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GRADUATE COLLEGE

MANAGERIAL DECISIONS BASED ON PERSONNEL FILE REVIEWS: ORGANIZATIONAL AND SITUATIONAL INFLUENCES

A Dissertation

SUBMITTED TO THE GRADUATE FACULTY

in partial fulfillment of the requirements for the

degree of

Doctor of Philosophy

By

WHITNEY BROOKE HELTON FAUTH
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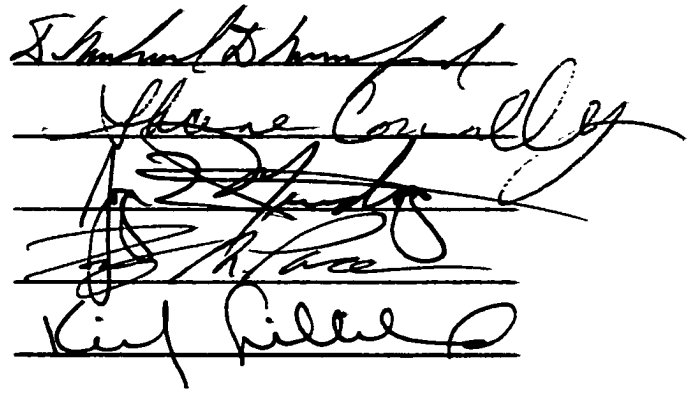
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MANAGERIAL DECISIONS BASED ON PERSONNEL FILE REVIEWS:
ORGANIZATIONAL AND SITUATIONAL INFLUENCES

A DISSERTATION APPROVED FOR THE
DEPARTMENT OF PSYCHOLOGY

BY



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Abstract

The decisions that managers make can be influenced by a number of factors. The current study examines two specific organizational factors (judgment intent and evaluation expectancy) and two task demand characteristics (situational risk and workload) that might influence the consistency, accuracy, timeliness, and quality of managerial decisions. Analysis of Variance (ANOVA) and Analysis of Covariance (ANCOVA) results reveal that these factors do have significant influences on various aspects of managerial decisions. Most notably, the expectation of evaluation was revealed to both help and hinder decision-making, dependent on other contextual factors and situational risk consistently led to better decisions. Implications are presented for addressing these factors and helping managers make the best decisions under certain organizational and situational constraints.

Introduction

Each day human resource (HR) decision makers use personnel records and case-files to make hiring and promotion decisions. These records provide an abundance of information that evaluators organize and synthesize in order to make a judgment regarding an individual's suitability for a given work assignment (Gardner, 1977). For many years case-file reviews have been used to make personnel decisions in a number of domains including, but not limited to, management (Ash, et. al., 1989; Brown, 1991; Hanson & Balestreri-Spero, 1985; Lowry, 1994), education (Goodman, 1990; Hanlon, 1964; Salthouse, et. al., 1978; Sangren, 1935; Twombly, 1992), and government (Ash, et.al., 1989; Lowry, 1994; Sproule & Berkley, 2001).

In industrial settings, managers use records and case-files to make a number of different personnel decisions. Prospective employees are screened based on information provided in job applications and resumes (Ash, et. al, 1989; Hanson, 1985). Promotion decisions are often based on past performance and productivity records (Lowry, 1994). Finally, records examining past performance and prior work behavior sometimes provide the basis for downsizing or termination decisions (Jordan & Nasis, 1992; Martin, Bartol, & Kehoe, 2000.)

In educational settings, case-file information in fact plays a central role in many key personnel decisions. Admission to professional or graduate schools is traditionally based on a collective file containing academic transcript records, resumes, and other documentation, such as letters of recommendation, regarding a prospective student's potential for success(Hanlon, 1964). Tenure decisions for professorial positions are routinely made based on curriculum vitas and performance records (Goodman, 1990).

Moreover, search committees for both new professors and new administrators (i.e., provosts, deans, and presidents) often rely on case-files as the sole basis for initial screening of applicants (Twombly, 1992).

Ash and colleagues (1989) note that case-file reviews are used for applicant screening in virtually all areas of the public sector and government. One particular area of the public sector in which the use of personnel records for HR decision-making has been advocated is police officer screening and selection (Sproule & Berkley, 2001; Thornton & Morris, 2001). In the U.S. Government, personnel security is another area in which personnel decisions are made based primarily on background information presented in security case-files.

Case-based Decisions

There are several advantages to using case-file information in personnel decision-making. First, compared to other selection tools, development and implementation costs, both financially and in amount of time spent, of using case-files are relatively low (Ash, et. al., 1989; Hinrichs, 1969). Next, the amount of effort expended on the part of both managers who make selection decisions and job candidates is considerably less than most paper-and-pencil testing systems or assessment centers (Ash, et. al., 1989). Finally, several studies have found that case-file information is a good predictor of future work performance when interpersonal factors are not important (Brown, 1991; Hinrichs, 1969; Lowry, 1994).

There are also two major disadvantages to using case-file information in HR decision-making. The most noted disadvantage is that the quality of case-file information is not consistently high. Several studies have shown that case-files are often unstructured

(Ash, et. al. 1989), out-of-date (Lowry, 1994), missing significant pieces of information (Thornton & Morris, 2001), or containing inaccurate information (Brown, 1991). Even if all provided records are near perfect and highly accurate, a second disadvantage leads to some difficulty in using case-files as the basis for personnel decisions. Specifically, such decisions are the evaluator's personal professional judgment and may be subject to the idiosyncratic biases of the evaluator (Gardner, 1977). Obvious biases may include gender, race, and age biases, all of which could pose serious legal consequences should decisions statistically reflect a significant amount of bias. Less obvious biases may arise when personal information not related to the job in question arouses underlying prejudices of which the evaluator may not be aware (Hinrichs, 1969; Lowry, 1994). For example, the evaluator's opinions of an applicant's previous employer might inadvertently, and inappropriately, influence a selection decision and consequently bias the entire selection procedure.

Evaluators' biases might also be based on organizational and situational pressures they are facing. At the organizational level, political influences, such as a supervisor's desires, or social influences, such as norms and expectations of the type of person who "fits" the organization, are likely to sway evaluators' judgments (Twombly, 1992). Situational pressures, such as having fewer applicants than available positions or having a limited amount of time to evaluate job candidates, may also constrain judgment (Sangren, 1935). Unfortunately, these types of organizational and situational influences on case-file-based decisions have not been widely addressed in the HR decision-making literature.

Many studies have examined the use of personnel records and case-files in HR decision-making. These studies have looked at 1) the ways in which recorded information is used to make HR decisions (Ash, et. al., 1989), 2) the problems with using personnel records in HR decisions (Gardner, 1977; Lowry, 1994), and 3) the practicality of using case-file information to make personnel decisions (Hinrichs, 1969; Lowry, 1994; Salthouse, McKeachie, & Lin, 1978; Thornton & Morris, 2001). Few, if any, of these studies, however, have examined the consistency, accuracy, and quality of HR decisions based on case-file information. Thus, the intent of the current study is to examine the quality, accuracy, and consistency of personnel decisions that are based on case-file information in one particular domain—government personnel security.

Adjudication Decisions

In the U.S. government, security clearance decisions ultimately determine what jobs an individual is eligible to be placed in. Thus, many government employees must undergo security evaluations in which a security clearance decision is made based on an in-depth evaluation of security records. Security decisions initially entail a detailed investigation of the individual and a compilation of security records, or cases, based on the results of the investigation. These cases are then submitted to one of several personnel security adjudication agencies, in which individual adjudicators ultimately decide if an individual is eligible for access to secure information.

Adjudicators evaluate all information provided by personnel security investigators as to the suitability of government employees for security clearances. These decisions are based on established guidelines bearing on the behaviors or past information that might disqualify an individual from consideration for clearance as well as factors that might

mitigate any disqualifying information. In 2001, the General Accounting Office (GAO) released the results of a large-scale study addressing the consistent use of the guidelines and appropriateness of quality control in personnel security adjudication agencies. This study reported both a lack of consistent application of established adjudicative guidelines as well as a need for stronger quality control within individual adjudication agencies and for faster, or more timely, decisions in order to keep up with current workloads.

Influences on Adjudication Decisions

The consistency, accuracy, timeliness, and quality of adjudication decisions may, like many other decisions, be influenced by both the organizational variables shaping decision-making practices and processes and by characteristics of the decision task. Kida (1982) states that the norms and expectations of a social organization can influence an individual's behavioral intentions and judgments. This hypothesis sheds some initial light on why individual decision makers in different agencies are likely to make inconsistent decisions when given similar types of information.

Organizational Influences. In the federal government, individuals must meet specific requirements to obtain a security clearance of any type. Individuals may be disqualified for a number of reasons, and such disqualifying information may be mitigated in numerous ways. It is not specified, however, how individual adjudication agencies are to apply these disqualifying and mitigating factors. Specifically, some agencies have adopted an organizational polity to help individuals who, initially, are not qualified for clearance to take some action that will mitigate those factors and help them establish clearance eligibility. Examples might be providing credit counseling information to an individual who has poor credit history or recommending an alcohol

rehabilitation center to an individual with a drinking problem. Other agencies, on the other hand, may simply examine the available disqualifying and mitigating information that is currently available and make a judgment. This is what we have termed *judgment intent*. It is the overarching intention that is present within the agency to develop an individual to be "clearable" or not.

