

Technical Report 694

**Attribution Dimensions, Self-Serving Biases,
and Actor-Observer Differences
in Work Performance Attributions**

Timothy W. Elig

**Personnel Utilization Technical Area
Manpower and Personnel Research Laboratory**

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EDGAR M. JOHNSON
Technical Director

WM. DARRYL HENDERSON
COL, IN
Commanding

Technical review by



J. Birnberg
S. J. Golin
I. Frieze
M. J. Greenberg
R. Willis

University of Pittsburg

A. C. F. Gilbert
M. J. Kimmel

Army Research Institute

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and to control the outcome of future work periods (e.g., Mitchell, Green, & Wood, 1981; Valle & Frieze, 1976). The concepts of attribution theory have also been applied to the worker's self-evaluation as well as to the manager's evaluation (Birnberg, Frieze, & Shields, 1977).

The applicability of attributional models to work performance was assessed in a field study of (a) the dimensions hypothesized to underlie attributions, (b) the self-serving biases hypothesized to affect attributions, and (c) self-other differences that result in divergences between attributions made by superiors and subordinates.

Causal attributions for performance as military service recruiters made by 173 Army recruiters and their superiors, 53 station commanders, were studied. Seventy-three of the recruiters also judged the 58 possible attributions on dimensional-scales of internal-external, stability, actor control, and other control.

Dimensional ratings by judges are found to be strongly correlated, although dimension-specific variance can be tapped as a residual of the common variance in the data and used in further analyses of performance attributions.

As expected, attributions for successful performance are more internal and more stable than are attributions for failing performance. Consistent with a motivated biasing model, Internal and Stable ascriptions are much greater for success than failure. Attributions having a positive impact on performance are more internal and stable while attributions having a negative impact on performance are more external and unstable. Self-other differences are also consistent with a motivated biasing model. Support for a motivated biasing model fails only on one key comparison with an information processing model.

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Timothy W. Elig

**Personnel Utilization Technical Area
Paul A. Gade, Chief**

**Manpower and Personnel Research Laboratory
Newell K. Eaton, Acting Director**

**U.S. ARMY RESEARCH INSTITUTE FOR THE BEHAVIORAL AND SOCIAL SCIENCES
5001 Eisenhower Avenue, Alexandria, Virginia 22333-5600**

**Office, Deputy Chief of Staff for Personnel
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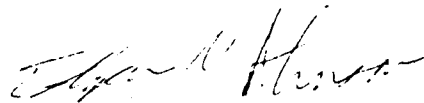
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FOREWORD

The quarterly cost of enlisting 40,000 people for the active forces of the U.S. Army in 1981 was estimated by the Army Audit Agency to be \$145 million, with an average cost of \$3,600 per recruit. Direct personnel costs for field recruiters in the period studied were \$20.8 million, with additional indirect costs (e.g., training) of \$11.7 million. Based on these Army Audit Agency figures for FY81, an efficiency increase in production recruiters sufficient for a 1% decrease in the number of recruiters would have saved \$1.3 million in FY81.

Responsibility for the management of the day-to-day productivity and efficiency of field recruiters lies with recruiters themselves and with their immediate supervisors--station commanders. For both recruiters and station commanders, the maintenance of a high state of efficiency and productivity is important in meeting recruiting goals. Because of the potential for attributional analysis to aid in the understanding and improvement of recruiting, the performance attributions of 173 Army field recruiters and 53 station commanders were studied.

The purpose of the research reported here was to investigate--for the first time in a field setting--applications of attribution theory to job performance in superior-subordinate situations. This research can further the development of attribution theory while having application to the management of the recruiting force.



EDGAR M. JOHNSON
Technical Director

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Special thanks to the many fine service men and women who took the time and care to participate in the data collection for this project in the midst of their difficult and hectic work days.

ATTRIBUTION DIMENSIONS, SELF-SERVING BIASES, AND ACTOR-OBSERVER
DIFFERENCES IN WORK PERFORMANCE ATTRIBUTIONS

EXECUTIVE SUMMARY

Requirement:

To improve the efficiency and productivity of Army field recruiters through improved management and leadership. In particular there is a need to understand (1) how subordinates (recruiters) self-monitor performance, (2) how supervisors (station commanders) monitor the same performance, and (3) how differences in perception of supervisors and subordinates can distort the causal attributions that each make for the subordinates' performance.

Procedure:

The literature on the attributional model proposed by Weiner and his associates (Weiner, 1972, 1974; Weiner et al., 1971; Weiner, Heckhausen, Meyer, & Cook, 1972) was reviewed. This model has generated extensive research over a wide range of events that can be classified as success or failure. Recently, the concepts of attribution theories have been used to describe how work performance is evaluated and managed. Some models are concerned with the cognitive processes in a manager's attempt to understand workers' behaviors, to predict the degree the behavior will recur in the future, and to control the outcome of future work periods (e.g., Mitchell, Green, & Wood, 1981; Valle & Frieze, 1976). The concepts of attribution theory have also been applied to the worker's self-evaluation as well as to the manager's evaluation (Birnberg, Frieze, & Shields, 1977).

The applicability of attributional models to work performance was assessed in a field study of (a) the dimensions hypothesized to underlie attributions, (b) the self-serving biases hypothesized to affect attributions, and (c) self-other differences that result in divergences between attributions made by superiors and subordinates.

Causal attributions for performance as military service recruiters made by 173 Army recruiters and their superiors, 53 station commanders, were studied. Seventy-three of the recruiters also judged the 58 possible attributions on dimensional-scales of internal-external, stability, actor control, and other control.

Findings:

Dimensional ratings by judges are found to be strongly correlated, although dimension-specific variance can be tapped as a residual of the common variance in the data and used in further analyses of performance attributions.

As expected, attributions for successful performance are more internal and more stable than are attributions for failing performance. Consistent with a motivated biasing model, Internal and Stable ascriptions are much greater for success than failure. Attributions having a positive impact on performance are more internal and stable while attributions having a negative impact on performance are more external and unstable. Self-other differences are also consistent with a motivated biasing model. Support for a motivated biasing model fails only on one key comparison with an information processing model.

Utilization of Findings:

The purpose of the research reported here was to investigate--for the first time in a field setting--applications of attribution theory to job performance in superior-subordinate situations. This research can further the development of attribution theory while having direct application to the management of sales forces.

The attribution models developed in this research will be utilized in the development of training modules for new recruiter refresher training.

ATTRIBUTION DIMENSIONS, SELF-SERVING BIASES, AND ACTOR-OBSERVER
DIFFERENCES IN WORK PERFORMANCE ATTRIBUTIONS

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INTRODUCTION

Attribution theorists make a basic assumption that gaining knowledge of cognitive events is an essential part of our attempt to understand and predict human behavior. The traditional focus of attribution theorists (e.g., Heider, 1958; Jones & Davis, 1965; Kelley, 1967) is the individual's perceptions of causality for everyday events. These theories are concerned, first, with the process by which inferences of causality are made, and secondly with the individual's responses which are mediated by these inferences.

A model of motivation which includes attribution is important; it provides an alternative to mechanistic stimulus-response models by positing a cognitive process, causal attribution, as an intervening variable between stimulus and response. Thus we have a third general area of concern for attribution models. That is, what attributions are made and what properties of attributions form the linkages between prior events and subsequent achievement behavior. My research addresses this question.

The achievement event studied is the job performance of members of a very large direct "sales" force. There are approximately 6,000 U.S. Army recruiters involved in everyday efforts to "sell" employment-service contracts. The interface between these recruiters and some 2,000 others in management or support activities are the front line sales managers, the recruiting station commanders. Station commanders supervise from one to eight Army recruiters. This research context allowed me to study the way a fundamental evaluation process is experienced in an active sales force by the sales personnel and their immediate supervisors.

One of the most important aspects of this fundamental evaluation process is the extent to which it is biased by self-interest and a potential source for conflict. I test hypotheses concerning the motivated biasing of attributions, including the effects on casual attributions for recruiting performance of the performance outcome and the disparate viewpoints of the actors (recruiters) and involved observers (station commanders). The assessment of the dimensional sealing of the possible causes for recruiting performance is an essential step to correct measurement and interpretation of self-serving biases.

Applied Attributional Analysis

In the area of attribution-based theories, the major mark of the maturation and continuing vigor of the attribution perspective is the ongoing development of a general theory of motivation based on attributional analyses. Weiner (1979) has worked to develop such a theory. Specifically, he developed a detailed theory of achievement motivation in a classroom setting. While the process of making attributions is not ignored by Weiner, his focus is on the consequences of attributions: given an attribution, what are its implications for motivation, persistence, and affect? Indeed, Weiner's framework provides the most detailed and general discussion available of the consequences of attributions (Carroll & Frieze, 1979).

By far, the largest portion of attribution research is related to the attribution-based approach epitomized by the Weiner framework rather than being related to the attribution process theories of Kelley or others such as Kruglanski (Kelley, quoted in Harvey, Ickes, & Kidd, 1978).

The Weiner Model

Weiner's theory (Weiner, Frieze, Kukla, Reed, Rest, and Rosenbaum, 1971) is particularly pertinent to applied areas such as the supervisor-subordinate interaction. Weiner et al. (1971) propose that individuals utilize four main agents for explaining and predicting outcomes of achievement-related tasks. The four causal elements are ability, effort, task difficulty, and luck, and are seen as representing two major dimensions: stability and locus of control (see Table 1). Two of the factors, ability and effort, represent an internal locus of control, in which the person is seen as being responsible for the action. Task difficulty and luck are externally controlled. However, Weiner (1979, 1983) has reported problems with the original categories. For example, the classification of ability as stable and effort as unstable is not exact. Lack of effort may be unstable (i.e., due to fatigue), or it may be construed as a stable property such as laziness. In response to this ambiguity, Weiner (1979) proposed a third dimension, a controllability dimension. Within his new classification scheme, Weiner allows for both ability and effort to vary along the stability dimension. Also Elig and Frieze (1975, 1979) and Frieze (1976) used open-ended questions to ascertain people's naturally generated causes for success and failure. They suggest that, while Weiner's categories account for most of the attributions, two additional factors, mood and other people, were also important. It should therefore be noted that, while much of the research literature on job-performance attributions focuses on the original four categories, the situation is still relatively unclear about the exhaustiveness and completeness of this 2 by 2 system.

Classification of attributions is an important step in determining the dimensional properties of attributions which mediate between the outcome and the situation, and the consequences of the outcome.

Table 1

Weiner et al.'s (1971) Early Classification Scheme for the Perceived Determinants of Achievement Behavior

<u>Location</u>	<u>Stability</u>	
	Stable	Unstable
Internal	Ability	Effort
External	Task Difficulty	Luck

Causal ascriptions have been shown to influence emotional reactions and future behavior across widely diverse areas; many of these motivational implications of attributions can be related to the dimensions along which attributions vary. For example, if a recruiter who experienced poor performance last month attributes that performance to an unusually low amount of effort that month (an unstable internal cause), we can expect this recruiter to feel more shame, be less likely to expect continuing poor performance, and be more willing to try in the future, than if he/she had attributed last month's performance to what he/she believes is an impossibly hard task (a stable external cause).

Applications of the Weiner Model

The attributional model proposed by Weiner and his associates (Weiner, 1972, 1974; Weiner et al., 1971; Weiner, Heckhausen, Meyer, & Cook, 1972) dealt specifically with the inferences made about the causality of success and failure outcomes (see Frieze & Bar-Tal, 1979). This model has generated an extensive amount of research over a wide range of events that can be classified as success or failure. While the vast majority of research and applications based on the Weiner model has been centered on academic success and failure, this model has been applied to such diverse areas as criminal justice decisions (Carroll & Payne, 1976, 1977), loneliness (Peplau, Russell, & Heim, 1979), professional journal editorial decisions (Wiley, Crittenden, & Birg, 1979), alcoholism (McHugh, Beckman, & Frieze, 1979), social behavior (Elig & Frieze, 1975), and depression (Anderson, Horowitz, & French, 1983; Diener & Dweck, 1978; Sweeney, Shaeffer, & Golin, 1982). While details have changed, a decade of research in diverse areas has indicated the basic strength of the Weiner model.

Weiner's work appears to offer the best framework for applied research. Carroll and Frieze (1979) cited attributional researchers as following the trend in social psychology of finding that social problems outside the laboratory are both additional tests of their theories and good sources of new approaches and ideas. The direction of attributional theorizing made necessary by applied interests is explained by Carroll and Frieze (1979):

Applied attribution research has of necessity expanded beyond the classic concern with when and how particular attributions are made. Applied research complements the interest in the antecedent of attributions with a focus on the consequences of attributions--we must know how casual attributions mediate behavior. For this reason, much of applied attributional research is based on Weiner's framework as the most detailed and general discussion of the consequences of attributions (p. 391).

Carroll and Frieze cite several instances of new theoretical advances within attribution theory arising from the more stringent testing of the theory in natural settings rather than just in laboratories.

Applications to Performance Management

Americans are coming to perceive low worker performance (productivity) as a significant social issue (Mitchell, 1983); it is therefore not at all surprising that attributional models which have proven so useful in understanding academic achievement motivation are being applied to work productivity and management (Latham, Cummings, & Mitchell, 1980). Recently, the concepts of attribution theories have been used to describe how managers evaluate workers (Green & Mitchell, 1979; Mitchell, Green, & Wood, 1981; O'Leary & Hansen, 1983; Valle & Frieze, 1976). These theories are concerned with the cognitive processes in a manager's attempt to understand workers' behaviors, to predict the degree to which the behavior will recur in the future, and to control the outcome of future work periods (Mitchell, 1983). The concepts of attribution theory have also been applied to the worker's self-evaluation as well as to the manager's evaluation--with appropriate note taken of the likely divergence of attributions made by workers and managers (Birnberg, Frieze, & Shields, 1977; Shields, Birnberg, & Frieze, 1981).

AN ATTRIBUTIONAL ANALYSIS OF JOB PERFORMANCE
MOTIVATION AND SUPERVISORY CONTROL.

After reviewing the broad outline of an attributional analysis--based on the Weiner model of attributions for success and failure events--I develop and test specific hypotheses designed to indicate the applicability of attributional analysis to service-recruiter motivation and first-line management control.

In my review I first consider the centerpiece of attribution theory--the causal attributions people make and the dimensions which seem to capture significant aspects of the causes. I then consider how these attributions may be biased to preserve self-esteem.

Commensurate with previous attributional formulations, I share the perspective that gaining knowledge of cognitive events is an essential part of our attempt to understand and predict human behavior and that the lay person's epistemic encounters with the world are basically rational. At the same time, I argue that self-serving biases not only exist but introduce important distortions into the process.

Overview of Attributional Models of Supervisory Control

Attributions made for the causes of performance merit study because of their major role in mediating responses to performance outcomes and to behaviors affecting performance (Figure 1). While organizational policy and regulation will normally exist for exceptional behavior or performance, supervisors still make the decisions on how and when to implement policy. Nonexceptional performance is also likely to be scrutinized at regular intervals. And while organizational or personal policy may favor certain actions to increase normal performance level, individual performance attributions are likely to influence which possible action(s) are taken. Thus, the attributional consequences in Mitchell's consolidated model (Figure 1) define a major reason for studying the attribution process. To use our knowledge of the consequences of attributions we need to understand what attributions are made and how they are linked to the antecedents and consequences.

The dyadic control system model of Birnberg, Frieze, and Shields (1977; Shields, Birnberg, & Frieze, 1981) takes into explicit account the attributional process occurring in the subordinate as well as the superior (Figure 2). These models (Figures 1 and 2) are equivalent in tracing a path from antecedents to attributions to consequences. By making the dyadic interaction explicit in the model, however, we gain an additional perspective on the importance of attributional processes in understanding the subordinate's reaction to the supervisor's actions. While Mitchell's model emphasizes the consequences of a supervisor's attributions, the dyadic control model emphasizes information processing antecedents of the (possibly) divergent attributions and thus consequences of supervisors and subordinates.

Each of these approaches represent the merger of a different disciplinary knowledge base with the psychological literature on the attribution process. Mitchell et al. draw on the organizational behavior literature on

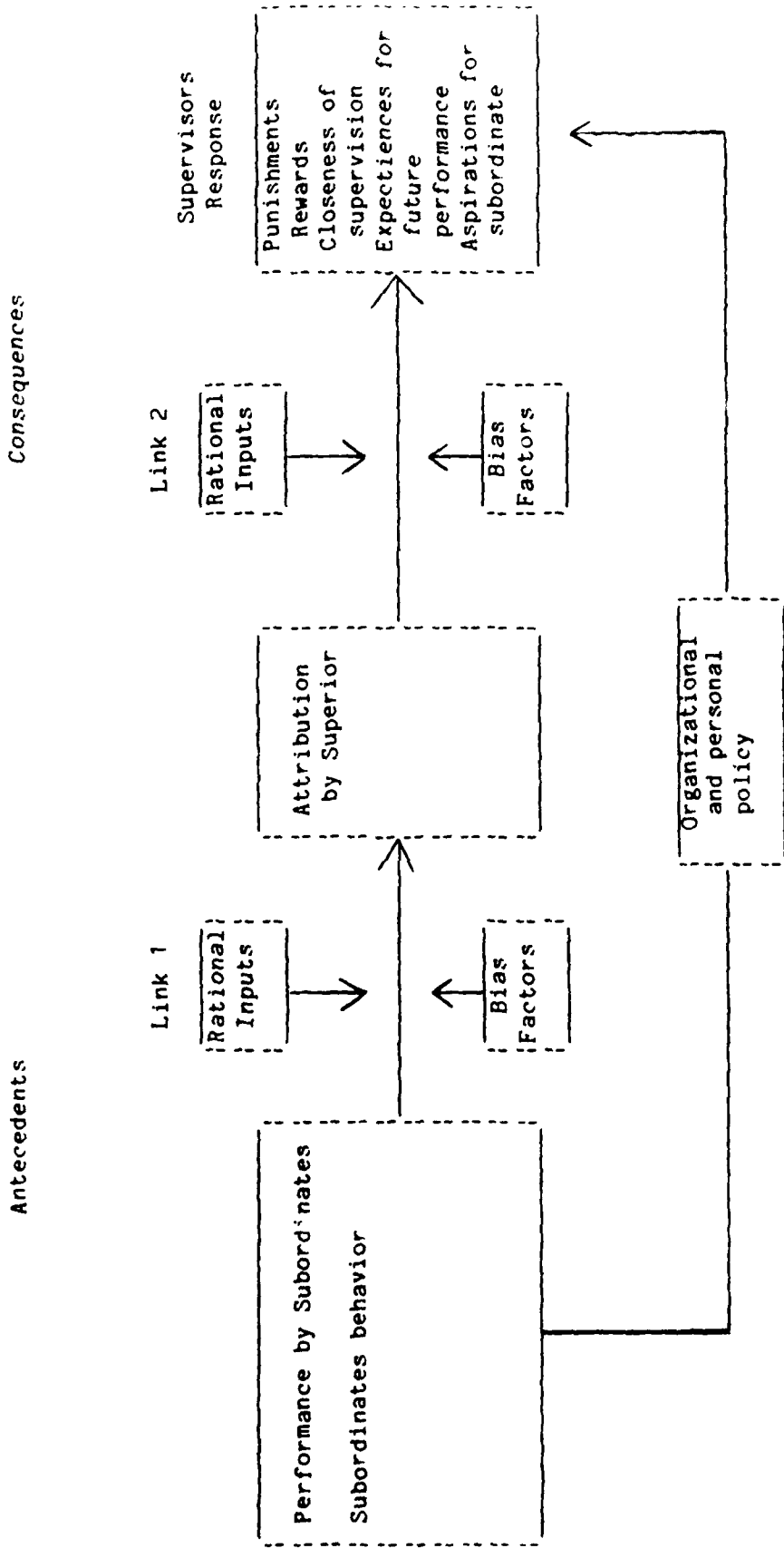


Figure 1. A model of supervisor response to subordinates' performance and behavior adapted from Mitchell & Wood (1980), Green & Mitchell (1979), and Latham, Cummings, & Mitchell (1980).

