal Feedback	2.76	1.32	2.70	1.22	-.24
Independence	2.26	1.35	1.98	1.17	-1.11
Responsibility	3.38	1.69	3.18	1.51	-.62
Order	4.06	1.08	3.48	1.09	-2.67**
Goal Clarity	4.68	.59	4.20	.67	-3.81***
Job Difficulty	1.60	.76	1.90	.68	2.09*
Job Complexity	1.84	1.28	2.10	.84	1.20
Decision-Making	1.82	.80	2.82	1.27	4.70***
Intrinsic Interest	1.96	1.23	1.94	1.13	-.08
Intrinsic Motivation	1.68	.94	1.82	.92	.75
Pay	2.80	.73	2.94	.79	.92
External Feedback	1.26	.78	1.32	.74	.40
Physical Working Conditions	3.28	.76	3.26	.88	-.12
Administrative Working Conditions	3.84	1.11	4.04	.81	1.03

Table 2 (Continued)

Comparison of Post-Task Measures of Job Structural Attributes as Assessed by the Work Itself/Work Environment Questionnaire Across Task Demand Conditions[a]

	Low Demands		High Demands		
	M	SD	M	SD	t
Work Scheduling	3.46	.71	3.44	.71	-.14
Job/Person Fit	1.30	.74	1.70	1.06	2.20*

[a] n = 50 per condition.

*$p < .05$.

**$p < .01$.

***$p < .001$.

Prediction of Performance by Task-Relevant Individual Attributes

Table 3 presents the correlations between those abilities believed to be relevant to performance on both tasks and overall levels of performance. It can be seen that the Group Embedded Figures Test, the Selective Attention Test--Part I (Intrusions and Omissions), and the Rod and Frame Test were related to performance, but only in the high demands condition.

An additional set of more complex abilities was hypothesized to be of relevance to performance only on the more demanding task. As can be seen from Table 4, these abilities (Selective Attention--Part II, the Picture/Number Test, and the Wesman Total Score) do predict performance in the high demands condition, but not in the low demands condition.

In the high demands task, it was possible to compute the percentage of correct detections in addition to the percentage of signals detected. Table 5 presents the correlations of all ability measures with this criterion. All nine correlations are significant.

The Maudsley Personality Inventory--Extraversion Scale was expected to relate to performance decrement on the simple vigilance task. As shown in Table 6, the scale did relate to performance decrement late in the task. No other ability or personality measures were found to relate to performance decrement in a meaningful fashion.

More detailed analysis of these relationships (by hour, correlations with subscales, etc.) may be found in Appendix C.[1]

[1]Although extensive, this and all other appendices are not intended to represent all possible relationships between the relevant variables. Tables totally lacking significant correlations have been omitted.

Table 3

Correlations Between Task-Related Abilities and Performance[a] on Two Monitoring Tasks Differing in Task Demands[b]

Ability	Low Task Demands	High Task Demands
Group Embedded Figures Test	.12	.35*
Selective Attention Test-Part I:		
Intrusions	.01	-.42**
Omissions	-.16	-.47***
Rod and Frame Test	.02	-.45***

[a]Performance measure was an arcsin transformation of the percent of signal detections.

[b]n = 50 on both tasks.

*$p < .05$.

**$p < .01$.

***$p < .001$.

Table 4

Correlations Between Abilities Hypothesized to Relate Only to Performance on the High Demands Task and Performance[a] on Both Tasks[b]

Ability	Low Task Demands	High Task Demands
Selective Attention Test-Part II:		
Intrusions	.01	-.32*
Omissions	.05	-.27
Total Correct	-.05	.32*
Picture-Number Test	.16	.43**
Wesman Personnel Classification Test	.11	.39**

[a]Performance measure was an arcsin transformation of the percent of signal detections.

[b]$\underline{n}$ = 50 on both tasks.

*$\underline{p} < .05$.

**$\underline{p} < .01$.

Table 5

Correlations of Abilities with Performance in Terms of Correct Detections[a]--High Demands Task

Group Embedded Figures Test	.31*
Selective Attention Test- Part I:	
Intrusions	-.37**
Omissions	-.46***
Rod and Frame Test	-.46***
Selective Attention Test- Part II:	
Intrusions	-.35*
Omissions	-.28*
Total Correct	.36**
Picture-Number Test	.44***
Wesman Personnel Classification Test	.43**

[a]Performance measure was an arcsin transformation of the percent of correct signal detections.

[b]$\underline{n} = 50$.

*$\underline{p} < .05$.

**$\underline{p} < .01$.

***$\underline{p} < .001$.

Table 6

Correlations Between the Maudsley Extraversion Scale and Performance Decrements by Condition[a]

	Decrement in Percentage of Signals Detected within Hours[b]		
	Hour 1	Hour 2	Hour 3
Low Demand	-.17	.03	.37**
High Demand	-.09	.04	-.05

	Decrement in Percentage of Signals Detected Between Hours[c]		
	Hour 1 -Hour 3	Hour 1 -Hour 2	Hour 2 -Hour 3
Low Demand	.07	-.24	.32*
High Demand	.17	.06	.12

[a] n = 50 for both groups.

[b] Raw score differences between percentage detected--first third of hour minus last third of hour.

[c] Raw score differences between percentage detected.

*$p < .05$.

**$p < .01$.

It had been believed that the combination of the Group Embedded Figures Test, Selective Attention Test--Part I, Rod and Frame Test, and the Maudsley Extraversion Scale would predict performance on the low demands task. However, none of these measures related to performance singly or in combination.

Prediction of performance in the high demands condition was much more successful. Tables 7 and 8 present a hierarchical regression analysis (Cohen, 1968), in which the most basic ability, signal detection--operationally defined as the Group Embedded Figures Test--was entered first. This was followed by the activation measures related to maintenance of attention over time--omissions on Part I of the Selective Attention Test and the Rod and Frame Test. Finally, those abilities only required on more complex monitoring tasks were added: The Wesman Personnel Classification Test, the number of correct responses on Part II of the Selective Attention Test, and the Picture-Number Test of memory.

Table 7 involves prediction of simple signal detection performance. Increments to $\underline{R}^2$ were tested using Formula (7) in Cohen (1968, p. 435). With this criterion, the overall prediction was significant and the activation measures contributed significantly to $\underline{R}^2$; however, the contribution of the abilities required on a complex task did not add to the variance accounted for at the .05 level.

In Table 8, a criterion more relevant to performance on the complex task was used--percentage of correct detection as opposed to percentage of signals merely detected. Here the overall relationship was highly significant and the complex ability set did significantly contribute to $\underline{R}^2$.

Table 7

Tests for Significance of the Combination of Abilities Related to Signals Detected[a] on the High Demands Task[b]

Predictor(s)	R	R^2	df	F
A) GEFT	.35	.12	1,48	6.62*
A) GEFT + B) SAT-I, RFT	.56	.31	3,46	6.94***
Increment[c]	--	.19	2,46	6.33**
A) GEFT + B) SAT-I, RFT + C) WPCT, SAT-II, PN	.64	.41	6,43	5.02***
Increment[d]	--	.10	3,43	2.36

Note. Abbreviations: GEFT = Group Embedded Figures Test, SAT-I = Selective Attention Test-Part I, RFT = Rod and Frame Test, WPCT = Wesman Personnel Classification Test, SAT-II = Selective Attention Test-Part II, PN = Picture-Number Test.

[a]Criterion was an arcsin transformation of the percent of signals detected.

[b]$n = 50$.

[c]Incremental R^2 due to B over that due to A alone.

[d]Incremental R^2 due to C over that due to A + B.

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

Table 8

Tests for Significance of the Combination of Abilities Related to Correct Signal Detection[a] on the High Demands Task[b]

Predictor(s)	R	R^2	df	F
A) GEFT	.31	.10	1,48	5.23*
A) GEFT + B) SAT-I, RFT	.56	.31	3,46	6.84***
Increment[c]	--	.21	2,46	7.00**
A) GEFT + B) SAT-I, RFT + C) WPCT, SAT-II, PN	.67	.44	6,43	5.73***
Increment[d]	--	.13	3,43	3.31*

Note. Abbreviations: GEFT = Group Embedded Figures Test, SAT-I = Selective Attention Test-Part I, RFT = Rod and Frame Test, WPCT = Wesman Personnel Classification Test, SAT-II = Selective Attention Test-Part II, PN = Picture-Number Test.

[a]Criterion was an arcsin transformation of the percent of correct signal detections.

[b]$n = 50$.

[c]Incremental R^2 due to B over that due to A alone.

[d]Incremental R^2 due to C over that due to A + B.

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

Prediction of Satisfaction by Task-Relevant Individual Attributes

Turning now to the prediction of satisfaction and task-related arousal, it was proposed that the primary ability on the simple task, the Group Embedded Figures Test, would be negatively related to satisfaction and arousal following performance on that task. Table 9 indicates that this hypothesis was strongly supported. It is interesting to note that the embedded-figures-type test was the only ability measure which was consistently related to lower satisfaction and arousal, on the low demands task, and was not related to satisfaction and arousal on the high demands task.

The final primary hypothesis predicted a curvilinear relationship between that combination of abilities which best predicted performance during the first hour of the task and satisfaction and arousal measures in the complex task. To find that combination of abilities best related to task performance, stepwise regressions were run. Only predictors significantly contributing to $\underline{R}^2$ at the .05 probability level were included. The best set of predictors included the Rod and Frame Test and the Picture-Number Test. However, the combination of the Rod and Frame Test and the Wesman Personnel Classification Test resulted in comparable levels of prediction as shown in Tables 10 and 11.

The scores on the Rod and Frame Test, the Picture-Number Test, and the Wesman were standardized based on the means and standard deviations of the entire subject sample of the present study. Two composite ability measures were then formed: the standardized Picture-Number score minus the standardized rod-and-frame score and the standardized Wesman minus the standardized rod-and-frame.

Table 9

Correlations Between that Ability Hypothesized to be Most Relevant to Performance on the Low Demands Task[a] and Satisfaction and Arousal Measures by Condition

Satisfaction and Arousal Measures	Group Embedded Figures Test			
	Raw Scores		Inverse	
	Low Demands	High Demands	Low Demands	High Demands
Job Descriptive Index:				
Work Scale	-.38*	-.03	.45*** ≠	-.11
Morale Scale:				
General Affective Tone	-.32*	-.08	.41**≠	.01
General Arousal	-.43** +	-.03	.51***≠	-.02
Personal Competence	-.27	.13	.33* +	-.14
Job Complexity	-.40**	-.10	.48*** +	-.01
Job Worth	-.37**	-.26	.41**	.10

[a] $n = 50$.

*$p < .05$.

**$p < .01$.

***$p < .001$.

+Correlation coefficients significantly different between low and high demands conditions, $p < .05$.

≠Correlation coefficients significantly different between low and high demands conditions, $p < .01$.

Table 10

Best Combinations of Predictors of Signals Detected[a] in the First Hour of the High Demands Task[b]

Predictor(s)	R	R^2	df	F
RFT, PN	.60	.36	2,47	12.96***
RFT/PN			1,47	12.82***
PN/RFT			1,47	9.55**
RFT, WPCT	.54	.29	2,47	9.59**
RFT/WPCT			1,47	8.24**
WPCT/RFT			1,47	4.32*

Note. Abbreviations: RFT = Rod and Frame Test, PN = Picture-Number Test, WPCT = Wesman Personnel Classification Test.

[a]Arcsin transformation of percent of signals detected.

[b]$\underline{n} = 50$.

*$\underline{p} < .05$.

**$\underline{p} < .01$.

***$\underline{p} < .001$.

Table 11

Best Combination of Predictors of Correct Signal Detection[a] in the First Hour of the High Demands Task[b]

Predictor(s)	R	R^2	df	F
RFT, PN	.58	.34	2,47	11.87***
RFT/PN			1,47	11.73**
PN/RFT			1,47	8.76**
RFT, WPCT	.56	.31	2,47	10.60***
RFT/WPCT			1,47	6.94*
WPCT/RFT			1,47	6.76*

Note. Abbreviations: RFT = Rod and Frame Test, PN = Picture-Number Test, WPCT = Wesman Personnel Classification Test.

[a]Arcsin transformation of percent of correct signal detection.

[b]$n = 50$.

*$p < .05$.

**$p < .01$.

***$p < .001$.

The rod-and-frame score was subtracted since a higher score indicates poorer performance.

These composite abilities were then squared and the linear and quadratic terms were entered into regression analyses with the satisfaction and arousal measures to test the following model:

$$y = a \pm bX - cX^2$$

where y represents satisfaction or arousal and X represents the composite ability measures.

No support for the model was found with the rod-and-frame/Picture-Number composite (F values < 1). However, significant curvilinear relationships were found using the rod-and-frame/Wesman composite as shown in Table 12. The model was supported with respect to work satisfaction as measured by the Job Descriptive Index and rating of intrinsic job worth from the Morale Scale. These measures both ask for descriptions of the task.

For two of the measures derived from a description of "Me at this task"; General Affect and General Arousal, the curvilinear relationship was not found. However, for a third factor derived from the description of "Me at this Task"--the Personal Competence factor, a significant, purely quadratic relationship was found, $F(1,48) = 4.93$, $p < .05$.

Thus, the curvilinear relationship was found for one combination of abilities, but not the other, and for two satisfaction measures, but not for the General Arousal measure, nor for two other satisfaction measures. See Figures 1, 2, and 3 for plots of the significant curvilinear relationships.

Table 12

Tests of Curvilinear Relationships Between Task-Related Ability[a] and Satisfaction and Arousal Measures in the High Demands Task[b]

Criterion	F(linear) df = 1,47	F(quadratic) df = 1,47	F(overall) df = 2,47
Job Descriptive Index:			
Work Scale	4.08*	7.13*	3.83*
Morale Scale:			
General Affect	.99	2.05	1.07
General Arousal	.57	.40	.32
Job Complexity	1.41	.66	.73
Job Worth	8.68**	4.39*	4.55*
Personal Competence	.05	4.93*	2.44

[a]Unit weighted combination of standardized Rod and Frame Test and standardized Wesman Personnel Classification Test.

[b]$n = 50$.

*$p < .05$.

**$p < .01$.

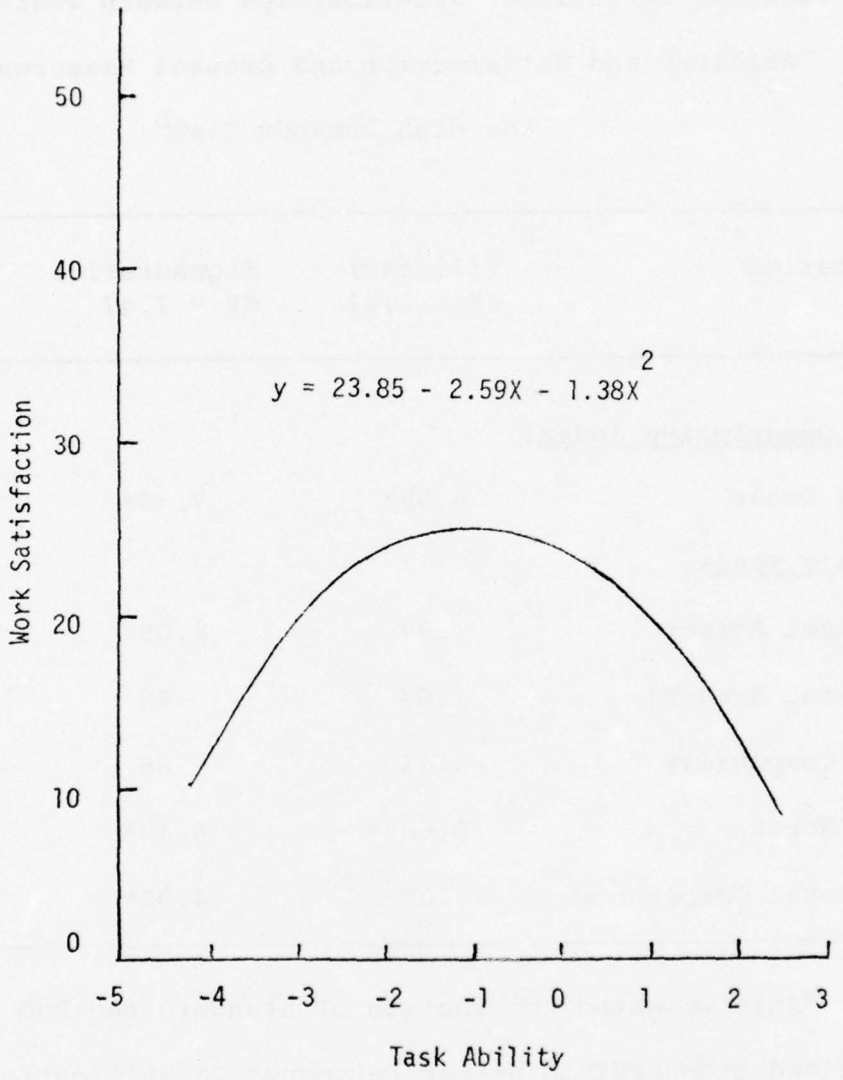

Figure 1. Relationship between work satisfaction and task ability on the high demands task.

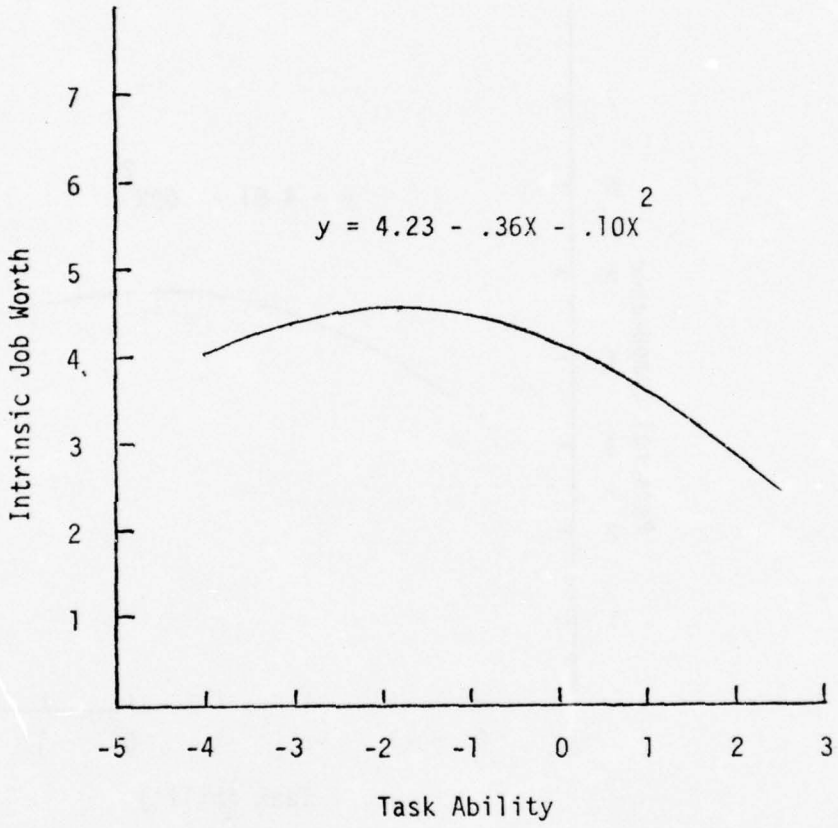

Figure 2. Relationship between intrinsic job worth and task ability in the high demands condition.