Judgment intent is held to influence the judgment processes of individual decision-makers. When an individual has a preliminary intent, or desired end-state, for a judgment, he or she is likely to bias information processing in favor of that intent (Russo, Medvec, & Meloy, 1996; Shafir, 1993; Shafir & Tversky, 1992). The decision-maker is likely to frame the problem (the case) in terms of organizational norms (Tversky & Kahneman, 1988). Thus, if the agency norm is to rehabilitate and an adjudicator believes an individual can be rehabilitated based on available information, the adjudicator is likely to provide developmental opportunities to the individual before ruling him or her not clearable (Svenson, 1999). When such an expectation does not exist, however, such a processing bias does not seem to occur (Russo, Medvec &Meloy, 1996). With respect to the effect that judgment intent can have on decision-making, our first two hypotheses are as follows:

> *Hypothesis 1: When a developmental judgment intent is present in an adjudication agency, consistency and accuracy of security decisions will be less than when a developmental intent does not exist;*
>
> *Hypothesis 2: When a developmental judgment intent is present in an adjudication agency, decision timeliness and quality will be the same as when a developmental intent does not exist.*

A second norm that might influence how security case-file information is processed is the *expectation of evaluation*. Currently, individual agencies do not have standard quality assurance and evaluation programs (GAO, 2001). Although some agencies report internal quality control, evaluations systems are not standard across agencies. Because the organizational context is expected to influence how decision rules are applied (Svenson, 1999), it makes sense that the expectation of having their decisions evaluated by another might influence how adjudicators use available information. Tversky and Kahneman (1988) report that the expectancies of the decision-maker do, in fact, influence the way in which a decision is framed and how information is used to make that decision. Specifically, Bell (1982), describes the nature of individuals to react to possible evaluation of decisions. Individuals hope to avoid negative evaluations (making a bad decision) in order to avoid feelings of regret. Expectations of evaluation and feedback often create the possibility for regret and subsequently influence decision-making processes (Josephs, Larrick, Steele & Nisbett, 1992; Larrick, 1993; Tindale, 1989). Therefore, when individual adjudicators in an agency expect that their decisions will be evaluated, they may take more time to make decisions, potentially using case information differently than those adjudicators in agencies where evaluation is not expected. Based on these observations, hypothesis three is as follows:

> *Hypothesis 3: A high expectation of evaluation within an agency will lead to greater consistency, accuracy, and quality and less timeliness of security decisions than a low expectation of evaluation.*

Task Demands. The first task demand is *decision risk*, defined by the level of clearance which an adjudication decision under consideration is linked to. Typically, in

adjudication agencies, junior adjudicators are more likely to decide lower security cases (confidential or secret), while more senior adjudicators decide high security cases (top secret). This level of clearance implies certain levels of risk if a clearance is granted to an individual who is a threat to national security. Although an individual with a confidential security badge is privilege to sensitive information, an individual with a top-secret badge is often privilege to the most secret information the government maintains. Thus, top-secret clearances pose greater risks to adjudicators; if they make a bad decision, the consequences could be extreme. Individuals will tend to avoid risky decisions when possible (Larrick, 1993; Tversky & Kahneman, 1988), but when avoidance is impossible, they are likely to try to avoid making a poor decision in order to avoid regret (Bell, 1982; Larrick, 1993). One would assume, then, that adjudicators making high-level clearance decisions would pay closer attention to available information and use more available information than those making lower-level decisions. Therefore, we propose hypotheses four:

> *Hypothesis 4: Individuals who perceive a high level of risk involved in their decisions will make more consistent, accurate, and high quality and less timely security decisions than when perceived risk is low.*

Finally, workloads may vary for adjudicators within a given agency. Specifically, more junior adjudicators are assigned to make preliminary decisions on many cases and pass them on to a supervisor for review. As noted earlier, supervisors, or senior adjudicators, are also assigned to high-security cases. Workload for more senior adjudicators is heavy based on regular workload of high-security cases, review and

decision of preliminary decisions made by junior adjudicators, and pending backlog of adjudications.

Heavy workload, however, often leads to less cognitive processing of all available information and to a search for the most salient or specific information relative to the decision (Ordonez & Benson, 1997; Wright, 1974). Additionally, heavy workload is believed to contribute to greater decision stress (Lee & Ashforth, 1996), which has been shown to cause impulsive and disorganized decision-making (Janis & Mann, 1977). Such decisions, relative to decisions made without stress, are believed to be deficient because they are based on selective information usage, a consideration of only limited outcomes, a rapid evaluation of information, and a final decision that lacks extensive appraisal of all information (Janis & Mann, 1977; Johnston, Driskell & Salas, 1997). In light of these findings, we propose a fifth hypothesis:

Hypothesis 5: In high workload situations, security decisions will be less consistent, less accurate, more timely, and of lower quality than decisions made in low workload situations.

Methods

Participants

A total of 240 participants from a large Southwestern university completed this study. Sixty-eight percent of the participants were female and 32% were male. Participants ranged in age from 17 to 29 years, with an average age of 19 years. Almost seventy-two percent of participants were freshman in college, while 17%, 6%, and 6% were sophomores, juniors, or seniors, respectively. Additionally, 34% of participants

reported that they were working in a full- or part-time job at the time of the study, while 10% of participants reported past managerial experience.

General Procedure

In eight sessions composed of 30 individuals per session, participants completed this study to partially fulfill experimental requirements for an introductory psychology course. Because this study was carried out in a university setting, it evaluated similar clearance-type decisions as they might be made in industry. It was neither feasible nor wise to present individuals in a university setting with personnel security-type files and introduce them to the manner in which security decisions are made within the government. Accordingly, participants in this study were recruited for a two-part business decision-making study that lasted a total of three hours.

During part one, each participant completed a short set of psychometric measures. The general strategy involved in part two of this study, the decision-making task, was to encourage participants to take on the role of a security manager in large oil and gas company where they would make personnel security decisions by reading through employee case-files. Each participant read a group of company documents and completed a practice evaluation in order to prepare them for the actual decision-making task.

Covariate Measures

Part one of this study took approximately one-half hour. During this phase of the study, participants were asked to complete a battery of psychometric covariate measures including a background information sheet, the Need for Cognition Scale (NCS; Cacioppo & Petty, 1982), a Cognitive Flexibility Scale (Martin & Rubin, 1995), and the Verbal Reasoning scale from the Employee Aptitude Survey (Ruch & Ruch, 1980). These

measures were used to examine the possibility that individual differences, such as cognitive processing needs or verbal ability, account for significant differences in decisions made by individuals in similar organizational and situational settings. Because the main task of this study required significant cognitive resources in terms of deep thought, consideration of alternatives, and decision-making, these particular covariates were chosen to evaluate individual differences in cognitive ability and cognitive processing styles.

Need for Cognition Scale. The Need for Cognition Scale ($\alpha = .88$) was developed by Cacioppo and Petty (1982) to evaluate the extent to which individuals enjoy engaging in effortful, though-provoking activities. This measure has shown consistently high reliability ($\alpha > .80$) across a number of studies in different settings with various administration procedures (Cacioppo, Petty & Kao, 1984; Perri & Wolfgang, 1988; Sadowski, 1993), as well as high convergent and discriminant validities (Cacioppo, Petty, Feinstein & Jarvis, 1996). For this measure, participants were asked to indicate the degree to which each of 18 statements was characteristic of them on a scale of 1 (not at all like me) to 5 (very much like me). An example of a statement on the Need for Cognition Scale is, "I find satisfaction deliberating hard and for long hours."

Cognitive Flexibility Scale. The Cognitive Flexibility Scale ($\alpha = .75$) was developed by Martin and Rubin (1995) to evaluate the extent to which individuals are likely to evaluate a number of options or alternatives when making a single decision. In this 12-item questionnaire, participants were asked to rate their agreement with a number of statements on a scale from 1 (strongly disagree) to 6 (strongly agree). One example item is, "I am willing to listen and consider alternatives for handling a problem." High

internal consistency coefficients have been reported for this measure ($\alpha = .83$), along with construct validity evidenced by strong positive correlations with measures of communication and behavioral flexibility and strong negative correlations with measures of cognitive rigidity (Martin & Rubin, 1995).

Verbal Reasoning Measure. The Employee Aptitude Survey—Verbal Reasoning Scale ($\alpha = .80$) (Ruch & Ruch, 1980) is a general logic test intended to evaluate participants' general verbal abilities. This measure consists of six sets of facts from which participants are asked to draw several conclusions for each set in a five-minute time period. Scores on this measure reflect the degree to which respondents can quickly draw correct conclusions based on an ambiguous set of facts.

Decision-Making Task

Task Description and Instructions. The second phase of this study, the actual decision phase, took the remaining two and one-half hours. During this phase, participants were asked to take on the role of a senior manager for E.A.F., Incorporated, a fictitious Fortune 500 company dealing primarily in oil and gas refining and exploration. First, the researcher in each session read aloud a task description and instructions for the decision phase of the study. In the task description, participants were presented with the assignment of deciding the eligibility of individual employees for promotion to a newly created job within the organization. This new assignment was for an individual who would become the corporate liaison between this company and its competitors. He or she would be expected to regularly attend technological conventions, to meet and establish working relationships with members of other, possible competitor, organizations, and to always be abreast of the most recent advancements made both within the organizations

research and development labs and outside the organization. Thus, this position would be one of some sensitive nature where company sensitive information would need protection.

Specific instructions were then read aloud to the group. Each participant was told that, in order to make the promotion decisions described in the task description, they would first read an overview of the organization in order to understand its culture and values. Next they would need to read through a set of guidelines intended to aid the decision-making process. Finally, they were told they would be reading through a number of personnel files for a select group of employees who were being considered for the position. Based on the information in each of these files, they would answer a set of questions relating to each individual's eligibility for promotion to the sensitive position.

Organizational Overview. After the researcher finished reading aloud the task description and instructions, participants were asked to take 20-30 minutes to silently read through an organizational overview and a set of employment guidelines that contained information they would need to use when making their decisions. Participants first read an overview of the organization, including its history, goals and culture.

Development of the organizational overview began with an in-depth review of organizational histories, cultures, and mission statements of several major oil and gas companies based throughout the world. All of these statements were available via the World Wide Web sites of each major company and were freely available to visitors to the website. Components from a number of the statements were used to create a realistic, yet original, statement of history, goals, and culture for our fictitious company, E.A.F., Inc. The organizational overview for E.A.F., Inc. described a company founded in Texas in

the early 1900s which grew to be a major player in the oil and gas industry by early 1930. Within E.A.F., Inc. a culture exists that promotes diversity and creative or innovative ideas. The main goals of E.A.F., Inc. are, generally, to maintain its status as a world leader in energy and petrochemical technology and to achieve superior financial returns for all shareholders. An example of the Organizational Overview is presented in Figure1.

