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I am submitting herewith a dissertation written by Darren H. F. Smith entitled "A Conditional Reasoning Approach to Measuring Relative Achievement Motivation: Validation Results from an Applied Setting." I have examined the final copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Industrial and Organizational Psychology.

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A CONDITIONAL REASONING APPROACH TO MEASURING RELATIVE ACHIEVEMENT MOTIVATION: VALIDATION RESULTS FROM AN APPLIED SETTING

A Dissertation

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Doctor of Philosophy

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Dedication

This work is dedicated to Greg H. Dobbins who believed in me so that I could believe in myself.

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Abstract

This study presents the first attempt to validate a new approach to measuring an individual's relative achievement motivation in an applied setting. The new measurement approach which utilizes conditional reasoning differs from other self-report measures in that it capitalizes on the respondent's subjective processes of interpreting and framing information and developing a causal model to explain the information they are presented with in order to arrive at a logical conclusion. In this study, relative achievement motivation as measured by the Conditional Reasoning Test was not found to be related to individual patrol officer activities. However, a number of patrol officer activies were found to be significantly and positively related to the relative achievement motivation of their respective supervisors. In addition, supervisors with a relative fear of failure orientation were found to provide more lenient ratings of their subordinates. Implications of these findings and suggestions for future reserach are discussed.

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SECTION I

INTRODUCTION

Motivation at the individual level can manifest itself in a number of different ways. Motivation can influence the tasks or activities that an individual chooses to pursue, the amount of resources directed towards task accomplishment including effort, the level of attainment that must be achieved in order to deem the task has been accomplished, and the length of time that effort is sustained (Atkinson, 1957, 1958; McClelland, 1985; Weiner, Freize, Kukla, Reed, Rest, and Rosenbaum, 1972; Weiner, 1980).

Some individuals readily accept challenges and allocate the resources of time and effort necessary to achieve their goals. They are willing to persist and see minor setbacks as new challenges to be met and overcome. Their intense effort results in feelings of personal gratification and satisfaction as they work towards the accomplishment of their goal. This drive to achieve exists in academic and work settings and recreational pursuits.

These individuals with a strong latent motive to achieve have been characterized as AMs indicating their strong achievement motivation. Individuals with a high achievement motivation prefer to be involved in situations that permit a person to attain success through their own efforts and abilities rather than chance (Weiner, 1980), and situations that pose an intermediate level of difficulty and risk (McClelland, 1961, 1985). When faced with the decision to engage in a task, the achievement motivated individual often has an expectation of being able to succeed on the task. A belief in a relationship between effort and performance often underlies this expectation of task success (Revelle and Michaels, 1976).

In contrast to achievement motivation is a personality orientation that has been referred to as fear of failure or FF. Individuals with a fear of failure orientation will avoid situations through active or passive means when those situations are perceived to present an

opportunity to fail (Atkinson, 1957; McClelland, 1985). An individual with a fear of failure orientation is characterized as an individual who will opt for tasks or activities where success is seemingly guaranteed. This is manifested by a fear of failure individual selecting tasks that are relatively easy. In some cases, the FF individual will select tasks that are extraordinarily difficult. While this seems counterintuitive, the FF individual may be able to protect one's ego in the face of failure by subsequently making an external attribution for a non-successful outcome (Weiner, 1980).

The activities that AM and FF oriented individuals choose to engage in can be understood from the perspective of the affective state that is elicited by the situation. Weiner (1980) suggests that both AM and FF oriented individuals want to feel pride in their accomplishments and avoid feelings of shame. The difference is not in the desires, but in the beliefs about how best to attain these desired states. The AM oriented person believes that if he works hard at challenging tasks, he can have the pride of demonstrating his high ability. The FF oriented individual believes that he must settle for avoiding shame which results in not taking on difficult tasks. There is the implicit recognition that his ability may not be high enough for the task and increased effort won't increase the probabilities of being successful (Mook, 1986).

The use of an affective heuristic regarding situations is also believed to guide behavior (Greenwald and Pratkanis, 1984). If the situation is assigned to a positive class, an approaching heuristic is applied. This results in behaviors such as approaching, helping or protecting. If, on the other hand, the situation is assigned to a negative class, a disfavoring heuristic is applied. This results in behaviors such as avoiding, neglecting or withdrawing.

In examining the achievement motivation and fear of failure orientations, it is quite easy to come to the conclusion that AM oriented individuals are better than FF oriented individuals on a number of dimensions. One interpretation is that AMs would be expected

to select more difficult tasks, expend more effort, persist longer in the face of failure, and have a higher probability of bringing tasks to successful closure (Atkinson, 1957, 1958; McClelland, 1985). In contrast, FFs would be expected to avoid difficult tasks, select easier tasks, and to give up more easily which results in them being less likely to succeed (Revelle and Michaels, 1976; McClelland, 1985). There are two things to keep in mind, however. The first is that the choice of task and whether or not to persist applies to tasks of moderate difficulty. The proportion of tasks that falls into this classification is open to discussion, but it would be safe to say that not all tasks would be considered moderately difficult. As a result, the behavioral manifestations of task choice, persistence and ultimate task success based on the personality constructs of achievement motivation and fear of failure would only be expected to occur on a subset of tasks that can be classified as moderately difficult.

The second issue is one of social desirability. It would seem that the AM orientation is more praiseworthy than the FF orientation, at least in this culture. However, due to self-enhancement strategies, and interpretations of social phenomenon, the FF orientation need not be seen as a liability. As noted earlier, not all tasks are of moderate difficulty. Many tasks tend to be routine and/or repetitive in nature. Routine tasks are likely to be seen as less than moderately challenging by AMs. Consequently, these tasks may be labeled by AMs as mundane, uninteresting and boring. Associated with this interpretation would be a corresponding desire by AMs to search for other, more engaging tasks. Due to self-enhancement strategies, the FFs have a characteristically different interpretation of the routine. Their interpretation would likely include the positive aspects of completing routine tasks that have to be done as part of the everyday regimen of activity.

One of the difficulties that has plagued personality research including an examination of the effects of the achievement motivation and the fear of failure personality orientations is the measurement of the constructs of interest. Before validity can be

established, the instrument that is being used to assess the construct of interest must be a reliable indicator of that construct (cf. Nunnally, 1978).

Recent advances in social cognition have reaffirmed the inherent difficulties in using self-report measures in conducting social science research. Respondents to self-report measures are likely to fall prey to a number of information processing effects which may introduce error and have the end result of reducing the reliability of the instrument. A sampling of this research includes causal attributions (Kelley, 1972), the use of heuristics (Tversky and Kahneman, 1974; Klayman and Ha, 1987; Funder, 1987), framing (Tversky and Kahneman, 1981; Pinkey, 1990), self-justifications (Tyler and Devinitz, 1981; Sherwood, 1981). Excellent reviews can be found in Wyer and Srull (1984), and Fiske and Taylor (1984). Coupled with these numerous cognitive effects is research that suggests the nature of the self-report instrument itself will assert its effects on the responses of the subjects (Feldman and Lynch, 1988).

The assessment of choice for many researchers for investigating the achievement motivation and fear of failure personality constructs has been Thematic Apperception Test (TAT) (e.g., McClelland and Boyatzis, 1981). Keeping in mind the host of cognitive processes that have been shown to occur, the use of the TAT in research presents a compounded problem. First, the cognitive effects and attributional biases are likely to have there effects at the stage when the respondent derives an interpretation of the motives of the actors in the stimuli. However, this is not necessarily an inherent limitation if respondents are consistently influenced by the same types of cognitive processes. What is more subtle and often not noted is that the examiners of the TAT are also subject to the same perceptual errors as they score the responses. Thus, the opportunity exists for the researcher to fall prey to the same effects of framing, interpretation, and failing to search for disconfirming evidence as they score the responses.

Given that the natural processes of social cognition are so pervasive, an alternative approach to measurement is to capitalize on cognitive information processing errors since it is very unlikely that future efforts to reduce or eliminate them will be successful. A new approach to personality measurement is explicitly designed to capitalize on the cognitive information processing errors.

The purpose of this study is to validate this new instrument designed to measure the achievement motivation and fear of failure personality orientations. This instrument assesses personality through conditional reasoning (James, 1995) which is described in the next section.

Conditional Reasoning

The method of personality measurement via conditional reasoning is based on informal reasoning. Informal reasoning differs from formal reasoning in that many of the rules are relaxed. Formal reasoning is based on a system of rules that can be used in evaluating arguments or premises that support a conclusion derived through induction or deduction. Formal reasoning assumes the absolute truth and one correct answer. Moreover, formal reasoning often makes use of objective, mechanistic procedures that allow the user to judge the absolute truth of an argument.

On the other hand, informal reasoning occurs when decision makers are faced with incomplete information about the truth of the premises, are presented with multiple but conflicting premises, or the formal rules for establishing a conclusion are unknown or unstated (cf. Galotti, 1989). Informal reasoning often occurs in everyday life when decisions are made such as those regarding investments, housing, insurance and the planning of activities.

When engaged in an informal reasoning process, the decision maker must first interpret the information presented to him or her. At this stage, the decision maker

evaluates the information on the basis of what appears to be rational. He or she may also seek to confirm or disconfirm information, and may order information with respect to relevancy. The decision maker often proceeds to construct a causal model to explain events that seems logical. The causal model can then be employed to arrive at a logical solution (cf. Kuhn, 1991).

Since the rules associated with formal reasoning are relaxed or nonexistent, the process of arriving at a logical conclusion is not as objective as it is in the process of formal reasoning. Informal reasoning is a subjective process where it is largely up to the individual to make assumptions and set parameters in order to arrive at a logical solution.

Personality measurement via conditional reasoning capitalizes on the manner in which individuals differentially interpret or frame information in informal reasoning. Due to the subjective nature of the informal reasoning process, it is likely that different individuals when given the same information will attend to different aspects of the situation in terms of its relevancy. They may also frame the same situation differently, and they may construct different causal models to explain events. The frame that a decision maker adopts is controlled partly by the formulation of the problem, and partly by the norms, habits and personal characteristics of the decision maker (Tversky and Kahneman, 1981). These differences in how individuals process, interpret and frame information are posited to be based on their underlying characteristics or latent states. Simply stated, what a person deems rational and logical, or irrational and illogical is conditional on their latent states. Differences in latent states will be manifested in biases in reasoning (e.g., attribution errors, discounting, halo, illusory correlation) that are unknown to the informal reasoner (e.g., Crocker, 1981; Tversky and Kahneman, 1974; Nisbett and Wilson, 1974). These same biases will result in the construction of causal models that are consistent with an individual's latent dispositions.

The Conditional Reasoning Test (CRT) was previously developed to measure the latent motives to achieve and to avoid failure. This is accomplished through presenting individuals with evocative informal reasoning problems. The problems are evocative in the sense that they are explicitly designed to present the opportunity for individuals' latent motives to influence their interpretation and framing of the information that is presented, and the manner in which they construct a causal model of events that they feel is logical.