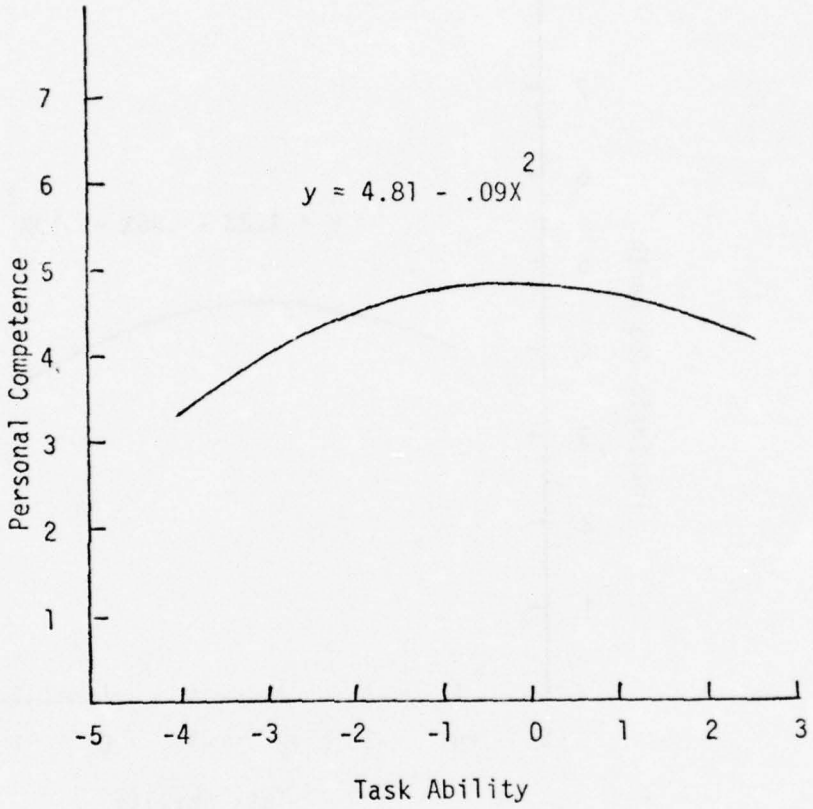

Figure 3. Relationship between perceived personal competence and task ability in the high demands condition.

Relationships Among Performance and Satisfaction Measures

Table 13 presents the correlations among performance by task and the measures of satisfaction. It is interesting to note that performance relates to feelings of Personal Competence in both tasks, but relates to self-reports of General Affective Tone and General Arousal and rating of Job Worth only in the simpler low demands task.

Tables 14, 15, and 16 show the relationships among performance decrements across hours and satisfaction measures. It appears that greater decrement in performance relates to lower satisfaction with the task.

Prediction of Performance by Work Value and Attribute Preference Measures

The prediction of performance on the two monitoring tasks by individual work value measures (Survey of Work Values, Job Orientation Inventory, Job Attitude Scale, and Protestant Ethic Scale), personality and motivation measures (Maudsley, Sensation Seeking Scale, and Hand Skills Test), and attribute preference measures (Attribute Preference Questionnaire and Work Itself/Work Environment Questionnaire) was investigated. The detailed results are presented in Appendix D.

In general, these types of measures did not consistently relate to performance, with the following exceptions. In the low demands task, Upward Striving (Survey of Work Values) was positively related to better signal detection and faster response time, while Preference for Variety (Work Itself/Work Environment Questionnaire) was positively related to signal detection. For the high demands task, Preference for Responsibility (Attribute

Table 13

Correlations of Satisfaction Measures with Performance[a] by Condition[b]

	Low Demands	High Demands
Job Descriptive Index:		
Work Scale	.11	.10
Morale Scale:		
Job Complexity	.16	.07
Job Worth	.36**	-.08
General Affective Tone	.38**	.16
General Arousal	.37**	.12
Personal Competence	.44***	.31*

[a]Arcsin transformation of percent of signals detected.

[b]n = 50 for both tasks.

*$p < .05$.

**$p < .01$.

***$p < .001$.

Table 14

Correlations of Satisfaction Measures with Performance Decrements[a] Across Hours in the Low Demands Condition[b]

	Hour 1 -Hour 2	Hour 2 -Hour 3	Hour 1 -Hour 3
Job Descriptive Index:			
Work Scale	.01	-.13	-.14
Morale Scale:			
Job Complexity	-.03	-.09	-.14
Job Worth	-.10	-.16	-.31*
General Affective Tone	-.20	-.09	-.36**
General Arousal	-.15	-.07	-.28*
Personal Competence	-.14	-.17	-.38**

[a]Raw score differences between percentages detected.

[b]$n = 50$.

*$p < .05$.

**$p < .01$.

Table 15

Correlations of Satisfaction Measures

with Decrement in Signal Detection[a]

Across Hours in the High Demands Condition[b]

	Hour 1 -Hour 2	Hour 2 -Hour 3	Hour 1 -Hour 3
Job Descriptive Index:			
Work Scale	-.07	-.14	-.19
Morale Scale:			
Job Complexity	-.03	-.28*	-.30*
Job Worth	-.05	-.17	-.21
General Affective Tone	-.24	-.06	-.26
General Arousal	-.26	-.13	-.35*
Personal Competence	-.21	-.02	-.19

[a]Raw score differences between percentages detected.

[b]$n = 50$.

*$p < .05$.

Table 16

Correlations of Satisfaction Measures with Decrement in Correct Signal Detection[a] Across Hours in the High Demands Condition[b]

	Hour 1 -Hour 2	Hour 2 -Hour 3	Hour 1 -Hour 3
Job Descriptive Index:			
Work Scale	-.09	-.21	-.24
Morale Scale:			
Job Complexity	-.08	-.31*	-.32*
Job Worth	-.10	-.28*	-.31*
General Affective Tone	-.22	-.20	-.36**
General Arousal	-.24	-.19	-.36**
Personal Competence	-.18	-.13	-.27

[a]Raw score differences between percentages of correct signal detection.

[b]$\underline{n} = 50$.

*$\underline{p} < .05$.

**$\underline{p} < .01$.

Preference Questionnaire) was negatively related to signal detection. The Hobbies scale (Job Orientation Inventory) predicted both signal detection and response time, and the Hand Skills Test was related to percentage of correct detections.

An interesting reversal of direction of relationships was found with the Sensation Seeking Scale. In the low condition, greater General Sensation Seeking was related to poorer signal detection, while in the high condition, greater sensation seeking related to better performance. In addition, the Boredom Susceptibility Scale was positively associated with both improved signal detection and quicker response time in the high demands condition.

Prediction of Satisfaction by Work Value and Attribute Preference Measures

These correlations are presented in Appendix E for only those predictors which did, in fact, relate to job satisfaction. The significant relationships may be summarized as follows: In the low demands task, the Pro-Protestant Ethic Scale and the Interpersonal Relations Scale (Job Orientation Inventory) were negatively related to satisfaction (no relationships--high demands condition). In the same condition, Recognition (Job Orientation Inventory) and Preference for Variety (Work Itself/Work Environment Questionnaire) were positively related to satisfaction. In the low demands condition, three sensation seeking scales were negatively related to Personal Competence. With respect to the high demands task, Upward Striving (Survey of Work Values) was positively related to satisfaction, while Responsibility (Job Orientation Inventory) was negatively related to satisfaction.

Also, in the high demands task, the Hand Skills Test related positively to only the Personal Competence satisfaction scale; and the Disinhibition Scale (Sensation Seeking) was negatively related to several satisfaction measures.

Relationship of Performance to Task Description Measures

These correlations are presented in Appendix F. With respect to performance, the Work Itself/Work Environment description of Responsibility is positively related to signal detection, primarily in the high condition. Described Variety (Work Itself/Work Environment) relates to longer reaction times in the low condition, but to shorter times in the high condition, and the correlations are significantly different. As measured by the Attribute Description Questionnaire, Feedback is negatively related to correct signal detection, and Variety is again associated with longer reaction times in the low demands condition.

Relationship of Satisfaction Measures to Task Description Measures

There are generally significant positive relationships among the satisfaction and task description measures as shown in Tables 17, 18, and 19. However, Variety relates most consistently to the various satisfaction measures across both conditions. The relationships with Complexity, Responsibility, and Feedback seem to depend upon which instrument was used to measure these attributes.

Relationship of Individual Difference Measures to Task Description Measures

Table 20 presents the correlations among one set of individual abilities and task descriptions from the Work Itself/Work Environment Questionnaire. There is a strong negative relationship

Table 17

Correlations of Job Descriptive Index-Work Scale with Attribute Description

	Attribute Description Questionnaire	Work Itself/ Work Environment Questionnaire
Feedback		
High Demands[a]	.40**	.25
Low Demands[a]	.32*	.16
Variety		
High Demands	.51***	.27
Low Demands	.45***	.41**
Responsibility		
High Demands	.38**	.12
Low Demands	.12	.15
Complexity		
High Demands	.28*	.31*
Low Demands	.24	.02
Total		
High Demands	.57***	.37**
Low Demands	.42**	.25

[a] $n = 50$ for each group.
*$p < .05$. **$p < .01$. ***$p < .001$.

Table 18

Correlations of Attribute Description Questionnaire with Morale Scale

	Job Complexity	Job Worth	General Affective Tone	General Arousal	Personal Competence
Feedback					
High Demands[a]	.14	.30*	.38**	.23	.37**
Low Demands[a]	.32*	.30*	.32*	.30*	.17
Variety					
High Demands	.34*	.41**	.45***	.34*	.42**
Low Demands	.55***	.43**	.45***	.48***	.35*
Responsibility					
High Demands	.33*	.40**	.35*	.44***	.39**
Low Demands	.34*	.40**	.36*	.42**	.36*
Complexity					
High Demands	.26	.23	.20	.08	.03
Low Demands	.23	.20	.19	.25	.15
Total					
High Demands	.39**	.49***	.50***	.40**	.44***
Low Demands	.55***	51***	.50***	.55***	.40**

[a] n = 50 for each group.
*$p < .05$. **$p < .01$. ***$p < .001$.

Table 19

Correlations of Job Structural Attributes Described (Work Itself/ Work Environment Questionnaire) with Morale Scale

	Job Complexity	Job Worth	General Affective Tone	General Arousal	Personal Competence
Variety					
High Demands[a]	.43**	.41**	.36**	.42**	.17
Low Demands[a]	.52***	.51***	.35*	.49***	.34*
Responsibility					
High Demands	.10	.01	.13	.22	.23
Low Demands	.22	.22	.08	.21	.17
Job Complexity					
High Demands	.34*	.31*	.36**	.32*	.02
Low Demands	.03	.04	.07	.20	.03
Feedback					
High Demands	.21	.19	.30*	.21	.17
Low Demands	.31*	.18	-.00	.26	.02
Total					
High Demands	.42**	.34**	.45***	.49***	.27
Low Demands	.35*	.33*	.17	.40**	.21

[a] $n = 50$ for each group.
*$p < .05$. **$p < .01$. ***$p < .001$.

Table 20

Correlations of Cognitive Style Measures

with Work Itself/Work Environment Questionnaire

Job Structural Attributes Described

	Variety	Responsibility	Job Complexity	Feedback	Total
RFT					
High Demands[a]	-.10	-.28* ≠	-.11	.07	-.23
Low Demands[a]	.25	.30*	-.02	-.10	.20
GEFT Raw Scores					
High Demands	-.23 +	.34* +	.04	-.06	.10 +
Low Demands	-.58***	-.19	-.10	-.36*	-.40**
GEFT Inverse Scores					
High Demands	.17 +	-.27	.04	-.08	-.10 +
Low Demands	.59***	.21	.03	.27	.36**

[a] $n = 50$ for each group.

*$p < .05$.

**$p < .01$.

***$p < .001$.

+Correlation coefficients are significantly different from each other for the two tasks, $p < .05$.

≠Correlation coefficients are significantly different from each other for the two tasks, $p < .01$.

between field independence as measured by the Group Embedded Figures Test and described Variety on the low demands task. A similar nonsignificant trend exists with the Rod and Frame Test. An interesting relationship exists with Responsibility. Field independent subjects describe the high demands task as higher in responsibility than do field dependent subjects. However, field independence is associated with lower descriptions of responsibility in the simpler condition.

Other tables included in Appendix G show the relationships of other measures to the Work Itself/Work Environment Questionnaire. Performance on the Picture-Number Test relates negatively to description of Variety in the low condition, and omissions on Part I of the Selective Attention Test are related to higher levels of described Variety in the same condition. Extraversion relates to lower descriptions of complexity in the high demands task. Intrinsic orientation (Job Attitude Scale) leads to lower descriptions of responsibility in the low condition. Finally, the Pro-Protestant Ethic Scale and the Achievement Scale (Job Orientation Inventory) relate to descriptions of the high demands condition as providing more feedback.

Table 21 shows the relationships of the cognitive style measures to task descriptions from the Attribute Description Questionnaire. Again, field independence is related to lower descriptions of variety in the simpler condition. Other relationships among individual differences and the Attribute Description Questionnaire dimensions are also included in Appendix G. These relationships might be summarized as showing that those with more ability and more positive work orientations and higher

Table 21

Correlations of Cognitive Style Measures

with Attribute Description Questionnaire

	Feedback	Variety	Responsibility	Complexity	Total
RFT					
High Demands[a]	.15	-.05	-.01	-.03	.01
Low Demands[a]	.30*	.24	.23	.06	.31*
GEFT Raw Scores					
High Demands	-.12	-.10	.04	-.01	-.07
Low Demands	-.30*	-.34*	-.10	-.04	-.31*
GEFT Inverse Scores					
High Demands	.13	.09	-.07	-.09	.03
Low Demands	.40**	.31*	.20	.06	.35*

[a] $n = 50$ for each group.

*$p < .05$.

**$p < .01$.

in Sensation Seeking tend to describe these tasks as less "enriched" in terms of the dimensions measured.

Appendix G also includes correlations with a Likert form of the Attribute Description Questionnaire. Examination of these tables indicates that while the above generalization is still valid, the significant relationships are often with different task dimensions depending upon which form of the questionnaire was used.

Moderated Relationships Between Abilities and Performance

The relationships among ability and performance measures in the high demands condition were found to be moderated by satisfaction (Job Descriptive Index--Work Scale) and by the absolute value of the difference between the description of task attributes and preferences for these same task attributes (Attribute Description Questionnaire minus Attribute Preference Questionnaire).

Table 22 indicates that the relationship between general intelligence and performance is stronger among those subjects who reported low levels of job satisfaction. The difference is significant only for the verbal component, there being no real difference in relationships for the numerical component. It is also clear that cognitive style, as measured by both the Rod and Frame Test and the Group Embedded Figures Test, also predicts performance more strongly for those with low satisfaction.

In Table 23, correlations with performance were moderated by the absolute value of the difference between attribute description and preference. Here the correlations between abilities and performance are higher when a large discrepancy is reported between preferred and described levels of job structural attributes.

Table 22

Correlations of Ability Measures with Performance[a] in the High Demands Condition Moderated by Satisfaction[b]

Ability	Satisfaction	Correlation with Performance
Wesman Verbal	High[c]	-.06
	Low[d]	.61*** [+]
Wesman Numerical	High	.45*
	Low	.40*
Wesman Total	High	.26
	Low	.57**
Rod and Frame Test	High	.02
	Low	-.76*** [#]
Group Embedded Figures: Raw Scores	High	.07
	Low	.52**
Group Embedded Figures: Inverse Scores	High	-.16
	Low	-.44*

[a]Arcsin transformation of percent of correct detections.

[b]Job Descriptive Index-Work Scale

[c]n = 23.

[d]n = 27.

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

[+]Correlation coefficients significantly different--$p < .05$.

[#]Correlation coefficients significantly different--$p < .001$.

Table 23

Correlations of Ability Measures with Performance[a] in the High Demands Condition Moderated by the Absolute Difference Between Attribute Descriptions (ADS) and Attribute Preferences (APS)

Ability	(ADS-APS)	Correlation With Performance
Wesman Verbal	High[b]	.57** +
	Low[b]	.04
Wesman Numerical	High	.57**
	Low	.25
Wesman Total	High	.62***
	Low	.15
Rod and Frame Test	High	-.56**
	Low	-.31
Group Embedded Figures : Raw Scores	High	.65*** +
	Low	.01
Group Embedded Figures : Inverse Scores	High	-.68*** +
	Low	-.06

[a]Arcsin transformation of percent of signals detected.

[b]n = 25.

**$p < .01$.

***$p < .001$.

[+]Correlation coefficients significantly different--$p < .05$.

Similar relationships with other abilities and other criteria, broken down by hour, are presented in Appendix H.

Discussion

The present study was an attempt to further our knowledge of the interactions between individual differences and task demands as determinants of performance and satisfaction on a particular type of repetitive task--a visual monitoring task. Theoretical conceptualizations from research concerning the impact of task demands on feelings of satisfaction and the large body of empirical research on vigilance or monitoring tasks were considered in formulating several basic hypotheses. The first issue to be dealt with here will be a discussion of the degree to which these hypotheses were supported.

It seems clear that a set of individual difference measures has been identified which relates to performance on moderately complex visual monitoring tasks. These measures are the Group Embedded Figures Test, the Rod and Frame Test, the Selective Attention Test, the Picture-Number Test, and the Wesman Personnel Classification Test.

With respect to the perceptual style measures, embedded-figures and rod-and-frame, these findings are consistent with earlier similar research (Thornton, Barrett, & Davis, 1968; Moses, 1970; Cahoon, 1970; Moore & Gross, 1973; Barrett, Forbes, Alexander, O'Connor, & Balascoe, 1975).

The bulk of earlier research attempting to relate intelligence to vigilance performance has not found such relationships (Davis & Tune, 1969; Mackworth, 1969; Stroh, 1971). However, the present finding that the Wesman predicts performance does repli-

cate the results of Barrett, Forbes, Alexander, O'Connor, and Balascoe (1975) using similar complex monitoring tasks which apparently do require at least moderate levels of general reasoning ability.

To the authors' knowledge, this is the first study relating performance on a selective attention measure to performance on a pure monitoring task, although such tests have been related to performance on other tasks requiring monitoring ability (Gopher & Kahneman, 1971; Kahneman, Ben-Ishai, & Lotan, 1973; Mihal & Barrett, 1976). The Selective Attention Test could be considered an intense auditory monitoring task. The fact that such a test predicts visual monitoring performance implies that central information-processing mechanisms are being measured (see Pribram & McGuinness, 1975; Forbes, 1975, for a discussion of such mechanisms).

Finally, a test of memory, the Picture-Number Test, was strongly related to performance on the moderately difficult task which required short-term memory. Although the contribution of memory has been discussed (cf. Johnston, Howell, & Williges, 1969), little, if any, previous research has employed such measures.