Insert Figure 1 about here

Employment Guidelines. Each participant was then presented with the employment guidelines, a set of disqualifying and mitigating factors that they should use to decide if an employee is eligible for the previously described job. These guidelines were exactly the same for all participants. They were told that these guidelines were established by the company's board of directors specifically for this sensitive position.

These guidelines were based on the actual guidelines that personnel security adjudicators use to make security decisions. These guidelines are presented on the Defense Security Service (DSS) website and are part of the public domain (DSS, 2001). The original adjudicative guidelines include twelve issues, or security concerns, that adjudicators must consider when making security decisions. In order to maintain simplicity and to avoid overwhelming participants with reading materials, only seven of these issues were included in the employment guidelines provided to participants. Also, in order to simplify the guidelines presented in this study, the most relevant aspects of two issues were sometimes combined to represent a single complex issue. Issues that were included in the guidelines were 1) Personal Conduct, 2) Alcohol and Drug

Involvement (original issues Alcohol Consumption and Drug Involvement combined), 3) Criminal Conduct, 4) Security Violations (original issues Security Violations and Misuse of Information Technology combined) , and 5) Outside Activities. These particular issues were chosen because they can be logically and realistically depicted in an industrial setting. Five issues were not included in the guidelines used in this study because they were not readily apparent as issues one may face in an industrial setting. These issues were Allegiance to the United States, Foreign Influence, Foreign Preference, Sexual Behavior, and Financial Considerations. An example of one issue from these guidelines is presented in Figure 2.

Insert Figure 2 about here

Practice Case. After participants finished reading through the organizational overview and employment guidelines, they completed a practice case prior to evaluation of the actual security cases. Together, with the researcher conducting the session, they read through an example case and discussed each piece of information provided, whether or not that information depicted a security issue, and how or if any obvious issues were mitigated. After they reviewed all the information in the file, they discussed the four evaluation questions that would represent their decision to promote the employee or not: 1) Is this employee eligible, according to EAF, Inc.'s "Guidelines for Determining Eligibility for Access to Company Sensitive Information," for promotion to the position of Senior Technology Representative? 2) Would you recommend this employee for promotion? 3) Please give specific reasons why you would or would not recommend this

employee for promotion; and 4) What information presented in the employee's security file was most important to you in making the decision to recommend this employee for promotion? The researcher presented both good and bad examples of answers to each question. At this point, the researcher indicated that if participants were unsure whether or not an employee was eligible, they could indicate "maybe" on the answer sheet. Also, the researcher explained that it was possible to find an employee eligible (according to the guidelines), but choose not to promote that employee based on other available information. Next, the researcher emphasized the importance of using the employment guidelines when answering the evaluation questions as well as the importance of judging each case on its own merits and not comparing each case to the other cases being evaluated. Finally, the participants were given a chance to ask any questions they had regarding the task at hand.

Personnel Security Files. Subsequently, each participant was presented with a number of employee files or cases. These files contained any disciplinary action taken while the employee has worked with the company, any recommendations or referrals for that employee, the report of a security interview with the employee, and any legal or financial trouble the employee has had in his or her personal life. Fictitious case-files were developed based on a review of actual personnel security files. Additionally, issues relevant to the oil and gas industry were presented and any security issues were based on the issues listed in the employment guidelines. In order to ensure realism, all addresses and phone numbers included actual streets, zip codes, area codes, and phone prefixes that are currently used in the Houston, Texas metropolitan and surrounding areas.

Several pieces of information were included in each personnel case-file. First, a cover sheet identified all documents that were included in the file. Next, each employee underwent a security interview which entailed a written "Report of Security Interview" that was the main component of each file. The "Report of Security Interview" provides information relative to each potential security issue and other information that might be relevant to the decision-maker. Next, each employee was asked to provide the names of two personal references. These references, their contact information, and their recommendations are listed on the "Personal References" page. The immediate supervisor of each employee also submitted his or her recommendation for promotion, which is detailed in the "Supervisor Report". Finally, every case-file included a summary of the employee's yearly performance evaluation, which provided information regarding work competence and performance. Additional pieces of information were presented in case-files only when necessary to document a security issue or other relevant performance information. These supplemental materials are presented in Figure 3.

Insert Figure 3 about here

It is important to note that case-files presented to participants varied in ambiguity and complexity in order to make them appear more realistic. Additionally, some employees were obviously eligible, some obviously ineligible, and others' eligibility status was less clear. Finally, the gender of candidates and presentation of security issues were distributed evenly across the fifteen cases.

Experimental Manipulations

Organizational Influences. Judgment intent, evaluation expectancy, and risk-level were manipulated in the information that the participant was provided regarding the nature of the decisions and the organizational culture. Judgment intent was manipulated in the organizational overview. Participants were told one of two things: 1) that the organization believes in developing its employees to the fullest and feels it is necessary to evaluate potential employees not solely on eligibility for a position, but on their ability to develop into that position; or 2) that the organization believes that it is necessary to fit employees to positions and therefore, an employee must be fully eligible for that position at the time of employment or promotion.

Next, evaluation expectancy was manipulated in the instructions given to the participants. In one condition, no evaluation, participants were told to decide the eligibility of each employee, and that these decisions would be sent to the company president who would make a final decision. In the second condition, evaluation expectancy, participants were told that their eligibility decisions would be reviewed for accuracy by a more senior manager who would then give his or her referral to the company president. In order to reinforce this condition, participants were instructed to turn in the first three cases they completed so that an executive from E.A.F., Inc. could begin evaluating the cases immediately. After everyone turned in their first three cases, an experimental confederate posing as an E.A.F., Inc. representative came to gather the completed cases to take to the fictitious waiting executive.

Task Demands. Risk-level was manipulated in the task description. In the high-risk condition, participants were told that the position they are evaluating for is very

sensitive in nature and that the individual who receives this position must be a very trustworthy individual. The individual must be willing, at all costs, to protect the organization. In the low-risk condition, participants were told simply that the position is sensitive and the individual selected must be willing to uphold the company values. In order to emphasize the risk involved in the high-risk condition, participants were told that, because it was extremely necessary for them to make good decisions, if a review of their decision showed that they had not put forth a concerted effort, they could lose one experimental credit. In actuality, all participants received the same amount of credit and no participants were penalized based on their decisions.

Finally, workload was manipulated in the actual number of cases given to participants. High workload consisted of fifteen cases and low workload consisted of seven cases. To emphasize workload, participants were told that each case would take seven to ten minutes and that they had either seven cases and two hours to complete them (low workload) or fifteen cases and *only* two hours to complete them (high workload). Participants in the high workload condition were also told that it was important that they evaluate every case before they could leave.

Personnel Security File Expert Evaluation.

After all cases were written, they were rated by three raters with extensive experience in personnel security adjudication and familiarity with the adjudicative guidelines. First, raters were provided copies of the task description, instructions, and organizational overview. Next, each rater was asked to read through each case carefully and rate each case on its realistic nature (1—not at all realistic to 5—very realistic), complexity of issues (1—not complex to 3—very complex), and overall ambiguity (1—

not ambiguous to 3—very ambiguous). Next, raters were asked to indicate on a checklist the issues (personal conduct, alcohol and drub involvement, criminal conduct, security breaches, or outside activities) represented in each case. Finally, the raters were asked to indicate if they felt the individual in each case should be eligible for access to company sensitive information (1—yes, 2—maybe, or 3—no).

Analysis of raters responses indicate that raters agreement somewhat varied for the realistic nature of the case, complexity of issues, and overall ambiguity, with 76, 62, and 76 percent agreement, respectively. Raters agreed that all cases were somewhat to very realistic. Specifically, five cases were rated as "somewhat realistic", while the remaining ten cases were rated as "realistic" or "very realistic." Rater agreement was lower regarding the complexity of the issues presented in each case. Individual baselines for what constitutes complexity of security cases may have been different for each rater because two of the raters have substantially more experience dealing with more complex cases than one rater. Results for issue complexity reveal that five cases were deemed to be "somewhat complex," while ten cases were characterized as "not complex." No cases were characterized as being "very complex" by the expert panel. Finally, raters generally agreed that the cases presented here were not ambiguous. Three cases were rated as "somewhat ambiguous," while the remaining twelve cases were deemed "not ambiguous." Although our initial intent was to vary the complexity and ambiguity of these cases, they remain significantly less complex and more straight-forward than actual department of defense security cases.

When identifying the disqualifying factors presented in each case, raters identified the intended issues in twelve of the fifteen cases. Overall, personal conduct was identified

as an issue in nine cases, alcohol and drug involvement was present in five cases, criminal conduct was represented by four cases, security violations were issues in five cases, and outside activities were described in three cases. Raters also indicated whether or not each individual was eligible for access to company sensitive information or not. Five cases were rated as absolutely or probably eligible, three cases were considered possibly eligible or possibly ineligible, and seven cases were rated as probably or absolutely ineligible. These ratings in particular are important because they will be used as the baseline by which the accuracy of participants' decisions will by judged. Overall, participants' decisions for the fifteen cases were not significantly correlated with expert decision ($r=.50$, $p>.10$). Table 1 presents the percent of security decision-makers who agreed with the expert decision for each case.

Insert Table 1 about here

Dependent variables

Participants were asked to review each case and take into consideration the appropriate guidelines. They were asked to indicate 1) if the employee is eligible for promotion, 2) the reasons the employee should or should not be promoted, 3) the information that was most important in the case, and 4) the time it took to complete the file review. Based on these questions, scores can be obtained for each of four dependent variables.

Accuracy. Accuracy refers to the extent to which the participant's answer to question number one (*Is this employee eligible, according to EAF, Inc.'s "Guidelines for*

Determining Eligibility for Access to Company Sensitive Information," for promotion to the position of Senior Technology Representative?) is consistent with the raters' eligibility decision. Participants were given the opportunity to answer "yes", "no", or "maybe" to this question. Accuracy will be scored 0—not accurate/did not agree with expert rating, or 1—accurate/did agree with expert rating. This scoring protocol is presented in Figure 4.