To illustrate how the latent motives of achievement motivation and fear of failure will influence an informal reasoning process, consider the following:

> A student graduated at the top of the class from a famous law school. This young lawyer was offered a job by a high-powered New York law firm. This firm has produced several Supreme Court Justices in its history. The firm gives new lawyers three to five years to perform. Then the firm decides whether to promote them or fire them. About half the lawyers hired by the firm are promoted. The young lawyer decided to reject the New York firm's offer and instead accepted a position at a small law firm in Savannah, Georgia. The Savannah firm has never fired a lawyer, nor has it ever produced a Supreme Court Justice. What can we conclude from this description?

An achievement motive oriented person is likely to interpret this information from the perspective of succeeding and that success or failure is largely up to the effort and persistence of the individual. The offer from the New York law firm presented an opportunity for possible success and recognition. Given that the law firm has produced many Supreme Court Justices in its past, the young lawyer has a chance to become very successful.

In contrast, a fear of failure oriented individual would likely frame the same information from the standpoint of avoiding failure. Regardless of how hard a person tries, sometimes circumstances are simply beyond a person's control. In this case, the

young lawyer has a fifty-fifty chance of being fired from the New York firm in the next three to five years. To FFs this high level of risk is clearly something to be avoided, and they should empathize with the young lawyer's decision to move to Savannah where employment is implicitly guaranteed.

The AM interpretation may lead to the construction of the following causal model. The young lawyer graduated at the top of the class. Moreover, since the lawyer graduated from a top school, it is reasonable to assume that this accomplishment was in part based on the expenditure of intense effort and dedication. In order to be successful at a large law firm, a person would also have to expend intense effort and dedication. Therefore, the young lawyer could most likely succeed at the New York firm and gain national recognition.

The causal model from the FF perspective would be quite different. The law profession is very demanding and requires long hours of very tedious work and focused concentration. The intense effort that is required will surely cause the young lawyer to feel a lot of stress and undue pressure. Since, the New York law firm is a prestigious organization that has produced several top lawyers, one can only assume that the pressure to perform would be much higher than in other law firms. This belief is validated by the fact that the young lawyer risks being fired in three to five years if he doesn't perform well enough. It is well documented in the popular press that too much stress in one's life is a significant contributor to negative health effects (e.g., ulcers, strokes, heart attacks) and reduced performance on the job. Since all the evidence indicates the New York law firm would be an extremely stressful working environment, and having too much stress can have negative effects, either of two outcomes for the young lawyer are reasonable. One option is that the severe stress would impair his ability to perform over time, and at the end of three to five years, he would be fired. In the other option, the stress leads to either a stroke or heart attack.

Having presented the respondents with an evocative problem situation that allows their latent motives to influence their framing of information and development of a causal model, the conditional reasoning problem presents solutions that are by hypothesis consistent with a causal model that each type of respondent feels is logical. Different solutions are prepared for AMs and FFs. Individuals will choose a solution that is consistent with or serves to support the causal model they have constructed.

Returning to the AM interpretation of the young lawyer problem, the AM framing and causal model is one that focuses on the probable success of the individual if he or she chose the New York firm. It also results in viewing the selection of the Savannah firm as a missed opportunity. A response that should appear logical to AMs is one that indicates it would be more difficult for the young lawyer to become nationally famous in the legal profession.

The FF framing and causal model focuses on the potential liabilities associated with the selection of the New York law firm. Thus, the young lawyer's decision to select a smaller law firm in Savannah appears to be a good idea (it avoids demonstrating incompetence at the New York firm). Consequently, an FF would be prone to evaluate a solution as logical if that solution justifies avoiding the pressure of the New York law firm. The young lawyer may become a better lawyer in Savannah than he/she would have been in New York. While perhaps improbable, this solution is not illogical. Most importantly, it appears to be the "most logical" solution to FFs (by hypothesis).

The Measurement System

The object of the conditional reasoning measurement system is to infer the relative strength of an individual's underlying achievement motivation in relation to his/her fear of failure orientation by examining the pattern of responses to evocative, informal reasoning problems. Conditional reasoning presupposes that individuals' latent motivations will

influence how they frame a problem situation and their development of plausible causal models. Individuals will choose the most appropriate solution to evocative informal reasoning problems based on their causal models, and the pattern of their response choices can be used as an indirect assessment of the relative strength of their latent motives. Thus, individuals who repeatedly choose responses that reflect viewing difficult situations, demanding problems, and potentially stressful situations as opportunities to excel and demonstrate personal competence or mastery, and affirm arguments that reinforce personal responsibility, effort and persistence as being the primary reasons for performance in difficult situations, will be said to have a higher relative motive strength to achieve than to avoid failure. Conversely, individuals who repeatedly choose responses that reflect viewing difficult situations, demanding problems, and potentially stressful situations as opportunities to fail, or demonstrate a lack of mastery or incompetence, and affirm arguments that reinforce external causes or responsibility such as luck or misfortune as being the primary reasons for performance in difficult situations, will be said to have a higher relative motive strength to avoid failure than to achieve.

The conditional reasoning (CR) problems look very much like inductive reasoning problems found on standardized tests of cognitive ability (e.g., Watson-Glaser, SAT). Each CR problem contains a problem situation that is designed to allow for the influence of unconscious motives (e.g., differential framing) on the part of the respondent as he or she works towards finding a logical, rational solution. Based on the information presented, respondents must choose the most reasonable response from five response options. One option is designed to be consistent with an AMs framing and causal modeling. Another option is designed to be consistent with an FFs framing and causal model. The other response options provided are distracters.

A Sample CRT Item

A student graduated at the top of his class from a famous law school. He was offered a job by a high-powered New York law firm. This firm has produced several Supreme Court Justices in its history. The firm gives new lawyers three to five years to perform. Then the firm decides whether to promote them or fire them. About half the lawyers hired by the firm are promoted.

The young lawyer decided to reject the New York firm's offer. Instead, he accepted a position at a small law firm in Savannah, Georgia. The Savannah firm has never fired a lawyer, nor has it ever produced a Supreme Court Justice.

What can we conclude from this description?

1. It will be more difficult for the young lawyer to become nationally famous in the legal profession.
2. The young lawyer probably grew up in the south.
3. The young lawyer will make fewer friends in the Savannah firm than he/she would have made in the New York firm.
4. The young lawyer will live longer.
5. By avoiding the pressure of the New York firm, the young lawyer may become a better lawyer in Savannah than he would have been in New York.

In the previous young lawyer example, the AM response option states that, "It will be more difficult for the young lawyer to become nationally famous in the legal profession." This option is designed to be consistent with an AM framing of the problem and causal model that suggests that since the young lawyer was competent enough to graduate with honors, that he or she would have a good probability of achieving some level of status at the reputable New York law firm.

The FF response stated that, "By avoiding the pressure of the New York law firm, the young lawyer may become a better lawyer in Savannah than he/she would have been in New York." This option is designed to be consistent with an FF framing of the problem that focuses on the risks associated with being terminated after five years. In addition, the response option provides the FF responder with a justification for avoiding the New York firm. Namely, there is a lower level of stress associated with the position of the Savannah firm.

The other responses were designed to be distracters and are not supported by the information given. For example, one indicated that, "The young lawyer probably grew up in the South." Another was, "The young lawyer will make fewer friends in the Savannah firm than he/she would have made in the New York firm." Lastly, "The young lawyer will live longer." On the surface, all of the responses are possible explanations for the lawyer's decision. However, none of them are consistent with either a differential framing or causal model development the preceding information is designed to elicit.

In sum, each conditional reasoning problem is designed to elicit differential framing and the construction of different causal models that are consistent with either an AM or FF orientation. Each problem presents a response option that is designed to be attractive to AM and FF oriented responders. The pattern of responding to CR problems will then provide an indirect assessment of an individual's relative achievement motivation or fear of failure orientation.

Statement of the Problem

The CRT instrument is designed to allow for the influence of individual's differential interpretation of information and construction of different causal models when solving conditional reasoning problems. The same processes that result in respondents consistently choosing an AM or FF response option as a logical solution to a conditional reasoning item, should operate in everyday events. Individuals that consistently choose response options that are hypothesized to represent an AM orientation should have a tendency to select more difficult tasks than FFs, and expend more effort. On the other hand, individuals that consistently choose options that are hypothesized to reflect an FF orientation, should have a tendency to select easier tasks, and avoid difficult situations that present an opportunity to demonstrate incompetence in their daily activities.

Previous validation efforts in an academic setting demonstrated an individual's achievement motivation as measured by the CRT to be related to ACT scores and classroom exam performance (James, 1995). This study expands upon previous research in that it applies the CRT methodology to employees in an actual work setting. An individual's relative AM or FF orientation should be related to real world work activities such as the tasks that the individual chooses to pursue or avoid, the amount of effort they are willing to expend and their ultimate success or failure. This study represents an initial investigation into the feasibility of the CRT to predict individual behavior (work performance) outside of an academic setting.

SECTION II

METHODS

The Conditional Reasoning Test (CRT) instrument is designed to infer the relative strength of individuals achievement motivation (AM) or fear of failure (FF) orientation by examining their pattern of responses to items that are specifically designed to present options that appear to be logical. Tests of these personality distinctions involve demonstrating that AMs as identified by the CRT are more prone to engage in activities of moderate difficulty than FFs, and FFs are more prone to avoid difficult situations.

The sample used in this study consisted of law enforcement personnel. The subjects were patrol officers, and their supervisors (sergeants, lieutenants, and captains). It was believed that at the patrol officer level, AMs would have a tendency to engage in more difficult tasks than FFs (e.g., making more arrests), while FFs would compensate by having a higher frequency of engaging in less demanding tasks (e.g., performing more assists) than AMs. At the supervisor level, it was believed that a relative AM orientation may lead to a higher overall level of subordinate performance as measured by activity than a relative FF orientation.

The sample used in the present study presented a unique opportunity to examine the relationship of AM and FF orientations with work performance. This was due to two issues that might work to increase the variability of the AM--FF distribution in the present sample. The first pertains to the history of the culture. Anecdotal evidence gathered through interacting with top management of the organization indicated that in the past, patrol officers were not directed to actively engage in law enforcement activities (e.g., investigating suspicious activities, making arrests, aiding other local law enforcement agencies). Hence, many of the activities that would otherwise be expected of officers in a

law enforcement agency that may be considered to be moderately difficult tasks that have a certain risk were not emphasized in this organization. Tasks that are moderately difficult and present an opportunity for a demonstration of incompetence are expected to be avoided by individuals with a fear of failure orientation. A reasonable assumption is that if faced with the expectation of having to frequently engage in moderately difficult tasks that may pose a certain level of threat to individual safety and a risk of demonstrating incompetence, FF individuals may not remain in that position. They may opt for other employment situations that do not pose as high of a level of threat to self. Since patrol officers in this study had not in the past been expected to engage in many of the activities that are expected in other law enforcement agencies, it seems plausible that this sample may contain a higher concentration of FFs than would be found in other agencies.

Another factor that would allow for greater variance of AM and FF orientations is that the organization had not used a structured test battery in the past to select officers. Many agencies include some form of a written test that officers must pass before receiving law enforcement training at a police academy. Since there is likely to be a positive correlation between the AM personality orientation and academic success (i.e., the ability to perform well on standardized testing), it follows that the use of a written test in a selection battery would screen out some FF applicants.