On the very simple, undemanding monitoring task, there were no relationships between individual difference measures and overall performance. It had been expected that signal detection ability, as measured by an embedded-figures test, the rod-and-frame, and Part I of the Selective Attention Test, might relate to performance on this task. It appears that the demands of this task were so low, in terms of requiring only signal detection and

in allowing seven seconds for the subject to scan the screen, that even those with little ability managed to perform well. That the task was much simpler was reflected in the fact that average reaction times (assumed to reflect information-processing time) were much lower than in the high demands condition (1.76 versus 2.75 seconds, $t = 7.62$, $p < .001$). Although performance, in terms of signal detection, was comparable across the tasks, the variance in percent detected was greater in the more complex task ($F = 1.62$, $p = .096$). Finally, it could be speculated that performance was comparable due to the increased effort and arousal generated by the more demanding task.

These findings are consistent with the results of early vigilance research on very simple tasks in which consistent prediction of performance could not be established (cf. McGrath, 1963).

With respect to performance decrement, the expected relationships were found for the extraversion scale, but only late in the task (Hour 3).

The successful tests of the significance of the combined sets of predictors in the high demands task attest to the utility of careful task analysis guided by a taxonomy such as that of Theologus et al. (1970) in identifying and operationalizing the various task-related abilities.

The general hypothesis that task satisfaction relates to the match between task demands and individual abilities received strong support in the low demands condition where those with greater task-related ability (Group Embedded Figures Test) were less satisfied. In the high demands condition, the prediction of a curvilinear relationship between ability and satisfaction received partial support.

While the combination of measures of general reasoning ability and field independence resulted in curvilinear relationships, the combination of simple short-term memory with field dependence did not. Perhaps the relevant individual difference in such a relationship involves "cognitive complexity," as found by Standing (1971) and not merely task ability. Memory was a highly relevant task ability, but probably does not reflect cognitive complexity to the extent that general intelligence and field independence do.

The curvilinear relationships were found between ability and task description satisfaction measures and with the description of feelings of personal competence.

The concept that matching an individual's abilities to job requirements should result in optimal satisfaction and performance is widely accepted (cf. Pervin, 1968); however, most job enrichment and job enlargement programs proceed as if all workers desire more demanding jobs. The amount of empirical research in this area is meager however. In the present study, it was demonstrated that two tasks with identical physical stimulus properties can be structured so as to show either a negative relationship between task-related ability and satisfaction or a curvilinear relationship between ability and satisfaction by changing the task so as to require a greater amount of more complex abilities. It should be noted that while a curvilinear relationship was found between abilities and satisfaction, indicating that those with moderate levels of ability were most satisfied, strong linear relationships were found between these abilities and performance, indicating that those with the highest levels of ability were the

best performers.

Other similar research includes a dissertation by Standing (1971) in which a curvilinear relationship was found between satisfaction and cognitive complexity among inspectors in a steel mill. More recently, London and Klimoski (1975) have found that self-ratings of effectiveness and satisfaction with work followed a "chevron pattern," reaching maximum values at the point of "optimal complexity." Optimal complexity was itself a self-report measure based on the difference between responses to "how much is there" and "how much should there be."

It is felt that the present research has gone beyond earlier work with respect to identifying the critical role of task-related abilities in determining both performance and satisfaction on two tasks differing only in the level to which they "demanded" these abilities.

The evidence seems to indicate that feelings of personal competence or effectiveness in dealing with one's environment, as described by White (1959), result from a match between individual abilities and task requirements and these feelings are reflected in ratings of satisfaction with the job. It has been shown that organizational criteria, such as retention, are also related to individual ability levels (Barrett, Bass, O'Connor, Alexander, Forbes, & Cascio, 1975), and it is likely that tasks which under-utilize individual abilities fail to provide a means for satisfying this need for competence and, therefore, those with higher levels of task-related ability are more likely to leave the organization.

Further research is needed into the relationships between task performance and satisfaction. This is illustrated by the fact that in the present study, actual performance was also related to perceived personal competence in both tasks and to other satisfaction and arousal measures in the low demands task only. In addition, performance decrements were negatively related to satisfaction and arousal measures in both tasks. Such relationships cannot be accounted for by individual differences in abilities and must be attributed to differences in the amount of "effort" one invests in maintaining performance. It seems that effort to perform above that level, predictable by ability, is also related to satisfaction and feelings of competence. A similar relationship was found in an earlier monitoring study (Barrett, Forbes, Alexander, O'Connor, & Balascoe, 1975) where performance was related to satisfaction only when the effects of ability were controlled.

A number of personality and task preference measures were employed in an attempt to account for these motivational differences. The scattered relationships which were found were not consistent with those found in earlier research with similar tasks (Barrett, Forbes, Alexander, O'Connor, & Balascoe, 1975). Thus, there seems to be little support for the belief that measures of work orientation are singularly predictive of performance and satisfaction across different tasks.

Task description measures do seem to be consistently related to measures of job satisfaction. On the type of task investigated here, variety seemed to be a particularly salient job structural attribute. Descriptions of variety consistently related to satis-

faction measures and higher ability levels were related to lower levels of described variety.

Finally, the present research has strongly contradicted earlier findings also based on a "correspondence" model relating abilities to task requirements. Carlson, Dawis, and Weiss (1969) found that correlations between ability and performance were stronger for highly satisfied individuals. In the present study, ability-performance relationships were found to be significantly higher among individuals with lower job satisfaction. Such a finding is not surprising when the relationships between ability and satisfaction and between ability and performance are examined more closely.

If the relationship between satisfaction and ability takes the form of an inverted U, as in the present study, then the most highly satisfied individuals have moderate levels of ability. If, in addition, there is a moderately strong linear relationship between ability and performance, then those with low levels of satisfaction will tend to be at the extreme points of such a bivariate normal distribution (high and low ability), while those with high satisfaction will cluster about the center of the distribution. Thus, the correlation will be increased by selecting those at the extremes (lower satisfaction) and reduced for those in the middle area (higher satisfaction).

In conclusion, the present study has replicated earlier relationships between individual abilities and performance on moderately complex visual monitoring tasks. In addition, new predictors have been identified. Finally, it has been shown that the match between task-related abilities and job requirements is a

major determinant of job satisfaction and that the form of the relationship between ability and satisfaction depends upon the extent to which a task places demands on these abilities. When subject abilities generally exceeded task demands, a negative relationship was found between ability and satisfaction. When abilities roughly matched task demands, a curvilinear relationship was found. It remains to be demonstrated that a task can be designed with slightly higher demands such that abilities will be positively related to both performance and satisfaction.

Thus, it appears that one way to optimize both performance and satisfaction involves designing the job so that the task demands match the ability levels of the more capable individuals in the sample from which selection is made. In this case, selecting the most capable individuals would result in maximum performance and satisfaction. Of course, more research is needed in both the areas of task analysis and individual differences before such fine-tuning of task demands can be done in a systematic fashion. The present study does suggest that such tuning is possible, however.

The development of a conceptualization of individual behavior in modern organizations demands a consideration of both performance for the organization and satisfaction for the individual. In the current research, it is quite clear that abilities are strongly related to performance in the high demands condition, while previous research has shown that high levels of these abilities are predictive of lower satisfaction for certain Navy personnel (Barrett, Bass, O'Connor, Alexander, Forbes, & Cascio, 1975). Unfortunately, however quite expectedly, this lower

satisfaction led to shorter intended future service. The paradox for the organization is quite obvious; attempts to hire the most qualified individuals for monitoring tasks will inevitably lead to a dissatisfied work force.

There seem to be two potential solutions to the dilemma. One, jobs could be redesigned so there is a better fit between the task demands and the high ability individuals. However, as has been previously stated, considerably more research is required before such attempts can be made in a systematic fashion. In addition, the amount of meaningful job redesign allowed by many tasks is minimal. Assembly line operations are one such example. The second alternative is applicable under both circumstances. This would involve a selection and placement program which considers the congruence of individual abilities and preferences for job structural attributes with the current task demands. The philosophy of this approach is contrary to much of the previous research done in the job design area which has assumed that most, if not all, individuals would react to higher levels of task demands in a positive manner (Herzberg, 1966).

Tables 24 and 25 show the possible congruence between abilities and preferences as related to performance and satisfaction in both the high and low demands condition. As can be seen, in the low demands condition, those individuals possessing higher levels of the task-relevant ability (Group Embedded Figures Test) performed slightly better than the low ability group; yet these same individuals were considerably less satisfied. Intuitively, those people with lower preferences for job structural attributes would be more satisfied with the low demands condition since the

Table 24

Congruence between High and Low Ability (GEFT) Groups and High and Low Job Structural Preferences as Related to Performance and Work Satisfaction in Low Demands Task [a]

Individuals Classified as:	Percent Detected	Work Satisfaction
High Ability and High Preference [b]	89	15.2
Low Ability and Low Preference	85	25.8
High Ability and Low Preference	91	15.0
Low Ability and High Preference	89	18.0

[a] Total $n = 50$.

[b] Classification into high and low groups for both preferences and ability was accomplished by dividing the sample at the median of each measure.

Table 25

Congruence between High and Low Ability (Group Embedded Figures Test) Groups and High and Low Job Structural Attribute Preferences as Related to Performance and Work Satisfaction in High Demands Task[a]

Individuals Classified as:	Percent Detected	Work Satisfaction
High Ability and High Preference[b]	89	16.7
Low Ability and Low Preference	87	23.4
High Ability and Low Preference	90	23.8
Low Ability and High Preference	75	14.1

[a]Total n = 50.

[b]Classification into high and low groups for both preferences and ability was accomplished by dividing the sample at the median of each measure.

task was designed to be minimally demanding. When preferences are considered in conjunction with abilities, this is in fact the case.

In the high demands condition (Table 25), the difference in performance between the high and low ability groups is more readily apparent, which is to be expected due to the increased requirements of the task. In this condition as well, a combination of low ability and low preferences resulted in somewhat higher levels of satisfaction. However, it is also apparent that in this task, both performance and satisfaction can be optimized if individuals classified as high in ability and low in preferences are selected. Unfortunately, this is not the case in the low demands condition where those people most satisfied are also less proficient in their performance.

Tables 26 and 27 present similar categorizations, except instead of just using preferences for task attributes, the discrepancy between what someone prefers and what he describes the task as offering is considered. As these tables indicate, when the discrepancy between preferences and descriptions is small, satisfaction is considerably higher than when this discrepancy is large. In other words, not only are the actual task attributes significant in determining performance and satisfaction, but also an individual's perceptions of these attributes are quite relevant.

Such relationships require the organization to make a decision regarding the relative benefits and costs of performance and satisfaction. In an instance where both are optimal, the decision is straightforward. However, the current research, as

Table 26

Congruence between High and Low Ability (Group Embedded Figures Test) Groups and High and Low Discrepancy between Attribute Descriptions (ADS) and Attribute Preferences (APS) as Related to Performance and Work Satisfaction in Low Demands Task[a]

Individuals Classified as:	Percent Detected	Work Satisfaction
High Ability and High Discrepancy[b]	88	14.4
Low Ability and Low Discrepancy	85	26.5
High Ability and Low Discrepancy	92	16.3
Low Ability and High Discrepancy	88	17.8

[a]Total $n = 50$.

[b]Classification into high and low groups for both discrepancy and ability was accomplished by dividing the sample at the median of each measure.

Table 27

Congruence between High and Low Ability (Group Embedded Figures Test) Groups and High and Low Discrepancy between Attribute Descriptions (APS) and Attribute Preferences (ADS) as Related to Performance and Work Satisfaction in a High Demands Task[a]

Individuals Classified as:	Percent Detected	Work Satisfaction
High Ability and High Discrepancy[b]	91	12.1
Low Ability and Low Discrepancy	85	26.4
High Ability and Low Discrepancy	87	30.1
Low Ability and High Discrepancy	81	11.5

[a]Total $n = 50$.

[b]Classification into high and low groups for both discrepancy and ability was accomplished by dividing the sample at the median of each measure.

well as field studies with Navy personnel (Barrett, Bass, O'Connor, Alexander, Forbes, & Cascio, 1975), have shown this is not necessarily the case. In some instances, in order for satisfaction to be high, individuals with lesser abilities must be selected. Hence, an "acceptable level" of performance must be defined. If the organization continues to select and place only those individuals who have the highest ability levels and refuses to consider both the congruence between these abilities and task demands and the congruence between preferences and the task, satisfaction of workers and related criteria such as retention will be significantly less than if these factors were taken into account.

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Appendix A

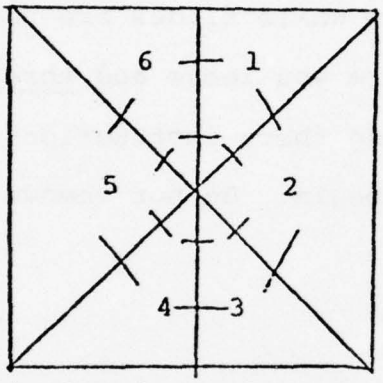
Task Instructions

Instructions for Simple Task

Instructions (A)

This is a simulation of a visual monitoring job, such as that of a radar operator. Treat it as if it were a real job. We are interested in measuring how people perform on such tasks over time.

The job requires you to detect and record the presence of two different symbols. You should respond to triangles and circles. They may occur anywhere on your screen:



Whenever you detect a triangle or a circle, you should press button #7 on the response console in front of you. Make no response if no triangle or circle is present.

There will never be more than one triangle or one circle on the screen at the same time, there may, however, be both a triangle and a circle on the screen simultaneously. If this occurs respond to both in the appropriate manner.

Both speed and accuracy are important in this task. Each of you will be solely responsible for your own individual area. You must all detect all signals for the system to operate properly. Please be as certain as you possibly can of your response before you make it.

All of your responses will be recorded and you will be told how well you have done at the very end of the session.

We suggest that you sit squarely in front of the screen, with the response button console directly in front of you. You may, however, move the console to the position most comfortable for you.

Use only one hand to press the response buttons. Your performance will be best if you keep your hand poised slightly above or below the row of seven buttons when not responding.

There will be periodic breaks, however, if an emergency arises and you must leave the room while slides are being presented, press button #7 three times before you leave and three times you you return.

When you finish reading these instructions, please put your headphones on and we will begin. Do not remove your headphones until instructed to do so.

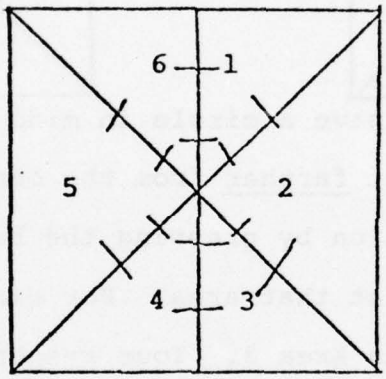
Instructions for Complex Task

Instructions (B)

This is a simulation of a visual monitoring job, such as that of a radar operator. Treat it as if it were a real job. We are interested in measuring how people perform on such tasks over time.

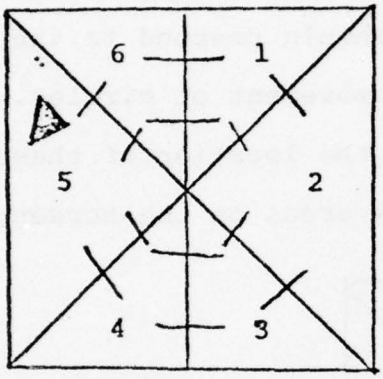
The job requires you to detect and record the presence and the movement of two different symbols. You should respond to the inward movement of triangles and to the outward movement of circles.

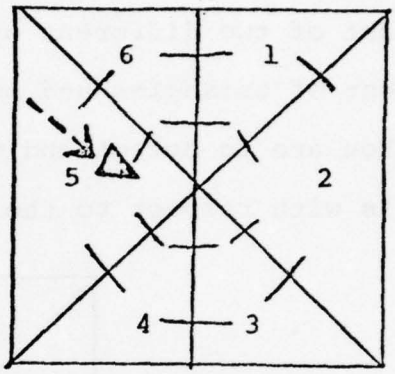
You are to detect and mentally note the location of these symbols with respect to the following six areas on the screen:



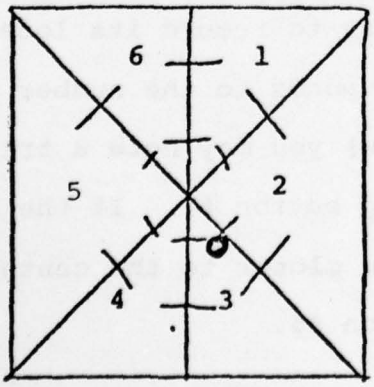
When you first detect a triangle or a circle, you should press button #7 on the response console in front of you and remember its location until the next time a similar symbol appears. If, the very next time a triangle appears, it is in the same area and closer to the center of the screen, you are to record its location by pressing the button whose number corresponds to the number of that area. For example, (see Figure below) you may note a triangle in area 5. You should respond by pressing button #7. If the next triangle detected is also in area 5 and is closer to the center of of the screen (as illustrated) press button #5.

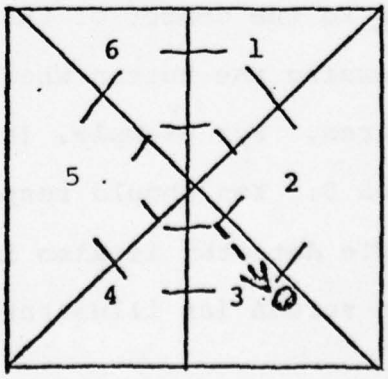
If the next triangle is not in the same area or is not closer to the center again press button #7. Now remember the location of the new triangle. Always compare the position of the present triangle only with the position of the triangle that came immediately before it. This means you only have to remember the position of one triangle at a time.





Similarly, if you have a circle in mind and the very next circle is in the same area, but farther from the center of the screen, you are to record its location by pressing the button whose number corresponds to the number at that area. For example (see Figure below) you may note a circle in Area 3. Your response to the first circle would be to press button #7. If the next circle is also in Area 3 and is farther from the center of the screen (as illustrated) press button #3. If the next circle is not in the same area or is not farther from the center, again press button #7.





The rules can be summed up as follows:

If a triangle moves inward, in the same area as the previous triangle, record the location.

If a circle moves outward, in the same area as the previous circle, record the location.

Any symbol that has not moved in the above fashion should be responded to by pressing button #7.

Make no response if no triangle or circle is present.

There will never be more than one triangle or one circle on the screen at the same time, there may, however, be both a triangle and a circle on the screen simultaneously. If this occurs respond to both in the appropriate manner.

In order to do this task, you must simultaneously keep in mind the very last position of the triangle and the circle.

You should remember these locations until your screen goes completely blank. When this happens, it is a signal to start the process over again. Forget the previous locations and look for the first triangle and circle. Then compare the location of the following symbols to these and continue as before.

Both speed and accuracy are important in this task. Each of you will be solely responsible for your own individual area. You must all detect all signals for the system to operate properly. Please be as certain as you possibly can of your response before you make it.

All of your responses will be recorded and you will be told how well you have done at the very end of the session.

We suggest that you sit squarely in front of the screen, with the response button console directly in front of you. You may, however, move the console to the position most comfortable for you.