Insert Figure 4 about here

Quality. Quality refers to the actual quality of the answers provided to question three (*Please give specific reasons why you would or would not recommend this employee for promotion.*) Each response was rated by three independent raters for overall sentence structure and coherence to yield a single quality rating for each response. Quality ratings ranged from 1 (low quality) to 5 (high quality) with interrater agreement coefficients in the mid-80s.

Before raters began the task of evaluating response quality, a randomly selected group of responses was evaluated in order to establish benchmarks, or specific examples of quality, at five discrete levels. This review entailed reading each of the randomly selected responses and sorting the responses into five groups: very low quality, low quality, medium quality, and high quality, and very high quality. After this sorting task was complete, the response that best represented the quality level in each group was established as the benchmark for quality at that level. These benchmarks, which are presented in Figure 5, were provided to each rater to use a guide in making quality

evaluations. , the mean rating for each response was used as final quality score. Therefore, quality scores range between one (1) and five (5), with higher scores indicative of higher quality responses.

Insert Figure 5 about here

Consistency. Consistency is defined as the extent to which participants identified the issues and mitigating factors in a manner consistent with the adjudicative guidelines. Particularly, scores are based on the number of issues and mitigating factors that were identified and used to make eligibility decisions. Consistency scores range from zero (0) to four (4) based on the information presented in responses to questions three and four (*What information presented in the employee's security file was most important to you in making the decision to recommend this employee for promotion*?) with high scores representing more consistent application of the employment guidelines. The specific scoring protocol is presented in Figure 6.

Insert Figure 6 about here

Timeliness. As displayed in Figure 7, timeliness is simply the amount of time it took each participant to complete the evaluation of each security case. Participants were asked to note on the case cover sheet both the time they started and the time they finished evaluating the case. The actual number of minutes taken to complete each case reflects

the score for timeliness. In an inverse scale, cases taking fewer minutes are more timely, while cases taking more minutes are less timely.

Insert Figure 7 about here

Analytical Approach

Four 2 (developmental judgment intent v. guideline-driven judgment intent) x 2 (low evaluation expectancy v. high evaluation expectancy) x 2 (low risk v. high risk) x 2 (low workload v. high workload) between subjects analyses of variance (ANOVAs) will be conducted. Analyses of covariance (ANCOVAs) will be used when any one or more of the covariate measures shows a significant relationship with a dependent variable.

Results

Correlational Analyses

An initial look at correlations between the dependent and independent variables as well as the covariate measures revealed several significant correlations, which are presented in Table 2. Particularly, consistency was positively related to both risk and workload ($r=.25$, $p<.001$; $r=.18$, $p<.01$, respectively) indicating a possible influence of task demands on response consistency. Accuracy scores were positively correlated with Need for Cognition scores ($r=.16$, $p=.01$) and negatively correlated with workload ($r=-.42$, $p<.001$). The amount of time spent on each case was negatively associated with verbal reasoning ability ($r=-.13$, $p=.05$) and positively related to Need for Cognition ($r=.14$, $p=.03$). Time was also significantly negatively correlated with workload ($r=-.45$,

$p<.001$) and positively related to risk ($r=.43$, $p<.001$). Quality was positively related to situational risk ($r=.31$, $p<.001$).

Insert Table 2 about here

Overall, these relationships appear to provide some evidence for the construct validity of our criterion variables. Table 2 also presents the correlations among the criterion variables. As may be seen, the various criteria evidenced relatively low interrcorrelations. Quality was significantly correlated with both consistency ($r=.24$, $p<.01$) and timeliness ($r=.47$, $p<.01$), while response accuracy was also positively correlated with timeliness ($r=.17$, $p<.01$). These findings are not surprising given the nature of the criterion used. Particularly, the more time participants were willing to take to complete each decisions was related to both accuracy and quality. Because both accurate and high quality decisions were based on more extensive cognitive processing and information structuring, which require some time, it is not surprising that they are positively related to the amount of time each case was allocated. These intercorrelations among the four dependent variables revealed no systematic pattern that would indicate dependence among any of the criteria. Therefore, to further analyze the organizational influences and task demand characteristics that influence decision consistency, accuracy, timeliness, and quality, independent analyses of variance or covariance were conducted for each criterion.

Analyses of Variance and Covariance

Consistency. ANCOVA effects presented in Table 3 revealed that Cognitive Flexibility had a significant main effect on consistency ($F_{1,223}$=5.95, p=.03, η_p^2=.03), with greater cognitive flexibility related to increased response consistency. Controlling for the effect of Cognitive Flexibility, several significant main effects were found, as well as several two- and three-way interaction effects.

Insert Table 3 about here

First, individuals in organizational work settings where development was stressed were less likely to give responses consistent with the employment guidelines (M=2.19, sd=.40) than individuals in organizations where development was not stressed (M=2.30, sd=.42; F=3.72, p=.05, η_p^2=.02), a finding that provides support for Hypothesis One. No significant main effect was found for evaluation expectancy. However, two significant two-way interactions emerged. The effect of evaluation expectancy on decision consistency was different under conditions of high as opposed to low risk ($F_{1,223}$=4.13, p=.04, η_p^2=.02). When the likelihood of negative consequences, or risk, was low, participants who anticipated evaluation provided decision rationale that was less consistent with the employment guidelines (M=2.14, sd=.47) than participants in low risk conditions who did not expect evaluation (M=2.24, sd=.37). This finding indicates a certain amount of stress, or apprehension, may be experienced when individuals anticipate evaluation, which can diminish cognitive resources and induce a lack of focus on vital decision-making information (Compton & Mintzer, 2001; Seta, Crisson, Seta, &

Wang, 1989). On the other hand, when participants understood the negative consequences of poor performance decisions were more consistent when participants expected to be evaluated (M=2.36, sd=.39) compared to when they did not (M=2.29, sd=.40).

A second marginally significant two-way interaction that sheds some light on how evaluation expectancy may influence response consistency occurs between evaluation expectancy and workload ($F_{1,223}$=2.75, p=.11, η_p^2=.01). Overall, decisions made in high workload conditions were more consistent than those made when workload was low, regardless of evaluation expectancy. However, under low workload conditions, individuals with low evaluation expectancy were more consistent (M=2.19, sd=.41) than individuals with a smaller workload and high evaluation expectancy (M=2.10, sd=.48), indicating that workload perceptions may play a role in inducing stress along with evaluation pressure. This effect of workload is apparently eliminated with practice, however, a point indicated in the slightly higher consistency scores for individuals in high workload conditions with high evaluation expectancy (M=2.37, sd=.36) relative to individuals in high workload conditions with low evaluation expectancy (M=2.34, .34).

Risk also had a significant main effect on response consistency (F=7.93, p=.01, η_p^2=.03). High risk tasks (M=2.32, sd=.39) yielded much more consistent decision responses than low risk tasks (M=2.18, sd=.43) a finding consistent with Hypothesis Four. When individual decision-makers understand the likelihood of negative consequences for poor performance, they appear to use more relevant information when providing rationale for decisions. Workload also had a significant main effect on consistency ($F_{1,223}$=19.72, p<.001, η_p^2=.08). Decision-makers in low workload conditions

were significantly less consistent with the employment guidelines (M=2.15, sd=.45) than decision-makers in high workload settings (M=2.35, sd=.35). Although this finding is inconsistent with Hypothesis Five, it indicates a likely practice effect where response consistency increases as more decisions are made.

A marginally significant interaction ($F_{1,223}$=2.76, p=.10, η_p^2=.01) between risk and workload provides some insight to their effects on response consistency. Specifically, when risk and workload were both high, responses were more consistent with the employment guidelines (M=2.38, sd=.34) than when risk was high and workload was low (M=2.26, sd=.43). In a similar pattern, when risk was low and workload was high (M=2.32, sd=.36), consistency scores were higher than when risk and workload were both low (M=2.03, sd=.45). These results point both to the practice effects of high workload and to an economic approach to applying the guidelines in which decisions are consistent so long as decision-makers have enough time and understand that negative consequences are a possibility.

Low risk/low workload conditions produced the least consistent responses while high risk/high workload conditions produced the most consistent responses, indicating that practice combined with the potential for negative consequences may direct more attention to important decision-relevant information regardless of judgment intent. This is evidenced in a marginally significant three-way interaction between risk, workload, and judgment intent ($F_{1,223}$=2.35, p=.13, η_p^2=.01). Decision-makers in guideline-driven judgment conditions were more likely to make consistent decisions when risk was high and workload was low (M=2.37, sd=.44) compared to decision makers in developmental judgment conditions with high risk and low workload (M=2.15,

sd=.39). When risk and workload were low, there was little difference between decision-makers in environments where judgments were guideline-driven (M=2.08, sd=.43) and developmental judgment environments where judgments were development was stressed (M=1.98, sd=.46). In high workload conditions, there were no significant differences between decisions makers with guideline-driven as opposed to developmental judgments. Specifically, in low risk/high workload settings, consistency under developmental conditions (M=2.24, sd=.34) was slightly lower than consistency under guideline-driven conditions (M=2.39, sd=.37) and in high risk/high workload conditions, consistency was the same for developmental (M=2.39, sd=.31) and guideline-driven (M=2.37, sd=.36) decision-makers.

Accuracy. As presented in Table 4, Need for Cognition had a significant main effect on decision accuracy ($F_{1,223}$=5.22, p=.02, η_p^2=.02), specifying that individuals who enjoy tasks that require extensive cognitive processing made more accurate decisions. After controlling for Need for Cognition, evaluation expectancy ($F_{1,223}$=2.60, p=.11, η_p^2=.01), risk ($F_{1,223}$=2.60, p=.11, η_p^2=.01), and workload ($F_{1,223}$=51.54, p<.001, η_p^2=.19) were important factors in decision accuracy.

Insert Table 4 about here

In organizational settings where evaluation expectancy was low, decision-makers made somewhat more accurate decisions (M=.64, sd=.12) than when evaluation expectancy was high (M=.62, sd=.12). Although this finding is not exceptionally strong and appears contradictory to Hypothesis Three, the analysis of two-way interactions of

evaluation expectancy with 1)judgment intent and 2) risk suggest that evaluation expectancy is an important factor in decision accuracy.