In sum, there appeared to be two issues unique to this organization that would allow for greater variability in the proportion of AM--FF personalities as compared to other law enforcement organizations (a) the culture of the organization and top management for a number of years de-emphasized the performing of law enforcement activities, and (b) the organization had not used a standardized selection process in the past.

AM and FF Orientations and Patrol Officer Performance

In choosing this particular position for validating the CRT, the next issue to be addressed was how the relative AM or FF orientation would be manifested in work performance. The author had the fortune of having a great deal of exposure to the patrol officer position through being involved in a job analysis for the new organization. Much of the involvement included direct interaction and observation of subject matter experts (SMEs) on duty. Other interaction was with supervisory personnel who related behavioral descriptions of good versus poor performing officers.

High performing officers were characterized as being professional and having a high action orientation. They actively engaged the public while on patrol and could be expected to make more arrests, issue more citations and warnings. One particular officer who was an SME for the job analysis project was observed while on patrol at a camping area. His approach to patrolling the area consisted of parking his vehicle and walking to every campsite. There, he would introduce himself, engage the public in small talk, and hand out his business card. On the surface, his activities may have simply looked like good public relations, but while he talked with the public he was constantly checking for signs of alcohol consumption (including odor) which is prohibited in most areas he patrols.

This officer's approach to patrolling camping areas seemed to be consistent with a relative AM orientation. His effort of actually walking the beat was certainly related to performance, since an officer who simply drove through the grounds would have a much smaller likelihood of detecting the use of alcohol. An officer given the same duties, but with a relative FF orientation might not get out and walk the beat. To do so increases the level of physical risk to the officer, and increases the probability of being faced with a difficult task (e.g., a domestic dispute) that the officer may not be able to successfully resolve.

To further illustrate the action orientation of high performing officers, top management indicated that a high performer would be a high performer even in a low activity area. One of the potential difficulties to gathering police activity data is that officers work on different shifts and some shifts will have a higher level of activity. The same officer is likely to work on different shifts during the course of a year. In addition, the location that an officer patrols will also influence his or her level of activity. For instance, high use areas will tend to have higher levels of associated incidents (e.g., warnings and citations). Even though factors of shift worked, and location would likely influence the level of activity for a given officer via opportunity, top management reasserted their conviction that a top performer would perform regardless of location/shift.

One of the managers related an incident where officer personnel had been reallocated. In this case, a high performer who had been working day shift in a high activity area and produced a lot of warnings and citations, was being reassigned to an evening shift in a low activity area. A short time after the reassignment, the level of activity in the area as evidenced by the number of citations and warnings given by the patrolling officer increased dramatically from its previous level. The interpretation for the increase in the level of activity in the patrol area given by the manager was that this individual took a personal responsibility for the law enforcement provided in his area. The increase in activity was a direct result of the officer's orientation towards action and being actively engaged while on duty.

Here again is a description of officer performance in the field that appears to be consistent with the AM orientation. An officer gets reassigned to a new patrol area that had not generated much activity in the past. Shortly after he arrives in the new area, the level of activity increases. The most reasonable explanation, and the one given by the manager for the increase in activity, is that it was due to the action orientation, effort, and persistence of the officer. One can only speculate as to the AM or FF orientation of the officer who was

replaced in this example. However, it seems reasonable that in any case, the officer who was replaced probably had a lower relative AM orientation than the replacement officer.

Poor performing officers on the other hand were characterized as not being inclined to get involved in activities or situations. Their pattern of activity was consistent with the old organizational culture where the practice of law enforcement activities was de-emphasized. There were a number of officers who had been employed as patrol officers for a number of years who had never made an arrest or written a citation. This pattern of work activity tended to be consistent with an FF orientation. In order to write a citation, interaction needs to occur with the public. Anytime there is an interaction, the officer is exposed to some unknown level of threat to the self. In addition, when one writes a citation, some level of confrontation is involved. Part of the FF personality orientation is that potentially stressful situations are felt as uncomfortable (cf. Atkinson, 1957; McClelland, 1985). Since some increased level of stress would be encountered when making a traffic stop, investigating suspicious activities, writing a citation, or making an arrest, it follows that an individual with a strong FF orientation would try to avoid those situations as much as possible.

AM and FF Orientations and Supervisory Performance

Not only would the AM--FF personality orientation be expected to operate at the level of patrol officers, but also at the supervisory level. In this case, the AM--FF orientation could be expected to influence the work behaviors of sergeants, lieutenants and captains. When dealing at the supervisory level, the nature of criteria which would reflect AM--FF is again important. One option would be to rely on subjective ratings of effectiveness on various performance dimensions. These ratings could come from the supervisors' managers (in this case from chiefs). Another option would be to examine supervisory work performance on tasks that are directly under their control. However,

administrative tasks such as project planning and controlling a budget are difficult to quantify (hence the reliance on subjective evaluations from higher level managers). Since sergeants, lieutenants, and captains are in a supervisory position, the nature of their work dictates that they are in the field only when required by special circumstances. Consequently, it isn't feasible to obtain for the supervisors the same types of behavioral samples (e.g., arrests, warnings, citations) as for patrol officers. However, there is a criterion that is relevant to evaluating the performance of the supervisor. Namely, the performance of their subordinates.

Some additional organizational history seems to be in order because it speaks directly to using the performance of subordinates as an index of supervisory performance. Earlier it was mentioned that this particular organization had not formerly used a structured selection process for filling patrol officer positions. However, approximately two years prior to this study, the supervisory positions were filled by using a selection process. The purpose of the selection process was to identify supervisors who would be successful in terms of moving the organization away from the old "guard" mentality to more of a professional law enforcement agency. Given the expectation that the new supervisors would reshape the non-activity culture of the organization, it appeared that activity criteria of subordinate performance would serve as informative indicators of direction of effort (i.e., achievement motivation).

The next issue is how a supervisor's AM or FF orientation would be manifested in the performance of their subordinates. Since the sergeants, lieutenants and captains were given the directive of increasing the level of field activity and moving towards a more professional law enforcement agency, the supervisors were presented with what could be considered a moderately difficult task. In this case, the supervisors were faced with having to increase the activity level of their subordinates. Referring back to one of the major tenets of the AM--FF distinction, when faced with a task of moderate difficulty, an AM oriented

individual interprets the task as a challenge, puts forth effort to achieve the task and is persistent (cf. Atkinson, 1957; Revelle and Michaels, 1976; McClelland, 1985). An FF individual on the other hand, interprets the task as a potential liability and avoids the situation (cf. Atkinson, 1957; Revelle and Michaels, 1976; McClelland, 1985; Baumeister, 1982; Greenwald and Pratkanis, 1984).

Patrol officers and their supervisors agree that some activities are more difficult than others and require a higher level of knowledge and effort on the part of the officer. Job analysis information collected on the patrol officer position supports this view. For example, an arrest involves approximately four times as much paperwork as a citation. In addition, an arrest requires that the officer make a court appearance. A citation in turn, requires more paperwork than a warning. Assists generally require no more than documenting the event in the officer's log.

In order to execute a successful arrest, the patrol officer is required to have a thorough knowledge of federal and state law, proper arrest techniques and local court procedures. However, the demands on the individual officer to issue a warning or provide assistance to another agency are much less. Thus, different activities require more or less on the part of the officer.

Since all of the aforementioned constitute activity, a supervisor has a degree of latitude when it comes to directing his efforts toward increasing officer activity. Given the directive to increase the level of field activity, supervisors, based on their AM or FF orientation, may differentially frame the problem situation of increasing subordinate activity and direct their efforts accordingly. They may believe that different aspects of officer activity constitute increased law enforcement.

An AM supervisor may interpret increased activity in the field as consisting of officers making arrests rather than issuing a citation or warning. A supervisor may have to expend considerable effort in order to increase the level of patrol officers making arrests.

This may include taking on a coaching role and actually demonstrating proper arrest techniques to officers that have never previously made an arrest.

An FF supervisor on the other hand may interpret increased activity as consisting of officers making more warnings and assists. Since less is required on the part of the officer to issue a warning than make an arrest, a supervisor would not have to expend as much effort to increase the level of subordinate activity. A supervisor may have to do nothing more than state his expectation that officers step up the number of warnings they issue.

In addition, a supervisor's beliefs about the malleability of intelligence, skills and abilities may influence the subordinate activities they target to increase. Dweck and Leggett (1988) suggest that individual's implicit theories orient them toward particular goals. More importantly, for those individuals who endorse an incremental theory of intelligence, they believe that intelligence is not a fixed entity. These individuals tend to be mastery oriented and view achievement situations as opportunities to increase their competence and continue to persist in the face of failure. This orientation appears consistent with the AM personality.

There are others who believe that intelligence is fixed. Dweck and Leggett (1988) suggest these individuals exhibit a helpless pattern of response that is characterized by an avoidance of challenging situations and a deterioration of performance when faced with obstacles. These individuals may consequently view achievement situations as tests of their competence and seek to be judged competent and avoid judgments of incompetence. This orientation appears consistent with the FF personality.

To the extent that AM and FF individuals differ with respect to their beliefs regarding the malleability of their own skills and abilities, it is reasonable to expect that they would also differ with respect to beliefs regarding the probability of others being able to learn the skills necessary to engage in new activities. In addition, it is also reasonable to expect that AM and FF supervisors differ with respect to their beliefs regarding the

probability of their subordinates being able to learn the skills necessary to engage in new activities. It follows that subordinates under the direction of an AM supervisor would have a higher level of activity on more difficult tasks (e.g., arrests and investigations) than those under an FF supervisor. This would be due to an AM supervisor's belief that it is possible to enhance the level of proficiency of his subordinates whereas the FF supervisor would not believe this is possible. Since the AM supervisor would most likely believe that it is possible to enhance the skills of his subordinates to perform more difficult patrol activities, it is likely that the AM supervisor would direct his efforts toward enhancing the skills of his subordinates. On the other hand, since an FF supervisor would most likely believe that it is not possible to enhance the skills of his subordinates to perform more difficult patrol activities, it is unlikely that the FF supervisor would direct his efforts toward enhancing the skills of his subordinates.

There are many potential mechanisms for how the AM orientation of a supervisor may direct his efforts in order to increase the skills of his subordinates. An AM supervisor may engage in more coaching and developing activities to ensure that the subordinates have the knowledge and skills necessary to give warnings, citations, and make arrests. The AM supervisor may act as a role model, accompany subordinates and demonstrate proper procedure. Lastly, the AM supervisor may simply place more emphasis on a higher level of activity and have a higher task orientation. Examination of the processes by which an AM supervisory style may result in higher subordinate performance is beyond the scope of this study. However, possible relationships between the supervisor's AM--FF orientation and subordinate activity will be examined.

There is also anecdotal evidence that supports the possible effects of the supervisor's AM orientation on subordinate performance. One of the supervisors who was selected was placed in a sector that had one of the lowest levels of officer activity in the organization. Within approximately six months of his appointment, the same officers in the

sector were engaging in a higher level of patrol activity. Whether or not the increased level of activity could be attributed to his AM orientation or some other leadership style is open to question. Nevertheless, a relationship between an AM orientation of the supervisor and increased subordinate performance is a plausible hypothesis.