The rules can be summed up as follows:

If a triangle moves inward, in the same area as the previous triangle, record the location.

If a circle moves outward, in the same area as the previous circle, record the location.

Any symbol that has not moved in the above fashion should be responded to by pressing button #7.

Make no response if no triangle or circle is present.

There will never be more than one triangle or one circle on the screen at the same time, there may, however, be both a triangle and a circle on the screen simultaneously. If this occurs respond to both in the appropriate manner.

In order to do this task, you must simultaneously keep in mind the very last position of the triangle and the circle.

You should remember these locations until your screen goes completely blank. When this happens, it is a signal to start the process over again. Forget the previous locations and look for the first triangle and circle. Then compare the location of the following symbols to these and continue as before.

Both speed and accuracy are important in this task. Each of you will be solely responsible for your own individual area. You must all detect all signals for the system to operate properly. Please be as certain as you possibly can of your response before you make it.

All of your responses will be recorded and you will be told how well you have done at the very end of the session.

We suggest that you sit squarely in front of the screen, with the response button console directly in front of you. You may, however, move the console to the position most comfortable for you.

Use only one hand to press the response buttons. Your performance will be best if you keep your hand poised slightly above or below the row of seven buttons when not responding.

There will be periodic breaks, however, if an emergency arises and you must leave the room while slides are being presented, press button #7 three times before you leave and three times when you return.

When you finish reading these instructions please put your headphones on and we will begin. Do not remove your headphones until instructed to do so.

Appendix B

Analysis of Variance of Signal Detection

Table B1

Analysis of Variance of Signal Detection[a]

by Condition[b], Hour, and Period Within Hour

Source	df	SS	MS	F
Between Subjects				
A (Conditions)	1	.35	.35	.38
Subjects within conditions	98	91.09	.93	
Within Subjects				
B (Hours)	2	.68	.34	4.95**
AB	2	.19	.09	1.38
B x Subjects within groups	196	13.45	.07	
C (Period within hours)	2	1.61	.80	12.84***
AC	2	.42	.21	3.36*
C x Subjects within groups	196	12.25	.06	
BC	4	3.14	.78	13.95***
ABC	4	.11	.03	.47
BC x Subjects within groups	392	22.04	.06	

[a]Dependent variable was arcsin transformation of percentage of signals detected.

[b]n = 50 per condition.

*$p < .05$.

**$p < .01$.

***$p < .001$.

Appendix C

Correlations of Ability Measures and Performance Broken Down by Hour

Table C1

Correlation of Cognitive Style Measures

with Arcsin Transformation of Percent of Signals Detected

	Arcsin Transformation of Percent Detected (Total)	Arcsin Transformation of Percent Detected (Hour One)	Arcsin Transformation of Percent Detected (Hour Two)	Arcsin Transformation of Percent Detected (Hour Three)
RFT				
High Demands[a]	-.45***+	-.47***+	-.49***+	-.34*+
Low Demands[a]	.02	.02	-.01	.07
GEFT Raw Scores				
High Demands	.35*	.35*	.37**	.29*
Low Demands	.12	.13	.16	.03
GEFT Inverse Scores				
High Demands	-.39**+	-.40**+	-.39**+	-.35*+
Low Demands	.04	.05	-.05	.12

[a] $n = 50$ for each group.

*$p < .05$.

**$p < .01$.

***$p < .001$.

+Correlation coefficients are significantly different from each other for the two tasks, $p < .05$.

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ORGANIZATIONAL POLICY DECISIONS AS A FUNCTION OF INDIVIDUAL DIF--ETC(U)
AUG 76 J B FORBES, G V BARRETT, R A ALEXANDER N00014-75-C-0985
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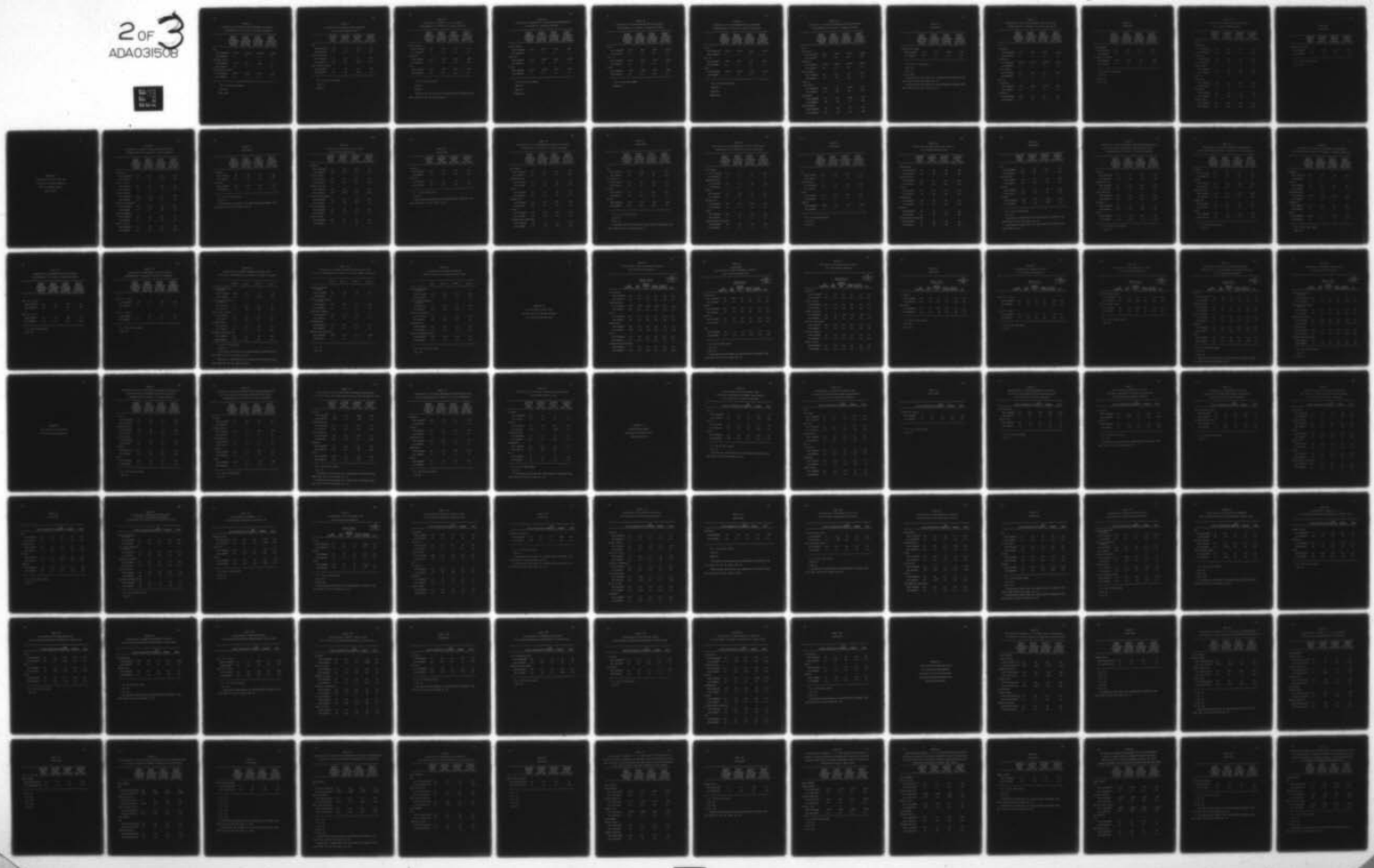

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Table C2

Correlation of Cognitive Style Measures with Arcsin Transformation of Percent of Correct Detections

	Arcsin Transformation of Percent Detected (Total)	Arcsin Transformation of Percent Detected (Hour One)	Arcsin Transformation of Percent Detected (Hour Two)	Arcsin Transformation of Percent Detected (Hour Three)
RFT				
High Demands[a]	-.46***	-.46***	-.48***	-.38**
Low Demands[a]	---	---	---	---
GEFT Raw Scores				
High Demands	.31**	.28	.34**	.27
Low Demands	---	---	---	---
GEFT Inverse Scores				
High Demands	-.35**	-.32**	-.35**	-.33**
Low Demands	---	---	---	---

[a] $n = 50$ for each group.

** $p < .01$.

*** $p < .001$.

Table C3

Correlations of Cognitive Style Measures

with Average Reaction Time

	Average Reaction Time (Total)	Average Reaction Time (Hour One)	Average Reaction Time (Hour Two)	Average Reaction Time (Hour Three)
RFT				
High Demands[a]	.28*	.15	.32*	.23
Low Demands[a]	.05	-.01	.14	.01
GEFT Raw Scores				
High Demands	-.05	-.08	-.04	-.02
Low Demands	-.33*	-.25	-.40**	-.15
GEFT Inverse Scores				
High Demands	.12	.18	.03	.09
Low Demands	.24	.14	.28*	.15

[a] $n = 50$ for each group.

*$p < .05$.

**$p < .01$.

Table C4

Correlation of Wesman P.C.T. with Arcsin

Transformation of Percent of Signals Detected

	Arcsin Transformation of Percent Detected (Total)	Arcsin Transformation of Percent Detected (Hour One)	Arcsin Transformation of Percent Detected (Hour Two)	Arcsin Transformation of Percent Detected (Hour Three)
Wesman Verbal				
High Demands[a]	.32*	.35*	.31*	.27*
Low Demands[a]	.11	.07	.06	.17
Numerical				
High Demands	.40***	.39**	.39**[+]	.38**
Low Demands	.07	.05	-.05	.18
Total				
High Demands	.39**	.41**	.38**	.35*
Low Demands	.11	.07	.01	.21

[a] $n = 50$ for each group.

*$p < .05$.

**$p < .01$.

[+] Correlation coefficients are significantly different from each other for the two tasks, $p < .05$.

Table C5

Correlation of Wesman P.C.T. with Arcsin Transformation of Percent of Correct Detections

	Arcsin Transformation of Percent Detected (Total)	Arcsin Transformation of Percent Detected (Hour One)	Arcsin Transformation of Percent Detected (Hour Two)	Arcsin Transformation of Percent Detected (Hour Three)
Wesman Verbal				
High Demands[a]	.37**	.43**	.34*	.30*
Low Demands[a]	---	---	---	---
Numerical				
High Demands	.41**	.38**	.38**	.42**
Low Demands	---	---	---	---
Total				
High Demands	.43**	.46***	.40**	.39**
Low Demands	---	---	---	---

[a] $n = 50$ for each group.

*$p < .05$.

**$p < .01$.

***$p < .001$.

Table C6

Correlation of Picture-Number Test with Arcsin Transformation of Percent of Signals Detected

	Arcsin Transformation of Percent Detected (Total)	Arcsin Transformation of Percent Detected (Hour One)	Arcsin Transformation of Percent Detected (Hour Two)	Arcsin Transformation of Percent Detected (Hour Three)
Part I				
High Demands[a]	.42**	.43**	..39**	.41**
Low Demands[a]	.13	.19	.04	.15
Part II				
High Demands	.39**	.37**	.37**	.39**
Low Demands	.16	.16	.11	.17
Total				
High Demands	.43**	.42**	.40**	.42**
Low Demands	.16	.19	.08	.17

[a] $n = 50$ for each group.

** $p < .01$.

Table C7

Correlation of Picture-Number Test with Arcsin Transformation of Percent of Correct Detections

	Arcsin Transformation of Percent Detected (Total)	Arcsin Transformation of Percent Detected (Hour One)	Arcsin Transformation of Percent Detected (Hour Two)	Arcsin Transformation of Percent Detected (Hour Three)
Part I				
High Demands[a]	.45***	.45***	.43**	.42**
Low Demands[a]	---	---	---	---
Part II				
High Demands	.39**	.33*	.39*	.39*
Low Demands	---	---	---	---
Total				
High Demands	.44***	.41**	.43**	.43**
Low Demands	---	---	---	---

[a] $n = 50$ for each group.

*$p < .05$.

**$p < .01$.

***$p < .001$.

Table C8

Correlation of Selective Attention Test with Arcsin Transformation of Percent of Signals Detected

	Arcsin Transformation of Percent Detected (Total)	Arcsin Transformation of Percent Detected (Hour One)	Arcsin Transformation of Percent Detected (Hour Two)	Arcsin Transformation of Percent Detected (Hour Three)
Part I				
Intrusions				
High Demands[a]	-.42**+	.41**	.39**	.41**≠
Low Demands[a]	.01	-.06	-.03	.11
Omissions				
High Demands	-.47***	-.44***	-.48***	-.45***
Low Demands	-.16	-.17	-.12	-.14
False Alarms				
High Demands	.03	-.01	.03	.04
Low Demands	.02	.04	-.02	.03
Part II				
Intrusions				
High Demands	-.32*	-.25	-.36**	-.31*
Low Demands	.04	.09	.05	-.02
Omissions				
High Demands	-.27	-.26	-.30*	-.25
Low Demands	.04	.09	.05	-.02
False Alarms				
High Demands	.00	-.02	.03	-.01
Low Demands	.04	.09	.05	-.02

Table C8

(Continued)

	Arcsin Transformation of Percent Detected (Total)	Arcsin Transformation of Percent Detected (Hour One)	Arcsin Transformation of Percent Detected (Hour Two)	Arcsin Transformation of Percent Detected (Hour Three)
Completely Correct				
High Demands	.32*	.26	.36**	.34*
Low Demands	-.05	-.11	.00	-.04

[a] $n = 50$ for each group.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

+ Correlation coefficients are significantly different from each other for the two tasks, $p < .05$.

≠ Correlation coefficients are significantly different from each other for the two tasks, $p < .01$.

Table C9

Correlation of Selective Attention Test with Arcsin Transformation of Percent of Correct Detections

	Arcsin Transformation of Percent Detected (Total)	Arcsin Transformation of Percent Detected (Hour One)	Arcsin Transformation of Percent Detected (Hour Two)	Arcsin Transformation of Percent Detected (Hour Three)
Part I				
Intrusions				
High Demands[a]	-.37**	-.35*	-.34*	-.37**
Low Demands[a]	---	---	---	---
Omissions				
High Demands	-.46***	-.41**	-.48***	-.42**
Low Demands	---	---	---	---
False Alarms				
High Demands	-.01	-.02	-.03	-.03
Low Demands	---	---	---	---
Part II				
Intrusions				
High Demands	-.35*	-.28 *	-.39**	-.33*
Low Demands	---	---	---	---
Omissions				
High Demands	-.28*	-.27	-.27	-.26
Low Demands	---	---	---	---

Table C9

(Continued)

	Arcsin Transformation of Percent Detected (Total)	Arcsin Transformation of Percent Detected (Hour One)	Arcsin Transformation of Percent Detected (Hour Two)	Arcsin Transformation of Percent Detected (Hour Three)
False Alarms				
High Demands	-.04	-.06	-.05	-.02
Low Demands	---	---	---	---
Completely Correct				
High Demands	.36**	.30*	.36*	.38**
Low Demands	---	---	---	---

[a] n = 50 for each group.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

Table C10

Correlations of Selective Attention Test

with Average Reaction Time

	Average Reaction Time (Total)	Average Reaction Time (Hour One)	Average Reaction Time (Hour Two)	Average Reaction Time (Hour Three)
Part I				
Intrusions				
High Demands[a]	.22	.14	.20	.23
Low Demands[a]	-.05	-.04	-.01	-.06
Omissions				
High Demands	.22	.20	.12	.24
Low Demands	.16	.12	.24	.03
False Alarms				
High Demands	-.15	.02	-.19	-.21
Low Demands	.07	.04	.03	.08
Part II				
Intrusions				
High Demands	.18	.10	.06	.30*
Low Demands	.04	.12	.07	-.08
Omissions				
High Demands	.16	.27	.10	.05
Low Demands	.25	.28*	.33*	.01
False Alarms				
High Demands	-.02	-.03	-.02	-.02
Low Demands	-.19	-.22	-.06	-.15

Table C10

(Continued)

	Average Reaction Time (Total)	Average Reaction Time (Hour One)	Average Reaction Time (Hour Two)	Average Reaction Time (Hour Three)
Completely Correct				
High Demands	-.23	-.35*	-.11	-.15
Low Demands	-.07	-.19	-.19	.18

[a] n = 50 for each group.

* $p < .05$.

Appendix D

Correlations of Work Value and Attribute Preference Measures with Performance Broken Down by Hour

Table D1

Correlation of Survey of Work Values with Arcsin Transformation of Percent of Signals Detected

	Arcsin Transformation of Percent Detected (Total)	Arcsin Transformation of Percent Detected (Hour One)	Arcsin Transformation of Percent Detected (Hour Two)	Arcsin Transformation of Percent Detected (Hour Three)
Earnings				
High Demands[a]	-.16	-.21	-.11	-.14
Low Demands[a]	.23	.26	.33*+	.08
Social Status				
High Demands	-.22	-.18	-.23	-.22
Low Demands	.11	.16	.02	.14
Upward Sriving				
High Demands	-.14	-.16	-.17	-.08
Low Demands	.31*+	.36*+	.27	.26
Activity Preference				
High Demands	-.02	-.02	.00	-.03
Low Demands	.00	-.07	.00	.05
Job Involvement				
High Demands	.03	.01	.02	.07
Low Demands	.01	.07	.02	.06
Pride in Work				
High Demands	.15	.22	.11	.12
Low Demands	-.14	-.04	-.20	-.12

Table D1

(Continued)

	Arcsin Transformation of Percent Detected (Total)	Arcsin Transformation of Percent Detected (Hour One)	Arcsin Transformation of Percent Detected (Hour Two)	Arcsin Transformation of Percent Detected (Hour Three)
Intrinsic				
High Demands	.06	.08	.05	.06
Low Demands	-.06	-.02	-.09	-.06
Extrinsic				
High Demands	-.24	-.25	-.22	-.23
Low Demands	.22	.27	.25	.13

[a] n = 50 for each group.

* $p < .05$.

+ Correlation coefficients are significantly different from each other for the two tasks, $p < .05$.

Table D2

Correlations of Survey of Work Values

with Average Reaction Time

	Average Reaction Time (Total)	Average Reaction Time (Hour One)	Average Reaction Time (Hour Two)	Average Reaction Time (Hour Three)
Earnings				
High Demands[a]	.16	.25	-.03	.13
Low Demands[a]	-.28 *	-.33 *	-.23	-.12
Social Status				
High Demands	.21	.17	-.19	.17
Low Demands	-.10	.07	-.05	-.23
Upward Striving				
High Demands	.00	.15	-.11	-.03
Low Demands	-.34*	-.29* +	-.30*	-.23
Activity Preference				
High Demands	.03	.20	.02	-.14
Low Demands	.12	.08	.06	.14
Job Involvement				
High Demands	.11	.26	.05	-.01
Low Demands	.05	.02	-.09	.15
Pride in Work				
High Demands	.08	.16	.07	-.02
Low Demands	.17	.17	.04	.19

Table D2

(Continued)

	Average Reaction Time (Total)	Average Reaction Time (Hour One)	Average Reaction Time (Hour Two)	Average Reaction Time (Hour Three)
Intrinsic				
High Demands	.08	.25	.05	-.07
Low Demands	.17	.17	.04	.19
Extrinsic				
High Demands	.24	.27	.14	.20
Low Demands	-.26	-.20	-.19	-.21

[a] $n = 50$ for each group.