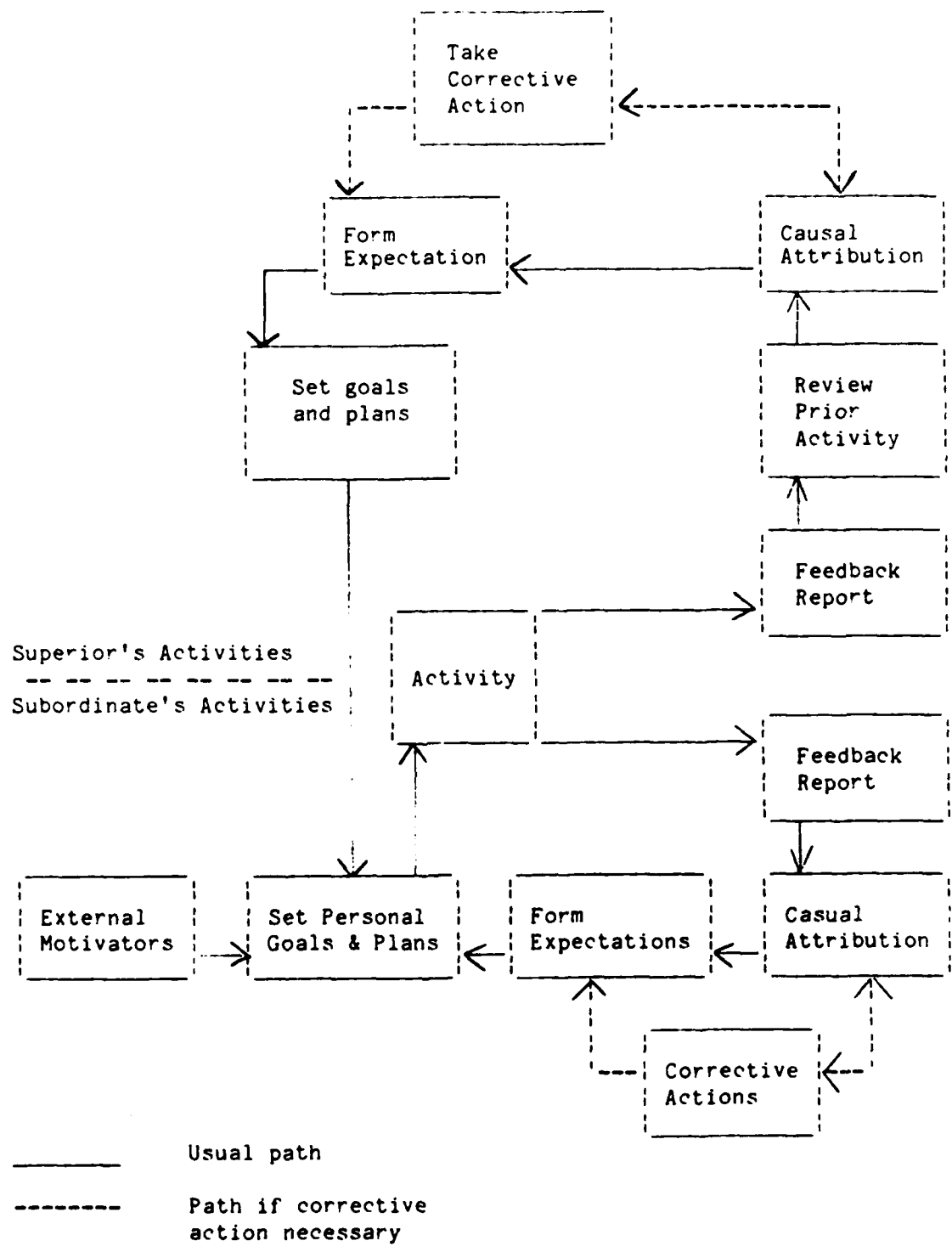


Figure 2. Dyadic control system model adapted from Birnberg, Frieze, & Shields (1977).

management response while Birnberg et al. draw on the behavioral accountant literature on performance measurement. These differing orientations lead to some divergence in the emphasis given to the development of antecedents and consequences in the models.

Attributional Consequences in the Models

If supervisors employ an attributional process in analyzing performance then that process will have implications for their behavior. Among these behaviors are: (a) rewarding and punishing subordinate performance, (b) closeness of supervision, (c) expectations about the subordinates future performance, and (d) aspirations the supervisor might hold for the subordinate (Mitchell, Green, & Wood, 1981).

The perceived causes of a subordinate's performance have been shown to have clear implications for how a supervisor rewards or punishes that performance (Hargrett, 1981; Heilman & Guzzo, 1978; Mitchell & Kalb, 1982; Mitchell & Wood, 1980; Valle & Frieze, 1976). Regardless of ability, causal attributions to effort appear to be primary determinants of how performance is evaluated and the nature of subsequent rewards or punishments (Weiner and Kukla, 1970; Omelich, 1974). When success is seen as accompanied by effort, it is most rewarded; when failure is seen as due to a lack of effort, it is most severely punished (Knowlton & Mitchell, 1980; Pence, Pendleton, Dobbins & Sgro, 1982). On the other hand, where the causal explanation for a subordinate's performance was an external cause (e.g., task difficulty or luck), the supervisor is not likely to reward or punish performance.

In general, we would suspect that internal attributions will result in the supervisor focusing his or her response on trying to change the subordinate. Effort attributions might result in punitive actions such as reprimands or docking of pay, while ability attributions might result in training. On the other hand, external attributions should prompt the supervisor to focus change efforts on the situation. If the task is too difficult (or not difficult enough), then task redesign or job enrichment may be in order. These predictions have been supported in several studies of a supervisor's reaction to worker performance (Hargrett, 1981; Heilman & Guzzo, 1978; Ilgin & Knowlton, 1980; Mitchell & Wood, 1980; Pence, Pendleton, Dobbins & Sgro, 1982). However, Valle & Frieze (1976) measured the stability as well as the location dimension and found supervisory reactions to be related as much or more to the stability of attributions as to the location of the attributions. This points out the need for careful measurement and interpretation of attributional dimensions.

The closeness of supervision used by a supervisor is also affected by attributional processes. Kruglanski (1970) and Strickland (1958) have shown that when a supervisor attributed a worker's earlier performance to the surveillance of the supervisor, the supervisor was more likely to continue close supervision. On the other hand, when the supervisor attributed that performance to the worker's own efforts, supervision was less close.

Just as overt supervisory behavior is affected by attributions, so, too, are expectations about future performance. When forming expectations, the stability of the causal explanation seems to be a crucial factor (Weiner et

al., 1972). If a subordinate's performance is attributed to stable factors (e.g., ability or task difficulty), the supervisor is likely to expect a similar level of performance in the future (Weiner, Nierenberg, and Goldstein, 1976; Frieze and Weiner, 1971). Expectancies about future performance based on unstable causes (e.g., effort), however, are more problematic and not as predictive of expectation (Weiner and Kukla, 1970). Given higher expectations, the supervisor should also provide more achievement-related opportunities for that subordinate.

Characteristics of Existing Research on Performance and Management Attributions

To date, most of the research applicable to job performance and management attributions has in fact not been done in the context of job performance or management. As I discussed above, most of the basic theory and research as well as much of the applied research has focused on academic performance (see Weiner, 1979). There are as yet relatively few studies in which the setting and antecedents/consequences are such that I consider them to be job performance and/or management applications of the Weiner attribution model. Studies which I consider to be direct applications to work performance are catalogued in Table 2. For methodological reasons, these studies need to be considered as a set as well as being integrated with other applicable research. These studies show strong support for the usefulness of applying an attributional analysis to job performance. However, they are primarily laboratory simulations where the subjects are college or MBA students; the exceptions are field studies by Mitchell and colleagues--in which experienced supervisors evaluate critical incidents (Mitchell & Kolb, 1982) or researcher supplied scenarios (Mitchell & Wood, 1980)--or self-evaluations by college students of their part-time work (Porac, Nottenburg, & Eggert, 1981). Thus many of these studies lack the credence of field studies of real job performance where the subjects are the workers and their actual supervisors.

Understanding of real life attributions and management decisions would be enhanced by an attributional analysis of the long-term performance of a real sales force. It is only in the converging of results from tightly controlled laboratory studies and the less controlled but more realistic field setting that we can hope to establish generalizability (Fiske, 1971; Campbell & Fiske, 1959).

Causal Factors in the Model

Although there are many specific causes of events (attributions) which may be cited by people from different cultures and for different kinds of achievement outcomes (Bar-Tal, Goldberg, & Knaani, in press; Elig & Frieze, 1975; Triandis, 1972), there appears to be a rather small list from which the main causes of achievement events are repeatedly selected (Weiner, 1979). Within this list ability and effort appear to be the most salient and general of causes (Weiner, 1979); however, mood, luck, health, fatigue, interests, task difficulty, and help-hurt from other people are also potentially important causes (Elig & Frieze, 1975, 1979). As Elig and Frieze (1975, 1979) point out, one of the most important first steps in applying attributional

Table 2
 Summary of Major Research Applying Attribution Theory in a Business or Management Context

Study and Setting	Relevant Manipulations and Measurements	Findings
S E L F A T T R I B U T I O N		
<p>PORAC, MOTTENBURG, & EGGERT (1981)</p> <p>College students who worked part time on the college newspaper were surveyed about their work on the newspaper.</p>	<p>Antecedents: Respondents were asked to think in general terms about occasions when they did their job as well as it could have been done and occasions when they had done their job poorly.</p> <p>Attributions: They were asked to indicate the extent that four possible causes (ability, effort, task difficulty, and luck) were responsible for their successes and separately their failures.</p> <p>Consequences: The Growth Satisfaction subscale of Hackman and Oldham's (1974) Job Diagnostic Survey was used as an affect measure.</p>	<p>Data provided mixed support for the hypothesis that internal attributions magnify performance affect (Weiner, 1972).</p> <p>For successes, attributions to both effort and luck were positively correlated with growth satisfaction.</p> <p>For failures, growth satisfaction was positively correlated with attributions to task difficulty and negatively correlated with attributions to effort.</p>
<p>SOULIER, DECOSTER, & MITCHELL (cited in MITCHELL, 1981)</p> <p>Accounting students participated as subjects and made attributions for their work on a set of financial decisions.</p>	<p>Antecedents: Over 2 trial subjects received feedback indicating performance compared to a normative model: success-success, failure-failure, success-failure, failure-success.</p> <p>Attributions: At each trial, subjects rated degree to which performance was attributable to (a) decision-making ability, (b) intrinsic motivation, (c) task difficulty, and (d) luck.</p> <p>Consequences: N/A</p>	<p>Success followed by failure: ability attributions decreased from success to failure.</p> <p>Failure followed by success: ability and effort attributions increased from failure to success.</p> <p>On first trial: Success compared to failure is more attributed to ability and motivation, and is less attributed to task.</p>

Table 2 (continued)

Study and Setting	Relevant Manipulations and Measurements	Findings
<p>SHIELDS, BIRNBERG, & FRIEZE (1981), Study 1</p> <p>Students participated in the study in their last semester of an evening MBA program. In a repeated measure design the students responded to eight case histories of a manufacturer of durable goods.</p>	<p>Antecedents: Cases varied in 3 ways: (a) role--superior or subordinate; (b) quality of performance--high or low; and (c) quantity of front-line supervisors of production marks; the superior was a production supervisor who was the front-line supervisor's superior. In the subordinate role, self-assessments were elicited; in the superior role, other-assessments were elicited for a subordinate's performance.</p> <p>Attributions: Open ended questions were asked about (a) what other information was needed to assess the cause(s) of the performance and (b) why they thought (self/other) performed in this way.</p> <p>Emergent classification was used for the information categories (see Glaser & Strauss, 1967). Preliminary attributions were coded for category and dimension based on the scheme developed by Eliq & Frieze (1975).</p> <p>Consequences: N/A</p>	<p>Information seeking: Marginal support (Spearman's rank correlation of 0.71, $p=.07$) was found for similarity of superior and subordinates information seeking. Of the classifiable information requests, 36% were for task information, 23% were about the worker, and 22% were about the subordinate whose performance is to be attributed.</p> <p>Self-Other Attributions: Inter-role Spearman rank correlation for total frequencies of attribution categories was 0.85 ($p<.001$) indicating no difference in attribution categories used in supervisor and subordinate roles. However, dimensional ratings of the attributions did show that when subjects role played a superior compared to a subordinate, attributions for the subordinate were more internal and stable.</p> <p>Ambiguity of performance indicators: Data combined over roles indicate that when quantity and quality indicators are consistent, attributions are more internal and stable than when quantity and quality are divergent.</p>
<p>SHIELDS, BIRNBERG, & FRIEZE (1981), Study 2</p> <p>Students participated in the study in their last semester of a day MBA program. In a repeated measure design the students responded to sixteen case histories.</p>	<p>Antecedents: Cases varied in three ways: (a) role--as above; (b) quality of performance--as above; and (c) quantity of performance--4 levels rather than 2.</p> <p>Attributions: Ten causal attributions were rated in each case for the subordinates performance: task, subordinate's effort, subordinate's leadership ability, subordinate's decision making ability, subordinate's intrinsic motivation, extrinsic motives, subordinate-worker cooperation, workers' effort, workers' ability, and validity of the production measurement process.</p> <p>Linear dimensional combinations were formed in accordance with Eliq & Frieze (1975).</p> <p>Consequences: N/A</p>	<p>Self-Other Attributions: Superiors made more internal attributions than did subordinates; subordinates made more external attributions than did superiors. In contrast to Study 1, no difference was found in superior and subordinate attributions to stable and unstable attributions.</p> <p>Performance outcome: As performance increased, attributions to the subordinate's job skills increased; conversely, poor performance was related to the task and extrinsic motivators.</p> <p>Ambiguity of performance indicators: In contrast to Study 1, ambiguity of quantity and quality indicators were not significantly related to attribution dimensions.</p>

Table 2 (continued)

Study and Setting	Relevant Manipulations and Measurements	Findings
A T T R I B U T I O N S B Y S U P E R V I S O R S		
<p>MARGRETT (1981)</p> <p>College students made employment decisions analogous to those of a manager in a machinery parts factory. They observed and made causal attributions regarding a prospective employee's performance.</p>	<p>Antecedents: Success/failure in a quality-control task supposedly given prospective employees as an employment test was manipulated by correct identification of 8/30 or 22/30 faulty items. Prospective employee's performance presented by slides and tape recordings.</p> <p>Attributions: Subjects rated four attributions (ability, effort, task difficulty, and luck) on a percentage scale. Ability and effort were summed for a global measure of internality.</p> <p>Consequences: Subjects assessed potential of prospective employees on three dimensions: a) likelihood of hiring, b) likelihood of paying a bonus, and c) likelihood of being placed as a supervisor.</p>	<p>Performance outcome: Success compared to failure was attributed more internally (to both ability and effort) and less to task difficulty/ease.</p> <p>Behavioral measures were magnified by internality. For success: hiring and supervisory-placement likelihoods increased with internal attributions and decreased with task attributions. For failure: hiring, bonus, and supervisory-placement likelihoods decreased with internal attributions and increased with task attributions.</p>
<p>HEILMAN & GUZZO (1978)</p> <p>MBA students in a simulation made supervisory decision for 4 employees who were succeeding after 1 year in beginning management positions.</p>	<p>Antecedents: (Success only).</p> <p>Attributions: One of 4 attributions supplied for each "employee": ability, effort (hard-working), task easiness, luck (right place at right time).</p> <p>Consequences: Raise in pay and promotion (with pay raise) were rated for appropriateness; top-management potential was rated from very high to very low.</p>	<p>Mean appropriateness ratings: ordered attribution conditions</p> <p>Pay Raise: Ability, effort > luck, task ease</p> <p>Promotion: Ability > effort > luck, task ease</p> <p>Potential: Ability > effort, luck, task ease</p>

Table 2 (continued)

Study and Setting	Relevant Manipulations and Measurements	Findings
<p>ILGIN & KNOWLTON (1980)</p> <p>College students made supervisory ratings for other college students' performance on a questionnaire coding task. Target was one of 3 confederates; the other 2 confederates provided a base rate (average) for all variables.</p>	<p>Antecedents: High and low performance of target was defined by comparison to the other two confederates.</p> <p>Attributions: Ability of target manipulated by scores on Wonderlic Personnel test. Effort manipulated by confederate's number of breaks in work and behavioral cues (enthusiasm, concentration, work rate, etc).</p> <p>Four groups: a) high ability, average effort; b) low ability, average effort; c) average ability, high effort; and d) average ability, low effort.</p> <p>Consequences: Subjects first made confidential performance evaluations and then were asked to prepare performance feedback reports to be given to the performers. Evaluations and reports consisted of a) a six item performance measure; b) recommendations for actions to improve skills and to improve effort; and c) choice of two summary statement which either emphasized effort or just gave encouragement.</p>	<p>Performance evaluations: As expected, evaluations of low performers were higher when prepared as feedback than when the rater was not aware of need to give feedback.</p> <p>Performance evaluations were also magnified by attributions to effort rather than ability.</p> <p>Motivation oriented feedback: As expected, motivation feedback was greater for ability-attributed success than for effort-attributed success and greater for effort-attributed failure than ability-attributed failure.</p> <p>Skill oriented feedback (contrary to expectations) was not significantly effected by interaction of attribution and outcome.</p> <p>(Failing performers were told to both work hard and acquire skills more than succeeding performers).</p> <p>General orientation: "Encouragement" and "increase effort" were equal for success and failure attributable to ability. Success attributed to effort was encouraged while failures attributed to effort were told to work harder.</p>

Table 2 (continued)