AM and FF Orientations and Supervisor Ratings of Subordinate Performance

The last area of investigation has to deal with the possible effects of a fear of failure orientation on subjective ratings. As already has been discussed, part of the fear of failure personality orientation is to avoid situations that present an opportunity to demonstrate incompetence. Supervisors are often either explicitly or implicitly judged on the basis of how well their subordinates perform. In the case of a supervisor providing subjective ratings of subordinate performance, it is unlikely that a supervisor with a fear of failure orientation would provide low subordinate ratings because to do so would be an implicit acknowledgment of their own incompetence. The result would be for a fear of failure oriented supervisor to provide inflated or lenient ratings of subordinates as compared to an achievement motivated supervisor.

Summary of Hypothesized Relationships

To summarize, the investigation into the relationship between achievement motivation and performance was conducted at two levels. At the officer level, it was hypothesized that achievement motivation would be positively related to the level of performing field activities (e.g., number of arrests, citations, warnings, etc.). In addition, achievement motivation would be positively related to supervisory ratings (e.g., assertiveness, judgment and decision making). The second level focuses on the potential effects of supervisor achievement motivation. It was hypothesized that at the supervisory level the supervisor's AM orientation would be positively related to subordinate field

activities. It was also hypothesized that the supervisor's FF orientation would be positively related to subjective ratings of subordinate performance.

Subjects

Subjects were patrol officers and their supervisors who were employed by a large utility company in the Southeastern United States. Patrol officers had the responsibility of law enforcement on property owned and operated by the utility including public usage areas (e.g., boat ramps, camping areas, lakes). As part of a professional upgrading, all incumbents including supervisors who wished to retain their positions were required to take and pass screening battery that included the conditional reasoning instrument.

The 143 incumbent patrol officers who chose to apply for the new position were subjects in this study. Thirty-three patrol officers opted for early retirement. Their mean age was 55.53 years (SD = 10.23; range = 42 to 65 years). All of the early retirees were male and eighty-two percent were white and nine percent were black. The mean age of the applicants was 41 years (SD = 7.1; range = 23 to 58 years). Eighty-nine percent of the subjects were white and nine percent were black. Ninety-two percent of the subjects were male. Their average tenure in patrol officer positions was 8 years (SD = 6.5; range = 0 to 20 years. Thirty-eight percent had previous law enforcement experience and seventy-two percent were previously employed in industrial security positions within the same utility. Ninety-two percent of the subjects had graduated from high school and forty-three percent had two or four-year college degrees.

The second sample used in this study consisted of incumbent supervisors. All of the twenty-four supervisors also participated in the testing battery and served as subjects in this study. Their mean tenure in supervisory positions was 7 years (SD = 6.40; range = one month to 16 years). All of the supervisors were male, twenty-three were white and

one was black. All of the subjects had graduated from high school and forty-six percent had two or four-year college degrees.

Administration

Data for this study were collected as part of the testing battery. The entire test battery which consisted of four exams took approximately five hours to complete. The testing was administered concurrently at four sites by proctors who were employed by the utility company. The test battery was administered to groups of four to eight employees at a time. Employees received their normal pay while taking the tests.

Measures

Scores on the Conditional Reasoning Test (CRT) served as the predictors in this study. Subjects were told that the test was designed to assess their reasoning skills and the way they evaluated problems. The version of the CRT used in this study consisted of a total of thirty-two problems. Nineteen of the problems were designed to assess an individual's relative achievement motivation/fear of failure orientation. All of the nineteen problems had been previously developed and used in earlier versions of the CRT. In addition, the problems were revised (simplified) in order to make their reading level more appropriate for the subject pool. However, great care was taken to retain the properties of the original items.

Each problem in the CRT consists of a paragraph outlining a situation and five possible response alternatives. At least one response is designated as an AM response and one as an FF response. Subjects were instructed to choose the one explanation or conclusion that is most consistent with the information given. Subjects were given one hour to complete the exam.

Scores on a written ability test which was also part of the test battery were used to examine the possible incremental effect of achievement motivation over cognitive ability. Although the written ability test is not pure measure of cognitive ability, it does have a large cognitive component. The administration of this test consists of two phases. In the first phase, candidates are given a study guide to review and are instructed to learn as much as possible from the study guide since they will be tested on its content. The study guide consists of wanted posters, definitions of police concepts, and examples of police procedures. The study phase is twenty-five minutes long. Immediately after the study phase the actual exam is given. It is a 100-item multiple choice four response option exam. The exam tests the candidate's ability to learn, remember and apply new information. In addition, the exam is designed to test candidate's problem solving ability and their ability to read and interpret maps. Candidates are given one hour forty-five minutes to complete the exam.

Criterion variables for patrol officers included activity reports, supervisor ratings on seven performance dimensions, and supervisor rankings of officers with respect to overall performance. Patrol officer activity reports were completed by their respective supervisors. Information was collected in five areas over the past twelve months: number of arrests, number of citations issued, number of warnings given, number of investigations completed and number of assists. In addition, an index of total activity was computed for each officer, which consisted of summing all of their activities across the five areas. Each activity was divided by number of weeks worked over the past twelve months inasmuch as the length of time an officer was in the field influenced his or her opportunity to perform. A MANOVA performed on the rate of activity adjusted for the number of weeks worked indicated that there were significant differences in mean activity rates across the fifteen sector locations ($p < .01$). These differences were interpreted as reflecting differences in opportunity to perform the various activities across sectors rather than resulting from

differences in officer achievement motivation. Given the significant MANOVA results, a decision was made to utilize standardized rather than unstandardized activity criteria. The use of standardized activity criteria should make the interpretation of any significant results more straightforward. If unstandardized criteria variables were used and significant correlations were found with the patrol officer CRT measure, the possibility exists that the obtained results could in part be due to differences in officer's opportunity to perform various activities across the various sector locations. However, this would not be an issue if standardized activity criteria are used since the within-sector standardized activity criteria would effectively remove any effects of sector differences.

Performance ratings on seven dimensions were provided by each officer's supervisor. Five point likert scales were used to rate patrol officers from 1 = not at all effective to 5 = extremely effective on five behavioral descriptors for each dimension. In addition, an overall rating for each dimension was collected. A full listing of the scale definitions and the individual items is presented in Appendix A. The seven performance dimensions were identified through a strategic job analysis by top management subject matter experts as being critical to success in the new organization. Communication items (reliability estimated by coefficient alpha = .91) concerned oral and written expression as well as active listening skills. Interpersonal Skill items (alpha = .93) concerned rapport and relationships with the public and co-workers. Judgment and Decision Making items (alpha = .94) concerned making quality decisions in a timely manner. High Performance items (alpha = .93) concerned taking appropriate actions and follow-through on commitments. Assertiveness items (alpha = .94) concerned being proactive while on patrol. Reliability items (alpha = .93) concerned completion of duties in accordance with established operating procedures. Finally, Professional Demeanor items (alpha = .94) concerned remaining calm and controlled in stressful situations.

An overall score was computed for each dimension by averaging the individual items. A MANOVA indicated significant mean differences in performance ratings across the fifteen work locations ($p < .01$). These differences were interpreted as reflecting differences in the supervisor's standards of reference or schemas for subordinate performance rather than differences in performance due to officer achievement motivation. Given the significant MANOVA results, a decision was made to use standardized rather than unstandardized performance ratings in subsequent analyses. As in the case of the activity criteria, the use of standardized criteria should aid in the interpretation of any significant results. With respect to the performance ratings, if unstandardized criteria variables were used and significant correlations were found with the patrol officer CRT measure, the possibility exists that the obtained results could in part be due to differences in rater behavior rather than differences in officer performance. However, this would not be an issue if standardized performance ratings are used since the within-sector standardized performance ratings would effectively remove any effects of using different raters.

Rankings with respect to overall performance were provided by the supervisor at each sector. Each sector contains four to twelve patrol officers and one to four supervisors. Each of the fifteen sector locations is part of a larger district with four districts in all. Groups of four to five supervisors within each district ranked the patrol officers by consensus. Sector and district rankings were standardized to account for unequal numbers of officers across areas.

Criterion variables for the supervisors included the activity rates of their subordinates and performance ratings and rankings provided by their supervisors. For analyses involving supervisors, the unstandardized activity rates of their subordinates were used (i.e. arrests, citations, warnings, assists, investigations, total activity). To use standardized variables would result in any variance in the criteria due to the supervisor being removed.

Performance ratings for the field supervisors were provided by their supervisors, the district managers. Five-point likert scales ranging from 1 = not at all effective to 5 = extremely effective were used to rate supervisors on five managerial dimensions of performance that had been identified by top management subject matter experts in a strategic job analysis as being critical for the success of supervisors in the new organization. The rating form used the same scale definitions that were used in the patrol officer rating form. A complete listing of the rating items is presented in Appendix B. Coaching and Developing skills (alpha = .87) concerned managing employee performance. Leadership skills (alpha = .90) concerned communicating expectations for performance. Managing Change (alpha = .88) concerned supporting and monitoring new procedures. Planning and Organizing skills (alpha = .93) concerned mobilizing resources to meet established objectives. Adaptability (alpha = .93) concerned taking action when faced with uncertainty and being able to adjust to change.

An overall score was computed for each dimension by averaging the individual items. A MANOVA indicated marginally significant mean differences in performance ratings across the four districts ($p < .10$). Inspection of the one way ANOVAs revealed that all were significant ($p < .05$). These differences were interpreted as reflecting differences in the top supervisor's standards of reference or schemas for officer performance rather than differences in performance due to subordinate officer achievement motivation. Consequently, the five performance dimensions were standardized within district and used in subsequent analyses.

Each supervisor was ranked with respect to overall performance by his supervisor, the district manager. District rankings were standardized to account for unequal numbers of supervisors across areas.

SECTION III

ANALYSES AND RESULTS

Patrol Officer Analyses

The first step in the analyses was to examine the results of the patrol officer criteria measures. Descriptive statistics for the unstandardized performance dimensions, activity measures and the written abilities test are shown in Table 1.

For the patrol officer performance rating dimensions, the mean ratings tended to be relatively similar across dimensions. The highest overall dimension was reliability (mean = 3.57) while the lowest was high performance (mean = 3.39). In addition, the variance of the scores also appeared to be relatively similar across dimensions with the assertiveness dimension having the highest standard deviation (.92) and communication having the lowest (.72).

For the unstandardized activity measures adjusted for the number of weeks worked, there were differences in the frequency with which the various activities were performed. Excluding the total activity composite, the most frequently occurring activity was assists with an average of 2.38 assists per week (range of 0 to 38.2). Overall, arrests were least frequently performed with an average incidence of .14 per week (range of 0 to 2.4).

The last patrol officer measure was the written abilities test. The mean score was 77.02 which ranged from a low of 27 to a high of 97 (SD = 10.67).

Next, the intercorrelations of the patrol officer measures were calculated. For this analysis, the within-sector standardized performance dimension ratings and adjusted activities were used as well as the unstandardized ratings and activity variables. The table also presents intercorrelations of the top supervisor's CRT scores within each sector and

the rating supervisor's CRT scores which were used in later analyses. These results are presented in Figure 1.