* $p < .05$.

+ Correlation coefficients are significantly different from each other for the two tasks, $p < .05$.

Table D3

Correlation of Job Orientation Inventory with Arcsin Transformation of Percent of Signals Detected

	Arcsin Transformation of Percent Detected (Total)	Arcsin Transformation of Percent Detected (Hour One)	Arcsin Transformation of Percent Detected (Hour Two)	Arcsin Transformation of Percent Detected (Hour Three)
Achievement				
High Demands[a]	.00	.08	-.01	-.03
Low Demands[a]	-.08	-.02	-.12	-.06
Responsibility				
High Demands	.06	.16	.02	.01
Low Demands	-.16	-.14	-.18	-.11
Growth				
High Demands	.11	.13	.09	.10
Low Demands	-.04	-.11	.00	-.01
Recognition				
High Demands	-.15	-.19	-.14	-.12
Low Demands	-.02	-.10	.04	.00
Status				
High Demands	-.13	-.16	-.07	-.15
Low Demands	-.04	-.01	.01	-.10
Interpersonal Relations				
High Demands	.06	.05	.06	.08
Low Demands	-.15	-.21	-.07	-.15

Table D3

(Continued)

	Arcsin Transformation of Percent Detected (Total)	Arcsin Transformation of Percent Detected (Hour One)	Arcsin Transformation of Percent Detected (Hour Two)	Arcsin Transformation of Percent Detected (Hour Three)
Pay				
High Demands	-.24	-.29* +	-.19	-.21
Low Demands	.04	.18	.01	-.03
Job Security				
High Demands	.04	.04	.06	.01
Low Demands	.13	.13	.13	.10
Family				
High Demands	-.12	-.11	-.16	-.09
Low Demands	.24	.22	.18	.23
Hobbies				
High Demands	.35* +	.30*	.34* +	.39**
Low Demands	-.05	-.05	-.11	.01

[a] $n = 50$ for each group.

* $p < .05$.

** $p < .01$.

+ Correlation coefficients are significantly different from each other for the two tasks, $p < .05$.

Table D4

Correlation of Job Orientation Inventory with Arcsin Transformation of Percent of Correct Detections

	Arcsin Transformation of Percent Detected (Total)	Arcsin Transformation of Percent Detected (Hour One)	Arcsin Transformation of Percent Detected (Hour Two)	Arcsin Transformation of Percent Detected (Hour Three)
Achievement				
High Demands[a]	.03	.11	.00	-.01
Low Demands[a]	---	---	---	---
Responsibility				
High Demands	.08	.15	.04	.04
Low Demands	---	---	---	---
Growth				
High Demands	.05	.08	.03	.03
Low Demands	---	---	---	---
Recognition				
High Demands	-.09	-.12	-.09	-.05
Low Demands	---	---	---	---
Status				
High Demands	-.09	-.10	-.05	-.12
Low Demands	---	---	---	---
Interpersonal Relations				
High Demands	.02	.01	.01	.02
Low Demands	---	---	---	---

Table D4

(Continued)

	Arcsin Transformation of Percent Detected (Total)	Arcsin Transformation of Percent Detected (Hour One)	Arcsin Transformation of Percent Detected (Hour Two)	Arcsin Transformation of Percent Detected (Hour Three)
Pay				
High Demands	-.23	-.28*	-.18	-.20
Low Demands	---	---	---	---
Job Security				
High Demands	.04	.00	.09	.00
Low Demands	---	---	---	---
Family				
High Demands	-.18	-.14	-.20	-.16
Low Demands	---	---	---	---
Hobbies				
High Demands	.38**	.31*	.35*	.43**
Low Demands	---	---	---	---

[a] $n = 50$ for each group.

* $p < .05$.

** $p < .01$.

Table D5

Correlations of Job Orientation Inventory

with Average Reaction Time

	Average Reaction Time (Total)	Average Reaction Time (Hour One)	Average Reaction Time (Hour Two)	Average Reaction Time (Hour Three)
Achievement				
High Demands[a]	.10	.10	.10	.06
Low Demands[a]	.04	.01	-.06	.12
Responsibility				
High Demands	-.16	-.17	-.02	-.01
Low Demands	-.08	-.06	-.01	-.12
Growth				
High Demands	-.14	-.16	-.14	-.08
Low Demands	.14	.22	.09	.04
Recognition				
High Demands	.05	.09	.05	.00
Low Demands	.09	.22	.09	.04
Status				
High Demands	.22	.15	.19	.23
Low Demands	-.01	.01	-.01	-.03
Interpersonal Relations				
High Demands	.07	.09	.00	.10
Low Demands	.20	.05	.16	.25

Table D5

(Continued)

	Average Reaction Time (Total)	Average Reaction Time (Hour One)	Average Reaction Time (Hour Two)	Average Reaction Time (Hour Three)
Pay				
High Demands	.08	.09	.03	.07
Low Demands	-.26	-.25	-.21	-.16
Job Security				
High Demands	.04	-.01	.06	.05
Low Demands	-.08	-.22	.05	-.01
Family				
High Demands	.01	.07	.05	-.08
Low Demands	-.16	.01	-.26	-.14
Hobbies				
High Demands	-.33*+	-.25	-.29*≠	-.30*
Low Demands	.17	.14	.24	.03

[a] n = 50 for each group.

* $p < .05$.

+ Correlation coefficients are significantly different from each other for the two tasks, $p < .05$.

≠ Correlation coefficients are significantly different from each other, $p < .01$.

Table D6

Correlation of Work Itself/Work Environment Questionnaire of Job Structural Attributes Preferred with Arcsin Transformation of Percent of Signals Detected

	Arcsin Transformation of Percent Detected (Total)	Arcsin Transformation of Percent Detected (Hour One)	Arcsin Transformation of Percent Detected (Hour Two)	Arcsin Transformation of Percent Detected (Hour Three)
Variety				
High Demands[a]	.07	.04	.07	.09
Low Demands[a]	.28*	.21	.30*	.24
Responsibility				
High Demands	-.15	-.17	-.16	-.12
Low Demands	-.04	-.10	-.04	-.01
Job Complexity				
High Demands	-.25	-.24	-.27	-.23
Low Demands	-.10	-.10	-.07	-.09
Feedback				
High Demands	.12	.12	.15	.07
Low Demands	-.04	-.15	.04	-.01
Total				
High Demands	-.07	-.08	-.06	-.06
Low Demands	.05	-.06	.10	.06

[a] $n = 50$ for each group.

* $p < .05$.

Table D7

Correlation of Attribute Preference Questionnaire

with Arcsin Transformation of Percent of Signals Detected

	Arcsin Transformation of Percent Detected (Total)	Arcsin Transformation of Percent Detected (Hour One)	Arcsin Transformation of Percent Detected (Hour Two)	Arcsin Transformation of Percent Detected (Hour Three)
Feedback				
High Demands[a]	-.01	.02	-.01	-.05
Low Demands[a]	-.07	-.15	-.09	.02
Variety				
High Demands	-.03	-.04	-.04	-.03
Low Demands	-.04	-.05	.00	-.07
Responsibility				
High Demands	-.33*	-.23	-.35*	-.33*
Low Demands	-.09	-.06	-.11	-.09
Complexity				
High Demands	-.17	-.11	-.20	-.17
Low Demands	.04	-.03	.01	.11
Total				
High Demands	-.29*	-.19	-.33*	-.31*
Low Demands	-.08	-.15	-.09	.00

[a] $n = 50$ for each group.

* $p < .05$.

Table D8

Correlation of Attribute Preference Questionnaire

with Arcsin Transformation of Percent of Correct Detections

	Arcsin Transformation of Percent Detected (Total)	Arcsin Transformation of Percent Detected (Hour One)	Arcsin Transformation of Percent Detected (Hour Two)	Arcsin Transformation of Percent Detected (Hour Three)
Feedback				
High Demands[a]	-.02	.03	.00	-.06
Low Demands[a]	---	---	---	---
Variety				
High Demands	.02	.07	-.01	-.01
Low Demands	---	---	---	---
Responsibility				
High Demands	-.34*	-.32*	-.35*	-.30*
Low Demands	---	---	---	---
Complexity				
High Demands	-.17	-.09	-.19	-.20
Low Demands	---	---	---	---
Total				
High Demands	-.28*	-.17	-.30*	-.32*
Low Demands	---	---	---	---

[a] n = 50 for each group.

* $p < .05$.

Table D9

Correlation of Hand-Skills Test with Arcsin Transformation of Percent of Signals Detected

	Arcsin Transformation of Percent Detected (Total)	Arcsin Transformation of Percent Detected (Hour One)	Arcsin Transformation of Percent Detected (Hour Two)	Arcsin Transformation of Percent Detected (Hour Three)
A				
Part III - Part I				
High Demands[a]	.25	.22	.29*	.21
Low Demands[a]	.05	.07	.02	.05
B				
Part IV - Part I				
High Demands	.20	.15	.28*	.15
Low Demands	-.16	-.16	-.10	-.16

[a] $n = 50$ for each group.

* $p < .05$.

Table D10

Correlation of Hand-Skills Test with Arcsin

Transformation of Percent of Correct Detections

	Arcsin Transformation of Percent Detected (Total)	Arcsin Transformation of Percent Detected (Hour One)	Arcsin Transformation of Percent Detected (Hour Two)	Arcsin Transformation of Percent Detected (Hour Three)
A				
Part III - Part I				
High Demands[a]	.28*	.27	.31*	.23
Low Demands[a]	---	---	---	---
B				
Part IV - Part I				
High Demands	.21	.18	.27	.14
Low Demands	---	---	---	---

[a] $n = 50$ for each group.

* $p < .05$.

Table D11

Correlations of General Sensation Seeking Scale with Arcsin Transformation of Percent of Signals Detected

	Total	Hour 1	Hour 2	Hour 3
General Sensation Seeking				
High Demands[a]	.28*	.25	.25	.31*
Low Demands[a]	-.32*	-.27	-.28*	-.34*
Thrill and Adventure Seeking				
High Demands	.00	-.01	-.01	.01
Low Demands	-.13	-.06	-.08	-.21
Experience Seeking				
High Demands	.07	.05	.06	.06
Low Demands	-.18	-.18	-.07	-.25
Disinhibition				
High Demands	.07	.13	.04	.03
Low Demands	-.17	-.11	-.11	-.22
Boredom Susceptibility				
High Demands	.23	.15	.19	.30*
Low Demands	-.25	-.20	-.22	-.25

[a] $n=50$ for each group.

* $p < .05$.

+Correlation coefficients are significantly different from each other for the two tasks, $p < .05$.

≠Correlation coefficients are significantly different from each other for the two tasks, $p < .01$.

Table D12

Correlations of General Sensation Seeking Scale with Arcsin Transformation of Percent of Correct Signal Detections

	Total	Hour 1	Hour 2	Hour 3
General Sensation Seeking				
High Demands[a]	.21	.18	.19	.23
Low Demands	---	---	---	---
Thrill and Adventure Seeking				
High Demands	-.08	-.09	-.09	-.06
Low Demands	---	---	---	---
Experience Seeking				
High Demands	.04	.04	.05	.03
Low Demands	---	---	---	---
Disinhibition				
High Demands	.02	.07	-.01	.01
Low Demands	---	---	---	---
Boredom Susceptibility				
High Demands	.29*	.26	.23	.34*
Low Demands	---	---	---	---

[a] $n = 50$.

* $p < .05$.

Table D13

Correlations of General Sensation Seeking Scale with Average Reaction Times

	Total	Hour 1	Hour 2	Hour 3
General Sensation Seeking				
High Demands[a]	-.19	-.09	-.20	-.18
Low Demands[a]	.13	.09	.03	.16
Thrill and Adventure Seeking				
High Demands	.16	.24	.12	.05
Low Demands	.00	-.02	-.09	.10
Experience Seeking				
High Demands	.09	.03	-.16	-.11
Low Demands	.05	-.06	-.07	.22
Disinhibition				
High Demands	-.15	-.16	-.13	-.10
Low Demands	-.04	-.01	.03	-.10
Boredom Susceptibility				
High Demands	-.34*	-.28*	-.35*	-.25
Low Demands	.02	.03	.05	-.04

[a] $n = 50$ for both groups.

* $p < .05$.

Appendix E

Correlations of Work Value and Attribute Preference Measures with Satisfaction Measures

Table E1

Correlations of Job Orientation Inventory

with Satisfaction Measures

	Morale Scale					Job Descriptive Index
	Job Complexity	Job Worth	General Affective Tone	General Arousal	Personal Competence	Work
Achievement						
High Demands[a]	.00	-.17	.01	-.01	.07	-.04
Low Demands[a]	-.03	-.10	-.04	-.04	-.07	-.03
Responsiblity						
High Demands	-.28*	-.28*	-.36**	-.36**	-.15	-.31*
Low Demands	-.08	-.01	-.11	.03	-.01	.19+
Growth						
High Demands	-.09	-.10	-.20	-.22	-.12	-.01
Low Demands	.00	-.05	.06	.03	-.05	.03
Recognition						
High Demands	-.12	.13	.16	.24	.14	.13
Low Demands	.29*	.31*	.33*	.26	.21	.29*
Status						
High Demands	.01	.06	.10	.06	-.01	-.06
Low Demands	-.08	-.09	-.07	-.03	.02	.01
Interpersonal Relations						
High Demands	.13	.04	.04	.01	-.03	.09
Low Demands	-.33*	-.27	-.30*	-.21	-.21	-.34*

Table E1

(Continued)

Correlations of Job Orientation Inventory

with Satisfaction Measures

	Morale Scale					Job Descriptive Index
	Job Complexity	Job Worth	General Affective Tone	General Arousal	Personal Competence	Work
Job Security						
High Demands[a]	.02	-.06	.06	.13	.07	.07
Low Demands[a]	.02	.12	.07	.02	-.01	-.09
Family						
High Demands	-.03	.04	.00	-.10	.05	.02
Low Demands	.11	.20	.13	.01	.14	.06
Hobbies						
High Demands	.07	.12	.03	.12	-.04	-.04
Low Demands	.13	.02	-.03	.03	-.03	.02
Pay						
High Demands	.02	.17	.09	.05	-.03	.09
Low Demands	-.22	-.20	-.09	-.09	-.02	-.09

[a] $n = 50$ for each group.

* $p < .05$.

** $p < .01$.

+ Correlation coefficients are significantly different from each other for the two tasks, $p < .05$.

Table E2

Correlations of Survey of Work Values

with Satisfaction Measures

	Morale Scale					Job Descriptive Index
	Job Complexity	Job Worth	General Affective Tone	General Arousal	Personal Competence	Work
Earnings						
High Demands[a]	-.17	.04	-.07	.01	.15	-.14
Low Demands[a]	-.04	-.13	.01	.05	-.11	-.05
Social Status						
High Demands	-.04	-.05	.04	.08	.15	-.04
Low Demands	.14	.12	.09	.16	.24	.13
Upward Striving						
High Demands	.09	.27	.29*	.32*	.39**	.22
Low Demands	-.02	.00	.13	.13	.20	.00
Activity Preference						
High Demands	-.08	-.24	-.10	.08	.08	-.16
Low Demands	.14	.12	.19	.19	.24	.08
Job Involvement						
High Demands	.00	-.12	.04	.13	.12	.00
Low Demands	-.25	-.19	-.15	-.16	-.05	-.04
Pride in Work						
High Demands	-.01	-.19	.06	.07	.10	.00
Low Demands	-.08	-.10	-.08	.03	.02	.07

Table E2

(Continued)

	Morale Scale					Job Descriptive Index
	Job Complexity	Job Worth	General Affective Tone	General Arousal	Personal Competence	Work
Intrinsic						
High Demands	-.04	-.23	-.01	.11	.12	-.07
Low Demands	-.08	-.07	-.02	.03	.09	.05
Extrinsic						
High Demands	-.13	-.01	-.02	.06	.19	-.11
Low Demands	.04	-.04	.05	.12	.04	.03

[a] $n = 50$ for each group.

* $p < .05$.

** $p < .01$.

Table E3

Correlations of Hand-Skills Test

with Satisfaction Measures

	Morale Scale					Job Descriptive Index
	Job Complexity	Job Worth	General Affective Tone	General Arousal	Personal Competence	Work
A						
Part III - Part I						
High Demands	-.13	-.03	.00	.01	.33*	.08
Low Demands	.02	.06	.00	.09	.20	-.14
B						
Part IV - Part I						
High Demands	-.01	-.02	.05	.07	.29*	.15
Low Demands	.10	-.01	-.03	-.01	.06	-.19

[a] $n = 50$ for each group.

* $p < .05$.

Table E4

Correlations of Protestant Ethic Scale

with Satisfaction Measures

	Morale Scale					Job Descriptive Index
	Job Complexity	Job Worth	General Affective Tone	General Arousal	Personal Competence	Work
Pro-Protestant Ethic						
High Demands[a]	-.02	.00	.06	.07	.07	-.06
Low Demands[a]	-.26	-.29*	-.32*	-.20	-.06	-.31*
Non-Protestant Ethic						
High Demands	-.06	-.13	-.28*	-.27	-.24	-.11
Low Demands	-.01	-.18	.01	.03	-.15	.02

[a] $n = 50$ for each group.

* $p < .05$.

Table E5

Correlations of Work Itself/Work Environment Questionnaire of Job Structural Attributes Preferred with Satisfaction Measures

	Morale Scale					Job Descriptive Index
	Job Complexity	Job Worth	General Affective Tone	General Arousal	Personal Competence	Work
Variety						
High Demands[a]	-.04	.08	.05	.03	.05	.02
Low Demands[a]	.33*	.31*	.30*	.35*	.19	.38**
Responsibility						
High Demands	.09	.04	.08	.04	-.18	-.05
Low Demands	.04	.13	.23	.03	.28	.07
Job Complexity						
High Demands	-.09	-.09	.00	.04	-.02	-.09
Low Demands	.21	.16	.05	.16	.12	.19
Feedback						
High Demands	-.12	-.16	-.13	-.09	-.21	-.20
Low Demands	.04	-.20	.04	.05	.07	-.03
Total						
High Demands	-.06	-.05	.00	.01	-.15	-.13
Low Demands	.25	.25	.29*	.24	.30*+	.25

[a] $n = 50$ for each group.

* $p < .05$.

** $p < .01$.

+ Correlation coefficients are significantly different from each other for the two tasks, $p < .05$.

Table E6

Correlations of Sensation Seeking Scale

with Satisfaction Measures

	Morale Scale					Job Descriptive Index
	Job Complexity	Job Worth	General Affective Tone	General Arousal	Personal Competence	Work
General Sensation Seeking						
High Demands[a]	-.09	-.21	-.15	-.20	-.18	-.12
Low Demands[a]	-.01	-.14	-.18	-.19	-.32*	.07
Thrill and Adventure Seeking						
High Demands	-.03	-.20	-.14	-.11	-.17	-.16
Low Demands	.05	.00	-.10	-.08	-.10	-.11
Experience Seeking						
High Demands	-.12	-.14	-.05	-.16	-.09	-.03
Low Demands	-.14	-.20	-.24	-.19	-.37**	-.17
Disinhibition						
High Demands	-.28*	-.26	-.25	-.32*	-.16	-.29*
Low Demands	-.11	-.24	-.23	-.13	-.28*	-.08
Boredom Susceptibility						
High Demands	.04	.00	.09	.01	-.04	.03
Low Demands	-.02	-.14	-.18	-.14	-.25	.08

[a] $n = 50$ for each group.