Study and Setting	Relevant Manipulations and Measurements	Findings
<p>ILGIM, MITCHELL, AND FREDERICKSON (1981)</p> <p>College students were recruited from upper-level management courses by a monetary incentive (\$5 per hour). These subjects--acting as supervisors--scored and reacted to work samples ostensibly taken from three subordinates. (Note: Intro-psychology students participated in a separate phase of the study as subordinates. No attributional data were collected from "subordinates" and this phase of the research is not summarized in this Table).</p>	<p>Antecedents: High and low performance were manipulated in clerical work samples given supervisors. Interdependence of superiors and subordinates was manipulated by either (a) \$10 bonus going to individual subordinates who performed in top 10% of all workers or (b) \$10 bonus paid to supervisor and each subordinate if the 3 person group performed in top 10% of all groups participating in study.</p> <p>Attributions: Supervisors provided comparative ratings by attributing to each subordinate more, as much, or less: ability, effort, and difficulty with task. Causal attribution to luck and chance was also asked of supervisors.</p> <p>Consequences: Supervisors were asked about their (a) attitudes toward each subordinate (pleasantness of--and willingness to--supervise subordinate in future) and (b) job actions (give training, watch closely, pay bonus, and raise pay scale).</p>	<p>Performance impacted all measures as expected (e.g. high performer rated higher on ability and effort and lower on task difficulty and luck).</p> <p>Impact of attributions on consequences were not reported.</p> <p>Interdependence of pay lead to marginal effects of low performance subordinates being rated higher in ability, quality of work, need for training, being paid bonus rather than being docked, and supervisor willingness to work with--when compared to low performance subordinates not interdependent.</p>
<p>KNOWLTON & MITCHELL (1980)</p> <p>College students made supervisory ratings for other college students' performance on a questionnaire coding task. Target was one of three confederates; the other two confederates provided a base rate (average) for all variables.</p>	<p>Antecedents: High and low performance of target was manipulated in both quantity and quality by comparison to the other two workers (confederates).</p> <p>Attributions: Ability of target was manipulated by scores on Mondrlic Personnel Test. Effort was manipulated by confederates' number of work breaks and behavioral cues (enthusiasm, concentration, work rate, etc). Supervisor perceptions of confederate's effort and ability were also measured.</p> <p>Four groups (nested in success/failure): (a) high ability, average effort; (b) low ability, average effort; (c) average ability, high effort; (d) average ability, low effort.</p> <p>Consequences: Confederates were evaluated by subject on six 7-point Likert scales: (a) quality of work, (b) quantity of work, (c) job knowledge, (d) working relationships, (e) job attitude, and (f) evaluation of job performance.</p>	<p>Manipulation checks showed that ability manipulations consistent with performance were accepted. But when manipulated ability differed from outcome, the supervisor's perception of ability matched the performance, not the manipulation. Effort perceptions matched the manipulation in all groups.</p> <p>Effort magnified performance evaluations compared to ability conditions. Actual performance had the biggest impact on performance evaluations; however, high performance was rated higher when effort was high than when ability was high and low performance was rated lower when effort was low than when ability was low.</p>

Table 2 (continued)

Study and Setting	Relevant Manipulations and Measurements	Findings
<p>MITCHELL & KALB (1982), Study 1</p> <p>College students were recruited by ads for paid (\$5 per hour) part time clerical work. At the session they were told they were taking part in a feasibility study for a proofreading service and would work as both proofreaders and supervisors. As supervisors they made attributions for failing working performance and recommendations for correction.</p>	<p>Antecedents: Half of the subjects were randomly assigned to supervisory positions then work positions; the other half gained 1 hour work experience before being supervisors.</p> <p>Attributions: Four attributions were rated as causes of the poor performance: effort (didn't try hard, didn't concentrate); ability (poor spelling or grammar skills); task difficulty (complexity of materials); and work environment (radio playing and taped office noises--typewriters, etc).</p> <p>Consequences: Five items measured the supervisors recommendations for (a) more training for failing proofreader, b) hire people with more ability than failing proofreader, c) should work be done in different environment, d) should proofreaders work on easier material, and e) should failing proofreaders pay be decreased from \$1.00 to \$1.</p>	<p>Experience had no effect on attributions to effort, ability, or task difficulty.</p> <p>Experienced supervisors saw working conditions as significantly more responsible than did nonexperienced supervisors.</p> <p>No differences were found in recommendations to train failing proofreaders or to hire people with more ability.</p> <p>Experienced supervisors recommended a different work environment while nonexperienced supervisors recommended simpler task materials.</p>
<p>MITCHELL & KALB (1982), Study 2</p> <p>Reanalyzed field data from bank managers (Liden, 1981) and two samples of nursing supervisors (Mitchell & Wood, 1988).</p>	<p>Antecedents: Time in current position.</p> <p>Attributions: General external attributions for poor performance incidents.</p> <p>Consequences: N/A</p>	<p>Time in position correlated .18 (N=63), .19 (N=88) and -.15 (N=243) with general external attributions.</p>
<p>MITCHELL & KALB (1982), Study 3</p> <p>Junior Army officers were interviewed about one (or sometimes 2) critical incidents of poor performance in subordinate.</p>	<p>Antecedents: Experience in type of job subordinate was doing; self-report scale from 1 (no experience) to 4 (lots of experience).</p> <p>Attributions: "To what extent do you believe that external factors such as a tough assignment, not enough support, were the cause of the problem?" Scaled from 1 (not likely) to 5 (extremely likely).</p> <p>Consequences: N/A</p>	<p>Job experience and external attribution correlated .44 (N=32).</p>

Table 2 (continued)

Study and Setting	Relevant Manipulations and Measurements	Findings
<p>MITCHELL & MOOD (1980), Study 1</p> <p>Nursing supervisors reviewed case histories of poor performance of nurses on a hospital ward. (Cases were generated for protocols from a presample of directors of nursing).</p>	<p>Antecedents: Case histories manipulated severity of outcome (e.g., mild discomfort or cardiac arrest) and work history (good, bad, or not available). The good work history showed high distinctiveness, low consistency, and high consensus; the nurse's performance was good on other tasks and at other times for the same task while other nurses were presented as having difficulty on the task. The poor work history showed low distinctiveness, high consistency, and low consensus; the nurse's performance was poor on other tasks and on this task in the past while other nurses were presented as seldom making this error.</p> <p>Attributions: Supervisors rated 8 attributions on 7-pt scales: very likely cause (7) to very unlikely cause (1). Four internal attributions (e.g., effort) were summed for an internal composite while four external attributions (e.g., nurse worked on busy ward without support staff) were summed for an external composite. Two summary questions were also asked for the (a) nurse's personal characteristics and the (b) situation as causes of the behavior.</p> <p>Consequences: Ten supervisory responses were rated for appropriateness. Responses included severe (e.g., immediate termination) and mild (e.g., provide counseling) actions directed at nurse. Other responses were directed at improving the ward or taking no action.</p>	<p>Work history and severity of outcome had additive effects (no interactions) with work history being much more powerful in explaining variance.</p> <p>Poor work history and a severe outcome produced more internal attributions than did good work history and nonserious outcome.</p> <p>Poor work history and a severe outcome resulted in actions directed at the nurse being seen as more appropriate than did good work history and nonserious outcome.</p> <p>Location of attribution was of course correlated with direction of response (toward nurse or situation).</p>
<p>MITCHELL & MOOD (1980), Study 2</p> <p>As in Study 1</p>	<p>Antecedents: Case histories manipulated severity of outcome (as above). No work history was provided.</p> <p>Attributions: Additional case material provided internal (e.g., effort, attention to detail) or external (e.g., busy ward, no help) attributions.</p> <p>Consequences: As in Study 1.</p>	<p>Actions directed at the nurse were seen as more appropriate for more severe outcomes and for more internally attributed performance--with no interaction effect.</p> <p>Actions directed at the situation were seen as more appropriate for more externally attributed performance--with no effect for severity or interaction.</p>

Table 2 (continued)

Study and Setting	Relevant Manipulations and Measurements	Findings
<p>PENCE, PENDLETON, DOBBINS, & SGR0 (1982)</p> <p>College students in a simulation made supervisory decisions for 4 employees who were failing after 1 year in beginning sales management positions.</p>	<p>Antecedents: N/A</p> <p>Attributions: One of 4 attributions supplied for each "employee": lack of ability, lack of effort (laziness), task difficulty, bad luck.</p> <p>Consequences: Eleven corrective actions rated for appropriateness. Factors analyzed to 4 classes: Punish, move to another job, work with employee, no action.</p>	<p>Mean appropriateness rating: ordered attribution conditions</p> <p>Coercive action: effort > ability > task difficulty > luck</p> <p>Change job: ability > luck > effort, task difficulty</p> <p>Work with: Ability, task difficulty > luck > effort</p> <p>No action: Task difficulty > luck > ability > effort</p>
<p>TUCKER & ROME (1979)</p> <p>College students read applicant files for a research associate position (master's level) at a university. Based on these files subjects rated the applicants and made hiring recommendations.</p>	<p>Antecedents: Three letters of reference were used to create either a favorable, an unfavorable, or a neutral expectancy before reading the interview transcripts. A series of 18 transcripts--in dialogue form and arranged in the logical progression of an interview--dealt with single educational or work-related outcomes in the applicants' past. Positive outcomes were presented in transcripts 1, 3, 4, 6, and 9 with failure outcomes presented in the remaining transcripts.</p> <p>Attributions: After each transcript, the subjects rated 6 attributions for the outcome on a percentage scale. Attributions rated were: ability, effort, luck, task difficulty, influence of other people, and something about the applicants' personality. A summary score was computed for internal attributions.</p> <p>Consequences: After the 18th transcript, subjects also were asked if they would hire or reject the applicant and their confidence in this decision.</p>	<p>Success conditions: After favorable and neutral letters compared to the unfavorable letter, success was attributed more internally.</p> <p>Failure conditions: After favorable letters compared to unfavorable letters, failure was attributed less internally.</p> <p>Decision to hire or reject by letter condition:</p> <p>Favorable letter: 12/24 recommended rejection</p> <p>Neutral letter: 15/24 recommended rejection</p> <p>Unfavorable letter: 24/24 recommended rejection</p> <p>Decision to hire was positively correlated with internal ascription of successes and external ascription of failures.</p>

Table 2 (continued)

Study and Setting	Relevant Manipulations and Measurements	Findings
<p>VALLE & FRIEZE (1976). Study 1</p> <p>MBA students in an evening degree program participated in the study during a behavioral science class. The subjects were asked to imagine they were the manager of a life insurance agency. In a two phase study, they first made a hiring decision on an applicant and then based on information that this applicant was hired and has succeeded, they evaluated the first 3 months of performance.</p>	<p>Antecedents: Applicant sex and competence (high, medium, low) were manipulated in an interview summary.</p> <p>Subjects were asked if they would hire the applicant and how many sales they would expect the applicant to make in the first 3 months (given a base rate for an average employee of 15).</p> <p>Subjects were told that the applicant was hired and made 20 sales in the first 3 months, well above the average employee.</p> <p>Attributions: An open-ended question was asked about why the subjects thought the employee had performed so well.</p> <p>The subjects then rated the importance of various factors (general sales ability, consistent effort, unusually high effort during the first three months, the good area in which he (she) was working, good luck, good personality, knowledge of life insurance, appearance, and the season) in determining the number of sales made by the employee.</p> <p>Consequences: Subjects were then asked to estimate the number of sales that would be made by this employee during the next 3 months and whether they would consider this employee for a promotion.</p>	<p>Competence was related to the stability of attributions for successful performance. High- and moderate-competency applicants' success was more attributed to stable effort and personality and less to luck and the season than were low-competency applicants' successes.</p> <p>Tendency to hire and original sales estimate were also related to the stability of attributions for success. Positive correlations were found with stable effort, personality, and employee knowledge; negative correlations were found for area and luck.</p> <p>Predicted future performance was positively correlated with stable attributions (ability, stable effort, personality, knowledge, and appearance) and negatively correlated with unstable attributions of luck and the season.</p> <p>Tendency to promote was positively correlated with stable attributions (ability, stable effort, knowledge, and appearance) and negatively correlated with area and luck.</p> <p>Maximal changes in expectancies after successful performance occurred when performance was somewhat better than predicted but not extremely better.</p>

Table 2 (continued)

Study and Setting	Relevant Manipulations and Measurements	Findings
<p>VALLE & FRIEZE (1976), Study 2</p> <p>As in Study 1.</p>	<p>Antecedents: As in Study 1, except that only medium and low competence applicants were used.</p> <p>Attributions: Each of six attributions were given to the subject to consider as cause of the successful performance; each attribution was to be considered as if it was made for a separate employee by his (or her) supervisor. These causes were: (a) natural sales ability, (b) the hard work and extra effort this employee always displays, (c) the extra effort displayed due to a motivation to do well on a new job, (d) an easy sales area where most employees do well, (e) pure luck, happening to be in the right place at the right time, and (f) sales to friends and relatives trying to be of assistance.</p> <p>Consequences: As in Study 1 for each cause as if it were a new person.</p>	<p>Predicted future performance was positively related to stable factors of ability, stable effort, or the task and negatively related to unstable effort, luck, or influence of friends.</p> <p>Tendency to promote was higher when the attribution was to ability, stable effort, or unstable effort and lower for attributions to luck or friends.</p> <p>Dimensional summaries: Predicted sales was related to both location and stability of attributions, but more to stability. Promotion was related to both location and stability of attributions, but more to location.</p>

Table 2 (continued)

Study and Setting	Relevant Manipulations and Measurements	Findings
<p>WOOD & MITCHELL (1981), Study 1</p> <p>Nursing supervisors reviewed four case histories of poor performance of nurses on a hospital ward. (Cases were generated from a presample of directors of nursing).</p>	<p>Antecedents: Each performance incident was attributed by the nurse to her lack of effort. This primary, or most immediate, cause was accompanied in a 2 x 2 design by (a) an excuse and an apology, (b) an excuse, (c) an apology, or (d) neither an excuse nor an apology. The excuse was an account of the incident that added external causes for the incident (a busy night and an aide who went home sick).</p> <p>Attributions: A single attribution question was asked of the supervisor-subjects: "to what extent do you feel that (nurse's name) was responsible for the performance described in the incident?", and was anchored by "not at all" and "to a great extent."</p> <p>Consequences: Expectancy for future poor performance was asked. Ten disciplinary actions were also rated for appropriateness: (a) no action, (b) further monitor the situation, (c) provide in-service training, (d) counsel on work standards, (e) reschedule work load, (f) provide additional staff, (g) arrange support from other staff, (h) reprimand orally, (i) reprimand in writing, and (j) terminate. Summary questions were then asked about directing actions toward the nurse and level of close supervision in future.</p>	<p>Discounting of responsibility: External accounts (excuses) resulted in a lower internal attribution by supervisors than did internal accounts. As expected, apologies did not influence supervisory attributions.</p> <p>Expectancies: External accounts lead to lower expectations of future failure than did internal accounts. Apologies with an implied promise of doing better in the future also lowered expectations of future failure.</p> <p>Disciplinary actions: The summary question for directing a response at the nurse and not the environment was significantly lower both for an apology ($M = .12$) and an external account ($M = .07$). Effects of apology and external accounts were found for specific and composite disciplinary actions directed at the nurse as well as the appropriateness of future close supervision.</p> <p>Attribution of responsibility by supervisor to nurse correlated .51 with appropriateness of directing disciplinary action toward nurse.</p>

Table 2 (continued)

Study and Setting	Relevant Manipulations and Measurements	Findings
<p>MOOD & MITCHELL (1981), Study 2</p> <p>As in Study 1, except that a between subject design was employed and the accounts and apologies were presented by videotape rather than in writing.</p>	<p>Antecedents: As in Study 1, except seriousness of outcome was manipulated. Seriousness of outcome was not discussed in results, since it had no significant effects.</p> <p>Attributions: As in Study 1.</p> <p>Consequences: As in Study 1.</p>	<p>Discounting of responsibility: As in Study 1.</p> <p>Expectancies: No main effect of apologies was found. Main effect of accounts was in opposite direction to Study 1: here, external accounts resulted in an increase, rather than a decrease, in subjects' expectations of future failure.</p> <p>Disciplinary actions: As in Study 1, except: External account did not reach significance for the summary question or directing action at the nurse, though it did lead to less punitive action (on composite measure) and less perceived need for close supervision. An apology did not effect significantly the composite of punitive responses nor the need for closer supervision, though it did significantly reduce action directed at the nurse in the summary question.</p> <p>Attribution of responsibility by supervisor to nurse correlated .21 with appropriateness of directing disciplinary action toward nurse.</p>

analysis to a new area is a systematic empirical determination of the important causes unique to that area. It is unfortunate that more of the job performance studies (see Table 2) have not gone beyond the original four causal factors (the exceptions are: Shields, Birnberg, & Frieze, 1981; Mitchell & Wood, 1980; Mitchell & Kalb, 1982; Tucker & Rowe, 1979; Valle & Frieze, 1976).

Tucker and Rowe (1979) considered two causes, the influence of other people and the person's personality, in addition to the four basic causes. Mitchell and his colleagues have used unipolar scales of either both internal and external causes (Mitchell & Wood, 1980) or just of external causality (Mitchell & Kalb, 1982).

Only Shields, Birnberg, and Frieze (1981) have reported results of the critical first step of systematic empirical determination of important causes in a new area. In this study the coding scheme developed by Elig and Frieze (1975) was used to categorize open-response attributions for production performance.

In the most relevant of the work performance studies, Valle and Frieze (1976) found the following attributions useful in a study of life insurance sales performance: (a) natural sales ability, (b) the hard work and extra effort this employee always displays, (c) the extra effort displayed due to a motivation to do well on a new job, (d) an easy sales area where most employees do well, (e) pure luck, happening to be in the right place at the right time, (f) sales to friends and relatives trying to be of assistance, (g) good personality, (h) knowledge of life insurance, (i) appearance, and (j) the season. While sales to the recruiter's friends and relatives cannot be expected to be a major influence on success in selling military service contracts, the other causes relevant to life insurance sales are also likely to be relevant to recruiter performance.

Dimensions of Causality

The contributions of an attributional analysis go beyond a mere cataloging of causes which are known to lay individuals and which constitute a naive psychology of action (see Heider, 1958; Weiner, 1979). It currently appears that the various perceived causes of success and failure in numerous situations may be most usefully grouped along three dimensions (Elig & Frieze, 1975; Frieze, Bar-Tal, & Carroll, 1979; Weiner, 1979). As we shall see, these dimensions are not merely a heuristic device for classification; they appear to mediate important motivational consequences of performance.

Weiner et al. (1971) proposed that the four causal factors of ability, effort, task difficulty, and luck could be located on two separate orthogonal dimensions: locus of control and stability. Following Rotter's (1966) distinctions between internal and external control, ability and effort are seen as being causes internal to the actor, while luck and task difficulty are seen as environmental factors that are external to the person.

The second dimension of causality is labeled stability. The stability dimension defines causes between limits of stable (invariant) and unstable

(variant). Ability and one's usual level of effort would be considered relatively stable while effort in a specific situation, mood, and luck are typically considered more variable. It must be recognized that the perceived properties (e.g., stability) of a cause may vary in naive psychology. First, for example, there are idiosyncratic variations. Some people do consider luck as a stable entity, as in "she's a lucky person" or "those are my lucky dice". Second, stability may be judged from varying perspectives of time and domain (Elig & Frieze, 1975). Difficulty of a sales territory is stable over time for the same territory but is temporally unstable for predicting a salesperson's outcome in a new territory and is unstable for predicting success as a manager of salespersons since the performance domain is different (Valle & Frieze, 1976). Stability must also be judged on whether the cause is global to many tasks or is task specific and whether it is variant in a specified time frame (Elig & Frieze, 1975; Abramson, Seligman, & Teasdale, 1978).

The original 2-dimensional Weiner model was further elaborated by Rosenbaum (1972). This elaboration has influenced the introduction of the model into the behavioral management literature (see Mitchell, Green, and Wood, 1981). Rosenbaum proposed that a third orthogonal causal dimension, intentionality, be added to stability and locus of control. This dimension discriminates between causes that are under control of an individual (intentional), and those factors which an individual does not control (unintentional). Thus, further clarification was brought to distinctions that can be made between various causal factors. For example, both effort and mood are internal unstable factors, but they have different implications as causal factors. An individual is able to regulate his/her effort but the individual's mood is not under her/his control as perceived by everyday people.