Table 1: Patrol officer measures descriptive statistics

Measure	N	Mean	SD	Minimum	Maximum
Communication	143	3.40	.72	1.5	5.0
Interpersonal	143	3.50	.78	1.0	4.8
High Performance	143	3.39	.80	1.0	4.8
Judgment	143	3.47	.73	1.0	4.8
Assertiveness	143	3.46	.92	1.0	5.0
Reliability	143	3.57	.75	1.7	5.0
Demeanor	143	3.47	.80	1.0	5.0
Arrests	137	.14	.28	0.0	2.4
Citations	137	.31	.55	0.0	3.9
Warnings	137	1.32	1.52	0.0	8.7
Investigations	137	.39	.39	0.0	3.2
Assists	137	2.38	5.13	0.0	38.0
Total Activity	137	4.54	5.47	0.0	38.2
Written Abilities	143	77.02	10.67	27.0	97.0

	Separate Composites			Rankings		Standardized Performance Ratings							Standardized Activities						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1. Tri-Rational																				
2. AM Composite	0.98																			
3. FF Composite	-0.96	-0.75																		
4. Resultant Comp.	1.00	0.95	-0.92																	
5. District Rank	0.03	0.07	-0.04	0.06																
6. Sector Rank	0.03	0.08	-0.03	0.06	0.92															
7. Communication Z	0.01	0.04	0.07	-0.01	0.61	0.65														
8. Interpersonal Z	-0.08	-0.04	0.07	-0.06	0.55	0.59	0.62													
9. Judgment Z	0.13	0.11	-0.02	0.07	0.62	0.65	0.71	0.60												
10. High Performance Z	-0.03	0.05	-0.04	0.05	0.68	0.70	0.59	0.72	0.68											
11. Assertiveness Z	-0.04	0.00	0.02	-0.01	0.74	0.73	0.45	0.44	0.59	0.64										
12. Reliability Z	0.14	0.14	-0.08	0.12	0.42	0.45	0.44	0.44	0.42	0.47	0.42									
13. Demeanor Z	0.02	0.05	0.00	0.03	0.60	0.66	0.60	0.78	0.59	0.63	0.43	0.43								
14. Arrests Z	0.11	-0.04	-0.11	0.03	0.33	0.30	0.10	0.01	0.17	0.21	0.43	0.16	0.03							
15. Warnings Z	-0.01	-0.04	-0.10	0.03	0.02	0.02	0.07	-0.03	0.03	-0.03	0.14	-0.07	-0.01	0.20						
16. Citations Z	-0.05	0.00	-0.02	0.01	0.22	0.21	0.03	-0.08	0.17	0.09	0.29	-0.08	0.01	0.36	0.36					
17. Investigations Z	0.14	0.12	-0.19	0.17	0.08	0.08	0.03	-0.03	-0.04	0.01	0.05	-0.13	-0.05	0.21	0.28	0.13				
18. Assists Z	0.03	-0.04	-0.03	-0.01	0.04	-0.01	0.04	-0.05	-0.02	-0.02	0.10	0.07	-0.06	0.16	0.36	0.11	0.14			
19. Total Activity Z	0.08	-0.01	-0.13	0.06	0.14	0.12	0.09	-0.02	0.09	0.01	0.24	0.06	0.01	0.33	0.78	0.39	0.32	0.62		
20. Written Abilities	0.34	0.38	-0.27	0.35	0.35	0.32	0.35	0.16	0.37	0.30	0.28	0.19	0.22	0.07	-0.02	-0.02	-0.04	-0.04	-0.02	
21. Communication	0.04	0.04	-0.01	0.03	0.60	0.59	0.81	0.57	0.62	0.54	0.43	0.40	0.57	0.10	0.07	0.04	0.02	0.05	0.10	0.30
22. Interpersonal	-0.02	0.01	0.02	0.00	0.55	0.55	0.55	0.79	0.55	0.61	0.43	0.38	0.69	0.05	-0.02	-0.05	0.00	-0.01	-0.01	0.13
23. Judgment	0.12	0.08	-0.08	0.09	0.61	0.61	0.56	0.55	0.77	0.63	0.57	0.37	0.55	0.18	0.08	0.19	0.00	0.03	0.13	0.20
24. High Performance	-0.01	0.05	-0.04	0.05	0.66	0.64	0.54	0.61	0.63	0.79	0.60	0.42	0.57	0.22	0.06	0.11	0.03	0.05	0.11	0.20
25. Assertiveness	-0.02	-0.03	0.01	-0.02	0.74	0.68	0.46	0.46	0.56	0.61	0.83	0.35	0.47	0.41	0.17	0.26	0.05	0.10	0.23	0.16
26. Reliability	-0.04	0.00	0.04	-0.02	0.60	0.61	0.56	0.57	0.58	0.65	0.56	0.51	0.54	0.17	0.04	0.07	-0.03	0.02	0.06	0.19
27. Demeanor	0.07	0.06	-0.05	0.06	0.60	0.62	0.56	0.69	0.55	0.58	0.45	0.46	0.82	0.08	0.02	0.01	0.00	0.02	0.06	0.15
28. Arrests	0.01	-0.08	0.00	-0.05	0.26	0.14	0.06	-0.05	0.02	0.09	0.23	0.08	-0.07	0.56	0.12	0.10	0.16	0.09	0.19	0.06
29. Warnings	0.04	-0.02	-0.07	0.02	0.01	-0.06	0.01	-0.07	-0.07	-0.15	0.06	-0.04	-0.06	0.11	0.72	0.12	0.16	0.34	0.59	-0.09
30. Citations	-0.14	-0.10	0.00	-0.06	0.12	0.10	-0.05	-0.12	0.03	-0.05	0.13	-0.13	-0.05	0.35	0.22	0.65	0.02	0.03	0.28	-0.08
31. Investigations	0.15	0.10	-0.19	0.15	0.00	-0.01	-0.01	-0.08	-0.07	-0.11	-0.06	-0.12	-0.09	0.22	0.24	0.11	0.72	0.16	0.28	0.02
32. Assists	0.03	0.01	-0.02	0.02	0.10	0.11	0.13	0.03	0.13	0.10	0.14	0.11	0.05	-0.02	0.15	0.04	0.01	0.44	0.44	0.10
33. Total Activity	0.04	0.00	-0.05	0.02	0.12	0.10	0.12	-0.01	0.10	0.05	0.16	0.08	0.02	0.09	0.37	0.14	0.11	0.52	0.62	0.07
34. Top Spv. Tri-Rational	0.07	0.08	-0.12	0.10	-0.07	-0.08	-0.02	-0.04	-0.03	-0.02	-0.01	-0.01	-0.06	-0.01	0.00	0.00	0.00	0.00	0.00	0.08
35. Top Spv. AM	0.09	0.12	-0.14	0.14	-0.01	-0.05	-0.01	-0.02	-0.03	-0.01	0.00	0.00	-0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.06
36. Top Spv. FF	0.02	-0.05	0.09	-0.07	0.03	0.04	0.01	0.02	0.03	0.01	-0.01	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	-0.09
37. Top Spv. Resultant	0.04	0.09	-0.12	0.11	-0.02	-0.05	-0.01	-0.02	-0.03	-0.01	0.00	0.00	-0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.08
38. Rater Tri-Rational*	0.15	0.12	-0.08	0.11	-0.07	-0.08	-0.02	-0.03	-0.02	-0.02	0.00	-0.01	-0.09	-0.03	0.00	0.00	-0.01	-0.02	-0.01	0.10
39. Rater AM*	0.16	0.15	-0.15	0.16	-0.04	-0.05	-0.01	-0.02	-0.02	-0.01	0.01	0.00	-0.01	0.00	-0.03	-0.02	0.00	-0.03	-0.03	0.07
40. Rater FF*	0.00	-0.05	0.04	-0.05	0.01	0.04	0.01	0.01	0.02	0.01	-0.01	0.00	0.00	0.02	0.03	0.02	0.00	0.04	0.04	-0.11
41. Rater Resultant*	0.09	0.11	-0.10	0.12	-0.03	-0.05	-0.02	-0.01	0.03	-0.01	0.01	0.00	0.00	-0.01	-0.03	-0.02	0.00	-0.04	-0.04	0.10

Figure 1. Intercorrelations of Patrol Officer Measures

	Unstandardized Performance Ratings							Unstandardized Activities						Top Supervisor CRT Scores				Rater CRT Scores		
	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
21. Communication																				
22. Interpersonal	0.77																			
23. Judgment	0.77	0.78																		
24. High Performance	0.73	0.84	0.86																	
25. Assertiveness	0.64	0.64	0.75	0.78																
26. Reliability	0.73	0.77	0.80	0.85	0.73															
27. Demeanor	0.76	0.90	0.77	0.81	0.66	0.76														
28. Arrests	0.00	-0.12	-0.04	0.04	0.27	0.01	-0.11													
29. Warnings	0.15	0.06	0.13	0.08	0.23	0.13	0.06	0.23												
30. Citations	0.07	0.04	0.17	0.14	0.19	0.13	0.07	0.03	0.17											
31. Investigations	-0.05	-0.12	-0.12	-0.16	-0.08	-0.18	-0.11	0.11	0.20	0.05										
32. Assists	0.02	-0.10	0.06	-0.01	-0.02	-0.05	-0.01	-0.01	0.00	0.05	0.04									
33. Total Activity	0.06	-0.09	0.10	0.02	0.07	-0.01	0.00	0.12	0.31	0.20	0.17	0.94								
34. Top Spv. Tri-Rational	0.06	0.02	0.15	0.07	-0.06	0.13	-0.04	-0.03	0.35	0.24	0.06	0.31	0.40							
35. Top Spv. AM	0.07	0.08	0.13	0.13	0.05	0.17	0.04	0.03	0.36	0.14	0.04	0.01	0.12	0.95						
36. Top Spv. FF	0.08	0.13	0.03	0.07	0.06	-0.03	0.16	-0.08	-0.22	-0.15	-0.05	-0.13	-0.20	-0.94	-0.75					
37. Top Spv. Resultant	-0.01	-0.03	0.05	0.03	-0.01	0.11	-0.07	0.06	0.31	0.16	0.05	0.07	0.18	1.00	0.93	-0.94				
38. Rater Tri-Rational*	-0.19	-0.23	-0.12	-0.22	-0.21	-0.13	-0.25	0.00	0.11	-0.12	0.09	0.45	0.45	1.00	0.71	-0.64	0.72			
39. Rater AM*	-0.05	-0.04	0.00	-0.01	-0.06	0.05	-0.06	-0.08	0.21	-0.04	0.05	0.12	0.16	0.75	0.83	-0.60	0.76	1.00		
40. Rater FF*	0.23	0.30	0.21	0.25	0.14	0.14	0.31	-0.19	-0.15	0.03	-0.07	-0.25	-0.28	-0.91	-0.60	0.87	-0.79	-0.93	-0.68	
41. Rater Resultant*	-0.15	-0.18	-0.11	-0.14	-0.11	-0.04	-0.19	0.06	0.20	-0.04	0.07	0.20	0.24	0.91	0.79	-0.79	0.84	1.00	0.92	-0.91

Note: n=131. Correlations greater than .17 are significant at .05. Correlations greater than .22 are significant at .01.
*For correlations involving rating supervisor's CRT scores, n=126. Correlations greater than .18 are significant at .05. Correlations greater than .23 are significant at .01.