* $p < .05$.

** $p < .01$.

Appendix F

Relationship of Performance to Task Description Measures

Table F1

Correlation of Work Itself/Work Environment Questionnaire of Job Structural Attributes Described with Arcsin Transformation of Percent of Signals Detected

	Arcsin Transformation of Percent Detected (Total)	Arcsin Transformation of Percent Detected (Hour One)	Arcsin Transformation of Percent Detected (Hour Two)	Arcsin Transformation of Percent Detected (Hour Three)
Variety				
High Demands[a]	.05	-.03	.11	.08
Low Demands[a]	.07	.09	.03	.09
Responsibility				
High Demands	.29*	.26	.31*	.28*
Low Demands	.21	.23	.14	.23
Job Complexity				
High Demands	.11	.07	.11	.13
Low Demands	.08	.11	.16	.00
Feedback				
High Demands	-.05	-.13	-.01	.01
Low Demands	-.17	.02	-.16	-.25
Total				
High Demands	.22	.12	.27	.25
Low Demands	.13	.19	.11	.09

[a] $n = 50$ for each group.

* $p < .05$.

Table F2

Correlation of Work Itself/Work Environment Questionnaire of Job Structural Attributes Described with Arcsin Transformation of Percent of Correct Detections

	Arcsin Transformation of Percent Detected (Total)	Arcsin Transformation of Percent Detected (Hour One)	Arcsin Transformation of Percent Detected (Hour Two)	Arcsin Transformation of Percent Detected (Hour Three)
Variety				
High Demands[a]	.15	.06	.19	.16
Low Demands[a]	---	---	---	---
Responsibility				
High Demands	.30*	.25	.34*	.28*
Low Demands	---	---	---	---
Job Complexity				
High Demands	.19	.17	.17	.21
Low Demands	---	---	---	---
Feedback				
High Demands	-.03	-.10	-.04	.04
Low Demands	---	---	---	---
Total				
High Demands	.30*	.20	.33*	.32*
Low Demands	---	---	---	---

[a] $n = 50$ for each group.

* $p < .05$.

Table F3

Correlations of Work Itself/Work Environment Questionnaire of Job Structural Attributes Described with Average Reaction Time

	Average Reaction Time (Total)	Average Reaction Time (Hour One)	Average Reaction Time (Hour Two)	Average Reaction Time (Hour Three)
Variety				
High Demands[a]	-.26	-.14	-.28*	-.24
Low Demands[a]	.30*≠	.25	.34*≠	.12
Responsibility				
High Demands	-.21	-.07	-.19	-.27
Low Demands	-.01	-.02	-.01	-.06
Job Complexity				
High Demands	-.08	-.02	-.08	-.11
Low Demands	-.06	-.20	-.02	-.04
Feedback				
High Demands	-.13	-.13	-.18	-.03
Low Demands	.06	-.02	.25	-.06
Total				
High Demands	-.30*	.15	-.32*+	-.32*
Low Demands	.08	.02	.16	.07

[a] $n = 50$ for each group.

* $p < .05$.

+ Correlation coefficients are significantly different from each other for the two tasks, $p < .05$.

≠ Correlation coefficients are significantly different from each other for the two tasks, $p < .01$.

Table F4

Correlation of Attribute Description Questionnaire with Arcsin Transformation of Percent of Correct Detections

	Arcsin Transformation of Percent Detected (Total)	Arcsin Transformation of Percent Detected (Hour One)	Arcsin Transformation of Percent Detected (Hour Two)	Arcsin Transformation of Percent Detected (Hour Three)
Feedback				
High Demands[a]	-.28*	-.31*	-.21	-.28*
Low Demands[a]	---	---	---	---
Variety				
High Demands	-.10	-.14	-.07	-.09
Low Demands	---	---	---	---
Responsibility				
High Demands	.00	-.10	.07	.01
Low Demands	---	---	---	---
Complexity				
High Demands	-.05	.00	-.08	-.06
Low Demands	---	---	---	---
Total				
High Demands	-.15	.19	-.10	-.14
Low Demands	---	---	---	---

[a] $n = 50$ for each group.

* $p < .05$.

Table F5

Correlations of Attribute Description Questionnaire with Average Reaction Time

	Average Reaction Time (Total)	Average Reaction Time (Hour One)	Average Reaction Time (Hour Two)	Average Reaction Time (Hour Three)
Feedback				
High Demands[a]	.16	.07	.17	.17
Low Demands	.05	.02	.09	.03
Variety				
High Demands	.05	.08	-.01	.08
Low Demands	.30**	.23	.40**+	.11
Responsibility				
High Demands	.16	.15	.19	.07
Low Demands	-.06	-.16	.09	-.07
Complexity				
High Demands	.14	-.02	.23	.15
Low Demands	-.08	-.04	.05	-.13
Total				
High Demands	.18	.10	.19	.16
Low Demands	.10	.01	.26	-.01

[a] $n = 50$ for each group.

** $p < .01$.

+ Correlation coefficients are significantly different from each other for the two tasks, $p < .05$.

Appendix G

Relationships Among Individual Differences and Task Descriptions

Table G1

Correlations of Picture-Number Test

with Work Itself/Work Environment Questionnaire

Job Structural Attributes Described

	Variety	Responsibility	Job Complexity	Feedback	Total
Part I					
High Demands[a]	.21	.11	.05	-.06	.15
Low Demands[a]	-.26	.07	-.03	-.18	-.10
Part II					
High Demands	.02	.22	.10	-.11	.14
Low Demands	-.28*	-.05	.02	-.26	-.16
Total					
High Demands	.21	.18	.08	-.10	.16
Low Demands	-.29*+	.01	-.01	-.24	-.14

[a] $n = 50$ for each group.

* $p < .05$.

+ Correlation coefficients are significantly different from each other for the two tasks, $p < .05$.

Table G2

Correlations of Selective Attention Test

with Work Itself/Work Environment Questionnaire

Job Structural Attributes Described

	Variety	Responsibility	Job Complexity	Feedback	Total
Part I					
Intrusions					
High Demands[a]	.07	-.21	.11	-.10	-.09
Low Demands[a]	.08	-.12	.09	-.14	-.04
Omissions					
High Demands	.02	-.21	.07	-.13	-.14
Low Demands	.29*	-.15	.08	.08	.06
False Alarms					
High Demands	-.14	.10	-.06	-.03	-.03
Low Demands	-.02	-.09	-.12	-.02	-.11
Part II					
Intrusions					
High Demands	-.07	-.31*	.04	.01	-.20
Low Demands	.21	-.01	.14	-.15	.08
Omissions					
High Demands	-.08	-.08	.10	-.18	-.10
Low Demands	.21	.09	.01	.09	.14
False Alarms					
High Demands	-.01	.00	.28	.17	.14
Low Demands	.07	-.14	-.03	.05	-.06

Table G2

(Continued)

	Variety	Responsibility	Job Complexity	Feedback	Total
Completely Correct					
High Demands	.15	.25	.02	.10	.26
Low Demands	-.23	.00	.06	-.05	-.05

[a] n = 50 for each group.

* $p < .05$.

Table G3

Correlations of Maudsley Personality Inventory

with Work Itself/Work Environment Questionnaire

Job Structural Attributes Described

	Variety	Responsibility	Job Complexity	Feedback	Total
Extraversion					
High Demands[a]	-.21	-.18	-.28*	-.06	-.31*
Low Demands[a]	.03	-.05	.06	-.10	-.02
Neuroticism					
High Demands	-.19	-.01	.06	.12	.03
Low Demands	.08	.13	.01	.23	.15

[a] n = 50 for each group.

* $p < .05$.

Table G4

Correlations of Job Attitude Survey

with Work Itself/Work Environment Questionnaire

Job Structural Attributes Described

	Variety	Responsibility	Job Complexity	Feedback	Total
Intrinsic					
High Demands[a]	.01	.11	.07	-.09	.07
Low Demands[a]	-.14	-.33*+	-.11	-.06	-.28*
Extrinsic					
High Demands	-.01	-.11	-.07	.09	-.07
Low Demands	.14	.33*+	.11	.06	.28*

[a] $n = 50$ for each group.

* $p < .05$.

+ Correlation coefficients are significantly different from each other for the two tasks, $p < .05$.

Table G5

Correlations of Protestant Ethic Scale

with Work Itself/Work Environment Questionnaire

Job Structural Attributes Described

	Variety	Responsibility	Job Complexity	Feedback	Total
Pro-Protestant Ethic					
High Demands[a]	.16	.12	-.15	.34*	.19
Low Demands[a]	.02	.09	.20	.19	.18
Non-Protestant Ethic					
High Demands	-.23	-.01	-.13	.01	-.15
Low Demands	.17	-.20	.20	.27	.09

[a] $n = 50$ for each group.

* $p < .05$.

Table G6

Correlations of Job Orientation Inventory

with Work Itself/Work Environment Questionnaire

Job Structural Attributes Described

	Variety	Responsibility	Job Complexity	Feedback	Total
Achievement					
High Demands[a]	.12	.05	.05	.28*	.18
Low Demands[a]	-.17	.04	-.01	-.06	-.05
Responsibility					
High Demands	-.18	.27	-.10	-.23	-.02
Low Demands	-.10	-.03	-.01	.00	-.05
Growth					
High Demands	-.02	-.03	-.12	-.10	-.10
Low Demands	-.08	-.20	-.18	.02	-.20
Recognition					
High Demands	.18	.26	.18	.07	.32*
Low Demands	.12	.20	.14	-.11	.17
Status					
High Demands	.26	.00	-.09	-.11	.05
Low Demands	.03	-.15	.08	.11	-.02
Interpersonal Relations					
High Demands	-.10	-.16	.03	.11	-.09
Low Demands	-.09	.05	.10	-.07	.02

Table G6

(Continued)

	Variety	Responsibility	Job Complexity	Feedback	Total
Pay					
High Demands	-.09	-.25	-.02	.04	-.19
Low Demands	-.18	-.11	.05	.16	-.05
Job Security					
High Demands	-.09	.09	.14	-.10	.03
Low Demands	.07	-.08	.22	.10	.09
Family					
High Demands	-.11	-.11	-.29*	.04	-.20
Low Demands	.14	.13	-.21	-.14	-.01
Hobbies					
High Demands	.02	-.08	.20	-.04	.02
Low Demands	.16	.07	-.13	.04	.04

[a] n = 50 for each group.

* $p < .05$.

Table G7

Correlations of Sensation Seeking Scale with Work Itself/Work Environment Questionnaire Job Structural Attributes Described

	Variety	Responsibility	Job Complexity	Feedback	Total
General Sensation Seeking					
High Demands[a]	-.19	.03	.09	.05	-.02
Low Demands[a]	.12	-.10	.07	.03	.02
Thrill and Adventure Seeking					
High Demands	-.19	.00	.08	.04	-.04
Low Demands	.07	-.03	-.05	-.03	-.02
Experience Seeking					
High Demands	-.14	-.02	.12	.01	-.04
Low Demands	-.02	-.21	.03	.08	-.09
Disinhibition					
High Demands	-.14	-.20	-.22	-.16	-.30*
Low Demands	.02	-.27	.10	.22	-.05
Boredom Susceptibility					
High Demands	-.09	-.11	.18	.25	.03
Low Demands	-.01	-.17	.17	.07	-.01

[a] $n = 50$ for each group.

* $p < .05$.

Table G8

Correlations of Wesman P. C. T.

with Attribute Description Questionnaire

	Variety	Responsibility	Job Complexity	Feedback	Total
Wesman Verbal					
High Demands[a]	-.30*	.04	-.01	-.38**	-.24
Low Demands[a]	-.27	-.04	.08	-.41**	-.22
Numerical					
High Demands	-.29*	-.01	.03	-.08	-.14
Low Demands	-.06	.16	-.18	-.05	-.03
Total					
High Demands	-.33*	.02	.00	-.29*	-.22
Low Demands	-.21	.06	-.04	-.29*	-.17

[a] $n = 50$ for each group.

* $p < .05$.

** $p < .01$.

Table G9

Correlations of Picture-Number Test

with Satisfaction Measures

	Morale Scale				Job Descriptive Index
	Job Complexity	Job Worth	General Affective Tone	General Arousal	Personal Competence	Work
Part I						
High Demands[a]	-.07	.03	.07	-.44*** ≠	-.13
Low Demands[a]	-.02	-.04	.20	.14	.08
Part II						
High Demands	-.05	.17	.02	-.43**	-.09
Low Demands	-.11	-.16	.05	.12	-.06
Total						
High Demands	-.06	.10	.05	-.46*** ≠	-.11
Low Demands	-.07	-.11	.13	.14	.01

[a] $n = 50$ for each group.

** $p < .01$.

*** $p < .001$.

≠ Correlation coefficients are significantly different from each other for the two tasks, $p < .01$.

Table G11

Correlations of Selective Attention Test

with Attribute Description Questionnaire

	Variety	Responsibility	Job Complexity	Feedback	Total
Intrusions					
High Demands[a]	.32*	.06	.17	.25	.29*
Low Demands [a]	.15	.14	.16	.12	.21
Omissions					
High Demands	.04	-.07	-.06	.16	.02
Low Demands	.26	.12	.17	-.11	.19
False Alarms					
High Demands	-.30*≠	-.15	-.29*+	-.06	-.30
Low Demands	.26	-.10	.11	.15	.15
Part II					
Intrusions					
High Demands	.22	-.04	.17	.14	.18
Low Demands	.06	.22	.28*	-.01	.21
Omissions					
High Demands	.13	.01	.01	.20	.13
Low Demands	.33*	.02	.05	.02	.17
False Alarms					
High Demands	-.15	-.01	.20	.00	.00
Low Demands	.19	.09	.02	.13	.17

Table G11

(Continued)

	Variety	Responsibility	Job Complexity	Feedback	Total
Completely Correct					
High Demands	-.12	.09	-.10	-.28*	-.14
Low Demands	-.28*	-.01	-.20	.05	-.18

[a] $n = 50$ for each group.

* $p < .05$.

+ Correlation coefficients are significantly different from each other for the two tasks, $p < .05$.

≠ Correlation coefficients are significantly different from each other for the two tasks, $p < .01$.

Table G12

Correlations of Survey of Work Values

with Attribute Description Questionnaire

	Variety	Responsibility	Job Complexity	Feedback	Total
Earnings					
High Demands[a]	.15	.35*	-.10	.16	.20
Low Demands[a]	-.10	-.13	.01	-.01	-.10
Social Status					
High Demands	.27	.19	.31*	.26	.36**
Low Demands	.12	-.02	.00	-.06	.03
Upward Striving					
High Demands	.27	.22	.11	.15	.28* +
Low Demands	-.06	-.19	-.02	-.26	-.19
Activity Preference					
High Demands	.05	.13	.08	-.11	.06
Low Demands	.06	-.03	-.04	.01	.00
Job Involvement					
High Demands	-.20	.23 ≠	.07	-.13	-.02
Low Demands	-.25	-.41**	-.11	-.17	-.36**
Pride in Work					
High Demands	.04	-.06	.04	-.18	-.05
Low Demands	.11	-.39**	.02	-.15	-.24
Intrinsic					
High Demands	-.04	.13	.07	-.17	.00
Low Demands	-.12	-.35*	-.05	-.13	-.25

Table G12

(Continued)

	Variety	Responsibility	Job Complexity	Feedback	Total
Extrinsic					
High Demands	.27	.34*	.14	.27	.37**
Low Demands	-.01	-.10	.01	-.04	-.06

[a] $n \approx 50$ for each group.

*$p < .05$.

**$p < .01$.

[+]Correlation coefficients are significantly different from each other for the two tasks, $p < .05$.

[≠]Correlation coefficients are significantly different from each other for the two tasks, $p < .01$.

Table G13

Correlations of Protestant Ethic Scale

with Attribute Description Questionaire

	Variety	Responsibility	Job Complexity	Feedback	Total
Pro-Protestant Ethic					
High Demands	.07	.12	.09	.15	.15
Low Demands	-.14	-.37** +	-.09	-.24	-.31* +
Non-Protestant Ethic					
High Demands	-.35*	.00	-.05	-.16	-.22
Low Demands	.00	-.09	.14	-.09	.04

[a] $n = 50$ for each group.

* $p < .05$.

** $p < .01$.

+ Correlation coefficients are significantly different from each other for the two tasks, $p < .05$.

Table G14

Correlations of Job Orientation Inventory

with Attribute Description Questionnaire

	Variety	Responsibility	Job Complexity	Feedback	Total
Achievement					
High Demands[a]	-.01	.13	.14	.03	-.20
Low Demands[a]	-.14	-.10	-.07	.03	-.12
Responsibility					
High Demands	-.21	-.09	-.10	-.30*	-.25
Low Demands	-.05	-.15	.19	.09	.01
Growth					
High Demands	.00	-.35*	.04	-.12	-.18
Low Demands	.00	-.09	-.21	.07	-.09
Recognition					
High Demands	.18	.30*	.17	.18	.29*
Low Demands	.35*	.34*	.19	-.08	.38**
Status					
High Demands	.09	.27	.11	.13	.21
Low Demands	-.11	-.35*	-.01	-.23	-.26
Interpersonal Relations					
High Demands	-.25	-.10	-.17	-.05	-.22
Low Demands	-.15	.05	-.18	-.13	-.14

Table G14

(Continued)

	Variety	Responsibility	Job Complexity	Feedback	Total
Pay					
High Demands	.17	.14	.00	.15	.16
Low Demands	-.13	-.23	.09	-.16	-.16
Job Security					
High Demands	.12	.01	.07	.10	.11
Low Demands	-.09	.19	.03	.07	.07
Family					
High Demands	.10	-.06	.05	.32*	.14
Low Demands	.18	.07	-.03	.19	.15
Hobbies					
High Demands	-.23	-.23	-.25	-.30*	-.36*+
Low Demands	.09	.14	.03	-.06	.09

[a] $n = 50$ for each group.

* $p < .05$.

** $p < .01$.

+ Correlation coefficients are significantly different from each other for the two tasks, $p < .05$.

≠ Correlation coefficients are significantly different from each other for the two tasks, $p < .01$.

Table G15

Correlations of Sensation Seeking Scale

with Attribute Description Questionnaire

	Variety	Responsibility	Job Complexity	Feedback	Total
General Sensation Seeking					
High Demands[a]	-.30*	-.35*	-.19	-.33*	-.42**
Low Demands[a]	-.24	-.23	.15	-.22	-.21
Thrill and Adventure Seeking					
High Demands	-.22	-.15	.02	-.13	-.18
Low Demands	-.30*	-.06	.00	-.12	-.19
Experience Seeking					
High Demands	-.22	-.26*	-.12	-.21	-.33*
Low Demands	-.27	-.04	-.01	-.12	-.17
Disinhibition					
High Demands	-.34*	-.25	-.20	-.18	-.36*
Low Demands	-.16	-.15	.26	-.10	-.07
Boredom Susceptibility					
High Demands	-.38*	-.25	-.04	-.27	-.35*
Low Demands	-.08	-.25	.14	-.11	-.12

[a] $n = 50$ for each group.