Weiner (1979) retermed this dimension as a control dimension. Labeling this dimension as intent would imply that when there is a lack of effort there is an intent to fail. Weiner (1979) clarifies the distinction between two intuitively different causes, effort and mood, by saying that they differ not in desire or want but in the degree to which they are subject to volitional control. The major issue in this reterming is that it properly returns the focus to the attribution (cause) as an entity separate from the outcome (effect). To classify a cause on the control dimension a judge must focus on the degree of control individuals have over the cause, while a classification on a dimension of intentionality often leads a judge to ponder if the outcome was intended or not.

In Table 3 we see how the causal dimensions can be used to classify eight possible causes of a recruiter's performance over an extended period of time. Of course, not all questions have been answered about such classifications of causes. In the three dimensional classification presented here, the external cause of mission assignment is presented as controllable. But does an external controllable cause have the same meaning as an internal controllable one? At present there is little evidence on this subject.

A model of three orthogonal dimensions is an elegant heuristic device for the Weiner model. It is, of course, an empirical question whether this model adequately explains and/or predicts data.

Table 3

A Three-Dimensional Representation of the Perceived Causes of Recruiting Performance

	Internal	External
Stable		
Controllable	Usual efforts to get job done	Paperwork and administrative burden
Uncontrollable	Natural sales ability	Number and quality of young people
Unstable		
Controllable	Unusual efforts to get the job done	Mission assignment (for the month)
Uncontrollable	Being ill or particularly healthy	Luck

Empirical Studies of Dimensions

The dimensions of causality have been described as independent orthogonal dimensions through logical analyses. A number of investigators have also employed various empirical techniques to discover the dimensions of causality: (a) multidimensional scaling (e.g., Passer, 1978), (b) factor analysis (e.g., Meyer, 1980), and (c) dimensional ratings by naive judges (e.g., Wiley, Crittenden, & Birg, 1979; Russell, 1982).

Passer (1978) asked students to rate the similarity among various causes for success and for failure in an academic situation. Using multidimensional scaling, he found clear dimensions of location and intent (or control) but found no evidence for a dimension of stability. Also using a multidimensional scaling procedure, Michela et al. (1982) analyzed 13 causes of loneliness. In their work two clear dimensions--location and stability--emerged and evidence was found for a control dimension among the internal causes.

In a multidimensional scaling of the causes of negative interpersonal behavior in a marriage, Passer, Kelley, and Michela (1978) found that for people induced to take the perspective of the perpetrator of an offense against his or her spouse, there emerged the dimensions of positive versus negative attitude toward the partner and intentional versus unintentional. For people induced to take the perspective of the slighted partner, the same first dimension (positive vs. negative attitude) was followed by that of actor's traits versus circumstances or states. Thus Passer et al. find in one study an intentionality dimension and in another study an internal-stable versus external or unstable dimension. The positive versus negative impact dimension has also been found by Wimer and Kelley (1982).

Meyer (1980) factor analyzed subjects' attribution ratings of nine possible causes of success and failure outcomes. The factor analysis of these ratings yielded the three dimensions suggested in Table 3. In a similar study, Meyer & Koelbl (1982) factor analyzed attributions made by high school students for performance on an exam in their French course. Principal components analysis with Procrustes rotation found that a substantial portion of the variance in students' attributions can be accounted for by factors resembling Weiner's theoretical dimensions. Two problems emerged in this study, however. The first problem--also found by Meyer (1980)--is that some loadings were inconsistent with traditional categories. Most notably, test difficulty loaded in the unstable direction, luck loaded in the internal direction, and ability had a near zero loading on the location factor. An other problem was the presence of a fourth factor which seemed to contrast two divergent explanations of failure: mood and anxiety vs task difficulty and luck.

These studies offer promising results for the dimensional analysis of attributions as in Table 3, through it appears that which dimensions emerge depends in part on the empirical procedure that is used. Multidimensional scaling is based on similarity ratings of causes made by subjects while the factor analytic approach is based on similarity in the use of causal attributions by subjects. Each approach depends on the researcher's interpretation of the statistically defined dimensions; these interpretations are not always clearcut. For example, the anomalous findings by Meyer (1980; Meyer & Koelbl, 1982) could require more flexibility in the theoretical definition of the dimensions. Though inconsistent with the traditional categorization (e.g., Weiner, 1972), it is reasonable (a) that test difficulty could be perceived as changeable (unstable) from test to test (see Valle & Frieze, 1976; Frieze, 1976), (b) that luck can be seen as an attribute of the person, and (c) that ability is judged as mediate--as in "I have the ability for this test" (see Elig & Frieze, 1975). These anomalous results, however, could also be methodological: Meyer factor analyzes causal attributions which need not covary only by dimensional properties.

There are sound reasons for expecting that certain attributions differing on one or more dimensions, may covary in use. For example, task difficulty may covary with unusual effort expenditures. Factor analysis techniques applied to causal attributions may find this type of causal chain factor and on the basis of this association force dimensionality equivalency on disparate causal elements (see Elig & Frieze, 1975, 1979). Elig and Frieze (1979) reported two "achievement factors" in their factor analysis of causes for performance on an anagrams task. One factor consisted of interest in the task, motivation to do the task, and effort on the task; a stable achievement factor consisted of motivation to do things well and stable effort as well as ability.

The empirical base for causal dimensions is strengthened by evidence from more phenomenological studies showing that naive-psychologists a la Heider (1958) are able to systematically rate the dimensional qualities of causes, and that the dimensions are not just in the mind of professional psychologists. The strongest evidence for reliable and valid measures of causal dimensions is provided by Russell (1982). Two studies reported by Russell (1982) describe the development of a measure designed to assess how the attributor perceives the underlying dimensionality of the causes he or

she has stated for an event. His Causal Dimension Scale assesses the three causal dimensions described by Weiner -locus of causality, stability, and controllability. Each of these three subscales (each composed of three 9-point scales) were found to be reliable and to have discriminant validity. A three-mode factor analysis confirmed the three-dimensional structure of the Scale.

Wimer and Kelley (1982) also had subjects rate dimensional aspects of causal attributions--in one study the rater made the attribution while in a second study the researchers supplied an attribution. Wimer and Kelley had subjects rate attributions for 12 different situations; each attribution was rated on 44 different scales. The researchers found evidence for the three dimensions in factor analyses of the scales, though they also raised some questions. The internal-external dicotomy was found in separate factors of The Person and Other People. Wimer and Kelley interpreted The Person factor to be psychological internality, not literal internality since the rating scale for the attribution being "in the person's body" had no loading on The Person factor. Stability--or temporal properties--of attributions were divided between factors of Enduring Vs. Transient and Unchangeable vs. Changeable. The former was loaded by scales measuring the persistence of the cause affecting the person while the latter reflects the more traditional aspects of the cause changing over time. A single Motivation factor was found to be loaded by both intentionality and control-lability scales. Wimer and Kelley's findings on the dimensional placements of the traditional four causes are consistent with Weiner (1974) with the exception that task difficulty was found to have as transient an effect on the person as luck. As with previous findings, effort can be either stable or unstable (see Weiner, 1974).

Bar-Tal, Goldberg, and Knaani (in press) had subjects rate 24 causes on stability, location, and personal control. They also found that task (test) difficulty was unstable and that the stability of effort is uncertain.

Studies have not always reported good discrimination of dimensions. Using a somewhat different procedure Wiley et al. (1979) had a group of subjects indicate the degree to which each of eleven possible causes of professional journal review outcomes are "internal to the author of the paper", "stable over time", and the degree to which the author is "in control". The judges' ratings were highly correlated and showed a clear cluster of variable, external causes beyond the author's control: chance factors, editorial judgment, availability of journal space, and editors' choice of reviewers. There was also a high degree of correspondence among causal factors placed at the other end of the pole from this cluster (e.g., "presentation or style" and "effort expended on this paper" were among a cluster of relatively stable, internal causes under author control). Wiley et al. interpreted their results in terms of generally controllable versus generally uncontrollable causes and hypothesized that this dimension is related to authors' perceptions of predictability. One problem with this study is that the controllability measure is nested in internal attributions--i.e., they only measured author's control and measured no type of external control. Russell (1982) reported similar problems with controllability measures that were explicitly measuring personal or others' control. Further research is needed to determine if these results are peculiar to particular outcomes, causes, controllability measures, or perhaps to the methodology employed.

Prospectus and Hypothesis

The evidence is growing that the perceived similarities of causes can be interpreted as the three dimensions in Table 3 (Passer, 1978; Michela et al., 1982) and that these dimensions may be reproduceable from the correlations of causal attributions (Meyer, 1980; Meyer & Koelbl, 1982). These dimensions can be used reliably and show discriminant validity when used by subjects to rate their causal attribution for an event (Russell, 1982; Wimer & Kelley, 1982; Bar-Tal et al., in press). However, there is also mounting evidence that the dimensional properties of a cause should not be assumed a priori. For example, task (test) difficulty has often been found to be unstable (Meyer, 1980; Meyer & Koelbl, 1982; Wimer & Kelley, 1982; Bar-Tal et al., in press). The other basic Weiner causes (ability, effort, and luck) have also been found in certain studies to differ from the all too often assumed dimensional properties. As pointed out by Weiner (1983) the two or three dimensional models were never meant as fixing dimensional properties of causes for every situation.

A number of studies now include direct dimensional measures rather than just relying on a priori dimensional categories (for example, Arkin, Kolditz, & Kolditz, 1983; Bar-Tal et al., in press; Forsyth & McMillan, 1981; Mitchell & Wood, 1980). These studies relate antecedents and/or consequences of attributions to the subjects ratings of the dimensions rather than to a researcher imposed dimensional interpretation. Studies of this type can provide a firm third leg to anchor the tripod of empirical evidence for dimensional analysis of causes--the other two legs are the interpretability of similarities and the reliable and valid dimensional ratings of causes. (Studies of antecedents and consequences are discussed below).

Care must be taken in interpreting subjects' ratings since certain rating scales may be too highly correlated to show good discriminant validity (Russell, 1982; Wiley et al., 1979). Particular care must be taken when authors do not report the intercorrelations of the ratings. For instance, I found that the mean dimensional ratings reported by Bar-Tal, Goldberg, and Knaani (in press) are significantly correlated--in particular, the personal-control measure they used for controllability is highly correlated (in two samples of Israeli grade-school children, r 's of .69 and .65, $p < .01$, two-tailed) with their stability measure and is moderately correlated with internality (r 's of .49 and .60, $p < .01$, two-tailed)--stability and internality are not significantly intercorrelated (r 's of .33 and .34, $p = .10$, two-tailed).

While there is evidence for a model of independent dimensions, it would be useful to compare a factor analytic approach (such as used by Meyer, 1980) with subject ratings such as those used by Wiley et al. (1979). This approach should be fruitful, particularly in clarifying the control dimension. Research by Wiley et al. (1979) would suggest that personal control is at least highly correlated with internality and may, in fact, be identical to it. Michela et al. would suggest that control is only applicable to internal causes and is not orthogonal to location. My analysis of data from Bar-Tal et al. as well as results from Wiley et al. indicate that personal control may also be correlated with stability.

While research has not directly addressed whether control-by-actor is separable from control-by-others, the Weiner model would suggest that these are convenient labels to talk about control of internal and external causes respectively. Furthermore, the literature on this model could suggest that any differences in consequences of internal and external controllable causes result from interactions of the orthogonal control and location dimensions.

I intend to examine

Hypothesis 1 that: A clear three dimensional structure underlies causal attributions. These dimensions are location (internal-external), stability (stable-unstable), and control (controllable by person or others versus uncontrollable by anyone).

I also intend to examine an alternative

Hypothesis 1a that: The model is two dimensional (location and stability) with subdimensions of control-by-actor and control-by-others nested respectively in internal and external causes.

Judges' dimensional ratings of the location, stability, control-by-actor and control-by-others of potential causes, as well as causal attributions made for continuing job performance, will be examined for this hypothesis. Evidence for the usefulness and construct validity of the dimensions also depends on testing the hypothesized relationships of causal attributions with antecedents and/or consequences. Of course, the construct validity of antecedent and consequence links to attributions also depends on a clear understanding and measurement of the dimensional structure of causal attributions.

Motivational Determinants of Causal Attributions

Of primary importance for understanding the attribution process is the investigation of the variables which affect the type of attribution made. Weiner et al. (1971) described what they believed to be the antecedents of the various types of attributions. Attributions to ability were seen to be a function of the amount of success the performer displayed in the past at that particular task and others like it. The performance of others at the task or the social norms for success at the task were postulated to be the information on which task difficulty attributions are based. The more variable the pattern of successes, the more likely luck will be seen as an important determinant of the outcome. Attributions to effort were seen to be related to incentives and physiological signs such as muscular tension as well as the outcome and patterns of performance. Several studies have been conducted to empirically test these suggested antecedents of the various attributions (Frieze & Weiner, 1971; Fontaine, 1974; Kun & Weiner, 1973).

There are a great variety of information cues a supervisor might attend to and process in forming attributions about poor performance. The theorizing of Kelley (1967, 1972a, 1973) suggests that there are three primary information types which a supervisor might use. Those types are what he terms distinctiveness, consistency, and consensus. For any particular subordinate behavior, the supervisor tries to determine if the behavior was distinctive

in response to a particular entity (task), i.e., did the behavior occur on this task but not on other tasks. Similarly, the supervisor uses information concerning the extent to which the subordinate has behaved this way in other situations or contexts or at other times. That is, how consistent is this action with other actions (consistency)? Finally, the supervisor estimates the extent to which other subordinates also behave the same way; is the behavior unique to this particular person (low consensus) or common to many members (high consensus)? In an analogous manner the subordinate is theorized to analyze his or her own behavior (see Kelley, 1973, for a more complete discussion). It is unlikely that people routinely form an attribution from purely cognitive information processing whether from the cues specified by Weiner or Kelley. For example, people may lack both the time and the motivation to make the multiple observations which are required (Kelley, 1973).

Furthermore, evidence suggests that the attributional process is complicated by issues of multiple causation, actor-observer differences in information processing, and positivity biasing.

In general, the perception of multiple causes results in a discounting effect where the role of any given cause is discounted if other plausible causes are also present (Kelley, 1973; Ajzen and Fishbein, 1978; Fischhoff and Lichtenstein, 1978). Furthermore, if multiple causes are embedded in a schema, the nature of that schema can affect the types of information a person feels he or she has available to him or her. For example, if a person is using a multiple sufficient schema, a number of causes are seen as sufficient to produce an effect, e.g., success at an easy task could be caused by ability or effort. In this case, someone observing success in the presence of effort by the actor is unsure about ability attributions. On the other hand, a multiple necessary schema can be in effect (e.g., both effort and ability are needed for success). Now, someone observing success in the presence of effort feels more certain that ability is also present. Similarly, causal chains complicate the process when attributions drawn from immediate causes may be drastically changed by introducing a contradictory prior cause (Brickman, Ryan, & Wortman, 1975; Elig & Frieze, 1975).

Another complication to the basic attribution model has been characterized as the actor-observer difference (Jones & Nisbett, 1972; Jones, 1979). This phenomenon is essentially represented as the tendency of observers to explain other's behaviors in dispositional terms or as internally caused, whereas actors attribute their own behavior to situational or external factors. One of the most plausible of the possible explanations for this phenomenon (Monson & Snyder, 1977) is that the actor and the observer process different sources of information. This information processing approach argues that the environment is the central focus of the actor, while the actor is the central focus of the observer. More specifically, we, as actors, are aware of and focus on the environment around us. People observing us do not have direct access to our awareness or perceptions. Instead, they focus on what we do. As a result, observers are likely to report that other people's behavior is caused by something about them as persons--internal dispositional characteristics such as effort or ability. This tendency to see internal causes for another's behavior may cause the supervisor to choose inappropriate responses when dealing with poor performance in a subordinate. Also, the actor-observer discrepancy between the leader's explanation for a behavior

and the subordinate's explanation for that same behavior may be a source of conflict.

Self-serving Biases

However, an alternative to a purely information processing model exists. For instance, an actor may seek self-enhancement by taking credit for success and explain away failure as externally caused. That people distort their perceptions of causality to protect their self-esteem has been suggested by many (Hastorf, Schneider, & Polefka, 1970; Heider, 1958; Wolosin, Sherman, & Till, 1973). Thus, when actors attribute failure to external factors and success to internal factors, it is often seen as implying a self-serving bias in attribution (Arkin, Gleason, & Johnston, 1976; Beckman, 1970; Bradley, 1978). The existence of a self-serving bias has intuitive appeal, though several writers have questioned its empirical support (Ajzen & Fishbein, 1975; Kelley 1971; Miller 1978; Miller & Ross, 1975). Zuckerman's (1979) review of the evidence offered by Miller and Ross (1975) indicates, however, that there is sound empirical support for motivated biasing (also see Snyder, Stephan, & Rosenfield, 1976, 1978).

Zuckerman's (1979) review of the literature on this issue of different attributions for success and failure indicated that of 38 studies of individuals working alone or in pairs, 27 (71%) found subjects taking more responsibility for success than for failure, while only two (5.3%) found subjects making more internal attributions for failure than for success. Research on attributions made by members of groups of three or more people also have found that members of successful groups assume more responsibility for the group's performance than members of groups that failed (Forsyth & Schlenker, 1977; Schlenker, Soroci, & McCarthy, 1976; Iso-Ahola, 1977). Zuckerman (1979) concluded that the available evidence suggests that for both individuals and groups, performance outcomes yield self-serving attributions.

A different approach to attributions in this context rests on evidence that people in general are biased toward favorable evaluations (Greenberg, Saxe, & Bar-Tal, 1978).

Positivity Bias

Frieze and Weiner (1971) have suggested that people are biased to attribute behavior with good consequences to internal factors and behavior with bad consequences to external factors. Several studies, in fact, have found this pattern among observer's judgments (Feather & Simon, 1971; Frieze & Weiner, 1971; Froess, 1978; Ruble, 1973). Because the pattern was found for both experienced and observed outcomes, it was seen as a general bias toward positive attributions, rather than as a self-serving bias (see also Taylor & Koivumaki, 1976). It has been argued that a positivity bias is based on attributors' assuming that actors "intend" success; ascription of intent then leads to ascription of responsibility (e.g., Ross, 1977). It has also been argued that such findings may simply reflect a misperception of the nature of contingency (e.g., Miller & Ross, 1975). More specifically, this argument holds that positive instances of co-occurrence of behavior and desired outcome are perceived by subjects as implying personal control (thus yielding

internal attributions), whereas negative instances (i.e., failures) are treated as being relatively uninformative (thus yielding neither stable internal nor stable external attributions; cf. Jenkins & Ward, 1965). Miller and Ross (1975) regard such a tendency as being simply an unmotivated cognitive distortion (see also Brewer, 1977, for discussion of the role of expectancy and perceived contingency in attribution).