The first significant two-way interaction occurs between two organizational influence variables, evaluation expectancy and judgment intent ($F_{1,223}$=4.61, p=.03, η_p^2=.02). When developmental judgments were stressed, decision-makers who expected to be evaluated made significantly less accurate decisions (M=.59, sd=.12) than those who did not expect to be evaluated (M=.64, sd=.13), while individuals in guideline-driven judgment conditions made equally accurate decisions insensitive to high (M=.63, sd=.12) or low (M=.63, sd=.12) evaluation expectancy.

Again, this finding illustrates a stress effect that is particularly salient in conditions where developmental judgments were emphasized. One explanation for this is that a developmental judgment allows for a large degree of leniency in security decision-making and does not emphasize the necessity of using the employment guidelines to support security decisions. Subsequently, decision-makers in developmental judgment conditions experienced a lack of clarity regarding what constituted "right" or "wrong" decisions. This lack of clarity in concert with evaluation apprehension apparently led to less accurate decision-making. More precisely, when participants were unsure of what the "correct" decision should be, their decisions were less accurate. However, when guideline-driven standards existed, meaning decision-makers understood (based on the guidelines) why each decision was right or wrong, evaluation apprehension was not a factor.

As noted above, situational risk interacts with evaluation apprehension to influence decision accuracy. Situational risk alone exerts only a marginally significant

influence on decision accuracy ($F_{1,223}$=2.60, p=.11, η_p^2=.01); decision-makers in high risk conditions made slightly more accurate decisions (M=.64, sd=.12) than those in low risk conditions (M=.62, sd=.12). However, the interaction of risk and evaluation expectation reveals that both are important factors in decision accuracy ($F_{1,223}$=9.09, p<.001, η_p^2=.04). In low risk conditions where negative outcomes were inconsequential, decision-makers in high evaluation expectancy conditions made significantly less accurate decisions (M=.58, sd=.13) that those in low evaluation expectancy conditions (M=.64, sd=.13). The stress caused by evaluation anticipation may lead to less effective cognitive processing and less accurate security decisions. This effect is obviated, however, when the potential for negative consequences is high. In high risk conditions, there was not significant difference between those decision-makers who expected to be evaluated (M=.65, sd=.11) and those who did not (M=.63, sd=.12). Therefore, in high risk situations, evaluation apprehension is likely eliminated, possibly because the desire to avoid negative consequences outweighs the desire to please evaluators. In low risk situations, however, evaluation apprehension is likely to lead to diminished decision accuracy because the decision-maker's focus lies on the evaluation rather than the decision to be made.

Workload, as a situational demand, had a highly significant main effect for decision accuracy ($F_{1,223}$=51.54, p<.001, η_p^2=.19) with decision-makers in high workload conditions (M=.57, sd=.10) making less accurate decisions than those in low workload conditions (M=.67, sd=.12). This result is consistent with Hypothesis Five, indicating that, although workload may enhance attention or understanding of guidelines through practice, as seen for response consistency, the time pressure induced when workload is high does have an overall negative impact on decision accuracy.

Workload also had a significant influence on the manner in which risk affected decision accuracy ($F_{1,223}$=6.96, p<.01, η_p^2=.03). In low risk conditions, decisions were substantially more accurate when workload was low (M=.68, sd=.12) than when workload was high (M=.54, sd=.10). From an economic perspective, when negative outcomes are unlikely and there is an abundance of work to do, decision-makers may become somewhat sloppy, or even arbitrary, when making security decisions. Accordingly, in high risk situations, decisions were less accurate when workload was high (M=.60, sd=.10) as opposed to when it was low (M=.67, sd=.12). Thus, even when negative outcomes are likely, the time pressure induced by a large workload appears to negatively impact decision accuracy.

The final two-way interaction obtained for accuracy was a marginally significant interaction between workload and evaluation expectancy ($F_{1,223}$=2.23, p=.14, η_p^2=.01). Consistent with results for response consistency, accuracy was significantly lower for decision-makers in low workload conditions with high evaluation expectancy (M=.66, sd=.12) as opposed to conditions where evaluation expectancy was low (M=.70, sd=.12), further supporting the idea that evaluation may cause stress that can inhibit performance. Moreover, the stress to some extent may be alleviated with practice and the emergence of feelings of confidence. Thus, in high workload conditions, there was no significant difference in decision accuracy between decision-makers with high evaluation expectancy (M=.57, sd=.11) and low evaluation expectancy (M=.58, sd=.09).

Timeliness. Based on the results presented in Table 5, the average amount of time spent on each case was significantly related to verbal intelligence ($F_{1,223}$=4.79, p=.03, η_p^2=.02), where individuals exhibiting better verbal reasoning abilities took less time, on

average, to complete each case. This is hardly surprising given the relationship between intelligence and information processing (Hunt, 1978; Jackson & McClelland, 1979; Kranzler & Jensen, 1989). Significant main effects for evaluation expectancy ($F_{1,223}$=3.97, p=.05, η_p^2=.02), risk ($F_{1,223}$=83.54, p<.001, η_p^2=.27), and workload ($F_{1,223}$=90.93, p<.001, η_p^2=.29) were found. Hypothesis Two was partially supported in that judgment intent was not a significant main effect for timeliness.

Insert Table 5 about here

First, decision-makers in low evaluation expectancy conditions made more timely decisions (M=4.81 minutes, sd=1.26) than those with high evaluation expectancy (M=5.09, sd=1.61). This result is consistent with Hypothesis Three for timeliness. Evaluation expectancy influences, however, were moderated by workload in a significant two-way interaction ($F_{1,223}$=12.38, p<.001, η_p^2=.05). When workload was low, decision-makers with low evaluation expectations made more timely decisions (M=5.20, sd=1.40) than those with high evaluation expectations (M=6.00, sd=1.65). The aforementioned stress association with evaluative pressures may cause people to take more time to make decisions because they are concerned with the decision justification evaluation versus the actual decision. When workload was high, however, the low evaluation expectancy condition produced less timely decisions (M=4.42, sd=.95) than the high evaluation expectancy condition (M=4.18, sd=.95). Again, the feelings of competence induced by practice seem to alleviate stress induced by the expectation of evaluation and allow decision-makers to work more quickly.

A significant three-way interaction was also obtained between evaluation expectancy, judgment intent, and risk ($F_{1,223}$=4.10, p=.04, η_p^2=.02). In all cases, decision-makers in high risk conditions took significantly took significantly more time to make security decisions (M=5.57, sd=1.48) than those in low risk conditions (M=4.32, sd=1.05). When situational risk was low and developmental judgments were emphasized, there were no substantial differences between individuals in low evaluation expectancy (M=4.35, sd=1.09) and high evaluation expectancy (M=4.40, sd=1.25) conditions. Again, there was no significant difference in timeliness between decision-makers with low evaluation expectancies (M=4.11, sd=.88) and high evaluation expectancies (M=4.43, sd=.98) in low risk conditions where a judgment was based on the guidelines. In high risk conditions where the judgment intent was developmental, however, decision-makers with high evaluation expectancy took significantly more time to make security decisions (M=5.90, sd=1.74) compared to individuals with low evaluation expectancy (M=5.10, sd=1.12). There was no significant difference between decision timeliness in high evaluation expectancy (M=5.62, sd=1.29) and low evaluation expectancy (M=5.67, sd=1.29) conditions in which situation risk was high and a guideline-driven approach to judgment was established.

These results provide partial support for Hypothesis Three in that decision-makers in high evaluation expectancy conditions made less timely decisions than those with a low expectation for evaluation when negative consequences were likely and when decision-makers were unsure of what information should be used and to satisfy evaluators. However, when evaluation expectancy was low, decision-makers didn't appear to worry as much about risk, or negative consequences, because they did not

expect their work to be evaluated, and therefore took less time. These effects are not seen in guideline-driven judgment conditions, likely because decision-makers have clear guidelines concerning necessary information, thereby allowing efficient information search and structuring activities.

Along with evaluation expectancy, risk and workload had significant main effects on decision timeliness. Specifically, decision-makers in high risk situations made less timely decisions (M=5.58, sd=1.52) than those in low risk situations (M=4.32, sd=1.05), while decision-makers with higher workloads made much more timely decisions (M=4.31, sd=1.94) than those with low workloads (M=5.60, sd=1.57). Consistent with results for decision accuracy, risk and workload interacted with one another to influence decision timeliness ($F_{1,223}$=14.32, p<.001, η_p^2=.06). Particularly, in low risk conditions, decisions took more time per case, or were less timely, when workload was low (M=4.71, sd=1.13) than when workload was high (M=3.94, sd=.82). The same pattern is observed in high risk conditions, where decisions made under a lighter workload took significantly more time to make (M=6.48, sd=1.46) than decisions made when workload was high (M=4.67, sd=.92). It is noteworthy that decision-makers who understood the potential for negative consequences and had ample time to allow for decision-making took the most time to make and justify security decisions, and they also made more accurate decisions. Additionally, when no negative consequences were likely and time was pressing, decision-makers who took the least time to make decisions were also the least accurate and consistent decision-makers.

Finally, a marginally significant three-way interaction between judgment intent, evaluation expectancy, and workload ($F_{1,223}$=2.57, p=.11, η_p^2=.01) was obtained. Overall,

decision-makers in high evaluation expectancy conditions made less timely decisions than those with a low expectation for evaluation when workload was low and when decision-makers were unsure of what information should be used to satisfy evaluators. In conditions where judgments were guideline-driven, decision-makers were confident about the information that is most important in justifying their decisions, evaluation expectancy effects are not seen and decision-makers make more timely decisions. More specifically, decision-makers in high workload conditions took consistently less time to complete each case (M=4.31, sd=.94) than those in low workload conditions (M=5.59, sd=1.52). When workload was high, there was no significant different between decision-makers in developmental climates with high evaluation expectancy (M=4.08, sd=1.06) and low evaluation expectancy (M=4.40, sd=.96), or between decision-makers in climates where judgment was guideline-driven with high (M=4.28, sd=.76) and low (M=4.44, sd=.96) evaluation expectancy. In low workload conditions in which the organization values developmental judgments, decision-makers with high evaluation expectancy took significantly more time to make security decisions (M=6.22, sd=1.51) than those who did not expect to be evaluated (M=5.05, sd=1.27). In low workload conditions where guideline-driven judgment was valued, there was little difference between decision-makers with high evaluation expectancy (M=5.77, sd=1.78) and low evaluation expectancy (M=5.34, sd=1.54) in the average time taken to evaluate each case. Again, these results provide support for Hypothesis Three.