* $p < .05$.

** $p < .01$.

Table G16

Correlations of Cognitive Style Measures

with Attribute Description Questionnaire (Likert Form)

	Variety	Responsibility	Job Complexity	Feedback	Total
RFT					
High Demands[a]	-.10	-.04	.14	.07	.03
Low Demands[a]	-.04	.29*	.19	.12	.19
GEFT Raw Scores					
High Demands	.08	-.03	-.08	-.11	-.06
Low Demands	-.15	-.47***[+]	-.22	.05	-.24
GEFT Inverse Scores					
High Demands	.03	-.01	.17	.16	.14
Low Demands	.04	.36**	.25	.06	.23

[a] $n = 50$ for each group.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

+ Correlation coefficients are significantly different from each other for the two tasks, $p < .05$.

Table G17

Correlations of Wesman P. C. T.

with Attribute Description Questionnaire (Likert Form)

	Variety	Responsibility	Job Complexity	Feedback	Total
Wesman Verbal					
High Demands[a]	-.03	.00	-.27	-.03	-.11
Low Demands[a]	.30*	-.03	-.35*	.21	.11
Numerical					
High Demands	-.03	-.13	-.25	-.22	-.25
Low Demands	.00	.01	-.04	.10	.04
Total					
High Demands	-.03	-.06	-.30*	-.12	-.19
Low Demands	.20	-.02	-.26	.19	.09

[a] $n = 50$ for each group.

* $p < .05$.

Table G18

Correlations of Picture-Number Test

with Attribute Description Questionnaire (Likert Form)

	Variety	Responsibility	Job Complexity	Feedback	Total
Part I					
High Demands[a]	.06	.02	-.22	-.06	-.07
Low Demands[a]	-.08	-.25	-.28*	.05	-.17
Part II					
High Demands	.03	.09	-.19	-.02	-.03
Low Demands	-.12	-.30*	-.33*	-.14	-.31*
Total					
High Demands	.05	.06	-.21	-.04	-.05
Low Demands	-.11	-.30*	-.33*	-.05	-.26

[a] $n = 50$ for each group.

* $p < .05$.

Table G19

Correlations of Maudsley Personality Inventory

with Attribute Description Questionnaire (Likert Form)

	Variety	Responsibility	Job Complexity	Feedback	Total
Extroversion					
High Demands[a]	-.28*	-.30*	-.21	-.23	-.39**+
Low Demands[a]	.15	.01	.11	-.19	.01
Neuroticism					
High Demands	.01	-.09	.14	-.03	.00
Low Demands	-.07	.05	-.01	.00	.04

[a] $n = 50$ for each group.

* $p < .05$.

** $p < .01$.

+ Correlation coefficients are significantly different from each other for the two tasks, $p < .05$.

Table G20

Correlations of Hand-Skills Test

with Attribute Description Questionnaire (Likert Form)

	Variety	Responsibility	Job Complexity	Feedback	Total
A					
Part III - Part I					
High Demands[a]	-.27	-.15	-.28*	-.23	-.36*+
Low Demands[a]	-.01	-.04	.06	.08	.04
B					
Part IV - Part I					
High Demands	-.23	-.14	-.30*+	-.11	-.29*
Low Demands	-.04	-.09	.16	.15	.08

[a] $n = 50$ for each group.

* $p < .05$.

+ Correlation coefficients are significantly different from each other for the two tasks, $p < .05$.

Table G21

Correlations of Survey of Work Values

with Attribute Description Questionnaire (Likert Form)

	Variety	Responsibility	Job Complexity	Feedback	Total
Earnings					
High Demands[a]	-.19	.06	.06	.05	.00
Low Demands[a]	.05	-.14	.17	-.38+**	-.16
Social Status					
High Demands	.10	.21	.09	.08	.18
Low Demands	.00	.19	.06	.06	.11
Upward Striving					
High Demands	-.03	.10	.06	.00	.04
Low Demands	-.13	-.17	-.14	-.08	-.19
Activity Preference					
High Demands	.09	.08	-.03	.02	.06
Low Demands	-.05	.07	-.06	.09	.03
Job Involvement					
High Demands	.03	-.04	-.10	-.10	-.14
Low Demands	-.02	-.18	-.28	.08	-.11
Pride in Work					
High Demands	.16	.03	.00	.00	.07
Low Demands	.02	-.03	-.28	.09	-.04

Table G21

(Continued)

	Variety	Responsibility	Job Complexity	Feedback	Total
Intrinsic					
High Demands	.12	.03	-.05	-.05	.01
Low Demands	-.02	-.05	-.26	.11	-.05
Extrinsic					
High Demands	-.05	.18	.10	.09	.12
Low Demands	-.04	.00	.15	-.24	-.06

[a] $n = 50$ for each group.

** $p < .01$.

+ Correlation coefficients are significantly different from each other for the two tasks, $p < .05$.

Table G22

Correlations of Protestant Ethic Scale

with Attribute Description Questionnaire (Likert Form)

	Variety	Responsibility	Job Complexity	Feedback	Total
Pro-Protestant Ethic					
High Demands[a]	.00	.15	.11	.06	.12
Low Demands[a]	.16	.06	.07	.07	.14
Non-Protestant Ethic					
High Demands	-.18	-.11	.03	-.09	-.16
Low Demands	.07	.06	.12	-.36*	-.09

[a] $n = 50$ for each group.

* $p < .05$.

Table G23

Correlations of Job Attitude Survey

with Attribute Description Questionnaire (Likert Form)

	Variety	Responsibility	Job Complexity	Feedback	Total
Intrinsic					
High Demands[a]	-.02	-.20	-.25	-.25	-.28*
Low Demands[a]	-.02	-.03	-.08	-.27	-.17
Extrinsic					
High Demands	.02	.20	.25	.25	.28*
Low Demands	.02	.03	.08	.27	.17

[a] $n = 50$ for each group.

* $p < .05$.

Table G24

Correlations of Job Orientation Inventory with Attribute Description Questionnaire (Likert Form)

	Variety	Responsibility	Job Complexity	Feedback	Total
Achievement					
High Demands[a]	.09	.11	-.06	.02	.06
Low Demands[a]	-.13	-.30+*	-.13	-.13	-.25
Responsibility					
High Demands	-.15	-.09	-.20	-.02	-.16
Low Demands	.07	-.14	-.05	.03	-.01
Growth					
High Demands	-.13	-.26	-.13	-.42**	-.39**
Low Demands	-.19	.02	-.01	-.25	-.20
Recognition					
High Demands	.30*	.22	.22	.12	.32*
Low Demands	.17	.21	.03	.24	.19
Status					
High Demands	-.03	.10	-.22	.20	.05
Low Demands	.15	.03	-.02	-.16	-.01
Interpersonal Relations					
High Demands	-.07	-.27	.00	.10	-.11
Low Demands	.05	.07	.04	-.06	.02
Pay					
High Demands	-.09	.15	.05	.07	.07
Low Demands	.04	-.22	-.13	-.20	-.19

Table G24

(Continued)

	Variety	Responsibility	Job Complexity	Feedback	Total
Job Security					
High Demands	.16	.10	.10	.04	.14
Low Demands	.12	-.01	.00	.06	.08
Family					
High Demands	-.11	.21	.26	-.16	.04
Low Demands	-.20	.13	.04	.13	.03
Hobbies					
High Demands	.00	-.26	-.14	.06	-.10
Low Demands	-.02	.13	.18	.29*	.23

[a] $n = 50$ for each group.

* $p < .05$.

** $p < .01$.

+ Correlation coefficients are significantly different from each other for the two tasks, $p < .05$.

Appendix H

Relationships Between Abilities and Performance Moderated by Satisfaction and by the Absolute Difference Between Described and Preferred Attributes

Table H1

Correlations of Wesman P. C. T. with Arcsin Transformation of Percent of Signals Detected as Moderated by Satisfaction

	Arcsin Transformation of Percent Detected (Total)	Arcsin Transformation of Percent Detected (Hour One)	Arcsin Transformation of Percent Detected (Hour Two)	Arcsin Transformation of Percent Detected (Hour Three)
High Demands				
Wesman Verbal				
High Satisfaction[a]	-.01	.04	-.01	-.04
Low Satisfaction[b]	.55**	.55**	.53**	.51**
Wesman Numerical				
High Satisfaction	.47*	.47*	.43*	.46*
Low Satisfaction	.38	.37	.39*	.35
Wesman Total				
High Satisfaction	.22	.26	.20	.20
Low Satisfaction	.52**	.52**	.51**	.48*
Low Demands				
Wesman Verbal				
High Satisfaction[c]	-.25	-.32	-.23	-.12
Low Satisfaction[d]	.31	.33	.20	.36
Wesman Numerical				
High Satisfaction	.13	-.14	.14	.29
Low Satisfaction	.05	.19	-.13	.14

Table H1

(Continued)

	Arcsin Transformation of Percent Detected (Total)	Arcsin Transformation of Percent Detected (Hour One)	Arcsin Transformation of Percent Detected (Hour Two)	Arcsin Transformation of Percent Detected (Hour Three)
Wesman Total				
High Satisfaction	-.10	-.29	-.08	.07
Low Satisfaction	.23	.31	.06	.30

[a] $\underline{n} = 23$.

[b] $\underline{n} = 27$.

[c] $\underline{n} = 24$.

[d] $\underline{n} = 26$.

* $\underline{p} < .05$.

** $\underline{p} < .01$.

+ Correlation coefficients are significantly different from each other for the two tasks, $\underline{p} < .05$.

Table H2

Correlations of Wesman P. C. T. with Arcsin Transformation of Percent of Correct Detections as Moderated by Satisfaction

	Arcsin Transformation of Percent Detected (Total)	Arcsin Transformation of Percent Detected (Hour One)	Arcsin Transformation of Percent Detected (Hour Two)	Arcsin Transformation of Percent Detected (Hour Three)
High Demands				
Wesman Verbal				
High Satisfaction[a]	.06	.12	.07	.01
Low Satisfaction[b]	.61*** +	.63*** +	.57**	.54**
Wesman Numerical				
High Satisfaction	.45*	.42*	.42*	.46*
Low Satisfaction	.40*	.36	.37	.41*
Wesman Total				
High Satisfaction	.26	.29	.26	.23
Low Satisfaction	.57**	.56**	.52**	.53**

[a] $n = 23$.

[b] $n = 27$.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

+ Correlation coefficients are significantly different from each other for the two tasks, $p < .05$.

Table H3

Correlations of Wesman P. C. T. with Average Reaction Time as Moderated by Satisfaction

	Average Reaction Time (Total)	Average Reaction Time (Hour One)	Average Reaction Time (Hour Two)	Average Reaction Time (Hour Three)
High Demands				
Wesman Verbal				
High Satisfaction[a]	.03	.04	.07	-.07
Low Satisfaction[b]	-.15	-.31	-.07	-.09
Wesman Numerical				
High Satisfaction	.13	-.01	.29	.08
Low Satisfaction	-.22	-.46*	-.11	-.09
Wesman Total				
High Satisfaction	.08	.03	.19	.00
Low Satisfaction	-.19	-.40*	-.09	-.09
Low Demands				
Wesman Verbal				
High Satisfaction[c]	-.07	-.03	.13	-.26
Low Satisfaction[d]	-.04	.12	-.10	-.10
Wesman Numerical				
High Satisfaction	.10	.08	.26	-.10
Low Satisfaction	-.09	.22	-.01	-.34

Table H3

(Continued)

	Average Reaction Time (Total)	Average Reaction Time (Hour One)	Average Reaction Time (Hour Two)	Average Reaction Time (Hour Three)
Wesman Total				
High Satisfaction	.01	.02	.23	-.23
Low Satisfaction	-.07	.19	-.07	-.23

[a] $n = 23$.

[b] $n = 27$.

[c] $n = 24$.

[d] $n = 26$.

* $p < .05$.

Table H4

Correlations of Cognitive Style Measures with Arcsin Transformation of Percent of Signals Detected as Moderated by Satisfaction

	Arcsin Transformation of Percent Detected (Total)	Arcsin Transformation of Percent Detected (Hour One)	Arcsin Transformation of Percent Detected (Hour Two)	Arcsin Transformation of Percent Detected (Hour Three)
High Demands				
RFT				
High Satisfaction[a]	.14	.22	.05	.14
Low Satisfaction[b]	-.78**#	-.83***#	-.81**#	-.63***≠
GEFT Raw Scores				
High Satisfaction	.17	.20	.16	.16
Low Satisfaction	.50**	.48*	.54**	.42*
GEFT Inverse Scores				
High Satisfaction	-.27	-.28	-.25	-.27
Low Satisfaction	-.44*	-.44*	-.45*	-.39*
Low Demands				
RFT				
High Satisfaction[c]	.25	.24	.08	.29
Low Satisfaction[d]	-.16	-.29	-.09	-.13
GEFT Raw Scores				
High Satisfaction	.11	-.08	.30	.03
Low Satisfaction	.20	.35	.15	.11

Table H4

(Continued)

	Arcsin Transformation of Percent Detected (Total)	Arcsin Transformation of Percent Detected (Hour One)	Arcsin Transformation of Percent Detected (Hour Two)	Arcsin Transformation of Percent Detected (Hour Three)
GEFT Inverse Scores				
High Satisfaction	.08	.20	-.14	.16
Low Satisfaction	-.05	-.20	-.02	.03

[a] $n = 23$.

[b] $n = 27$.

[c] $n = 24$.

[d] $n = 26$.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

≠ Correlation coefficients are significantly different from each other for the two tasks, $p < .01$.

Correlation coefficients are significantly different from each other for the two tasks, $p < .001$.

Table H5

Correlations of Cognitive Style Measures with Arcsin Transformation of Percent of Correct Detections as Moderated by Satisfaction

	Arcsin Transformation of Percent Detected (Total)	Arcsin Transformation of Percent Detected (Hour One)	Arcsin Transformation of Percent Detected (Hour Two)	Arcsin Transformation of Percent Detected (Hour Three)
High Demands.				
RFT				
High Satisfaction[a]	.02	.05	-.04	.04
Low Satisfaction[b]	-.76*** #	-.74*** #	-.77*** ≠	-.65*** ≠
GEFT Raw Scores				
High Satisfaction	.07	.01	.11	.08
Low Satisfaction	.52**	.47*	.55**	.44*
GEFT Inverse Scores				
High Satisfaction	-.16	-.08	-.18	-.19
Low Satisfaction	-.44*	-.41*	-.44*	-.39*

[a] $n = 23$.

[b] $n = 27$.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

≠ Correlation coefficients are significantly different from each other for the two tasks, $p < .01$.

Correlation coefficients are significantly different from each other for the two tasks, $p < .001$.

Table H6

Correlations of Cognitive Style Measures

with Average Reaction Time as Moderated by Satisfaction

	Average Reaction Time (Total)	Average Reaction Time (Hour One)	Average Reaction Time (Hour Two)	Average Reaction Time (Hour Three)
High Demands				
RFT				
High Satisfaction[a]	.07	.02	.13	.03
Low Satisfaction[b]	.45*	.32	.47*	.38*
GEFT Raw Scores				
High Satisfaction	-.02	.12	-.07	-.12
Low Satisfaction	-.10	-.37	-.02	.04
GEFT Inverse Scores				
High Satisfaction	.04	-.09	.10	.11
Low Satisfaction	.16	.45*	-.01	.07
Low Demands				
RFT				
High Satisfaction[c]	.07	-.01	.04	.15
Low Satisfaction[d]	.02	-.05	.24	-.08
GEFT Raw Scores				
High Satisfaction	-.35	-.20	-.39	-.26
Low Satisfaction	-.32	-.26	-.30	-.21

Table H6

(Continued)

	Average Reaction Time (Total)	Average Reaction Time (Hour One)	Average Reaction Time (Hour Two)	Average Reaction Time (Hour Three)
GEFT Inverse Scores				
High Satisfaction	.26	.07	.26	.31
Low Satisfaction	.23	.24	.17	.16

[a] $\underline{n} = 23$.

[b] $\underline{n} = 27$.

[c] $\underline{n} = 24$.

[d] $\underline{n} = 26$.

* $\underline{p} < .05$.

Table H7

Correlations of Wesman P. C. T. with Arcsin Transformation of Signals Detected as Moderated by Absolute Attribute Description Scale Job Structural Attributes Described (ADS) Minus Attribute Preference Scale Job Structural Attributes Preferred (APS) Scores

	Arcsin Transformation of Percent Detected (Total)	Arcsin Transformation of Percent Detected (Hour One)	Arcsin Transformation of Percent Detected (Hour Two)	Arcsin Transformation of Percent Detected (Hour Three)
High Demands				
Wesman Verbal				
High /ADS-APS/[a]	.57**	.57**	.52**	.55**
Low /ADS-APS/[a]	.04	.07	.03	.02
Wesman Numerical				
High /ADS-APS/	.57**	.52**	.53**	.59**
Low /ADS-APS/	.25	.25	.26	.22
Wesman Total				
High /ADS-APS/	.62***	.60**	.58**	.62**
Low /ADS-APS/	.15	.17	.15	.12
Low Demands				
Wesman Verbal				
High /ADS-APS/	-.18	-.17	-.37	.05
Low /ADS-APS/	.28	.23	.28	.28
Wesman Numerical				
High /ADS-APS/	-.08	-.14	-.28	.18
Low /ADS-APS/	.17	.21	.09	.21

Table H7

(Continued)

	Arcsin Transformation of Percent Detected (Total)	Arcsin Transformation of Percent Detected (Hour One)	Arcsin Transformation of Percent Detected (Hour Two)	Arcsin Transformation of Percent Detected (Hour Three)
Wesman Total				
High /ADS-APS/	-.17	-.19	-.40*	.13
Low /ADS-APS/	.27	.26	.23 +	.29

[a] $n = 25$ for each group.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

+ Correlation coefficients are significantly different from each other for the two tasks, $p < .05$.