Zuckerman counters Miller and Ross' (1975) arguments that (a) people are more likely to attribute expected outcomes to internal factors, and that people expect success; and (b) that people are more likely to perceive covariation between increasing success and their behavior than between constant failure and their behavior. Zuckerman argues that (a) it is unclear that people expect success in the usual psychology experiment (Bradley, 1978; Kanouse & Hanson, 1971); (b) unexpected outcomes may be more attributed to unstable causes than to external ones; and (c) that since experiments based on one outcome show the bias, the bias cannot result in these studies from observing covariation in a series of outcomes. In addition Zuckerman disagrees with the argument that success is more internally attributed than failure because success is intended while failure is not:

Although this explanation may account for success/failure effects on effort and luck attributions, it cannot account for differential ability attributions. Unlike effort, ability is not under intentional control and therefore cannot be considered a more potent cause for intended relative to unintended outcomes (p. 257).

Self-enhancement and Self-protection Components of the Self-serving Bias

Miller and Ross (1975) questioned whether the so called self-serving bias effects reflect enhanced responsibility for success, avoidance of responsibility for failure, or both. They had noted the answer to this question depends upon studies which compare success and failure outcomes to a neutral outcome. They argued that people infer internal causes from the co-occurrences of their behavior with positive events (success) and ignore the co-occurrences of their behavior with negative events. Specifically, "positive instances of the co-occurrence of the response and the desired outcomes (i.e., success) induce perception of self-control. Negative instances (i.e., failure), on the other hand, are less informative and, hence, yield neither stable nor environmental attributions" (Miller & Ross 1975, p. 218).

The essential element of this argument is that "the self-serving bias" only operates for success, not failure, and that the effect is not a bias but only the result of information processing. If we grant that an information processing approach could explain the "self-serving" effect of greater internal ascriptions for success than for failure by way of a seemingly "self-enhancement bias" for success, a "self-protection bias" is ruled out by the information processing approach.

If there is a self-enhancement bias, it would appear to lead to a greater internal ascription for success than for neutral outcomes and a greater internal ascription for neutral outcomes than for failure outcomes. Miller and Ross argue that the same pattern of results can be explained by

information processing and that this effect alone leads to greater internal ascriptions for success than for failure. If there is a self-protection bias, it would appear as greater external ascriptions after failure than after neutral outcomes and greater external ascriptions after neutral outcomes than after success.

Zuckerman reviewed several studies that included a neutral or no-outcome condition and concluded that such studies "are as likely to show differences between attributions under success and under a neutral condition as they are to show differences between attributions under failure and under a neutral condition (Zuckerman, 1979, p. 256)."

Zuckerman bases this conclusion on a review of studies by Fitch (1970) and Larson (1977) in which subjects received no information about their performance outcomes and on studies by Kuiper (1978), Lefcourt et al. (1975), Schlenker and Miller (1977), Schlenker et al. (1976), and Wolosin et al. (1973) in which subjects received information that their performance was average.

Miller and Ross (1975) had questioned whether, even if there are data to support the concept of self-serving attributions, there might be nonmotivational interpretations of these effects. Three studies (Miller, 1976; Sicol & Ross, 1977; Stevens & Jones, 1976) were reviewed by Zuckerman which are not easily interpretable in nonmotivational terms. Zuckerman also offered convincing logical challenges to Miller & Ross's arguments for a nonmotivational interpretation.

The present research should lend itself to testing one of the weakest areas of Zuckerman's argument: that there are both a self-enhancement bias (greater internal attribution of success than of neutral outcome) and a self-protection bias (greater external attribution of failure than of neutral outcome). Zuckerman only reviewed one experiment by Wolosin et al. (1973) and the Schlenker et al. (1976) study as evidence of both biases. Other studies he cited were supportive of only one or the other of the biases. In the present study a full range of performance outcomes should be available to test for both of these biases.

Hypothesis 2: I expect to find a self-serving bias that an actor's attributions are more internal for success than failure. I also expect to find evidence that this effect is a motivated bias that has two components, self-enhancement and self-protection:

Hypothesis 2a: An actor's internal attributions are greater for success than for neutral outcomes and are greater for neutral than for failure outcomes.

Hypothesis 2b: An actor's external attributions are greater for failure than for neutral outcomes and are greater for neutral than for success outcomes.

Expectancy-protection Bias

Zuckerman (1979) reviewed evidence that positivity biasing effects the stability as well as the location of attributions. That is, people tend to view their successes as effects of stable causes and their failures as effects of unstable causes.

McMahan (1973) and Valle and Frieze (1976) have developed formal models of expectancy shifts based upon the concepts of causal stability. Valle and Frieze postulate that predictions of expectancies are a function of initial expectancies plus the degree to which outcomes are attributed to stable causes. These models also contend that it is the stability of causal attributions that determines the amount of expectancy shift following a performance. Outcomes attributed to stable causes are expected to recur, while outcomes attributed to unstable causes are not as likely to be expected to recur. Outcomes attributed to unstable causes have little effect on changing expectancies from what they were prior to the outcome. This linkage of stability and expectancies is well supported (Fontaine, 1974; McMahan, 1973; Rosenbaum, 1972; Valle & Frieze, 1976; Weiner et al., 1976; Elig, 1977).

If in fact it is true that the stability of attributions has such a prominent place in determining expectancies in the future, it is possible that the stability of attributions may be biased in order to achieve desired expectancies for the future. Thus it would be reasonable to hypothesize that attributions for success would be biased toward stability while failure would be attributed to unstable causes, in order to be consistent with the desired direction of expectancy shifts.

Ruble (1973) reported that both actors and observers attributed success to more stable factors than they do failure. Elig (1977) tested the relationship of success versus failure outcomes to both the location and stability of attributions. Results of this study strongly support a proposition that people make both more internal and stable causal attributions for success outcomes than they do for failure outcomes.

In the present study a full range of performance outcomes should be available to test:

Hypothesis 3: An actor's stable attributions are greater for success than for failure outcomes.

Actor-Observer Effects for Self-serving Biases

Zuckerman's review of the literature provides compelling evidence for a motivation interpretation of the observed effect of outcome on the location of causal attributions. The current study should strengthen the case for both a self-enhancement bias to attribute success internally and a self-protection bias to attribute failure externally. A rationale has also been provided for an expectancy-protection bias of attributing success to stable causes while failure is biased toward unstable ascriptions.

As noted by Zuckerman (1979), for some investigators (e.g., Ross et al., 1974; Regan et al. 1975; Snyder et al., 1976) the crucial test of the motivational explanation for self-serving biases is a comparison of attributions about one's own behavior and the behavior of others. Zuckerman compared the results of studies employing two different paradigms. Self/other paradigms use a within-subjects design to compare an actor's attributions for his/her own behavior and that of another person. Actor/observer paradigms use a between-subject design to compare actors' and observers' attributions for the actors' behavior. Zuckerman concludes that while studies employing the actor/observer paradigm have not consistently supported the self-serving hypothesis, experiments employing the self/other paradigm have, particularly when the self and other were competing (Snyder et al., 1976; Stephan et al., 1976). Zuckerman uses a variety of explanatory variables in his efforts to explicate these paradigmatic differences in results. The major differences in the paradigms can be related to the extent to which they invoke self-esteem or other needs. Competitive self-other designs may arouse self-esteem needs more strongly than noncompetitive self-other designs or the relatively neutral actor-observer paradigm:

Furthermore, competitive subjects cannot be too generous about the other person because the more credit they give him, the less favorable the comparison is for them. In contrast, observers in the actor-observer paradigm can afford to be generous, as they do not perform the actor's task and consequently do not compare themselves with him. (Zuckerman, 1979, p. 273).

To the extent that the observer's generosity matches the actor's self-serving bias, no actor-observer differences would be evident.

The notion of observer generosity or positivity has been invoked by various investigators (Regan et al., 1975, Zucker, 1976) and is supported by studies (e.g., Miller, 1975) showing that actors were evaluated more favorably by observers than by themselves. As Zuckerman points out, the usual actor/observer study allows observers to become involved in the actor's task and consequently empathize with the actor. Gould and Sigall (1977) examined observer-observer differences of observers instructed either to empathize or not to empathize with a target male who either succeeded or failed to make a good impression on a female. Gould and Sigall interpreted their results in motivational terms: "The empathic sharing of emotional experience leads to sharing of self-enhancing outcome attributional biases" (1977, p. 490).

The design employed in the present study is a between subject, actor-observer paradigm. Actors attributions for their own performance can be compared to attributions for their behavior made by their immediate supervisor. On the basis of Zuckerman's review of results we might be led to expect no actor-observer differences or perhaps that observers will be more generous than actors. However, we cannot expect supervisors in a real world situation to be as generous as a college student assigned as an observer in a typical laboratory experiment. In work organizations, it seems likely that both the subordinate and supervisor can fall prey to self-serving biases. Supervisors may attribute causation to themselves for successful ventures and attribute failures to external causes, perhaps their subordinates. Or when faced with a poor-performing subordinate, the superior may be more likely to see the

cause as something internal to the subordinate (for which the leader cannot be blamed) than something about the task (which might be seen by some as an indication of poor supervision). When one combines the actor-observer difference with the self-serving biases, it seems that leaders are likely to make mistakes in the direction of attributing subordinate poor performance to internal causes.

To the extent that realism is maintained in the study and supervisors are functionally in a supervisor role rather than a perceived role of a research participant, they are not expected to be empathic and share the self-serving biases of the actors. Of course, this depends on the assumption that Army Recruiting Station Commanders identify with a supervisory role (identifying with command concerns) rather than having an empathic identification with recruiters. I am predicting:

Hypothesis 4. Supervisors will be biased toward their own-self-enhancement and own-self-protection to the detriment of the performer's enhancement or protection.

That is, supervisors will not exhibit a positivity or generosity bias matching or exceeding the performer's self-enhancement and self-protection biases of ascriptions for performance outcomes.

Summary of Motivational Determinants of Causal Attributions

The foregoing discussion of biased causal ascriptions has outlined a motivational model of self-serving biases. I propose that people in general tend to make causal ascriptions which are biased to enhance their self-image in a manner which is adaptive for continuing task performance. The core biases are: (a) self-enhancement (internal ascription of success); (b) self-protection (external ascription of failure); and (c) expectancy-protection (stable ascription for success and unstable ascriptions for failure).

RESEARCH DESIGN

Overview

Because of the potential for attributional analysis to aid in the understanding and improvement of recruiting, the performance attributions of 173 Army field recruiters and 53 station commanders were studied.

Data for this correlational study of causal attributions were collected as part of a large scale data collection effort conducted in August, September, and October of 1981. This research was conducted by the US Army Research Institute for the Behavioral and Social Sciences (ARI) and was sponsored by the US Army Recruiting Command (USAREC). Surveys were administered by 5 ARI researchers in 50 recruiting stations (about 2.5% of continental US Army recruiting stations).

Each of the 173 field recruiters in these stations who had at least one month's experience in recruiting are included in a total recruiter sample. (Eight other recruiters in these stations had too little experience to be useful subjects). Recruiters in the total sample were asked to complete the 1981 Recruiter Survey, in which they were to rate their own performance for a six month period, and make attributions for this performance.

Two recruiters in each station were evaluated by their immediate supervisor, the station commander, using the Experimental Recruiter Performance Report. For this Main Sample of recruiters, station commanders rated the recruiter's performance for a six month period, and made attributions for this performance.

These attribution self-reports and supervisor reports are the major data for this study. Supplementary data were collected from the 73 recruiters who were not in the main sample. These recruiters in the Secondary Sample rated each causal attribution on two dimensions. Each recruiter in this subsample of recruiters rated each attribution on the location dimension. The dimensions of Stability, Recruiter Control, and Control-by-others were rated by 26, 24, and 23 recruiters respectively.

The remainder of this chapter describes in detail the sampling plan, the obtained samples, and data collection instruments and procedures.

Sampling Plan

The sampling plan for this data collection effort was designed to minimize travel costs and disruptions in recruiting operations while still obtaining a sample which would meet as many of the primary goals of the research as possible. Recruiting stations were chosen as the primary sampling unit, rather than individual recruiters, in order: (a) to reduce travel costs, (b) to cause disruptions in fewer stations, and (c) to meet the general research needs for this data collection effort. For reasons unrelated to the analyses to be reported here, there was a need for data from both male and female recruiters.

Sampling recruiting stations also allows the estimation of variance components at three major levels of the chain of command in the US Army Recruiting Command. Two stations were sampled in each of 5 District Recruiting Command's (DRC's) in each of the 5 Regional Recruiting Command's (RRC's). This is a sample of 2.5% of recruiting stations in the nation, 25 of the 56 DRC's, and all 5 RRC's.

DRC and Station Selection

Five DRC's in each region (RRC) were selected randomly. I made the initial station selection in each DRC for ARI using the Recruiting Station ID (RSID) file, which lists recruiters by name in each recruiting station. For each of the 25 DRC's, lists were made of recruiting stations which appeared in the RSID to have at least one female recruiter and one male recruiter in addition to a station commander. The order of stations on the lists was then determined by a table of random numbers.

These lists of stations were sent through the Army chain of command to the 25 District Recruiting Commands. Determination of station suitability had to be made by the DRC's since it is the highest level of command in day-to-day touch with events in recruiting stations (e.g., when recruiters will be on leave, will be on temporary detached duty (TDY) for schooling or are still assigned at particular recruiting stations). Every possible attempt was made to reduce sample biasing by DRC's. The letter requesting research support from the Recruiting Command (Appendix A) attempted to reduce the DRC personnel's motivation to bias the sample (see paragraph 4) while reducing their options to bias the sample (see paragraphs 2 and 3). I worked closely with ARI's point of contact at USAREC to insure that station selection would be minimally biased.

Some DRC's were not able to provide ARI with two stations each of which had both a female recruiter and a station commander with experience at their current station. In order to cause fewer disruptions in the Command, in these cases it was decided with our point of contact at USAREC not to try to change DRC's. If a DRC could not provide two stations with a female recruiter we accepted the first station on our list which would meet the requirement of having two male recruiters and a station commander with experience at that station; if stations on our list were not suitable, DRC nominated stations were accepted.

Subject Selection

Selection of individual recruiters to be subjects for the Main or Secondary samples of this research was made by the researcher when he arrived at the recruiting station. The researcher had to select from among the recruiters present the two recruiters most likely to provide a full set of useful information to be Main Sample subjects. The first criterion for a full set of information was that the recruiter had been a recruiter for at least six months and had been at that station for at least three months. The second criterion was that from among recruiters meeting criterion 1, one male and one female recruiter would be selected. If there were no females who met the first criterion, then two males who did meet this criterion were selected; a

male not meeting the first criterion was not, however, substituted for a female who also did not meet the first criterion. The third criterion to reduce the pool of eligibles was to eliminate Army Reserve recruiters if an Active Army recruiter with the experience and of the correct gender to meet the first two criteria was present. Selection from among Active Army recruiters (Criterion 3) with the necessary experience (Criterion 1), and of the correct gender (Criterion 2) was by the flip of a coin.

The Sample

The sampling plan just described resulted in a sample which may differ in some ways from a typical cross section of recruiting command personnel. However, the sample is arguably representative of field level personnel in the Command.

As intended, women were over-sampled and account for 19.3% of the sample (5.8% of commanders, 33.3% of the main sample recruiters, and 5.1% of secondary sample recruiters) while they account for only about 5% of recruiting command personnel. Other differences were not intended.

Table 4 was drawn from the Army's Enlisted Master File as of 1 August 1981 and shows selected demographic characteristics of USAREC personnel in grades E5 through E7. This population of USAREC personnel, though it contains one-sixth support staff, can be compared to the sample of recruiters and station commanders. Percentages are tabled for all USAREC personnel, the obtained sample of field personnel, and the sample weighted to show a 95:5 ratio of males to females. Chi squared tests were done to compare the weighted and unweighted samples to non-sampled USAREC personnel.

Unexpected differences were found in that the sampled personnel held lower rank, were slightly better educated, were less likely to be married, and were less likely to be white than the population of USAREC enlisted personnel. And while there is no difference in mean Armed Forces Qualification Test (AFQT) percentile scores between sampled ($\bar{M}=61.1$) and non-sampled ($\bar{M}=58.3$) personnel, $t(6043)=1.56$, $p=.12$, the personnel are distributed somewhat differently by category.

While chi squared tests are still significant for the weighted sample because of inflated sample sizes, the sample weighted for male-female ratio is much more like the population than is the unweighted sample. Oversampling of females is probably the sole cause of differences in marital status and a major contributor to the other differences.

These sample-population differences may also have resulted from unintended effects of the sampling plan. The sampling plan favored selection of larger stations in larger population centers in that it required the presence of 2 experienced recruiters, and the oversampling of females. Because new recruiters are usually sent to a larger station for onsite training, the sampling plan actually favored the selection of less experienced recruiters. This trend was reinforced by the assignment policy for most experienced recruiters who are not commanders to be either in one person stations or in management and support positions. In fact, the sampled personnel have less experience in recruiting than do the non-sampled personnel (\bar{M} 's are 29 and 38

Table 4

Demographic Characteristics of Selected USAREC Personnel

	E5-E7 USAREC Personnel %	Sample							
		Unweighted				Weighted			
		%	χ^2	df	p \leq	%	χ^2	df	p \leq
Gender			85	1	0.0	.5	1	0.5	
Males	95.1	80.7				95.5			
Females	4.9	19.3				4.5			
Ethnic			24	3	0.0	194	3	0.0	
White	74.0	60.8				60.4			
Black	20.5	28.7				27.7			
Hispanic	3.6	5.5				6.5			
Other	1.9	5.0				5.4			
Rank			19	3	0.0002	23	3	0.0	
E5	14.2	23.8				17.8			
E6	45.0	44.2				45.5			
E7	40.7	32.0				36.8			
AFQT Categories ^a			7.6	4	0.1152	4	0.0		
LT 31 (IV)	19.6	12.2				14.3			
31-50 (III B)	19.4	20.4				23.6			
51-64 (III A)	22.5	22.1				22.5			
65-92 (II)	33.7	40.3				36.3			
93-100 (I)	4.8	5.0				3.3			
Education			111	6	0.09	36	6	0.0	
Postgrad	0.3	1.1				0.8			
BA/BS	4.2	6.1				6.1			
AA	5.7	5.0				5.4			
College Credits	28.2	27.6				29.0			
HSDG	43.0	45.3				43.2			
GED	18.5	14.9				15.5			
NHSG	0.1	0.0				0.0			
Marital Status			27	5	0.0001	74	5	0.0	
Single	6.5	11.6				5.5			
Married	87.4	80.1				87.8			
Separated	0.2	1.1				1.3			
Divorced	5.9	7.2				5.4			
Widowed	0.1	0.0				0.0			

Note: Based on information in the Enlisted Master File as of 1 August 1981. N's for USAREC personnel and sample (unweighted and weighted for male/female ratio) are 6626, 181, and 2149, respectively.

^aAFQT (Armed Forces Qualification Test) is presented in the percentile categories usually used in military research.

months respectively, $t(196.6, \text{unequal variance}) = 4.79, p < .0001$) and fewer years in the Army (\bar{M} 's are 10.4 and 11.6 respectively, $t(6624) = 4.12, p < .0001$). These differences in experience lead directly to differences in rank. Differences in AFQT distribution and education level are also followed since less experienced recruiters entered the Army and the recruiting force under stricter quality standards.