Figure 1. (continued)

The second triangle on the diagonal of Figure 1 shows the correlation between the standardized sector and district rankings. The correlation of .91 indicates a large degree of consistency between the two. In addition, the rankings tend to be highly correlated with the ratings of performance (e.g., communication, interpersonal, etc.). All of the correlations with the exception of the reliability dimension are in excess of .60 with the sector rankings. The dimensions of assertiveness, judgment and decision making, and high performance have the highest correlations with the rankings. For the activities, the number of arrests and citations are most related to the rankings but the magnitude of the correlation is not near those obtained for the performance dimensions.

The next triangle of the correlation matrix presents the intercorrelations for the standardized performance dimensions. All of the dimensions are significantly intercorrelated. Most of the dimensions are not correlated with actual activity in the field (shown directly below the middle triangle). However, assertiveness and high performance are significantly correlated with the number of arrests made (.43 and .23, respectively). Ratings of assertiveness are also significantly correlated with the number of citations issued (.32).

The next triangle on the diagonal of the correlation matrix presents the intercorrelations of the standardized field activities. Since total activity is based on the number of individual activities, it is not surprising that total activity is significantly correlated with all of the individual activities. The number of arrests is significantly correlated with all of the other categories. This may indicate that officers who make arrests are also likely to engage in other activities and tend to have a higher activity level overall. The number of citations is also significantly correlated with the number of warnings given (.40). Here again, this may indicate a higher level of activity. Lastly, the number of warnings is also related to the number of investigations (.26) and the number of assists (.37).

Row twenty of the figure shows the correlations between the measure of cognitive ability, the written abilities test, and the other criteria. The written abilities test is not related to any of the field activities. This finding tends to suggest that cognitive ability alone is not a predictor of performance in the field, however some level of cognitive is most likely necessary. The results do indicate that cognitive ability is related to a number of the standardized supervisory rating dimensions. In fact, there were only two dimensions that cognitive ability was not related to; interpersonal skills and professional demeanor. This finding suggests that although the performance dimensions were highly intercorrelated, supervisors were able to discriminate between dimensions. In addition, it is interesting to note that the written abilities test is related to supervisor ratings of performance, but the written abilities test is not related to actual performance in the field. This may indicate that cognitive ability is an important determinant of overall performance, but that overall performance is not fully captured by measures of field activity.

The next step in the analyses was to score the CRT. This study utilized a scoring key that had been previously developed through earlier research. The use of an a priori keys is the most conservative test of the CRT achievement motivation items for two reasons. First, the use of an a priori key does not capitalize on chance relationships that exist in the current data set. Secondly, the scoring key was developed in an academic setting using samples of college students. Any hypotheses that are confirmed in this sample of patrol officers and their supervisors using a scoring key developed using college students would tend to indicate the generalizability and robustness of the AM--FF personality orientations.

The scoring system is designed to classify respondents as being AM, FF, or unclassifiable. The scoring paradigm is termed tri-rational indicating that individuals are classified as belonging to one of three categories based on an a priori key. The scoring of the CRT consisted of first scoring the responses to each of the items in the a priori key.

For each item, the AM response was coded as +1, the FF response was coded as -1, and all other response options were coded as 0. Then, the response values were pooled across items to arrive at a final score. The final score is then used to indicate the respondent's relative achievement motivation. Individuals who choose more AM than FF response alternatives, will have a positive pooled final score. They receive a tri-rational classification score of +1 indicating a relative AM orientation. Individuals who choose more FF than AM response alternatives, will have a negative pooled final score. They receive a tri-rational classification score of -1 indicating a relative FF orientation. For those individuals whose final score equals 0, it is not possible to determine their relative AM--FF orientation. These individuals receive a tri-rational classification score of 0.

When the tri-rational scoring was applied to the patrol officers, sixty-nine officers or 48.3 percent were classified as AM, ten officers or seven percent were unclassifiable, and sixty-four or 44.8 percent were classified as FF.

The next step of the analysis consisted of computing polyserial correlations between the ordinal tri-rational scores, and the three classes of criteria (supervisor rankings of performance, standardized supervisor ratings on performance dimensions and standardized field activities). The polyserial correlation was chosen over the Pearson correlation based on Lord & Novick (1968).

The results of the correlational analyses between the officer CRT tri-rational score and the various performance criteria variables are shown in Table 2. The correlations between the officer CRT scores and the supervisor rankings and performance dimensions were non-significant. One possible explanation for the lack of findings is that an officer's relative AM or FF orientation is not manifested in such a manner that the behavior can be reliably rated by the supervisor.

Table 2: Correlational results of patrol officer CRT tri-rational score and criteria variables

Criteria	Tri-Rational Polyserial Correlation
District Ranking	.03
Sector Ranking	.03
Communication	.01
Interpersonal	-.08
High Performance	.13
Judgment	-.03
Assertiveness	-.04
Reliability	.14
Demeanor	.02
Arrests	.11
Citations	-.01
Warnings	-.05
Investigations	.14
Assists	.03
Total Activity	.08

Note: n=131. Correlations greater than .17 are significant at .05.

Correlational analyses between the patrol officer CRT tri-rational scores and their field activities also resulted in no significant correlations. Inspection of the distribution of the unstandardized patrol officer activity variables revealed that all of the activities were severely positively skewed. Most of the patrol officer activity rates tended towards zero. In fact, 35% of the patrol officers had no recorded arrests for the past year and 27% had not issued any citations. This severe restriction in range may account for the failure to find significant relationships between the officer's CRT scores and their activity variables. Numerous attempts were made to rescale the activity variables in order overcome their positive skew and move them closer to being normally distributed. However, these attempts were largely unsuccessful.

A possible explanation for the failure to find significant relationships between the activity variables, the supervisor ratings and rankings of performance and the CRT tri-rational scoring is that an a priori key was used. It may be the case that the scoring key is situationally specific to college students and that a different key would predict individual officer performance.

Another possibility is that the revised items were too complex for this sample. It may have been the case that patrol officers were unable to interpret and respond to the CRT problems. In previous research, relative achievement motivation has been found to be positively related to measures of academic achievement including ACT scores and classroom performance (James, 1995). In the current study, the written abilities test has some of the same properties as the academic criteria used by James. The written abilities test is a timed, standardized test. If it were the case that the patrol officers were unable to interpret the CRT items, then the polyserial correlation between the CRT tri-rational scores and the written abilities test score should be non-significant.

To investigate the possibility that the comprehension level of the CRT was inappropriate for the patrol officer sample, a correlation was computed between the patrol officer's CRT tri-score and their written abilities test score. The obtained polyserial correlation coefficient = .31 ($n = 137$, $p < .01$) which provides some indirect evidence that patrol officers were able to reliably interpret and respond to the CRT items.

Supervisor Analyses

The next stage of the analysis shifted the focus from predicting individual officer activity by his or her relative achievement motivation to predicting patrol officer activity by the achievement motivation of their supervisors. This was accomplished in the following manner. First, for each of the twenty-four supervisors across the fifteen sector locations,

their CRTs were scored using the same a priori key and tri-rational approach as was used in the patrol officer sample.

Next, in the sectors that contained more than a single supervisor, their CRT scores were inspected. At issue was whether the supervisor's tri-rational composite scores could be combined and used in the prediction of patrol officer activity. In nine of the fifteen sectors, officers report to a single supervisor, a lieutenant. In these sectors, patrol officer receive their all of their direction from their lieutenant. In the other six sectors however, patrol officers report to either a captain or a sergeant. In these sectors, patrol officers not only interact with their immediate supervisor, but they also regularly interact with the top sector supervisor. Within these six sectors, the CRT tri-rational scores were inspected to determine if the multiple supervisors had similar achievement motivation orientations. In two of the six sectors, the supervisors' CRT tri-scores were identical. This was taken to indicate that the relative achievement motivation orientation was relatively similar between the supervisors within these sectors. However, in the other four sectors, the tri-scores between supervisors within the same sector were divergent. For example, within the same sector, one supervisor may have been classified as AM whereas the other was classified as FF. Since there was no logical basis for attempting to average the classification of supervisors where divergent, a decision was made to use the top supervisor's tri-score result. Not only did this decision obviate the problem of interpreting an average supervisor relative achievement motive score, but it was also consistent with organizational reality. In sectors with multiple supervisors, the captain has the ultimate responsibility for the direction of activity and officer performance in the field. In addition, each officer regularly interacts with the sector captain.

When the tri-rational scoring system was applied to the top supervisor in each sector, ten or 66.7 percent were classified as AM, two supervisors or 13.3 percent were unclassifiable and three supervisors or twenty percent were classified as FF.

Next, the top supervisor's CRT tri-rational score was matched against and assigned to each officer. In addition, the supervisor's score on the written ability test was matched against and assigned to each officer. Finally, polyserial correlations were computed between the officers' individual activities (unstandardized) and their respective supervisor's CRT tri-score and written abilities test scores. These results are shown in Table 3.

Inspection of the results reveals a number of significant correlations between the supervisor's achievement motivation and the activity of patrol officers in their respective sectors. Patrol officer activity with respect to the number of citations and warnings given, assists made and total activity were all positively related to the relative achievement motivation of their respective supervisors. This indicates that patrol officers who report to supervisors who were classified as AM, issue more citations and warnings, make more assists, and have a higher level of total activity than subordinates who report to supervisors with relative lower levels of achievement motivation.

Taken together, the results tend to indicate that the supervisor's relative achievement motivation orientation is positively related to increased subordinate patrol officer activity, while a fear of failure orientation tends to be negatively related. These effects are consistent with those hypothesized.

Table 3: Top supervisor tri-rational CRT and written abilities test score predicting officer performance

Field Activity	CRT Tri-score	Written Abilities Test
Arrest	-.04	.11
Citations	.25	.01
Warnings	.35	.01
Investigations	.06	.10
Assists	.32	.28
Total Activity	.42	.28

Note: N = 137. Correlations greater than .17 are significant at the .05 level.

Lastly, we examine the role of the supervisor's scores on the written ability test which is an indirect measure of the supervisor's cognitive ability on subordinate performance. An alternative explanation to the predicted pattern of correlations between the supervisors' relative achievement motivation and their subordinate performance is that supervisors who are classified as AM also have a high level of cognitive ability. Consequently, it is the supervisor's cognitive ability that is responsible for higher levels of subordinate performance. The supervisor's scores on the written ability test are significant with respect to the number of subordinate assists and total activity. However, supervisor scores on the written abilities test are not significantly related to subordinate performance in the areas of citations and warnings. This finding suggests that the relative AM--FF orientation of the supervisor does have a unique effect on subordinate performance and that patrol officer performance in the areas of warnings and citations issued is not simply a reflection of their supervisor's cognitive ability.

Since the results tended to suggest that a supervisor's AM--FF orientation was significantly related to the performance of their subordinates in the field, further analyses

were conducted in hopes of identifying a possible mechanism to account for these relationships. The analysis involved calculating correlations between the supervisor's composite keys and ratings of their performance on five managerial dimensions provided by their supervisors and rankings of overall performance. This was done to determine if an achievement motivation orientation is manifested such that it is reflected in ratings of managerial performance provided by their supervisors. The intercorrelations of criteria are presented in Table 4. All of the criteria with the exception of planning and organizing and the adaptability dimension are significantly intercorrelated.