Quality. As Table 6 shows, none of the three covariate measures used in this study produced significant main effects on response quality. ANOVA results revealed support for Hypothesis two in that judgment intent also had no effect on response quality.

Evaluation expectancy had only a marginally significant main effect ($F_{1,224}$=2.50, p=.12, η_p^2=.01) on response quality in that decisions makers under conditions of high evaluation expectancy produced more coherent, or higher quality, justifications for their decisions (M=3.73, sd=.69) than when evaluation was not expected (M=3.60, sd=.69). The full effects of evaluation expectancy, however, are better reflected in a set of two- and three-way interactions between evaluation expectancy and risk and workload. First, quality responses with high and low evaluation expectancy tend to vary dependent on situational risk ($F_{1,224}$=6.99, p=.01, η_p^2=.03). In low risk conditions, decision-makers who expected to be evaluated had higher quality responses (M=3.57, sd=.75) than decision-makers who did not expect to be evaluated (M=3.23, sd=.56). This indicates that decision-makers who expected to be evaluated were careful to provide coherent and appropriately worded responses. In high risk situations, there was little difference in response quality between high (M=3.88, sd=.59) and low (M=3.97, sd=.61) evaluation expectancy. One explanation for this pattern of effects is that the need to minimize risk shifts attention from evaluation to decision analysis.

Insert Table 6 about here

A significant main effect was also found for situational risk ($F_{1,224}$=41.37, p<.001, η_p^2=.16) where decision-makers in high risk conditions had higher quality responses (M=3.92, sd=.60) than those in low risk conditions (M=3.39, sd=.68). This finding is consistent with Hypothesis Four.

In a significant three-way interaction, risk and workload significantly interact with judgment intent ($F_{1,224}$=4.51, p=.04, η_p^2=.02). The effect of risk is particularly strong, with significant differences between quality responses in high risk and low risk situations occurring at each level of workload and judgment intent. More specifically, when workload was low and judgment intent was developmental, low risk situations resulted in lower quality responses (M=3.46, sd=.61) than high risk situations (M=3.77, sd=.63). When workload was low and judgment was driven by the guidelines, decisions were more coherent in high risk conditions (M=4.01, sd=.68) and less so when situational risk was low (M=3.33, sd=.77). The same pattern is seen when workload is high and judgment intent is developmental ($M_{highrisk}$=3.96, sd=.53; $M_{lowrisk}$=3.25, sd=.69) or when judgment is guideline-driven ($M_{highrisk}$=3.94, sd=.54; $M_{lowrisk}$=3.56, sd=.64). These results indicate a strong desire to avoid negative consequences that is especially salient when time is available to provide high quality, coherent decision justification and when clear expectations regarding response content have been established.

Finally, a marginally significant three-way interaction was found between risk, workload and evaluation expectancy ($F_{1,224}$=3.02, p=.08, η_p^2=.01). Again, in all cases, high risk produced higher response quality than low risk. In low risk/low workload, decision-makers with high evaluation expectancy had only slightly higher quality responses (M=3.50, sd=.74) than decision-makers with low evaluation expectancy (M=3.28, sd=.64). A similar pattern emerged for high risk/low workload conditions where high evaluation expectancy (M=3.94, sd=.67) resulted in no significant difference in response quality from low evaluation expectancy (M=3.86, sd=.67). In low risk situations where workload was high, high evaluation expectancy produced significantly

higher quality responses (M=3.64, sd=.76) than low evaluation expectancy (M=3.17, sd=.48), while in high risk/high workload conditions, no significant difference was observed between high (M=3.83, sd=.50) and low (M=4.08, sd=.55) evaluation expectancy. These results indicate that when risk is high, response quality is consistently high in the attempt to avoid negative outcomes. When risk is low, however, and negative outcomes are unlikely, practice effects stemming from increased workload may somewhat increase the decision-makers ability to provide coherent justifications of their decisions, although responses remain mediocre.

Discussion

This study revealed several findings that provide both theoretical and practical implications for case-based managerial decision-making under specific organizational and situational conditions. Prior to expanding on these implications, however, it is necessary to address the limitations of the current study. First, the use of undergraduate psychology students in place of trained managers may be cause for some concern regarding the generalizability of results to a managerial population. Particularly, managers in "real life" organizations have a common background regarding the culture and climate of the organization, the necessity of solid and well-thought decisions, and how poor decisions can adversely affect the organization. This concern is somewhat mitigated, however, in that all participants were provided with a common background of the organization for which they were making decisions along with the rationale for why this task was vital to the organization's security. Additionally, all information was presented immediately prior to the file review and decision-making task so that it was fresh in the minds of the decision-makers as they completed the decision task. The

primary goal of the current study was to examine how specific organizational factors and task demands could influence case-file review, the use of vital security-related information, and subsequent security decisions. The findings obtained with the undergraduate sample provide us with a general idea of how these factors can influence decision-making. Results provide the necessary evidence that organizational and task-demand factors do, in deed, influence file review and decision-making processes and they also help establish an experimental foundation for carrying out similar studies in organizational settings with actual managerial decision-makers.

Next, although the file review and decision-making task used in this study was considered to be realistic by our expert reviewers, these cases were not as complex as cases seen in "real life" decision-making settings. This limitation, however, does not pose a critical threat to the current study because several organizational factors and task-demand characteristics were found to influence case review and decision-making even when cases were relatively simple and unambiguous. It is interesting to observe that these factors, particularly those that appear to influence cognitive executive functioning, can influence decision-making when the information provided is straightforward. Accordingly, it makes sense that as cases become more complex and ambiguous, and therefore require more cognitive capacity to process, that these factors would have an even greater influence on decision-making capabilities.

A third limitation relates to the setting in which the current study took place. All case-file reviews were conducted in highly-controlled, classroom settings. There were no more than thirty individuals in the room at a time and all decision-makers were reviewing the same set of cases. As opposed to "real life" settings, decision-makers were not

interrupted by telephone calls, e-mails, coworkers, or other things that are typically experienced in an office setting that may interact with organizational and situational factors to influence decision consistency, accuracy, timeliness, and quality. In fact, because several organizational and task-demand characteristics did appear to influence decisions in a controlled setting, we believe that these influences may be exacerbated by the daily stresses encountered in actual managerial decision-making settings.

Several broad findings emerged regarding the influence of judgment intent, evaluation expectancy, situational risk, and workload on decision consistency, accuracy, timeliness, and quality. Particularly, Hypothesis One, that judgment not based on the guidelines (developmental judgment intent) would be detrimental to decision consistency and accuracy, was partially supported. In fact, decision-makers working in cultures espousing guideline-driven judgment made more consistent decisions than those where guidelines were not emphasized. Accuracy, however, was not influence by judgment intent. Hypothesis Two, that judgment intent would have no effect on timeliness or decision quality was supported. Thus, it appears that focus on guidelines does not influence the amount of time decision-makers are willing to allocate to the case-file review nor does it influence the coherent quality of decision justification.

The hypothesis that high evaluation expectancy would increase consistency, accuracy, and quality and decrease timeliness, Hypothesis Three, was partially supported. Individuals with high expectation of evaluation, did, in fact, take more time to review cases and to make decisions and provided the most coherent justifications of their decisions. However, when evaluation was expected, decision consistency and accuracy suffered, particularly in settings where the judgment intent was not guideline-driven, and

when the risk involved in the task was not readily apparent to decision-makers. These findings indicate that evaluation may not be good for decision-makers, especially in developmentally-focused settings where ambiguity exists regarding the importance of each piece of information presented in the case. Additionally, evaluation expectation may be detrimental when there is nothing to offset the stress caused by anticipation of the evaluation, such as practice or focus on the risk involved in the decision. Therefore, evaluation expectancy can be particularly dangerous in low-risk conditions, where the need to make good decisions is not evident, because the evaluation itself becomes the focus of decision-making, as opposed to the actual security decision.

Results provided full support for Hypothesis Four, in that decision-makers who were aware of the risk involved in the decision-making task made more consistent, more accurate, less timely, and higher quality decisions. Decision-makers put great effort into thoroughly reviewing each case in order to avoid making bad decisions and subsequently avoid possible negative consequences. Furthermore, it appears that risk may have been the single-most important factor to focus decision-makers on the importance of using the employment guidelines.

Finally, Hypothesis Five, was supported for accuracy (high workload lead to less accurate decisions), and for timeliness (high workload lead to faster file review), but was not supported for consistency and quality. The inverse to Hypothesis Five actually occurred with high workload leading to more consistent and higher quality decisions. Although we expected high workload to exert time pressure that would interfere with information processing, high workload appears to have acted as practice, therefore increasing response consistency and quality. The more cases decision-makers reviewed,

the more familiar they seemed to become with coherently justifying decisions using the employment guidelines. Thus, time pressure was present, as seen in time spent per case in high workload conditions, but was offset by the confidence decision-makers gained as they became more proficient at analyzing and evaluating case information.

Often times the notion of decision-making is approached in the literature as a relatively simple or low-complexity task involving a choice between a number of alternatives. For example, managerial decision-making may be studied in the sense of making "yes/no" hiring decisions based on a single source of information where decision-makers review the information to determine hiring eligibility. These studies are useful because it is easier to study specific decision-making behaviors when examining the effects of only one source of information versus a variety of information types from different sources (Massaro & Friedman, 1990). Most managerial decisions, however, including the decision-making task in the current study, involve significantly more complex information integration than that described in the above example (Hitt & Barr, 1989). In particular, decision-makers are asked to review a case-file consisting of a variety of information from a number of different sources and to consider how each piece of information in that file is applicable to the decision at hand.