Minority women over-enlist compared to white women at a larger rate than minority men over-enlist compared to white men. Because 34% of female recruiters are black compared to 20% of male recruiters, the sampling plan also leads to oversampling of large city recruiting stations where non-white recruiters are more likely to be stationed. Thus, the large difference in ethnic composition of sample and population may have resulted from several factors: (a) the oversampling of less experienced recruiters drawn from the large minority enlistments of the late 70's, (b) the oversampling of stations in larger population centers, (c) the oversampling of women, or (d) other factors undetected.

To the extent that the population of interest is defined as the junior (E5-E7) NCO's in the Recruiting Command as of August 1981, the sampling plan has led to distortions in the sample. However, the population the sample was compared to contained about 1500 NCO's in higher management and support positions in addition to field recruiters and station commanders. Thus it can be argued that the sample is fairly representative of field recruiters and station commanders, with certain limitations, most notably the intended oversampling of women. Also, the sampling plan is likely to have resulted in oversampling larger stations in larger population centers. This may have contributed to an oversampling of non-white recruiters.

To the extent the population of interest is defined as station commanders and the recruiters they supervise on a day to day basis, the sample is representative. This population excludes the attributional patterns of recruiters in one person stations under no day to day supervision, as well as senior NCO's and officers in management positions. To an unknown extent the attributional patterns of these other groups may differ from those of the studied sample.

Station commanders and recruiters differed from each other, as is to be expected. Station Commanders are older (\bar{M} 's of 34.3 vs. 30.7 years, $t(140) = 5.24, p < .0001$), have more experience in the Army (\bar{M} 's of 13.5 vs. 8.8 years, $t(140) = 9.02, p < .0001$), and have higher rank (modes of E-7 vs. E-6, \bar{M} 's of 6.8 vs. 5.7, $t(138, \text{unequal variances}) = 12.71, p < .0001$). Station commanders, however, are only marginally more experienced in recruiting than are recruiters (\bar{M} 's of 22.8 vs. 19.7 months, $t(71, \text{unequal variances}) = 1.07, p = .2862$). This is not unexpected since station commanders must have the highest rank in the station and tend to have entered the Recruiting Command with higher rank than recruiters (modes of E-6 vs. E-5, $\chi^2(3) = 29.3, p < .0001$). Station commanders have more education than recruiters (48% have at least some college versus 27% of recruiters, $\chi^2(5) = 11.2, p = .047$), though station commanders scored lower on the Army entrance test (\bar{M} percentile scores of 53 vs. 68, $t(131) = -3.87, p < .0002$). In summary, station commanders differ from recruiters in being older, more experienced in the Army,

and having attained higher rank--in part because of more education and experience--than recruiters before entering the Recruiting Command. Recruiters and station commanders do not differ in ethnic group nor length of experience in the Recruiting Command.

Instruments

Data for this study of performance attributions was collected using five instruments. Relevant portions of these instruments are at Appendices B, C, and D. The 1981 Station Commander Survey is not reproduced here since it contained the same biographical questions as the 1981 Recruiter Survey.

The 1981 Recruiter Survey

Recruiter demographic information was collected in Part II of the 1981 Recruiter Survey. (This instrument is reproduced in Appendix B). In this instrument recruiters also rated their performance for the past six months (Part III) and rated the extent to which 58 possible causes for their performance affected their own performance negatively or positively (Part IV).

Multiple performance measures were included in the survey to allow a full exploration of the many possible performance criteria (see Elig, Gade, & Eaton, 1981). Four of these performance measures are of particular interest. Questions 1 and 17 are both subjective measures of job performance. Questions 6 and 7 are both objective, and measure the bottom line of performance: how many contracts did the recruiter achieve and was the objective met. The remaining performance questions can also be divided into categories of subjective judgment (questions 13 thru 16) or objectives measures of performance in "making mission" (questions 2 thru 5 and 8 thru 12).

The attribution measurement style adopted for this study is similar to the method used by Meyer (1980). Meyer had subjects rate 9 possible causes on 9-point scales ranging from -4 to +4. Scales were anchored by the direction of influence, e.g., good luck and bad luck. In a similar way, subjects in the current study judged each attribution on a 7-point scale from having a large positive affect to having no affect to having a large negative affect on performance.

The 1981 Experimental Recruiter Performance Report

Each station commander used this instrument to evaluate two recruiters. This instrument (reproduced in Appendix C) includes performance questions (Part I) and attribution questions (Part II) which are parallel to those contained in the 1981 Recruiter Survey.

The 1981 Recruiter Comments

This instrument includes measures of the dimensionality of the performance attributions. This instrument is reproduced in Appendix D. Recruiters completing this instrument rated the 58 possible causes of performance on whether the location of each cause is: (a) "Internal (in a recruiter)", (b)

"Both the recruiter and the environment", or (c) "External (in the environment and other people)". Three other attributional dimensions were each included in one of the 3 alternate forms of this instrument. Forms (which were randomly given to subjects) contained 9-point scales for stability (1 = Unstable, 9 = Stable), Control-by-recruiter (1 = Uncontrollable, 9 = Controllable), or Control-by-others (1 = Uncontrollable, 9 = Controllable).

Instrument Pretest

The 1981 Recruiter and Station Commander Surveys and the 1981 Experimental Recruiter Performance Report were pretested with 15 recruiters and five station commanders in five stations--one station was randomly selected for the pilot sample from each of the five USAREC regions.

Data collected in this pretest were not analyzed, except as needed to clarify instructions and questions. One recruiter performance measure was clarified at the suggestion of the pilot sample; this item asks for the percentage of mission objective obtained by the recruiter in the last six months. Also at the suggestion of subjects in the pilot sample, one attribution, command decisions, was split into three attributions representing the major levels of command: (a) USAREC (national), (b) Regional, and (c) District. This differentiation was important to several subjects in the pilot sample.

The attributions used in the pilot sample were intended to be an exhaustive list; that only one attribution had to be further defined tends to confirm that the list was exhaustive to field personnel. The original set of attributions were developed from the Elig and Frieze (1975) framework and supplemented by attributions used by Valle and Frieze (1976) and by suggestions from subject matter experts at ARI and USAREC headquarters.

Procedure

At each recruiting station, the researcher first met with the station commander and then individually with each recruiter. Each station commander and recruiter was briefed on the general purpose of the research and given a copy of a letter of introduction from the Recruiting Command (see Appendix E). This letter and introductory briefing stressed the confidentiality of the data and were designed to encourage their cooperation while reducing their anxiety.

The station commander briefing continued with an overview of the researcher's schedule at the station and sample selection. On the basis of information received from the commander on station personnel, recruiters were assigned by the researcher to be in the Main or Secondary Samples. Station commanders were then given the 1981 Station Commander Survey, and 2 Experimental Recruiter Performance Reports for each of the two Main Sample recruiters.

After the researcher started the station commander on these instruments, he individually briefed each recruiter on the purpose of the research and presented a copy of the letter of introduction. As discussed above, the

briefing and letter tried to engage honest and willing cooperation. All recruiters were asked to complete the 1981 Recruiter Survey. Secondary Sample recruiters were also given the 1981 1981 Recruiter Comment questionnaire.

Each recruiter and the station commander worked at separate desks. The only corroboration allowed was on past performance measures 2 thru 12 and only in stations where these objective performance measures were available only in a station record book maintained by the station commander.

Instrument completion was self-paced and could be interrupted as necessary for phone calls and appointments with applicants. The only time limit imposed was that station commanders and Main Sample recruiters were asked to complete their instruments before their scheduled interviews. (These interviews are not related to the present study).

RESULTS

Dimensions of Causal Attributions

I hypothesized that:

Hypothesis 1: A clear three dimensional structure underlies causal attributions. These dimensions are location (internal-external), stability (stable-unstable), and control (controllable by person or others versus uncontrollable by anyone).

I also intend to examine

Hypothesis 1a that: the model is two dimensional (location and stability) with subdimensions of control-by-actor and control-by-others nested respectively in internal and external causes.

Two sets of data are used to test this hypothesis. The first set is recruiters' ratings of 58 attributions on 4 dimensions. The second set is the causal ascriptions made by recruiters for their own performance and by station commanders for the recruiter's performance. As noted above in the development of Hypothesis 1, this comparison of methodologies should help clarify differences in the literature where only one or the other method has been used.

Hypothesis 1 is tested by analyzing the correlation matrices of (a) the dimensional ratings of the 58 attributions and of (b) the causal ascriptions (self and other); and by (c) correlating the dimensional ratings with the factor loadings for the 58 attributions.

Of the 3 dimensions, control is the most problematic. The rating scales used by Wiley et al. (1979) have built into them the positive correlation of internality and control-by-actor. Michela et al. (1982) found evidence (using multidimensional scaling) for a control dimension only among internal causes. To explore these differences and to further clarify the dimensional structure of attributions I also separately factor analyze internal and external attributions.

Judges' Ratings of Causal Dimensionality

Recruiters' judgments on dimensional scales of location, stability, control-by-recruiter, and control-by-others are presented in Table 5, the attributions ordered from internal to external by the judges' ratings of location. Note that the Control dimension was not rated by recruiters; rather it is the average of ratings given for control-by-recruiter or control-by-others. Thus a high control mean for an attribution indicates it is perceived as controllable by the recruiter and/or others while a low mean indicates a perception that neither the recruiter nor others are perceived as controlling.

Before examining the dimensional scales represented by the means in Table 5, it is necessary to examine the quality of the ratings from which the means were computed.

Table 5
Judges' Dimensional Ratings of 58 Causal Variables

	MEANS															SD			N			
	L ^a	S ^b	RC ^c	OC ^d	C ^e	L ^a	S ^b	RC ^c	OC ^d	C ^e	L ^a	S ^b	RC ^c	OC ^d	C ^e	L ^a	S ^b	RC ^c	OC ^d	C ^e		
Intelligence	1.18	7.08	6.73	2.71	5.17	0.42	2.06	2.81	3.10	3.50	72	26	22	14	36							
Personality	1.22	6.96	7.09	3.36	5.64	0.51	2.05	2.72	3.18	3.41	73	26	22	14	36							
Natural sales ability	1.25	6.77	6.48	2.71	5.05	0.55	1.88	2.57	2.81	3.21	72	26	23	14	37							
General health and stamina	1.25	6.62	7.43	2.73	5.58	0.49	2.35	1.93	2.31	3.11	73	26	23	15	38							
^f M to do everything well	1.25	7.46	7.78	3.71	6.24	0.55	2.10	1.86	3.05	3.08	72	26	23	14	37							
Physical appearance	1.27	6.88	7.96	3.92	6.50	0.61	2.20	2.06	3.17	3.16	73	26	23	13	36							
Age	1.31	6.12	3.76	2.67	3.31	0.60	2.75	3.36	3.29	3.33	72	26	21	15	36							
M to do a good job for Army	1.31	7.15	7.48	4.47	6.20	0.55	2.33	2.15	2.76	2.83	72	26	23	17	40							
Marital status	1.33	6.27	6.26	2.00	4.51	0.56	2.63	2.45	2.73	3.31	72	26	23	16	39							
M to help young people	1.33	7.35	7.35	4.06	6.00	0.53	2.19	2.06	3.04	2.96	72	26	23	16	39							
Dependents	1.35	6.04	5.83	2.33	4.29	0.53	2.62	3.05	2.20	3.20	72	26	23	18	41							
Education, experiences	1.36	6.46	6.87	3.00	5.41	0.56	1.86	2.47	2.80	3.19	72	26	23	14	37							
Usual efforts	1.36	6.92	7.30	4.47	6.10	0.63	2.40	2.38	3.34	3.13	72	26	23	17	40							
Being ill or particularly healthy	1.45	6.73	5.63	2.68	4.62	0.60	2.13	2.61	2.39	2.89	73	26	23	16	39							
Gender	1.49	6.54	5.35	3.25	4.49	0.71	2.28	3.32	3.51	3.52	71	26	23	16	39							
Money handling ability	1.49	6.38	6.87	3.47	5.33	0.63	2.21	2.60	3.22	3.33	72	26	23	19	42							
Recruiter's opinions on Army life	1.49	6.58	7.13	4.25	5.79	0.65	2.16	2.26	3.26	3.10	73	26	23	20	43							
M for rewards, approval	1.50	5.88	6.91	5.35	6.25	0.67	2.50	2.35	3.08	2.76	72	26	23	17	40							
M to get out with good record	1.50	6.81	7.33	5.64	6.66	0.73	2.32	2.50	2.79	2.71	72	26	21	14	35							
Comfortableness with people	1.53	7.19	7.05	4.00	5.72	0.63	1.74	2.30	2.76	2.91	72	26	22	17	39							
Friends, family life	1.65	6.12	6.91	3.00	5.05	0.70	2.39	2.37	2.39	3.07	72	26	23	21	44							
Unusual effort in last six months	1.66	5.85	6.57	5.63	6.16	0.74	2.66	2.20	2.85	2.51	70	26	21	16	37							

Table 5 (Continued)

	MEANS															SD					N				
	L ^a	L ^b	L ^c	L ^d	L ^e	L ^a	L ^b	L ^c	L ^d	L ^e	L ^a	L ^b	L ^c	L ^d	L ^e	L ^a	L ^b	L ^c	L ^d	L ^e					
Sales skills developed/trained	1.74	6.35	6.91	6.11	6.54	0.75	2.23	2.11	3.11	2.62	72	26	22	19	41										
Interest similarity to youth in zone	1.74	6.88	4.76	3.84	4.32	0.63	2.20	2.70	2.59	2.65	72	26	21	19	40										
Comfortable with people in area	1.75	6.69	6.48	4.84	5.74	0.62	1.87	2.25	3.04	2.73	72	26	23	19	42										
Help from other recruiters	1.76	6.04	5.91	6.61	6.22	0.70	2.24	2.13	2.63	2.26	72	26	23	18	41										
Sales training from station commander	1.79	6.04	5.61	6.75	6.14	0.67	2.55	2.43	2.59	2.54	72	26	23	20	43										
Likes living in area	1.86	6.27	4.87	5.36	5.11	0.65	2.54	2.67	3.06	2.85	73	26	23	22	45										
Luck	1.88	5.35	4.57	2.69	3.79	0.84	2.58	2.78	2.55	2.81	72	26	23	16	39										
Educational similarity to youth in zone (relocation)	1.88	6.12	4.43	2.94	3.78	0.67	2.14	2.57	1.95	2.41	72	26	23	18	41										
Disruptions from PCS (relocation)	1.92	5.08	3.36	6.94	4.97	0.83	2.46	2.97	2.82	3.39	72	26	22	18	40										
Hometown recruiter aides	1.93	5.23	5.13	6.85	5.93	0.76	2.07	2.78	2.46	2.75	72	26	23	20	43										
Station commander performance	1.94	6.28	3.04	6.95	4.81	0.75	2.41	2.38	2.97	3.29	72	25	23	19	42										
Paperwork, administrative burden	1.96	4.69	3.70	8.17	5.82	0.88	2.75	2.56	1.29	3.04	72	26	20	18	38										
Negative climate from other recruiters	1.97	6.08	4.65	6.53	5.50	0.75	2.00	2.71	2.65	2.81	72	25	23	19	42										
Ethnic similarity to people in zone	1.97	6.58	3.68	5.64	4.66	0.73	2.16	3.05	3.49	3.38	73	26	22	22	44										
Similarity to people in zone	1.99	6.46	4.22	3.86	4.04	0.66	1.96	2.92	3.01	2.94	72	26	23	22	45										
Closeness to area where grew up	1.99	5.77	3.30	5.40	4.28	0.81	2.83	2.72	3.83	3.41	72	26	23	20	43										
Work on public relation events	2.04	5.46	6.78	5.83	6.30	0.68	2.10	1.81	2.81	2.38	72	26	23	23	46										
Army guidance counselors	2.15	5.96	3.61	7.58	5.40	0.76	2.32	2.50	2.14	3.06	72	26	23	19	42										
Help from TAIR (Army PR events)	2.15	5.35	4.71	7.30	5.98	0.71	2.12	2.37	2.25	2.63	72	26	21	20	41										
District Command	2.18	5.69	3.55	7.32	5.38	0.78	2.62	2.46	2.98	3.50	72	26	20	19	39										
Disruptions from rezoning	2.19	4.54	2.57	7.45	4.84	0.80	2.58	2.78	2.65	3.64	72	26	23	20	43										
Local advertising	2.21	5.42	5.32	8.23	6.77	0.73	2.40	3.05	1.69	2.84	72	26	22	22	44										

Table 5 (Continued)

	MEANS												SD			N		
	L ^a	S ^b	RC ^c	OC ^d	C ^e	L ^a	S ^b	RC ^c	OC ^d	C ^e	L ^a	S ^b	RC ^c	OC ^d	C ^e			
Local opinion	2.24	5.62	5.05	5.95	5.49	0.72	2.06	2.98	3.26	3.12	72	26	22	21	43			
Distances for testing and processing	2.24	5.92	3.36	5.67	4.40	0.82	2.61	2.97	3.56	3.41	71	25	22	18	40			
Distances for contacts in zone	2.24	6.65	2.86	5.43	4.12	0.74	2.30	2.44	3.53	3.25	72	26	22	21	43			
USAREC Command	2.25	4.69	3.00	7.65	5.32	0.83	2.54	3.01	2.54	3.62	72	26	20	20	40			
Help from other recruiters' PR events	2.25	5.46	5.67	7.00	6.33	0.64	2.27	2.13	2.10	2.19	72	26	21	21	42			
Distance to Army presence	2.36	5.84	2.91	5.58	4.15	0.76	2.37	2.96	3.40	3.41	72	25	22	19	41			
Number of youth in zone	2.39	6.50	3.48	4.67	4.07	0.74	2.27	3.09	3.72	3.43	72	26	21	21	42			
National advertising	2.39	6.08	3.09	8.27	5.68	0.72	2.24	2.83	2.00	3.57	72	26	22	22	44			
Quality of youth in zone	2.46	5.69	2.91	3.45	3.18	0.67	2.72	2.94	3.17	3.03	72	26	23	22	45			
Propensity for military service in zone	2.46	5.77	4.43	4.09	4.26	0.69	2.20	2.79	3.22	2.98	72	26	21	22	43			
Regional Command	2.50	4.76	2.40	7.37	4.82	0.75	2.31	2.28	2.79	3.55	72	25	20	19	39			
Going-to-college-rate in zone	2.51	6.08	2.96	3.64	5.29	0.65	2.26	2.60	3.00	2.79	72	26	23	22	45			
Local unemployment	2.60	6.12	2.64	5.04	5.87	0.57	2.01	2.63	3.72	3.42	72	25	22	23	45			
Local cost of living	2.61	5.84	2.41	5.09	3.78	0.59	2.32	2.48	3.86	3.50	72	25	22	23	45			

^a (L)OCATION: 1=Internal (in a recruiter), 3=External (in the environment and other people). ^b (S)TABILITY: 1=Unstable, 2=Stable.

^c (R)ECRUITER (C)ONTROL: 1=Recruiter Uncontrollable, 9=Recruiter Controllable. ^d (O)THERS' (C)ONTROL: 1=Uncontrollable by Others.

^e 9=Controllable by Others. ^f (C)ONTROL: Mean of Recruiter and Other Control.

^f Motivation is abbreviated M.