The results of the correlations between the supervisor's CRT tri-rational score and ratings on the managerial performance dimensions provided by their supervisors were all non-significant. The failure to find significant results may be due to a lack of power associated with a small sample size (n=23). Another possible explanation is that the supervisors who provided ratings of the captains, sergeants and lieutenants did not have adequate opportunity to observe their performance in the field when interacting with patrol officers. Finally, there is an issue of construct validity. It may be the case that the managerial performance dimensions as defined are not appropriate to capture the aspects of supervisor behavior that are related to differences in AM--FF orientations that result in differences in subordinate performance of field activities.

Table 4: Intercorrelations of supervisor criteria.

Criteria	1	2	3	4	5
1. Coaching					
2. Leadership	0.72				
3. Managing Change	0.52	0.60			
4. Planning & Organizing	0.69	0.56	0.77		
5. Adaptability	0.55	0.84	0.53	0.34	
6. Ranking	0.63	0.72	0.52	0.42	0.68

Note: N=23. Correlations greater than .41 are significant at the .05 level.

The last issue to be investigated is the possible relationship between a supervisor's relative AM--FF orientation and how he rates his subordinates. This was accomplished in the following manner. The CRT tri-score was calculated for each supervisor who provided the subordinate ratings on the seven patrol officer dimensions and matched to each of their respective subordinates. In one sector, the district chief provided ratings and that sector was excluded from this analysis. This did not present a severe problem since the sector only contained five patrol officers.

Twelve of the rating supervisors were also top supervisors used in prior analyses. For the rating supervisors, nine or 64.3 percent were classified as AM, no supervisors were unclassifiable and five supervisors or twenty percent were classified as FF.

The next step of the analysis consisted of matching and assigning the rating supervisor's tri-rational CRT score to each officer. Polyserial correlations were then calculated between the supervisor's tri-rational score and the unstandardized performance dimension ratings made on each officer. These results are shown in Table 5.

Table 5: Rating supervisor tri-rational CRT score predicting officer ratings

Performance Dimension	Polyserial Correlation
Communication	-.20
Interpersonal	-.20
High Performance	-.21
Judgment	-.13
Assertiveness	-.22
Reliability	-.13
Demeanor	-.20

Note: N = 131. Correlations greater than .17 are significant at the .05 level.

Inspection of the results reveals that supervisor ratings of subordinate performance on all but two dimensions (judgment and reliability) were significantly correlated with their own (the supervisor's) tri-rational scores. Since the FF orientation was coded as a -1, the obtained negative correlations indicate that FF oriented supervisors provided higher ratings than AM oriented supervisors which were coded as a +1. These results are consistent with the hypothesis that FF supervisors would be inclined to be more lenient than their AM counterparts when providing subordinate evaluations.

SECTION IV

DISCUSSION

This study represents an initial test of the feasibility for the conditional reasoning approach to personality assessment in predicting work performance in an applied setting. Results at the supervisor but not the patrol officer level indicate that relative achievement motivation and fear of failure as measured by the instrument are related to real-world work performance.

Patrol Officer Results

At the officer level, CRT tri-rational scores were not found to be related to either ratings of their performance provided by their direct supervisors, or their level of field activity. There are many possible explanations for the failure to find significant results.

One explanation for the failure to find significant results at the officer level may involve the use of an a priori key that was developed using college student samples. It may be the case that the a priori key is to some degree situationally specific to college samples and it does not generalize to patrol officers. At issue is whether or not the same mechanisms that result in AM college students achieving high test grades apply to AM officers and their activities in the field. More to the point, the real distinction is in the nature of the criteria. It should be clear that college student performance as indicated by test grades is far and away different from patrol officer performance as indicated by the number of arrests made. There is no question that patrol officers face an unknown level of risk any time they interact with the public. There is a constant potential threat to officer safety. Therefore, it may be the case that the nature of the officer activity criteria is

characteristically different than the student performance criteria on which the a priori key was developed.

Another possibility is that the attempts to make the reading level of the revised CRT more appropriate for this sample were not completely successful. An analysis was performed on the original instrument which indicated that its reading level was approximately at the twelfth grade. The revision of the CRT reduced its complexity to an eight grade reading level. Nevertheless, the patrol officers may have had some difficulty interpreting the problems they were presented with. This could lead to the tri-rational scores being more unreliable in this sample than in previous college student samples.

However, results demonstrated that the patrol officer CRT tri-rational scores were significantly correlated with the scores on the written ability test. Moreover, the pattern of results in this sample were consistent with the results previously found in academic settings where the respondents classified as AM had higher ACT and exam performance than respondents classified as FF. This evidence would tend to suggest that a large number of the patrol officers were able to adequately interpret and respond to the items they were presented with in the CRT.

In order to more fully explore the situational specificity issue regarding the scoring key, biserial correlations were computed between each of the CRT response options and each of the standardized patrol officer activity variables. The results indicated that a number of the individual response options were not significantly correlated with the field activities. In addition, some of the response options that were significant, were in a direction opposite to that expected. When only the response options that were significant and in the hypothesized direction were considered, very few options keyed on each criteria (arrests = 3, citations = 4, warnings = 7, investigations = 11, assists = 5, and total activity = 7). Thus, at the officer level, the lack of consistent findings with respect to the response

options keying with field activity criteria may indicate that the CRT does not fully generalize to patrol officer field activity.

In an attempt to circumvent the potential situational specificity of the CRT scoring key in predicting officer performance, the feasibility of constructing an empirical was examined. As already mentioned, in general, few of the response options keyed in the predicted direction with field activities. Of all the field activities, investigations had the highest number of keyed response options. It seems reasonable to suggest that the decision to undertake an investigation and bring it to closure would be differentially attractive to officers with relative AM--FF orientations. Other activities, such as issuing a citation, warning, or providing assistance, do not require the persistence of directed effort over time as does an investigation. An investigation is marked by being relatively unstructured, it's duration is unknown, and it demands persistence and a good deal of effort on the part of the officer if it is to be resolved successfully. Moreover, due to the nature of the investigations criterion, it may be argued that the investigations measure would be more amenable to the effects of a relative AM--FF personality orientation than other criteria. These factors lead to the decision to construct an empirical scoring key for investigations.

The key was comprised of response options that had significant biserial correlations in the hypothesized direction with the investigation criterion. A total of eight items were used in the empirical key. These items were scored in the same manner as the original key. Each item contains an AM response which receives a weight of +1 and an FF response item that receives a weight of -1. All other response options receive a weight of 0. The responses are summed across items in the empirical key to arrive at a total score. For individuals with positive total scores, they receive a tri-empirical classification score of +1, indicating that their relative achievement motivation is greater than their relative fear of failure. For individuals with a negative total score, they receive a tri-empirical classification score of -1, indicating that their relative motive to avoid failure is greater than their relative

motive to achieve. Individuals were considered unclassifiable and received a tri-empirical classification score of 0 if their total score equaled 0.

Next, the polyserial correlation was calculated between the patrol officer CRT tri-empirical key score and the standardized activity variable, the number of investigations performed. The polyserial correlation between the tri-empirical key was significant ($r(137) = .37, p < .01$). When the same tri-empirical key was applied to the other field activity variables, no significant correlations were found. The pattern of results for the empirical key applied to the various field activities may indicate that criteria variables differ with respect to them being valid indicators of the differential effects of the AM--FF personality orientations at the patrol officer level. A further treatment of the possible differences in the nature of the activity criteria is presented later in the limitations discussion.

Lastly, the inability of the CRT to predict officer field activity may be due to difficulties often encountered when conducting research in applied settings. In this study, patrol officers worked in fifteen different sectors located in seven different states. These sectors are likely to vary on a number of dimensions. One dimension is the influence of the season on sector activity. In those sectors that include public use areas such as camping sites and lakes, the highest period of usage is during the summer months. However, sectors in metropolitan locations tend to have a more constant level of activity throughout the year. Another dimension on which sectors are likely to vary is the types of activities that officers have the opportunity to perform. The nature of performing law enforcement activities in a remote location may differ from that in a metropolitan sector.

In this study a conservative approach was taken to deal with between sector differences. Specifically, each of the activity variables were standardized within sector. This had the effect of equalizing all of the sectors and treating them the same. An alternative approach may have been to assign each sector a score on a number of dimensions (e.g., size, rural or metropolitan location) and then examine the relationship of

officer relative achievement motivation to activity within the context of the sector in which they worked.

In sum, essentially no support was found for the effects of patrol officer relative achievement motivation on their activities with the exception of the number of investigations that relied on the construction of an empirical key. However, the lack of significant findings at the officer level should be interpreted in light of the hypothesized effects which were found at the supervisory level. A further elaboration of those effects is discussed in the next section.

Supervisory Results

The relative achievement motivation of the supervisors as measured by the CRT was found to be related to a number of subordinate activities. The supervisor scores were related to the number of subordinate citations, warnings, assists and total activity. Where significant correlations were found, they were in the direction hypothesized; supervisor relative achievement motivation was related to higher levels of subordinate activities whereas supervisor relative fear of failure was related to lower levels of subordinate activity.

The obtained findings that the supervisor's relative achievement motivation was related to subordinate officer performance, but the individual officers' own relative achievement motivation was not related to their own performance can be explained from the standpoint of the supervisor--subordinate relationship. First, the supervisor in a sector has the responsibility for that sector. He has a great deal of control with respect to focusing and directing the activities of his subordinates. Since police organizations are characterized by their militaristic orientations, supervisors most likely have a higher degree of position power than supervisors in other organizations (French and Raven, 1959). Second, given the definition of the achievement motivation construct, supervisors who have a strong

relative achievement motive should be more inclined to direct and focus the efforts of their subordinates in order to achieve higher levels of performance. Supervisors with a relative fear of failure orientation would not be expected to direct and focus their efforts towards increasing the level of subordinate performance.

Of all the activity criteria, the number of officer arrests and investigations were not found to be related to supervisor relative achievement motivation. One may ask why subordinate arrests and investigations are not related to supervisor relative AM--FF orientation, but citations, warnings, assists and total activity are. The answer may lie in the nature of the activity criteria. Given different relative achievement motivation orientations of the supervisors, it is likely that it is easier for the subordinate patrol officer to accommodate the stated expectations of a relative achievement motivated supervisor of performing vigilant patrol activities by issuing warnings and citations than engaging in other potentially more difficult activities such as making arrests and performing investigations.

The initial investigation into the possible mechanisms by which a supervisor's achievement motivation is manifested in subordinate performance was largely unsuccessful. None of the supervisory performance dimensions as rated by the district supervisors were found to be related to the subordinate supervisor's relative AM--FF orientation. A more appropriate method for data collection may be to utilize subordinate perceptions or ratings of their supervisor for a couple of reasons. First, the subordinates should be in a better position to judge the behaviors and performance of their supervisor than higher level management. A greater opportunity to observe performance should result in more accurate ratings. Second, the patrol officers are the ones who will comply, embrace, approach, or avoid the requests and or direction of their supervisors. Since the patrol officer's interpretation and reaction to the influence attempts of their supervisor will

ultimately result in field performance, it seems appropriate to try to capture the officers' cognitive interpretations of their supervisors' behaviors.