Results of the current study provide several theoretical implications regarding organizational and situational influences on such complex decisions. First, when making complex decisions, decision-makers must be focused on the actual decision-making task. When conditions are conducive to drawing attention away from the task, decisions suffer. Particularly, when decision-makers believe the task to be relatively unimportant, decisions are not as good as when focus is directed to the importance of the decision.

Moreover, in organizations where evaluation is likely to occur, it is easy for decision-makers to become cognitively focused on the evaluation, or pleasing evaluators, rather than on the ultimate decisions they are making (Bell, 1982). Therefore, it is necessary to direct decision-makers' focus on the decision task before it begins, most ideally during training.

Accordingly, decision-makers need to have a clear idea of the exact information in each case-file to focus on when making decisions. When guidance is not provided concerning the relative importance of various pieces of information, decision-makers experience cognitive ambiguity and are more likely to focus on irrelevant information (Hitt & Barr, 1989). As seen in the current study, a focus on employee development leads to decisions that are less accurate and less consistent with employment guidelines. In organizations where decision-makers are instructed to use employment guidelines to make decisions, however, decision-makers make more focused decisions and are better able to justify their decisions.

The ability to focus both on the decision-making task and relevant case-file information may be best obtained through training and practice. As results clearly show, practice that occurs with increased workload leads to more consistent and higher quality decisions, indicating that practice increases focus on appropriate case-file information. Decisions may be best served through realistic practice based on 1) example cases and 2) the specific decision process that should be carried out (Cheng, Holyoak, Nisbett & Oliver, 1986). Although a single practice case was used for training in the current study, it was presented as an example of the information that might be available for each case along with examples of correct and incorrect answers to security questions. Much more

extensive practice with the actual decision process, however, as seen with increased workload, is needed before decisions reflect accurate application of employment guidelines and before decisions are made based on the most relevant pieces of information presented in each case. Practice clarifies the decision process and may reduce the overall complexity of the decision-making task by providing procedural guidance for using decision-rules in HR decisions.

The results of the current study point out that is difficult, if not impossible, to create a working environment in which case-based decisions are always optimal. Decisions are often based on individual, as opposed to organizational, concerns, whereas poor decisions may lead to negative consequences for both the organization and the individual decision-maker. It is necessary for decision-makers to understand all possible negative consequences, and it is particularly important for them to understand the personal effects of bad decisions. When individuals are working toward personally relevant goals, decision-making performance seems to increase (Brown & Latham, 2002). Situational risk and organizational focus on evaluation are particularly important constructs in regard to identifying individual-level consequences. When situational risk is low, decision-makers tend to make consistently poor decisions. This is especially true when time is pressing and when evaluation is not a concern. Decision-makers who have nothing to lose, and know that no one will be checking their work, make low quality, inconsistent decisions.

Thus, decisions with some level of risk attached to them may have value for overall decision consistency, accuracy, and quality, so long as support is provided for managing that risk. It is well understood that individuals prefer to avoid risky situations

(Larrick, 1993; Tversky & Kahneman, 1988). When they cannot, however, they will attempt to avoid negative outcomes by making decisions that lead to positive outcomes (Larrick, 1993). High risk is likely to lead to particularly good decisions when workload is low and when the organization values guideline-driven judgment. More precisely, risk may be especially conducive to decision-making when necessary decision-making time is available and when guidance has been provided regarding the most vital decision information.

Finally, as noted above, evaluation may be detrimental if adequate focus on the decision-making task is not provided. On the other hand, evaluation may be very beneficial to decision-making, particularly when attention is centered on important pieces of information, when risk is high enough to provide focus on the decision instead of the evaluation, and when adequate time is allowed for decision-makers to review all file information and to make good decisions. When these conditions are met, the decision-maker has the opportunity to attend to both the needs of the organization (as addressed by situational risk and decision guidelines) and the expectations of evaluators. When decision-makers expect to be evaluated the desire exists to avoid negative evaluations (Bell, 1982; Josephs, et. al., 1992), but they can ensure positive evaluations if working conditions are favorable in terms of the time and attention needed by the decision-maker. Most notably, evaluation appears to be a mixed blessing; it can significantly enhance decision-making, but it must be handled with care.

Based on the overarching results of this study, several practical considerations exist for managerial decision-makers who use employee files to make HR decisions. First, in order to ensure reliable file reviews and valid decisions based on established

decision rules, it is necessary to train decision-makers in several areas. Namely, managerial decision-makers need to receive training regarding 1) the organizational utility behind the decisions being made, 2) the potential positive or negative outcomes that may be experienced by both the individual decision-maker and the organization, should poor decisions be made, 3) the types of case-file information that are most relevant and useful for making good decisions, and 4) the processes through which this information should be analyzed in order to reach a final, valid decision. Training should include examples of good and bad decisions, as well as several practice decisions, so that decision-makers become accustomed to the processes and procedures involved in case-file review before they begin to evaluate actual cases.

Next, performance evaluation in HR decision-making tasks must be applied carefully. When evaluation is not critical to decision quality or the organization cannot justify continual evaluation it is best to lay aside decision evaluation for the sake of high-quality, reliable case-file review. This is especially true when the organizational culture emphasizes the desire to develop individual employees after they begin a job, be they new employees or those being promoted to a higher position. In such situations, if decision evaluation is absolutely necessary, the organization must be adamant about training HR decision-makers to follow specific case review procedures, to identify case-file information that is most relevant to the needs of the organization, and to ignore job irrelevant information, even if that information has developmental implications.

Careful application of evaluation is especially important in organizations with highly regulated quality control systems. Careful steps should be taken to ensure that quality control processes do not disrupt case-file review and that case reviewers do not

evaluate unessential pieces of case-file information. Quality control efforts should be accompanied by high-level training regarding all aspects of the file review and decision-making process, and should focus on the importance of reliable and valid decisions versus specific quality control procedures.

In any organization where manager use employee histories to make HR decisions, it is important to make certain that file reviewers are making the best possible employment decisions. Administrators, then, must keep in mind that certain organizational characteristics, just as judgment intent and evaluation expectancy, can have significant and detrimental effects on the reliability and validity of decisions if they are not monitored and measures are not taken to lessen these effects. Also, the task demands that are placed on individual decision-makers can also influence the overall quality of their decisions. Therefore, managers must be careful to monitor employees' task loads and the risk involved in the decisions they are making in order to ensure that these task demands are allocated appropriately.

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Figure 1.

Example of Organizational Overview

EAF, Inc.

ORGANIZATIONAL OVERVIEW

History

Born in the early 1900s, EAF, Inc. was the idea of three men with strong work ethics and the willingness to risk losing almost everything. Jack Earnest and Seymour Allen were Texas-born men who had earned their ways in the rough Pennsylvania oil fields. With dreams of moving back to Texas and continuing their way in the oil business, the men were given their chance when they met New York financier Steven Frank.

Frank was looking to leave New York and believed the Texas oil business was where he and his money were needed. However, he needed the expertise and knowledge involved in every aspect of the oil business, from drilling the wells to refining and marketing crude oil. This he found in Jack Earnest and Seymour Allen. Thus, Earnest, Allen, and Frank (EAF), Incorporated Oil Company was born.

EAF, Inc. was initially a modest company that started out in 1903 in a small office in Beaumont, Texas. Although the company began with only 14 employees, years of hard work and considerable effort paid off when they discovered oil in the small community of Sweet Creek, Texas. This discovery provided the foundation that EAF, Inc. needed to establish itself as a major player in the Texas oil industry.

Even with the discovery of oil in Sweet Creek, the price of oil was so low in the early 1900s that excavating and refining the crude oil left EAF, Inc. just about breaking even financially. Smart thinking, and the realization that the newly developed automobile was about to become the biggest consumer of refined oil in the United States, put EAF, Inc. into the top rung of all Texas oil companies, and would pave the path they would take for the next century.

In the 1920s, EAF, Inc. began producing and marketing a line of auto greases for all vehicles, including those used at low temperatures or high altitudes. During the 1930's a business venture with Texas-one Oil & Gas led to the development of a number of premium motor oils.

Since its start in the early Twentieth Century, EAF, Inc. has come a very long way. From the most basic motor oil and gasoline we have developed specialized motor oil and engine additives for virtually all machines. Gasoline now helps to maintain clean motors and reduce exhaust emissions that can harm both automobiles and the environment.

Along with product development have come considerate gains in petrochemical technology that has led EAF, Inc. to be a current day leader in oil exploration, natural gas gathering and processing, and petroleum refining, marketing, and transport throughout the United States and North America.

Our most recent technological advances have come in the form of chemical and plastics production and distribution throughout North and South America. Research and development innovations also include seismic, offshore drilling, and environmental improvement technologies.

In 2001, EAF, Inc. employed over 50,000 individuals in 10 countries. With $47 billion in assets, $31 billion in revenues, and technologies in use in over 30 nations including Denmark, Norway, China, America, and Venezuela, EAF, Inc. continues to thrive.

Figure 1 (continued). Example of Organizational Overview

Goals

EAF, Inc. has two main goals. The first is to maintain its status as a world leader in energy and petrochemical technology. By doing this, we ensure our second goal, to achieve superior financial returns for all shareholders.

Culture

EAF, Inc. is a global company meaning we represent a very diverse set of values and beliefs. EAF, Inc. is devoted to its employee's ideas and goals and works to encourage all employees to be creative and to present ideas that they feel will make EAF, Inc. a better place to work. By attracting and developing people from all backgrounds and experiences, we hope to maintain a respect for all people regardless of race, nationality, religion, or gender.

One unique characteristic of EAF, Inc. is the belief that employees are best served when they are fully qualified for a position upon hiring or promotion. Therefore, it is not unusual for EAF to ensure that an individual has all necessary training and meets all eligibility requirements before he or she is accepted into a new position. In this way, we feel that we help the individual do the best job possible from the very beginning.