Table 6
Generalizability of Judaea's Dimensional Ratings

Source of Variance	LOCATION (L)			STABILITY (S)			RECRUITER CONTROL (RC)			OTHER'S CONTROL (OC)						
	EMS	σ^2	$\frac{\sigma^2}{C}$	EMS	σ^2	$\frac{\sigma^2}{C}$	EMS	σ^2	$\frac{\sigma^2}{C}$	EMS	σ^2	$\frac{\sigma^2}{C}$				
Attributions (A)	11.79	0.15	1	0.32	1	0.32	65.68	2.61	1	2.61	56.4	2.04	1	2.04		
Raters (R)	5.54	0.09	73	0.001	104.01	1.73	26	0.07	67.49	1.07	23	0.05	61.54	0.93	24	0.04
A x R	.49	.49	73	0.007	3.61	3.61	26	0.14	5.62	5.62	23	0.24	7.32	7.32	24	0.31
Generalizability																
Raters fixed	.239	.958		.082	.698		.317	.914		.218	.87					
Raters random	.211	.951		.057	.610		.281	.90		.198	.856					
Generalizability Projected for Equal D's of 73																
Raters fixed		.958			.867			.971			.953					
Raters random		.951			.815			.966			.948					

Note: Subscript "m" for variances is for composites of ratings based on the sample frequency of raters. Thus, generalizability estimates in these columns are for composite ratings. Generalizability estimates in the columns for sigma squared estimates not subscripted are for the use of a single rater's ratings, rather than using a composite of raters.

Table 7

Summary Statistics for Dimensional Ratings

Dimension	<u>M</u>	<u>SD</u>	Coefficient of Variation	Range
Location	1.84	0.42	0.23	1.18 - 2.61
Stability	6.13	0.68	0.11	4.54 - 7.46
Recruiter Control	5.11	1.72	0.34	2.40 - 7.96
Other's Control	5.03	1.76	0.35	2.00 - 8.27
Control	5.16	0.95	0.18	3.18 - 6.77

Note: N=58 attributions.

Reliability. Recruiters showed considerable agreement in rating the 58 causal variables on the dimensions of location, recruiter control and control by others (Table 6), but were less able to distinguish among the attribution variables in terms of stability. While standard deviations are not markedly different for stability (Table 5) compared to the other 7 point scales the variance components for stability are different from the other ratings. Table 6 presents expected mean squares and variance component estimates from two-way ANOVA's (Winer, 1962, pp 124-131) for each dimensional rating made by recruiters. In these ANOVA's variance is partitioned for sources between attributions, within raters, and for the attribution by rater interaction. From these variance estimates several reliability estimates can be generated from intraclass correlations (Cronbach, Gleser, Nanda & Rajaratnam, 1972; Kass, Elig & Mitchell, 1982; Tinsley & Weiss, 1975).

The generalizability estimates¹ for stability are markedly lower than for the other 3 dimensions and would be predicted to be bettered only moderately by more raters. In particular, generalizability estimates for stability ratings made by a single individual are markedly lower than the estimates for the other dimensions.

Rater variance in proportion to total variance is almost nil for all dimensions except stability. Thus, except for stability, the reliability for the ratings to be applied to the raters only (raters fixed) is only slightly higher than when the ratings are to be applied as attribution dimension scale scores for people other than the raters (raters considered to be a random effect). When rater variance is removed by averaging over raters to produce average dimensional ratings for each variable (Table 5), much of the variance in the original stability ratings is removed (Table 7).

¹Generalizability theory is an analysis of variance approach to interrater reliability. This theory has been explicated most completely by Cronbach et al. (1972). Brennan (1977) provides an amplification of the basic principles and procedures, while Kass et al. (1982) provides a detailed application. Instead of using a correlation coefficient as an estimate of interrater reliability, a generalizability coefficient is reported.

Interpretability. Even though recruiters made reliable distinctions among causal variables on three of the dimensions, the dimensional ratings are highly correlated (Table 8). Principal components analysis of location, stability, recruiter control, and others' control yielded a solution of 1 factor which explains 71% of the variance with acceptable communalities (Table 8, Solution 1). Extracting a second factor (solution not tabled) increased variance explained to 87% and increased communalities for recruiter and other control to .93 and .91, respectively. However, this solution was unstable and had a factor pattern loading greater than 1.

Substituting the control dimension for separate recruiter and other control ratings gives a more interpretable pattern. Solution 2 in Table 8 is for a principal component that accounts for 59% of the variance but has a low communality for control. The 2 component oblique solution (Table 8, Solution 3) is more satisfactory in variance accounted for, 89%, and communalities, .83-.97.

Recruiters' dimensional ratings have at most 2 principal components, location and control, which correlate to some degree ($r(58) = .22$, $p < .10$). However, when control is decomposed into recruiter and other control, the ratings are unidimensional with poles of internal-stable-recruiter-controlled and external-unstable-other-controlled.

Recruiter's dimensional ratings thus show a large common variance for location, stability, and actor-control as did the dimensional ratings reported by Wiley et al. (1979) and Bar-Tal, Goldberg, and Knaani (in press). However, neither of these studies included measures of other's control nor general control that could have allowed the finding of a separate control dimension.

The large common variance found in the dimensional ratings do not support a narrow interpretation of Hypothesis 1. That is, stability ratings are not easily separable from internality, although general control by the actor and/or others does form a separate factor from the location/stability factor. However, it can be argued that the common variance represents a general factor of the covariation of a set of attributions as they are used to in making attributions. The existence of a general factor representing real world covariation does not preclude the usefulness of extracting specific (orthogonal) factors for the variation of the dimensions. That is, a three dimension model of attributions is still useful if specific-dimension variance remains after the removal of common variance, and if the specific-dimension variance is useful in understanding and predicting antecedents and consequences of attributions.

Orthogonal scale development. The dimensional ratings made by recruiters can be interpreted as factor patterns, that is as weights to be applied to factor scores (of the theoretical dimensions) to reproduce a set of attribution variables. When viewed from this perspective, the principal component analyses just described are equivalent to a second order analysis of first order factors. It is therefore expected that these analyses would show reduced rank (Gorsuch, 1974). When the dimensional ratings are viewed as factor patterns generated by raters the appropriate question is whether there is a

Table 8
Correlations and Principal Components of Dimensional Ratings

	Correlations			Principal Component Solutions						
	L	S	RC	1		2		3		
				DC	Pattern	Community	Pattern	Community	Pattern	Community
(L)ocation	1.00			-.91	.82	-.91	.82	-.82	-.26	.83
(S)tability	-.62	1.00		.84	.70	.81	.65	.96	-.16	.88
(R)ecruiter (C)ontrol	-.82	.59	1.00	.86	.57	--	--	--	--	--
(D)ither's (C)ontrol	.57	-.60	-.43	1.00	.73	--	--	--	--	--
(C)ontrol	-.37	.11	.65	.40	--	-.55	.30	.01	.99	.97

set of rotated factors which exhibit simple structure and fit the data equally well. Because data were not obtained for a set of variables to be reduced to a set of factor scores and factor patterns, analytic techniques for factor rotation are not available in standard statistical programs. Noting the basic model similarity of factor analysis and regression techniques (Gorsuch, 1974, pp 12-32), regression analysis was used to develop sets of residuals which are analogues to orthogonal and oblique rotations. Table 9 presents the R^2 and adjusted R^2 for the regression of each rating on all other sets of ratings. This table also presents the intercorrelations of the ratings and of the ratings with all residuals. (See Table F1 in Appendix F for the intercorrelations of all ratings and residuals). As would be expected from the correlations, the smallest residual variances are for removal of the common variance from all other ratings. The largest shared variance is between location and recruiter control. Note the low squared multiple R 's for control. Control has little common variance with location and stability. Since control is a summary of recruiter and others' control, there were no residuals for control of recruiter or others' control computed.

The rank of the rating and residual correlation matrix (Table F1) is 5 with eigenvalues of 12.73, 8.44, 7.60, 7.19, and .03. Principal components analysis was performed on the generalized inverse of this matrix. Four factors were retained and rotated. The factor pattern indicate factors of Others' Control, Recruiter Control, Location, and Stability (Table 10). This analysis indicates that the essential structure of the ratings are not destroyed by creating scales of residuals. The use of residual scales at the same time reduces the intercorrelations of the estimated dimensions significantly (Table 11). However, because the correlation matrix is singular and a generalized inverse was computed for factoring, selected sets of residuals representing the dimensions were developed (Table 12).

In a process analogous to diagonal factor analysis the rating of each dimension in turn was taken to be the first factor in a set of residuals orthogonal to that first factor (Gorsuch, 1974). Set 1 (Table 12) is the diagonal analysis for location. Residuals of the other ratings were chosen to be orthogonal to location and have minimal correlation with each other. Note that there was no attempt to minimize correlation of control with either other's control or recruiter control. In set 2, stability was taken as the first diagonal factor. In sets 4, 5, and 6, the diagonal matrices are respectively control, recruiter control, and others' control. Set 3 is a special case where three diagonal factors of ratings for control, recruiter control, and others' control are extracted first; residuals for location and stability were then extracted to be orthogonal to each of the three ratings and to each other.

In this way, sets of dimensional ratings are developed where the relationship of each attributional dimension with the antecedents and consequences of attributions can be tested. Each attribution dimension can be tested orthogonally--independently from tests for other dimensions. Each dimension can also be tested when it includes the common variance in the set of ratings and when the common variance is removed.

The diagonals in Table 12 are the correlations of the residuals with the original ratings. When squared the diagonal represents the portion of variance of the original ratings represented by the residual--the variance unique

Table 9

Correlation Matrix of Ratings with Residuals

	R ²	ADJ R ²	L	S	RC	OC	C
(L)ocation			1.00				
(S)tability			-0.62	1.00			
(R)ecruiter (C)ontrol			-0.82	0.59	1.00		
(O)thers' (C)ontrol			0.57	-0.60	-0.43	1.00	
(C)ontrol			-0.37	0.11	0.65	0.40	1.00
L(RES)idualRO	.74	.73	0.51	-0.09	0.00	-0.00	-0.02
LRESSRO	.74	.73	0.51	0.00	0.00	-0.00	-0.02
LRESSC	.48	.46	0.72	0.00	-0.38	0.47	0.00
LRESS	.40		0.78	0.00	-0.58	0.25	-0.38
LRESC	.13		0.93	-0.66	-0.63	0.77	0.00
LRESR	.68		0.57	-0.24	-0.00	0.39	0.30
LRESO	.33		0.82	-0.34	-0.70	-0.00	-0.72
SRESRO	.50	.48	-0.06	0.71	0.00	-0.00	0.01
SRESLRO	.50	.48	-0.00	0.70	0.00	-0.00	0.01
SRESLC	.41	.38	0.00	0.77	0.16	-0.21	0.00
SRESL	.40		-0.00	0.78	0.10	-0.31	-0.15
SRESC	.01		-0.59	0.99	0.52	-0.65	0.00
SRESR	.35		-0.17	0.81	-0.00	-0.43	-0.34
SRESO	.36		-0.35	0.80	0.42	-0.00	0.44
RCRESL	.68		-0.00	0.14	0.57	0.08	0.62
RCRESS	.35		-0.56	-0.00	0.81	-0.09	0.73
RCRESO	.18		-0.64	0.37	0.90	0.00	0.91
RCRESLS	.69	.68	-0.00	0.00	0.56	0.13	0.66
RCRESLO	.68	.66	-0.00	0.17	0.57	-0.00	0.55
RCRESLSO	.70	.68	-0.00	0.00	0.55	-0.00	0.54
RCRESSO	.36	.35	-0.54	0.00	0.80	-0.00	0.80
OCRESL	.33		0.00	-0.29	0.05	0.82	0.74
OCRESS	.36		0.25	0.00	-0.09	0.80	0.58
OCRESR	.18		0.24	-0.38	-0.00	0.90	0.75
OCRESLS	.42	.40	-0.00	-0.00	0.10	0.76	0.74
OCRESLR	.33	.31	-0.00	-0.31	0.00	0.82	0.69
OCRESLSR	.44	.42	0.00	-0.00	-0.00	0.75	0.63
OCRESSR	.37	.35	0.18	-0.00	0.00	0.80	0.67
CRESL	.13		0.00	-0.13	0.38	0.65	0.93
CRESS	.01		-0.30	0.00	0.59	0.47	0.99
CRESLS	.16	.13	-0.00	0.00	0.40	0.61	0.92

Note: Residuals are named D(imension) RES(idual of) D(imension) so that LRESRO is short for L(ocation) RES(idual of) R(ecruiter control and) O(thers' control).

Table 10

Principal Components of Residuals and Ratings

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4
(L)ocation			0.973	
LRESC	0.399	0.314	0.846	
LRESO	-0.458		0.856	
LRESR		0.882	0.433	
LRESRO	-0.290	0.902	0.429	
LRESS			0.863	0.425
LRESSC	0.300	0.410	0.745	0.419
LRESSRO	-0.257	0.884	0.447	
(S)tability			-0.479	0.880
SRESC	-0.263		-0.425	0.886
SRESO	0.416			0.886
SRESR		-0.250		0.929
SRESRO	0.284			0.942
SRESL				0.953
SRESLC		0.264		0.951
SRESLRO	0.251			0.953
(R)ecruiter (C)ontrol		0.422	-0.884	
RCRESL		0.966		
RCRESLO		0.984		
RCRESLS		0.948		
RCRESLSO		0.979		
RCRESO	0.355	0.449	-0.754	
RCRESS		0.488	-0.745	-0.371
RCRESSO		0.490	-0.723	-0.339
(O)thers' (C)ontrol	0.869		0.473	-0.284
OCRESL	0.975			
OCRESLR	0.971			
OCRESLS	0.995			
OCRESLSR	0.990	-0.259		
OCRESR	0.937			
OCRESS	0.945			0.302
OCRESSR	0.960			0.262
(C)ontrol	0.682	0.374	-0.507	
CRESL	0.781	0.463		
CRESS	0.707	0.371	-0.456	
CRESLS	0.768	0.500		
EIGENVALUES	10.791	8.529	8.202	8.113

Note: Residuals are named D(imension) RES(idual of) D(imension) so that LRESRO is short for L(ocation) RES(idual of) R(ecruiter control and) O(thers' control).

Table 11

Correlations of Principal Components of Residuals and Ratings

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4
FACTOR 1	1.000			
FACTOR 2	0.154	1.000		
FACTOR 3	-0.065	-0.025	1.000	
FACTOR 4	-0.025	-0.007	0.041	1.000

to that rating after the common dimensional rating variance is removed. Note that in each set of intercorrelations in Table 12 the unique variance for one variable is as low as 25 to 33% while all other ratings are represented by at least 50% of its original variance.

Summary. Dimension ratings by judges were found to be strongly correlated, as they were by Wiley et al. (1979) and Bar-Tal, Goldberg, and Knaani (in press). However, general control is not as strongly correlated with location and stability as is actor's control. The common variance of a general factor for the set of attributions rated is particularly large for location and stability. However, dimension-specific variance can be obtained as residuals of common variance.

The hypothesized three-dimensional structure of attributions is not directly supported by my data nor by Wiley et al. (1979) nor Bar-Tal et al. (in press). However, dimension-specific variance is obtainable from judge's ratings which provides indirect support for the three-dimensional model. The strength of this support rests on the usefulness of the dimension-specific variance in understanding and predicting attributions and their antecedents and consequences.

Performance Attributions

Performance attributions were made by 173 recruiters for their own performance; station commanders also made performance attributions for 103 of these recruiters. Performance attributions were made on the same set of causal variables judged on dimensionality. Table F2 (Appendix F) is the correlation matrix for the performance attributions of all subjects (102 commanders and 161 recruiters) who rated every performance attribution variable.

To identify the dimensions underlying subjects' performance attributions, the data were subjected to factor analysis. Principal components' eigenvalues for 14 components exceeded 1.00, though as can be seen in Figure 3 the roots of the components drop off sharply after the first few. Direct quartermin rotations for 2, 3, 4, 5, 6, 7, 11, 12, 13, and 14 factors were examined. Selection of the 3 component solution as the basic solution was based on four criteria: (a) the scree test, (b) interpretability as general

Table 12

Intercorrelations of Residual Dimensional Scales

Set 1	L	CRESL	RCRESL	OCRESLR	SRESLRO
(L)ocation	1.00				
CRESL	.00	.93			
RCRESL	-.00	.67	.57		
OCRESLR	-.00	.74	-.00	.82	
SRESLRO	.00	.01	.00	-.00	.71
Set 2	LRESS	CRESLS	RCRESLS	OCRESLS	S
LRESS	.78				
CRESLS	-.00	.92			
RCRESLS	-.00	.71	.56		
OCRESLS	-.00	.81	.17	.76	
(S)tability	.00	.00	.00	.00	1.00
Set 3	LRESRO	C	RC	OC	SRESLRO
LRESRO	.51				
(C)ontrol	.02	1.00			
(R)ecruiter (C)ontrol	.00	.91	1.00		
(O)thers' (C)ontrol	.00	.75	-.43	1.00	
SRESLRO	.00	.01	.00	-.00	.71
Set 4	LRESRO	C	RCRESO	OCRESR	SRESLRO
LRESRO	.51				
C	-.02	1.00			
RCRESO	.00	.91	.90		
OCRESR	.00	.75	.43	.90	
SRESLRO	.00	.01	.00	-.00	.71
Set 5	LRESR	CRESS	RC	OCRESR	SRESLRO
LRESRO	.51				
CRESS	-.01	.99			
RC	.00	.59	1.00		
OCRESR	.00	.80	-.00	.90	
SRESLRO	.00	-.07	.00	-.00	.71
Set 6	LRESRO	CRESS	RCRESO	OC	SRESLRO
LRESRO	.51				
CRESS	-.01	.99			
RCRESO	.00	.88	.90		
OC	.00	.47	.00	1.00	
SRESLRO	.00	-.07	.00	-.00	.71

Note: Residuals are named D(imension) RES(idual of) D(imension) so that LRESRO is short for L(ocation) RES(idual of) R(ecruiter control and) O(thers' control). Diagonal elements are correlations of the residuals with the original rating.