Overall, the pattern of supervisory effects on subordinate performance is consistent with the position of Dweck and Leggett that individuals differ with respect to their beliefs in the malleability of intelligence. This is an interesting finding and a potentially important contribution. The original Elliott and Dweck (1988) study utilized students as subjects and the hypothesized effects of one's beliefs about the malleability of intelligence were theorized to apply to an individual. The results of this study are consistent with the position that an individual's beliefs in the malleability of intelligence may apply to adults as well. More importantly, an individual's beliefs about the stability of intelligence may extend to beliefs regarding other people's ability to increase their level of intelligence or ability.

The last area that was investigated examined the possible effect of a rater's personality on the ratings they provide. The results obtained in this study support the hypothesis that relative FF oriented supervisors provide more lenient ratings of subordinates. These findings are rather compelling since they support the commonly held belief that raters often distort ratings without them being aware that they are doing anything else than being completely truthful. As suggested earlier, it may be the case that FF supervisors provide lenient ratings of their subordinates in order to avoid making an implicit acknowledgment of their own incompetence.

In light of the results that suggest a supervisor's relative AM--FF orientation is related to the performance of their subordinates, there may be an additional mechanism to account for the FF supervisor's leniency. This requires that the results are interpreted as supporting Dweck and Leggett's position that people view intelligence as either fixed or malleable through effort and persistence. Suppose that it is true that a supervisor with a relative AM orientation believes that intelligence is malleable and based on his beliefs

focuses his efforts on increasing the level of performance of his subordinates. Also, suppose that it is true that a supervisor with a relative FF orientation believes that intelligence is fixed, and based on his beliefs exerts little effort to increase the level of subordinate performance.

When it comes time to provide subordinate ratings, the AM supervisor is not likely to exhibit leniency since he believes that intelligence is malleable and individuals can learn in order to accomplish new activities (e.g., arrests and citations). If an individual is not successful in becoming competent and being able to perform a new activity, the relative AM supervisor is likely to make an effort or ability attribution directed towards the subordinate (cf. Kelley, 1972, Weiner, 1980). This would be especially true if the AM supervisor has taken actions to provide the subordinate with the skills necessary to be successful. This classic actor-observer difference would most likely not result in lenient ratings of the subordinate.

For the relative FF supervisor, the rating task appears entirely different. The cause of the lenient subordinate ratings all starts with the FF supervisor's belief that intelligence is relatively stable. This belief in the stability of intelligence should effectively negate any expectancy on the supervisor's part that his actions could increase the level of performance of his subordinates. As a result, he may not approach the task of trying to increase the level of subordinate performance. Given that his subordinates have lower rates of activity as compared to other sectors, the FF supervisor is now faced with having to rate the performance of his subordinates. Since the supervisor believes that intelligence is fixed, it is unlikely that he will attribute the lower level of performance to his subordinates. Given the FF personality orientation, it is even more unlikely that the FF supervisor will step up and take that blame for the lower level of his subordinate's performance. Faced with two unattractive options, the FF supervisor can effectively avoid the situation by providing lenient ratings. Not only do lenient ratings give his subordinates the benefit of the doubt,

but the lenient ratings also act as a justification mechanism and provide the opportunity for the FF supervisor of lower performing subordinates to experience feelings of pride.

Limitations

One of the issues that causes concern is the fact that the patrol officer CRT scores based off of the a priori key were not correlated with their performance. Many possible reasons for this effect have already been addressed (e.g., inappropriate reading level, situational specificity, differences in the nature of college student and patrol officer criteria). In addition, given the findings than an officer's activity is correlated with the achievement motive orientation of the supervisor, it may be the case that there is not enough residual variance in the activity criteria to be reliably predicted by the officer's own CRT scores. The question of whether or not the CRT instrument can predict officer performance from his or her CRT scores may remain unanswered.

Another possible albeit speculative explanation for the failure to find significant relationships at the officer level has to do with assumptions associated with the activity criteria. The implicit assumption is that for a given activity, the criteria represents the same type of indicator across all individuals. In the sample of college students, it is reasonable to assume that academic performance represents the same type of indicator across all individuals. It is difficult to imagine that some college students would interpret graduating with a perfect grade point average as reflecting an orientation to achieve, while other students would interpret it as reflecting an orientation to avoid failure. However, it might be the case that all types of activities are not interpreted in the same way.

The relative level of an individual's achievement motivation could influence whether or not an activity is seen as an opportunity for success (an AM interpretation) or an opportunity to avoid other more threatening activities (the FF interpretation). For example, some patrol officers may see some activities (e.g., citations and warnings) as opportunities

to succeed and approach them, while others see the same activities as opportunities to avoid other more threatening activities (e.g., arrests and investigations). This presents a potential problem in that some activity criteria would reflect an AM behavioral response as well as an FF behavioral response. The implication is that the activity criteria would not be correlated with the CRT scores which is what was found using the a priori key.

The fact that supervisor achievement motivation was found to be related to subordinate activity suggests that for the supervisory level, the CRT in its present form may be a useful indicator of achievement motivation.

Summary

The results of this study suggest that conditional reasoning may serve as a useful means of measuring relative achievement motivation and fear of failure. Using a priori scoring keys, and field activity criteria, significant validities were obtained at the supervisory level. Most interesting were the findings that the supervisory achievement orientation was reflected in subordinate performance. Moreover, these hypothesized results were consistent with an interpretation that a supervisor's beliefs about the stability of intelligence and other proficiencies may influence whether they approach or avoid courses of action which could result in improved subordinate performance. One way of casting leadership is to ask what distinguishes an effective leader from an ineffective one. Given the same resources, an effective leader is able to mobilize his or her subordinates to accomplish objectives that an ineffective leader is unable to. Although the results are preliminary and need to be interpreted with caution, this study would suggest that the achievement motivation of the supervisor may be an important dimension for understanding leadership effectiveness.

There was also evidence to suggest that personality characteristics of the rater influence subjective ratings of subordinate performance. This may be important to

increasing the understanding of the influence of rater biases in performance appraisals and identifying which raters are more likely to provide biased ratings.

Future Research

The next step is to determine if the effects of managers' achievement motivation can be replicated in other settings and the types of behaviors that differentiate relative achievement motive managers from relative fear of failure managers when interacting with subordinates. This seems to be a relevant topic in light of the popularity of self-managed work teams. An extension of this research would be to determine the degree to which the AM--FF personality is related to beliefs about the malleability of intelligence. This may have implications for choosing individuals to act as mentors in organizations. In addition, an examination of adult learning theory and more specifically motivation to learn from an AM--FF personality orientation as related to beliefs about the malleability of intelligence may expand the understanding of adults in training contexts.

Finally, further work is needed in the development of items that have predictive power outside of an academic setting and determining the generalizability of a priori scoring keys.

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Appendices

Appendix A

Patrol Officer Performance Dimensions

Scale Definitions:

1. Not at all Effective Individual rarely exhibits acceptable performance or consistently demonstrates unacceptable performance on this behavior. Drastic improvement is needed in order to perform well.

2. Somewhat Effective Individual occasionally exhibits acceptable performance or consistently performs at a below-satisfactory level on this behavior. Improvement is needed on this behavior in order for the individual to perform well.

3. Generally Effective Individual consistently performs at an acceptable level on this behavior. This individual meets expectations on this behavior.

4. Very Effective Individual frequently exhibits this behavior and performs very well. The individual may occasionally exceed expectations on this behavior.

5. Extremely Effective Individual continually exhibits this behavior and performs it at an outstanding level. The individual's performance far exceeds what is expected of him or her on the job. Improvement in this area would be difficult.

How effective is this officer at:

1. Communications (Overall)
2. Expressing ideas which are well-organized and easily understood by others.
3. Writing clearly.
4. Presenting information clearly in one-on-one and group settings.
5. Listening attentively to others' concerns or ideas.
6. Presenting information clearly and persuasively.
7. Interpersonal Skills (Overall)
8. Resolving interpersonal conflicts constructively.
9. Building rapport and trust by demonstrating sensitivity and respect for others.
10. Establishing close working relationships with customers.
11. Tactfully disagreeing with others (e.g., using constructive criticism).
12. Getting along well with co-workers.
13. Judgment Decision Making (Overall)
14. Making timely decisions.
15. Making decisions based on factual information and logical assumptions.
16. Deferring decisions to others when appropriate.
17. Considering alternative courses of action for identified problems.
18. Making decisions required by the situation.
19. High Performance (Overall)
20. Following through on commitments.
21. Recognizing when he/she is wrong and admitting mistakes.
22. Developing innovative approaches to work situations.
23. Taking appropriate levels of action to get the job done right.
24. Creating an atmosphere that explores and learns from past mistakes without laying blame.
25. Assertiveness (Overall)
26. Appropriately using back-up calls (i.e. not over-relying on back-ups).
27. Getting involved and investigating suspicious activities.
28. Being proactive and interacting with the public to maintain a high profile while on patrol..
29. Responding to incidents with necessary action (e.g., making an arrest instead of warning).
30. Checking out situations to determine if illegal activity is present.
31. Reliability (Overall)
32. Accurately completing necessary reports and paperwork on time.
33. Completing assignments on time.
34. Being on time for appointments, meetings, start of shift etc.
35. Following standard operating procedures, rules and regulations (i.e. doing things by the book).
36. Carrying out assigned duties and obeying orders.
37. Professional Demeanor (Overall)
38. Not overreacting or escalating situations.
39. Keeping his/her temper under control during stressful situations.
40. Diffusing or managing stressful or critical situations.
41. Not being argumentative or intolerant.
42. Making complaints in private rather than in public.

Appendix B

Supervisor Rating Dimensions

Note: The scale definitions were the same as those used for the patrol officer rating dimensions.

How effective is this supervisor at:

1. Coaching and Developing (Overall)
2. Working with employees to set clear performance expectations and prepare individual development plans.
3. Providing ongoing feedback.
4. Providing support and resources for the professional development of employees.
5. Evaluating performance based on established expectations.
6. Handling poor performers.
7. Leadership (Overall)
8. Consistently communicating a clear direction and vision for the work group.
9. Gaining commitment and participation for the work group's direction.
10. Delegating responsibility to others and monitoring progress towards goals.
11. Setting a positive example for others.
12. Recognizing and rewarding others for their contributions.
13. Managing Change (Overall)
14. Modifying priorities and plans as needed
15. Periodically checking the progress of planned changes.
16. Implementing new policies which support the agency mission.
17. Gathering information to identify changes that are needed or opportunities for improvement.
18. Actively supporting efforts aimed at changing current practices to be more consistent with the agency goals.
19. Planning and Organizing (Overall)
20. Utilizing appropriate resources.
21. Prioritizing actions to meet project goals.
22. Establishing clear goals and objectives.
23. Creating strategies for meeting goals and objectives.
24. Designing actions and plans to meet identified goals.
25. Adaptability (Overall)
26. Reacting to organizational changes calmly.
27. Taking action when faced with uncertainty.
28. Helping others to adjust and respond to change.
29. Providing support to others when faced with new situations.
30. Seeing changes and uncertainty as new opportunities.

VITA

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