Another important cultural aspect of EAF, Inc. is the emphasis placed on listening and responding to customer needs. Our customers are our number one source for fully understanding the changes in society's expectations and how we can best meet those expectations. Our customers help to keep us up-to-date on new developments and new technologies in companies in the United States and around the world.

Finally, EAF, Inc. is a member of the International Chamber of Commerce and the World Business Council for Sustainable Developments (WBCSD). These memberships enable us to continually seek and identify best practices for the petrochemical industry and to learn where the global oil industry is headed in the future.

Figure 2.

Sample Guideline from the "Guidelines for Determining Eligibility for Access to Company Sensitive Information"

CRIMINAL CONDUCT

A history or pattern of criminal activity creates doubt about a person's judgment, reliability and trustworthiness.

Conditions that could raise a security concern and may be disqualifying include:

1) any criminal conduct, regardless of whether the person was formally charged;
2) a single serious crime or multiple lesser offenses.

Conditions that could mitigate security concerns include:

1) the criminal behavior was not recent;
2) the crime was an isolated incident;
3) the person was pressured or coerced into committing the act and those pressures are no longer present in that person's life;
4) the person did not voluntarily commit the act and/or the factors leading to the violation are not likely to recur;
5) there is clear evidence of successful rehabilitation.

Figure 3.

Supplemental Case-file Documents

Document	Information Included:
Report of Commendation	details about cases where the employee had performed some beneficial act that had helped either the company or another employee and reflected well on the integrity of that individual
Reports of Discipline	details about instances in which the employee had violated a company rule or otherwise acted in a manner not conducive to company success
Local Law Enforcement Agency Records	indices of criminal activities occurring in the Houston area including criminal charge, whether or not the individual was convicted, and any sentencing as a result of conviction
State Law Enforcement Agency Records	information of criminal activity within the state of Texas including criminal charge, whether or not the individual was convicted, and any sentencing as a result of conviction
Additional Records	follow-ups to the security interview or responses to a supervisor's report or performance evaluation issued when additional information was provided outside the scope of standard documentation; notation made in the "comments" section of the cover page

Figure 4.

Scoring Protocol for Accuracy Scores

Expert Response	Particant Response	Accuracy Score
Yes	Yes	1
	No	0
	Maybe	0
No	Yes	0
	No	1
	Maybe	0
Maybe	Yes	0
	No	0
	Maybe	1

Figure 5.

Scoring Protocol for Consistency Scores

QUESTION THREE RESPONSE	**Score A**
No information relating to guidelines Ex: "a good worker"	0
Specific mention of issues not present in case Ex: "no alcohol or drug abuse"	1
Specific mention of issues present in case Ex: "took secret files home" "friends work for competitor"	2
Specific mention of both issues present in case and issues not present in case Ex: "former drug problems but no relationships with competition"	3

QUESTION FOUR RESPONSE	**Score B**
Unrelated to guidelines Ex: "good recommendations"	0
Related to guidelines Ex: "recent drug use"	1

CONSISTENCY SCORE = Score A + Score B

Figure 6.

Benchmarks for Quality Scores

Quality Rating	Benchmark
1	"trustworthy"
2	"the unsureness of her coworkers and managers for her promotion"
3	"--standard work performance --gets drunk occasionally --incident/why would he show them? --good guy (not exceptional)"
4	"He is said to be a 'good guy' in his recommendation; he was honest about his mistakes and prior security issues."
5	"Based on the guidelines, I would recommend her for promotion because she had one security breach that has been cleared up. She was suspended without pay for 2 weeks and went to counseling. Elizabeth's work knowledge can't help her husband anymore, so that is not a concern."

Figure 7.

Example of Scoring Protocol for Timeliness Scores

Time Began: 6:45

Time Ended: 7:56

Total Time to Complete Case: 11 minutes

Timeliness Score = 11

Table 1.

Percent of Security Decision-Makers Who Agreed with Expert Decisions

Case Number	Expert Decision	% Agreement
1	Yes	99
2	Maybe	3
3	No	93
4	Yes	91
5	No	61
6	No	31
7	Yes	92
8	No	43
9	Yes	98
10	Yes	76
11	No	98
12	Maybe	0
13	No	53
14	Maybe	0
15	No	29
Average % agreement with "Yes" decisions:		91%
Average % agreement with "Maybe" decisions:		1%
Average % agreement with "No" decisions:		58%
Average % agreement with all expert decisions:		**58%**

Table 2.

Intercorrelations of Independent Variables, Dependent Variables, and Covariate Scores

	2	3	4	5	6	7	8	9	10	11	M	sd
Independent Variable												
1. Workload	.00	.00	.00	.25**	-.43**	-.45**	.03	-.04	-.13*	-.13*	.50	.50
2. Risk		.00	.00	.18*	.10	.43**	.38**	-.01	.09	.04	.50	.50
3. Judgment Intent			.00	.13	.07	.01	.07	.03	-.01	.06	.50	.50
4. Evaluation Expectancy				-.04	-.08	.10	.09	-.02	.06	.12	.50	.50
Dependent Variable												
5. Consistency					-.05	.08	.24**	.06	.02	.10	2.25	.41
6. Accuracy						.17**	.04	.09	.16*	.12	.63	.12
7. Timeliness							.47**	-.13	.14*	.04	4.95	1.45
8. Quality								-.02	.10	.11	3.66	.69
Covariate												
9. Verbal IQ									.13*	.16*	26.28	6.16
10. Need for Cognition										.50**	59.72	11.26
11. Cognitive Flexibility											57.34	6.11

**p<.01; *p<.05

Table 3.

Analysis of Covariance of Consistency Scores as a Function of Workload, Risk, Judgment Intent, and Evaluation Expectancy, With Cognitive Flexibility Scores as Covariate

Source	df	MS	F	p	η_p^2
Cognitive Flexibility	1	.892	5.95	.03	.03
Judgment Intent (JI)	1	.558	3.72	.05	.02
Evaluation Expectation (EE)	1	.125	.83	.38	.00
Workload (W)	1	2.957	19.72	.00	.08
Risk (R)	1	1.189	7.93	.01	.03
W x R	1	.414	2.76	.10	.01
W x JI	1	.121	.81	.37	.00
W x EE	1	.413	2.75	.11	.01
R x JI	1	.019	.12	.74	.00
R x EE	1	.619	4.13	.04	.02
JI x EE	1	.007	.05	.83	.00
W x R x JI	1	.353	2.35	.13	.01
W x R x EE	1	.162	1.08	.30	.01
W x JI x EE	1	.000	.00	.97	.00
R x JI x EE	1	.156	1.04	.31	.01
W x R x JI x EE	1	.111	.74	.39	.00
Error	223	.150			
Total	239	.171			

Table 4.

Analysis of Covariance of Accuracy Scores as a Function of Workload, Risk, Judgment Intent, and Evaluation Expectancy, With Need for Cognition Scores as Covariate

Source	df	MS	F	p	η_p^2
Need for Cognition	1	.059	5.22	.02	.02
Judgment Intent (JI)	1	.019	1.73	.19	.01
Evaluation Expectation (EE)	1	.029	2.60	.11	.01
Workload (W)	1	.589	51.54	.00	.19
Risk (R)	1	.029	2.60	.11	.01
W x R	1	.080	6.96	.01	.03
W x JI	1	.002	.21	.65	.00
W x EE	1	.026	2.23	.14	.01
R x JI	1	.004	.35	.55	.00
R x EE	1	.104	9.09	.00	.04
JI x EE	1	.053	4.61	.03	.02
W x R x JI	1	.008	.71	.40	.00
W x R x EE	1	.001	.06	.82	.00
W x JI x EE	1	.000	.00	.95	.00
R x JI x EE	1	.002	.16	.69	.00
W x R x JI x EE	1	.000	.01	.93	.00
Error	223	.011			
Total	239	.015			

Table 5.

Analysis of Covariance of Time as a Function of Workload, Risk, Judgment Intent, and Evaluation Expectancy, With Verbal Reasoning Scores as Covariate

Source	df	MS	F	p	η_p^2
Verbal Intelligence	1	5.391	4.79	.03	.02
Judgment Intent (JI)	1	.055	.05	.83	.00
Evaluation Expectation (EE)	1	4.469	3.97	.05	.02
Workload (W)	1	102.314	90.93	.00	.29
Risk (R)	1	93.996	83.54	.00	.27
W x R	1	16.114	14.32	.00	.06
W x JI	1	.672	.60	.44	.00
W x EE	1	13.926	12.38	.00	.05
R x JI	1	.595	.53	.47	.00
R x EE	1	.707	.63	.43	.00
JI x EE	1	1.336	1.19	.28	.01
W x R x JI	1	.719	.64	.43	.00
W x R x EE	1	.357	.32	.57	.00
W x JI x EE	1	2.888	2.57	.11	.01
R x JI x EE	1	4.607	4.10	.04	.02
W x R x JI x EE	1	.063	.06	.81	.00
Error	223	1.125			
Total	239	2.100			

Table 6.

Analysis of Variance Results for Main Effects and Interaction Effects of Workload, Risk, Judgment Intent, and Evaluation Expectancy on Quality Scores

Source	df	MS	F	p	η_p^2
Judgment Intent (JI)	1	.605	1.52	.22	.01
Evaluation Expectation (EE)	1	.996	2.50	.12	.01
Workload (W)	1	.086	.22	.64	.00
Risk (R)	1	16.467	41.37	.00	.16
W x R	1	.032	.08	.78	.00
W x JI	1	.108	.27	.60	.00
W x EE	1	.023	.06	.81	.00
R x JI	1	.008	.02	.88	.00
R x EE	1	2.783	6.99	.01	.03
JI x EE	1	.603	1.52	.22	.01
W x R x JI	1	1.797	4.51	.04	.02
W x R x EE	1	1.203	3.02	.08	.01
W x JI x EE	1	.069	.17	.68	.00
R x JI x EE	1	.500	.13	.26	.01
W x R x JI x EE	1	.002	.01	.94	.00
Error	224	.396			
Total	239	.479			