Table H8

Correlations of Wesman P. C. T. with Arcsin Transformation of Percent of Correct Detections as Moderated by Absolute Attribute Described (ADS) Minus Attribute Preference Scale Job Structural Attributes Preferred (APS) Scores

	Arcsin Transformation of Percent Detected (Total)	Arcsin Transformation of Percent Detected (Hour One)	Arcsin Transformation of Percent Detected (Hour Two)	Arcsin Transformation of Percent Detected (Hour Three)
High Demands				
Wesman Verbal				
High /ADS-APS/[a]	.59**	.61***	.54**	.54**
Low /ADS-APS/[a]	.14	.23	.12	.08
Wesman Numerical				
High /ADS-APS/	.55**	.45*	.50*	.62***
Low /ADS-APS/	.28	.29	.27	.25
Wesman Total				
High /ADS-APS/	.63***	.60**	.58**	.63***
Low /ADS-APS/	.23	.29	.21	.17

[a] $n = 25$ for each group.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

Table H9

Correlations of Wesman P. C. T. with Average Reaction Time as Moderated by Absolute Attribute Description Scale Job Structural Attributes Described (ADS) Minus Attribute Preference Scale Job Structural Attributes Preferred (APS) Scores

	Average Reaction Time (Total)	Average Reaction Time (Hour One)	Average Reaction Time (Hour Two)	Average Reaction Time (Hour Three)
High Demands				
Wesman Verbal				
High /ADS-APS/[a]	-.26	-.37	-.23	-.09
Low /ADS-APS/[a]	.16	.13	.19	.09
Wesman Numerical				
High /ADS-APS/	-.54** ≠	-.56** +	-.50* ≠	-.34
Low /ADS-APS/	.30	.06	.41*	.28
Wesman Total				
High /ADS-APS/	-.41* +	-.49* +	-.37	-.21
Low /ADS-APS/	.25	.12	.32	.20
Low Demands				
Wesman Verbal				
High /ADS-APS/	-.04	.11	-.12	-.10
Low /ADS-APS/	-.01	.02	.18	-.18
Wesman Numerical				
High /ADS-APS/	-.01	.23	.02	-.25
Low /ADS-APS/	.02	.06	.21	-.18

Table H9

(Continued)

	Average Reaction Time (Total)	Average Reaction Time (Hour One)	Average Reaction Time (Hour Two)	Average Reaction Time (Hour Three)
Wesman Total				
High /ADS-APS/	-.04	.20	-.07	-.20
Low /ADS-APS/	.01	.04	.22	-.21

[a] n = 25 for each group.

* $p < .05$.

** $p < .01$.

+ Correlation coefficients are significantly different from each other for the two tasks, $p < .05$.

≠ Correlation coefficients are significantly different from each other for the two tasks, $p < .01$.

Table H10

Correlations of Cognitive Style Measures with Arcsin Transformation of Percent of Signals Detected as Moderated by Absolute Attribute Description Scale Job Structural Attributes Described (ADS) Minus Attribute Preference Scale Job Structural Attributes Preferred (APS) Scores

	Arcsin Transformation of Percent Detected (Total)	Arcsin Transformation of Percent Detected (Hour One)	Arcsin Transformation of Percent Detected (Hour Two)	Arcsin Transformation of Percent Detected (Hour Three)
High Demands				
RFT				
High /ADS-APS/[a]	-.56**	-.59**	-.58**	-.44*
Low /ADS-APS/[a]	-.31	-.34	-.33	-.25
GEFT Raw Scores				
High /ADS-APS/	.65*** +	.65*** +	.60** +	.60** +
Low /ADS-APS/	.01	-.02	.05	-.01
GEFT Inverse Scores				
High /ADS-APS/	-.68*** +	-.70*** ≠	-.60** +	-.65*** +
Low /ADS-APS/	-.06	-.04	-.08	-.06
Low Demands				
RFT				
High /ADS-APS/	-.31	-.39	-.28	-.17
Low /ADS-APS/	.11	.10	.07	.11
GEFT Raw Scores				
High /ADS-APS/	-.12	-.19	-.08	-.10
Low /ADS-APS/	.27	.36	.31	.13

Table H10

(Continued)

	Arcsin Transformation of Percent Detected (Total)	Arcsin Transformation of Percent Detected (Hour One)	Arcsin Transformation of Percent Detected (Hour Two)	Arcsin Transformation of Percent Detected (Hour Three)
GEFT Inverse Scores				
High /ADS-APS/	.24	.32	.19	.17
Low /ADS-APS/	-.03	-.06	-.13	.09

[a] $n = 25$ for each group.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

+ Correlation coefficients are significantly different from each other for the two tasks, $p < .05$.

≠ Correlation coefficients are significantly different from each other for the two tasks, $p < .01$.

Table H11

Correlations of Cognitive Style Measures with Arcsin Transformation of Percent of Correct Detections as Moderated by Absolute Attribute Description Scale Job Structural Attributes Described (ADS) Minus Attribute Preference Scale Job Structural Attributes Preferred (APS) Scores

	Arcsin Transformation of Percent Detected (Total)	Arcsin Transformation of Percent Detected (Hour One)	Arcsin Transformation of Percent Detected (Hour Two)	Arcsin Transformation of Percent Detected (Hour Three)
High Demands				
RFT				
High /ADS-APS/[a]	-.53**	-.56**	-.53**	-.43*
Low /ADS-APS/[a]	-.39	-.38	-.41*	-.35
GEFT Raw Scores				
High /ADS-APS/	.59**+	.54**+	.57**	.55**+
Low /ADS-APS/	.00	-.02	.05	-.03
GEFT Inverse Scores				
High /ADS-APS/	-.60***+	-.58**+	-.56**	-.58**
Low /ADS-APS/	-.05	-.03	-.07	-.06

[a] $n = 25$ for each group.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

\+ Correlation coefficients are significantly different from each other for the two tasks, $p < .05$.

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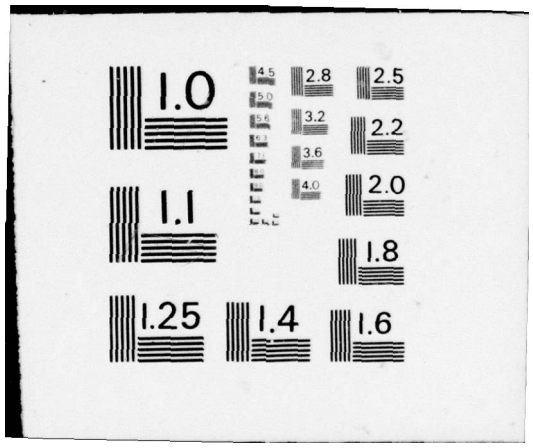
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Table H12

Correlations of Cognitive Style Measures with Average Reaction Time as Moderated by Absolute Attribute Description Scale Job Structural Attributes Described (ADS) Minus Attribute Preference Scale Job Structural Attributes Preferred (APS) Scores

	Average Reaction Time (Total)	Average Reaction Time (Hour One)	Average Reaction Time (Hour Two)	Average Reaction Time (Hour Three)
High Demands				
RFT				
High /ADS-APS/[a]	.31	.24	.41*	.18
Low /ADS-APS/[a]	.30	.27	.32	.36
GEFT Raw Scores				
High /ADS-APS/	.30	.07	.32	.36
Low /ADS-APS/	-.28	-.35	-.36	-.05
GEFT Inverse Scores				
High /ADS-APS/	.34	.42*	.30	.18
Low /ADS-APS/	-.08	-.03	-.16	-.01
Low Demands				
RFT				
High /ADS-APS/	.31	.18	.48*	.12
Low /ADS-APS/	-.09	-.13	-.04	-.05
GEFT Raw Scores				
High /ADS-APS/	-.18	-.18	-.31	.02
Low /ADS-APS/	-.45*	-.31	-.42*	-.31
GEFT Inverse Scores				
High /ADS-APS/	.09	.08	.19	-.02
Low /ADS-APS/	.31	.17	.29	.25

[a] $n = 25$ for each group.

* $p < .05$.

Table H13

Correlations of Picture-Number Test with Arcsin Transformation of Percent of Signals Detected as Moderated by Absolute Attribute Description Scale Job Structural Attributes Described (ADS) Minus Attribute Preference Scale Job Structural Attributes Preferred (APS) Scores

	Arcsin Transformation of Percent Detected (Total)	Arcsin Transformation of Percent Detected (Hour One)	Arcsin Transformation of Percent Detected (Hour Two)	Arcsin Transformation of Percent Detected (Hour Three)
High Demands				
Part I				
High /ADS-APS/[a]	.65***	.62***	.61***	.63***
Low /ADS-APS/[a]	.25	.26	.20	.26
Part II				
High /ADS-APS/	.61***	.51**	.63*** +	.63***
Low /ADS-APS/	.18	.22	.09	.19
Total				
High /ADS-APS/	.66***	.59**	.65*** +	.66***
Low /ADS-APS/	.22	.26	.15	.24
Low Demands				
Part I				
High /ADS-APS/	.07	.09	-.06	.13
Low /ADS-APS/	.21	.32	.16	.18
Part II				
High /ADS-APS/	.06	.02	-.03	.14
Low /ADS-APS/	.26	.32	.25	.20

Table H13

(Continued)

	Arcsin Transformation of Percent Detected (Total)	Arcsin Transformation of Percent Detected (Hour One)	Arcsin Transformation of Percent Detected (Hour Two)	Arcsin Transformation of Percent Detected (Hour Three)
Total				
High /ADS-APS/	.07	.06	-.05	.14
Low /ADS-APS/	.27	.36	.23	.21

[a] n = 25 for each group.

** $p < .01$.

*** $p < .001$.

+ Correlation coefficients are significantly different from each other for the two tasks, $p < .05$.

Table H14

Correlations of Picture-Number Test with Arcsin Transformation of Percent of Correct Detections as Moderated by Absolute Attribute Description Scale Job Structural Attributes Described (ADS) Minus Attribute Preference Scale Job Structural Attributes Preferred (APS) Scores

	Arcsin Transformation of Percent Detected (Total)	Arcsin Transformation of Percent Detected (Hour One)	Arcsin Transformation of Percent Detected (Hour Two)	Arcsin Transformation of Percent Detected (Hour Three)
High Demands				
Part I				
High /ADS-APS/[a]	.65***	.59**	.65***	.61***
Low /ADS-APS/[a]	.30	.33	.25	.28
Part II				
High /ADS-APS/	.64*** +	.50*	.66*** +	.64***
Low /ADS-APS/	.15	.16	.10	.18
Total				
High /ADS-APS/	.68***	.57**	.69*** +	.66***
Low /ADS-APS/	.24	.26	.19	.24

[a] n = 25 for each group.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

+ Correlation coefficients are significantly different from each other for the two tasks, $p < .05$.

Table H15

Correlations of Picture-Number Test with Average Reaction Time as Moderated by Absolute Attributes Description Scale Job Structural Attributes Described (ADS) Minus Attribute Preference Scale Job Structural Attributes Preferred (APS) Scores

	Average Reaction Time (Total)	Average Reaction Time (Hour One)	Average Reaction Time (Hour Two)	Average Reaction Time (Hour Three)
High Demands				
Part I				
High /ADS-APS/[a]	-.30	-.43*	-.18	-.18
Low /ADS-APS/[a]	-.16	-.07	-.26	-.07
Part II				
High /ADS-APS/	-.20	-.31	-.10	-.12
Low /ADS-APS/	-.13	-.02	-.14	-.17
Total				
High /ADS-APS/	-.26	-.38	-.14	-.15
Low /ADS-APS/	-.15	-.04	-.21	-.12
Low Demands				
Part I				
High /ADS-APS/	-.23	.00	-.30	-.26
Low /ADS-APS/	-.27	-.14	-.17	-.30
Part II				
High /ADS-APS/	-.15	.08	-.37	-.12
Low /ADS-APS/	-.19	-.06	-.19	-.19
Total				
High /ADS-APS/	-.20	.04	-.35	-.20
Low /ADS-APS/	-.26	-.11	-.20	-.27

[a] $n = 25$ for each group.

* $p < .05$.

Table H16

Correlations of Selective Attention Test with Arcsin Transformation of Percent of Signals Detected as Moderated by Absolute Attribute Description Scale Job Structural Attributes Described (ADS) Minus Attribute Preference Scale Job Structural Attributes Preferred (APS) Scores

	Arcsin Transformation of Percent Detected (Total)	Arcsin Transformation of Percent Detected (Hour One)	Arcsin Transformation of Percent Detected (Hour Two)	Arcsin Transformation of Percent Detected (Hour Three)
High Demands				
Part I				
Intrusions				
High /ADS-APS/[a]	-.54**	-.54**	-.48**	-.53**
Low /ADS-APS/[a]	-.24	-.20	-.22	-.28
Omissions				
High /ADS-APS/	-.68***+	-.64***+	-.62***	-.68***+
Low /ADS-APS/	-.15	-.12	-.16	-.17
False Alarms				
High /ADS-APS/	-.06	-.15	.01	-.05
Low /ADS-APS/	.10	.11	.05	.11
Part II				
Intrusions				
High /ADS-APS/	-.59**+	-.49*+	-.59**+	-.63***+
Low /ADS-APS/	.03	.08	.00	.02
Omissions				
High /ADS-APS/	-.44*	-.46*	-.38	-.45*
Low /ADS-APS/	-.06	.01	-.18	-.04

Table H16

(Continued)

	Arcsin Transformation of Percent Detected (Total)	Arcsin Transformation of Percent Detected (Hour One)	Arcsin Transformation of Percent Detected (Hour Two)	Arcsin Transformation of Percent Detected (Hour Three)
False Alarms				
High /ADS-APS/	.13	.10	.17	.10
Low /ADS-APS/	-.15	-.16	-.16	-.13
Completely Correct				
High /ADS-APS/	.42*	.35	.39	.51**
Low /ADS-APS/	.17	.09	.30	.13
Low Demands				
Part I				
Intrusions				
High /ADS-APS/	-.44*+	-.32	-.51**+	-.30
Low /ADS-APS/	.17	.06	.16	.25
Omissions				
High /ADS-APS/	-.48*	-.28	-.41*	-.49*
Low /ADS-APS/	-.01	-.10	.04	.01
False Alarms				
High /ADS-APS/	-.24	-.36	-.01	-.26
Low /ADS-APS/	.13	.26	-.03	.15

Table H16

(Continued)

	Arcsin Transformation of Percent Detected (Total)	Arcsin Transformation of Percent Detected (Hour One)	Arcsin Transformation of Percent Detected (Hour Two)	Arcsin Transformation of Percent Detected (Hour Three)
Part II				
Intrusions				
High /ADS-APS/[a]	-.46*+	-.38	-.35	-.44*+
Low /ADS-APS/[a]	.15	.12	.14	.15
Omissions				
High /ADS-APS/	.08	.20	.09	-.05
Low /ADS-APS/	.02	.03	.04	-.03
False Alarms				
High /ADS-APS/	-.22	-.12	-.24	-.21
Low /ADS-APS/	.26	.25	.16	.32
Completely Correct				
High /ADS-APS/	.08	-.05	.07	.14
Low /ADS-APS/	-.10	-.15	-.03	-.10

[a] n = 25 for each group.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

+ Correlation coefficients are significantly different from each other for the two tasks, $p < .05$.

Table H17

Correlations of Selective Attention Test with Arcsin Transformation of Percent of Correct Detections as Moderated by Absolute Attribute Description Scale Job Structural Attributes Described (ADS) Minus Attribute Preference Scale Job Structural Attributes Preferred (APS) Scores

	Arcsin Transformation of Percent Detected (Total)	Arcsin Transformation of Percent Detected (Hour One)	Arcsin Transformation of Percent Detected (Hour Two)	Arcsin Transformation of Percent Detected (Hour Three)
High Demands				
Part I				
Intrusions				
High /ADS-APS/[a]	-.46*	-.45*	-.45*	-.42*
Low /ADS-APS/[a]	-.24	-.21	-.16	-.31
Omissions				
High /ADS-APS/	-.64***	-.60**	-.62***	-.59**
Low /ADS-APS/	-.19	-.16	-.19	-.19
False Alarms				
High /ADS-APS/	-.02	-.05	-.10	-.01
Low /ADS-APS/	-.02	-.05	-.07	.05
Part II				
Intrusions				
High /ADS-APS/	-.60**+	-.52**	-.59**	-.58**+
Low /ADS-APS/	-.04	.02	-.08	-.05
Omissions				
High /ADS-APS/	-.37	-.39	-.32	-.35
Low /ADS-APS/	-.16	-.10	-.22	-.16

Table H17

(Continued)

	Arcsin Transformation of Percent Detected (Total)	Arcsin Transformation of Percent Detected (Hour One)	Arcsin Transformation of Percent Detected (Hour Two)	Arcsin Transformation of Percent Detected (Hour Three)
False Alarms				
High /ADS-APS/	.09	.04	.04	.15
Low /ADS-APS/	-.18	-.15	-.18	-.20
Completely Correct				
High /ADS-APS/	.41*	.36	.36	.43*
Low /ADS-APS/	.29	.18	.36	.31

[a] n = 25 for each group.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

+ Correlation coefficients are significantly different from each other for the two tasks, $p < .05$.

Table H18

Correlations of Selective Attention Test with Average Reaction Time as Moderated by Absolute Attribute Description Scale Job Structural Attributes Described (ADS) Minus Attribute Preference Scale Job Structural Attributes Preferred (APS) Scores

	Average Reaction Time (Total)	Average Reaction Time (Hour One)	Average Reaction Time (Hour Two)	Average Reaction Time (Hour Three)
High Demands				
Part I				
Intrusions				
High /ADS-APS/[a]	.28	.30	.13	.28
Low /ADS-APS/[a]	.15	-.04	.27	.14
Omissions				
High /ADS-APS/	.39	.42*	.18	.39
Low /ADS-APS/	.04	-.09	.09	.09
False Alarms				
High /ADS-APS/	-.12	.04	-.14	-.21
Low /ADS-APS/	-.15	.03	-.23	-.18
Part II				
Intrusions				
High /ADS-APS/	.33	.36	.02	.43*
Low /ADS-APS/	.04	-.16	.10	.17
Omissions				
High /ADS-APS/	.35	.44*	.17	.29
Low /ADS-APS/	-.04	.11	.02	-.22
False Alarms				
High /ADS-APS/	-.28	-.18	-.31	-.24
Low /ADS-APS/	.19	.10	.19	.18

Table H18

(Continued)

	Average Reaction Time (Total)	Average Reaction Time (Hour One)	Average Reaction Time (Hour Two)	Average Reaction Time (Hour Three)
Completely Correct				
High /ADS-APS/	-.25	-.38	.01	-.25
Low /ADS-APS/	-.20	-.32	-.20	.00
Low Demands				
Part I				
Intrusions				
High /ADS-APS/[a]	-.05	-.22	-.06	.13
Low /ADS-APS/[a]	-.07	.07	-.02	-.19
Omissions				
High /ADS-APS/	.15	.08	.21	.09
Low /ADS-APS/	.15	.15	.24	-.03
False Alarms				
High /ADS-APS/	.38	.16	.34	.40*
Low /ADS-APS/	-.41*	-.19	-.29	-.46*
Part II				
Intrusions				
High /ADS-APS/	.29	.29	.36	.08
Low /ADS-APS/	-.11	.03	.23	.17
Omissions				
High /ADS-APS/	.19	.05	.23	.17
Low /ADS-APS/	.28	.46*	.36	-.14

Table H18

(Continued)

	Average Reaction Time (Total)	Average Reaction Time (Hour One)	Average Reaction Time (Hour Two)	Average Reaction Time (Hour Three)
False Alarms				
High /ADS-APS/	-.11	-.20	-.04	-.01
Low /ADS-APS/	-.31	-.27	-.13	-.29
Completely Correct.				
High /ADS-APS/	-.01	.00	-.17	.10
Low /ADS-APS/	-.09	-.33	-.16	.26

[a] n = 25 for each group.

* $p < .05$.

≠ Correlation coefficients are significantly different from each other for the two tasks, $p < .01$.

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