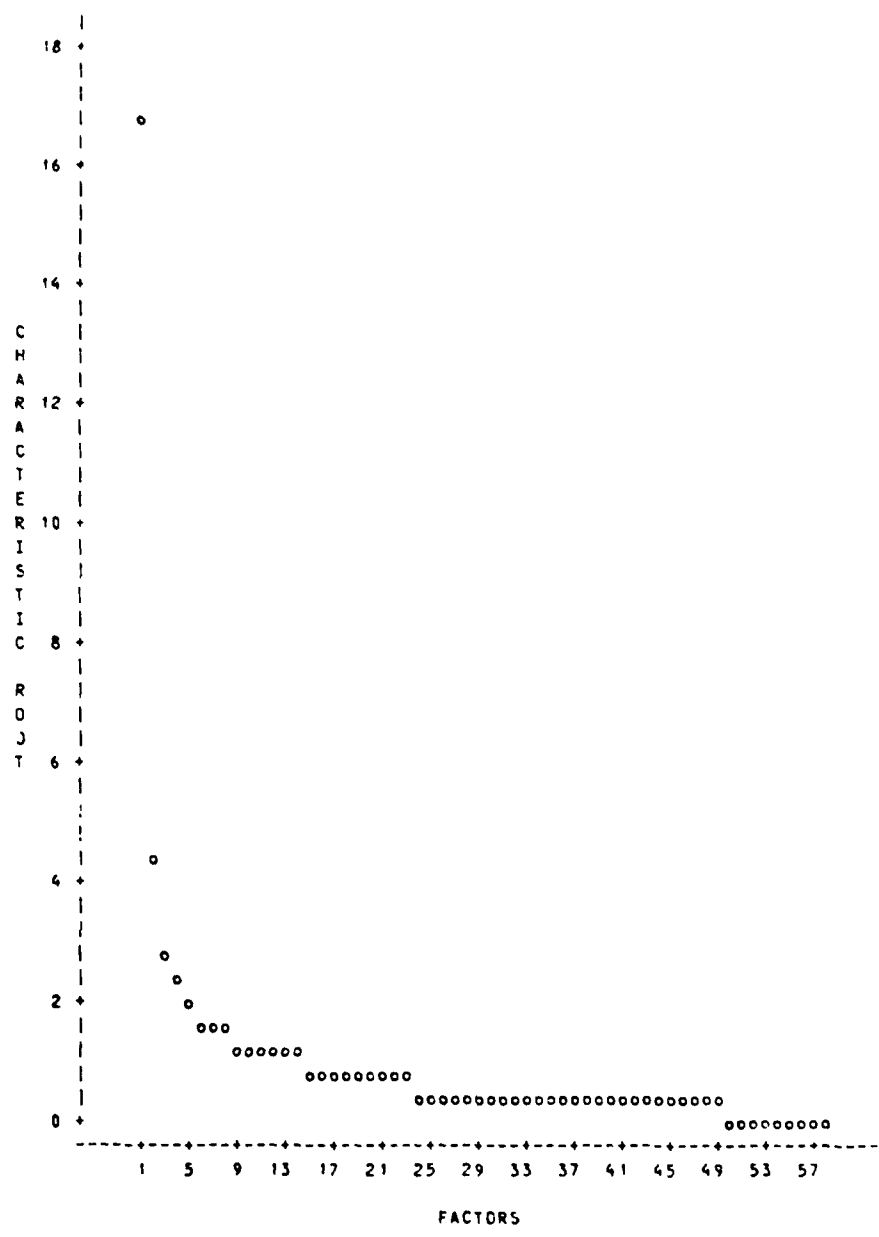


Figure 3. Eigenvalues of principal components of performance attributions.

factors, and (c) convergence of solutions from different samples. By the scree test (Cattell, 1966) there are clearly at least three factors before the drop in the size of the roots begins to flatten (Figure 3); while the angle at 14 factors suggests itself as the upper limit of the number of factors. This upper bound is also set by the roots ≥ 1 criterion. The interpretability criterion applied here has 2 parts. The 3 factor solution is the highest solution where all factors appear from previously unrepresented variables. Secondly this solution is the highest root where all factors are general in nature. Starting with the four factor solution, factors which appear are composed of subsets of variables which previously loaded on one of the first three variables. These subsets of variables are usually specific in nature.

The final criteria is convergence of solutions from station commanders and recruiters. Starting with the fourth factor, as the more specific factors begin to emerge they differ in order of emergence and to some extent in composition in the solutions for the two groups factored separately.

The three factor solution for all subjects is presented in Table 13. With the exception of one attribution, all attributions with their highest loading on the first factor are clearly internal. The one exception is Army guidance counselors which also loads on the second factor. No causal variable with its highest loading on the second factor is internal. The highest loadings on the third factor are causal variables that are neither clearly internal nor external; these variables are at the intersection of the recruiter and the task environment. Loading at less than .50 on this factor, however, are 3 attribution variables which represent task difficulty in a recruiter's zone: (a) number of youth; (b) quality of youth; and (c) propensity of youth to serve in the military. These variables also load on the second factor, External Causes, where the other task difficulty variables load (e.g., going-to-college rate in zone).

The separate analyses of recruiters and station commanders reveal no notable divergences. The clarity of the Internal factor is apparent in both groups. Smaller loadings on both the External Causes and Intermediate Causes factors do show some cross over between the two analyses but these do not call the interpretation of this solution into question. These differences, however, do lead to factors emerging in different order and with somewhat different variables in solutions of more factors.

In the five factor solution variance-accounted-for increases to 55% from the 42% accounted for by three factors, and increases to 60%, 64%, 68%, and 70%, for 7, 9, 11, and 14 factor solutions, respectively. In the five factor solution private life variables (i.e., marital status, dependents, and friends and family life) are split from the Internal Causes factor. The External Causes divide in this solution into generally helpful and generally unhelpful variables. For example, one factor has loadings of .5 or greater for advertising, help from other recruiters' PR events, help from other recruiters, station commander help in sales training, hometown recruiter aides, and guidance counselor. In the same solution, an External Difficulty factor has high loadings for paperwork and administrative burdens, all 3 command levels, all 3 distances, local cost of living, and negative climate caused by other recruiters.

Table 13
 Three Principal Components of Performance Attributions

	ALL SUBJECTS'			STATION COMMANDERS'			RECRUITERS'		
	1	2	3	1	2	3	1	2	3
Intelligence	0.868			0.779			0.890		
M to do everything well	0.847			0.825			0.834		
Usual efforts	0.825			0.775			0.831		
Personality	0.784			0.774			0.803		
M to do a good job for Army	0.780			0.839			0.726		
Education, experiences	0.776			0.662			0.782		
M to help young people	0.760			0.646			0.789		
Natural sales ability	0.699			0.703			0.712		
Sales skills developed/trained	0.683			0.778			0.647		0.285
Recruiter's opinions on Army life	0.660			0.622			0.652		
Comfortableness with people	0.653		0.308	0.660		0.347	0.686		
Physical appearance	0.644			0.567			0.670		
General health and stamina	0.615			0.545			0.649		
Money handling ability	0.586			0.580			0.544	0.270	
M for rewards, approval	0.580			0.570			0.613		
Age	0.558			0.499			0.556		
Marital status	0.555		-0.392	0.449			0.526	-0.422	-0.403
Gender	0.549			0.322			0.620		
Unusual effort in last six months	0.539			0.741			0.469		
Dependents	0.535	0.272	-0.394	0.450			0.503	-0.490	-0.395
Friends, family life	0.531	0.307		0.490			0.504	-0.477	-0.265
M to get out with good record	0.526			0.404			0.570		

Table 13 (continued)

	ALL SUBJECTS'			STATION COMMANDERS'			RECRUITERS'			
	FACTOR LOADINGS			FACTOR LOADINGS			FACTOR LOADINGS			
	1	2	3	1	2	3	1	2	3	
Being ill or particularly healthy	0.430				0.291			0.494		
Work on public relation events	0.426		0.268	0.477	0.296			0.404		0.319
Army guidance counselors	0.377	0.359			0.378			0.473		
Regional Command		0.693			0.365	0.370			0.585	0.337
District Command		0.673			0.491				0.508	0.344
Local advertising		0.623			0.691				0.444	0.252
Paperwork, administrative burden		0.620				0.592			0.654	
Going-to-college-rate in zone		0.547				0.474			0.552	
Distance to Army presence		0.543			0.286	0.288			0.644	
Help from other recruiters' PR events		0.533			0.757				0.277	0.425
Negative climate from other recruiters		0.521				0.460			0.560	
Disruptions from rezoning		0.511							0.619	
Local opinion		0.502			0.469	0.287			0.345	0.421
USAREC Command		0.501		0.263		0.275			0.436	0.393
Help from TAIR (Army PR events)		0.489			0.547				0.374	0.395
Sales training from station commander		0.481			0.552				0.281	0.331
Distances for contacts in zone		0.429				0.556		0.269	0.442	
Distances for testing and processing		0.453				0.435			0.464	
National advertising		0.424			0.697					0.265
Hometown recruiter aides		0.421			0.469					0.317
Local cost of living		0.410		0.293	0.318				0.289	0.466
Station commander performance		0.395			0.399				0.252	
Help from other recruiters		0.389			0.648				0.255	

Table 15 (continued)

	ALL SUBJECTS'			STATION COMMANDERS'			RECRUITERS'			
	FACTOR LOADINGS			FACTOR LOADINGS			FACTOR LOADINGS			
	1	2	3	1	2	3	1	2	3	
Disruptions from PCS (relocation)		0.336		0.275		0.321		0.250		0.309
Local unemployment		0.252		0.257		0.731		0.253		0.699
Similarity to people in zone	0.275		0.710		0.518					0.709
Comfortable with people in area			0.663		0.290					0.617
Closeness to area where grew up			0.624							0.572
Ethnic similarity to people in zone			0.616							0.574
Educational similarity to youth in zone			0.611							0.545
Interest similarity to youth in zone	0.280		0.510		0.376					0.580
Propensity for military service in zone		0.392	0.485							0.502
Number of youth in zone		0.265	0.465		0.400					0.516
Likes living in area		0.355	0.449		0.347					0.584
Quality of youth in zone			0.428		0.305					0.258
Luck					0.529			0.325		
EIGENVALUES	11.114	6.992	4.55	11.14	4.878	5.501	11.63	5.44	6.04	

² Motivation is abbreviated M.

The clearest solution with nonspecific factors is the 11 factor solution (Table 14). Note that while 14 factors meet the maximum scree limit and the root > 1.0 criterion, solutions of 12, 13, and 14 factors have at least one factor with only one loading above .50 and the 14 factor solution has an additional factor with no loading above .35. The 11 factor solution best shows the end process of clustering the causal variables with no factors being unique for a single variable.

In the 11 factor solution presented in Table 14, the Internal factor is still very strong with only 2 splinter factors: (a) in the five factor solution a factor for private life variables had entered and (b) the only additional group of variables to separate from the Internal factor (in the 11 factor solution) are those variables related to physical health and appearance. Similarity is also a very strong factor. In contrast, the External factor which split into 2 components in the five factor solution, becomes 6 components in the 11 component solution. The External Difficulties factor in the five factor solution has separated into components of Administration, Local social climate, Local geography, and Changes in locale (components 4, 7, 9, and 10, respectively). External help is represented at the station level and at higher levels (components 5 and 8). The last component to appear in this solution is Luck, which in lower rank solutions had only minor loadings on other factors. The presence of Hometown recruiter aides on the luck factor is not surprising since the recruiters and station commanders complained about the assignment of aides being purely chance (Hertzbach, Elig, Gade, Siebold, Eaton, & O'Hara, 1982).

Factor correlations. Intercorrelations of the components are generally positive and range as high as .39 in the 3 factor solution and .36 in the 11 factor solution (Tables 15 and 16). Second order analyses of the first order solutions point to 2 general factors with additional factors loadings only on limited subsets of variables.

Table 15

Correlations of Three Principal Components

	FACTOR 1	FACTOR 2	FACTOR 3
ALL SUBJECTS			
FACTOR 1	1.000		
FACTOR 2	0.394	1.000	
FACTOR 3	0.314	0.250	1.000
STATION COMMANDERS			
FACTOR 1	1.000		
FACTOR 2	0.325	1.000	
FACTOR 3	0.299	0.279	1.000
RECRUITERS			
FACTOR 1	1.000		
FACTOR 2	0.270	1.000	
FACTOR 3	0.377	0.265	1.000

Table 14
 Eleven Principal Components of Performance Attributions

	FACTOR LOADINGS					
	1	2	3	4	5	6
M to do everything well	0.880					
M to do a good job for Army	0.824					
Usual efforts	0.802					
M to help young people	0.693					
Personality	0.674					
Recruiter's opinions on Army life	0.651					
M to get out with good record	0.624					
Sales skills developed/trained	0.619					
Comfortableness with people	0.598					
Unusual effort in last six months	0.581					
Intelligence	0.544					
Natural sales ability	0.526					
M for rewards, approval	0.504					
Education, experiences	0.457					
Work on public relation events	0.374					0.544
Similarity to people in zone		0.837				
Closeness to area where grew up		0.798				
Comfortable with people in area		0.684				
Ethnic similarity to people in zone		0.670				
Likes living in area		0.660				
Educational similarity to youth in zone		0.609				
Interest similarity to youth in zone		0.512				
Number of youth in zone		0.317				
Marital status			0.910			
Dependents			0.903			

Table 14 (continued)

	FACTOR LOADINGS					
	1	2	3	4	5	6
Friends, family life			0.803			
Money handling ability			0.556			
Age			0.392			
Regional Command				0.744		
District Command				0.644		
Paperwork, administrative burden				0.642		
USAREC Command				0.634		
Quality of youth in zone		0.307		0.441		
Help from TAIR (Army PR events)				0.285		
Sales training from station commander					0.906	
Station commander performance	0.293				0.697	
Help from other recruiters' PR events					0.610	0.272
Help from other recruiters					0.578	
Being ill or particularly healthy						0.676
General health and stamina						0.654
Physical appearance						0.543
Gender						0.282
Local unemployment						
Local cost of living						
Local opinion						
Going-to-college-rate in zone						0.327
Propensity for military service in zone		0.345				
National advertising						
Local advertising						
Army guidance counselors						

Table 14 (continued)

	1	2	3	4	5	6
Distances for testing and processing						
Distances for contacts in zone						
Disruptions from PCS (relocation)						
Disruptions from rezoning						
Negative climate from other recruiters				0.326		0.387
Distance to Army presence						
Luck						
Hometown recruiter aides						
M to do everything well						
M to do a good job for Army						
Usual efforts						
M to help young people						
Personality						
Recruiter's opinions on Army life						
M to get out with good record						
Sales skills developed/trained						
Comfortableness with people						
Unusual effort in last six months						
Intelligence						
Natural sales ability						
M for rewards, approval						
Education, experiences						
Work on public relation events						

Table 14 (continued)

	FACTOR LOADINGS				
	7	8	9	10	11
Similarity to people in zone					
Closeness to area where grew up					
Comfortable with people in area					
Ethnic similarity to people in zone					
Likes living in area					0.277
Educational similarity to youth in zone					
Interest similarity to youth in zone					
Number of youth in zone					
Marital status					
Dependents					
Friends, family life					
Money handling ability					
Age				-0.271	
Regional Command					
District Command		0.303			
Paperwork, administrative burden					
USAREC Command					
Quality of youth in zone					0.263
Help from TAIR (Army PR events)					
Sales training from station commander					
Station commander performance					
Help from other recruiters' PR events					
Help from other recruiters					
Being ill or particularly healthy					
General health and stamina					

Table 14 (continued)

	FACTOR LOADINGS									
	7	8	9	10	11					
Physical appearance										
Gender										
Local unemployment	0.775									
Local cost of living	0.680									
Local opinion	0.487	0.305								
Going-to-college-rate in zone	0.405									
Propensity for military service in zone	0.351				0.321					
National advertising		0.754								
Local advertising		0.730								
Army guidance counselors		0.414								
Distances for testing and processing			0.776							
Distances for contacts in zone			0.714							
Disruptions from PCS (relocation)				0.696						
Disruptions from rezoning				0.635						
Negative climate from other recruiters				0.425						
Distance to Army presence			0.363	0.400						
Luck					0.745					
Hometown recruiter aides					0.524					
EIGENVALUES:	6.507	4.160	3.318	2.813	2.483	2.153	2.078	2.069	1.977	1.809

Note: N = 263. Motivation is abbreviated M.

Table 16
Correlations of Eleven Principal Components

FACTOR	1	2	3	4	5	6	7	8	9	10	11
1	1.000										
2	0.340	1.000									
3	0.356	0.236	1.000								
4	0.085	0.192	0.097	1.000							
5	0.239	0.220	0.156	0.245	1.000						
6	0.288	0.241	0.265	0.116	0.156	1.000					
7	0.139	0.210	0.129	0.254	0.234	0.117	1.000				
8	0.196	0.164	0.163	0.108	0.266	0.117	0.105	1.000			
9	0.282	0.207	0.190	0.193	0.156	0.130	0.161	0.084	1.000		
10	-0.099	-0.002	0.021	0.158	0.036	0.011	0.040	0.040	0.088	1.000	
11	0.129	0.199	0.167	0.059	0.150	0.178	0.103	0.123	0.093	-0.009	1.000

Note: N = 58 performance attributions.

Three second order factors with eigenvalues of 2.67, 1.20, and 1.04 exceed the root ≥ 1.0 criterion in the analysis of eleven factors. The two component solution has two general factors and accounts for 35% of the variance. While three components exceed the root ≥ 1.0 test and the third component increases variance accounted for to 45%, this component is a specific factor. The purpose of higher order analysis is to account for maximal variance with general factors. The factor patterns for the second order principal components analyses with 2 and 3 components are shown in Tables 17 and F3, respectively. The orthogonally rotated pattern for reproducing the attribution variables from the second order analysis is presented (Gorsuch, 1974).

The second order orthogonal components of performance attributions continue to show the strong pattern of internal and external attributions loading on separate factors. In this analysis, however, the attribution variables which are intermediate in location load on the internal factor rather than on a separate factor. In the 3 component analysis (Table F3) there is a general external factor (Component 2) and a specific external factor (Component 3).

Factoring variables clustered by location. I cannot interpret on the basis of face validity either the first order nor second order factors in terms of stability and control. Before exploring whether the judges ratings are useful in further interpretation of these factors, I find it useful to explore whether control and/or stability is nested within location. Michela et al. (1982) found evidence (using multidimensional scaling) for an actor control dimension only among internal causes. Actor and other's control --and stability as well--may only account for relatively large amounts of variance after accounting for the much more salient location dimensions.

While differing in details, first order analyses thus far support the existence of internal, intermediate, and external clusterings of performance attributions. In order to resolve the details of how attributions cluster within these three major groups, I examine separate principal components analyses of 3 sets of performance attributions. Sixteen attributions with mean judgement ratings of location within .15 of the grand mean of location ratings formed the group of intermediate attribution variables. Internal and external attribution variables are those with location mean ratings below 1.70 and above 2.0, respectively (see Table 5). These cutoff points were chosen to be symmetrical on either side of the mean while capitalizing on seemingly natural breaks in the distribution of location ratings.

Four components of the internal performance attributions have eigenvalues greater than 1.0 and yield an interpretable pattern for 66% of the variance (Table 18). As would be expected from previous analyses, private life variables and physical appearance/health variables form separate components. A new group of variables to separate from the core internal attributions also appears. This fourth component has high loadings on recruiting ability variables and personal qualities thought to be associated with recruiting ability (see Elig, Kass, Gade, & Eaton, 1981).

Table 17

Second Order Orthogonal Components of Eleven Primary Factors

	COMPONENTS	
	1	2
Intelligence	0.768	
Physical appearance	0.737	
General health and stamina	0.736	
Education, experiences	0.694	
Gender	0.687	
Personality	0.666	
Natural sales ability	0.661	
M to help young people	0.640	
Age	0.639	
Interest similarity to youth in zone	0.628	
Usual efforts	0.628	
Sales skills developed/trained	0.627	
Comfortableness with people	0.626	
Number of youth in zone	0.618	0.310
M to do everything well	0.616	
Friends, family life	0.608	
Educational similarity to youth in zone	0.607	
Money handling ability	0.590	
Comfortable with people in area	0.586	0.257
M to do a good job for Army	0.565	
Work on public relation events	0.563	
M for rewards, approval	0.556	
Propensity for military service in zone	0.521	0.427
Ethnic similarity to people in zone	0.516	
Dependents	0.508	
Marital status	0.502	
Army guidance counselors	0.498	0.308
Unusual effort in last six months	0.473	0.351
Likes living in area	0.464	0.352
Similarity to people in zone	0.460	0.276
Recruiter's opinions on Army life	0.457	
Help from other recruiters	0.446	0.279
Being ill or particularly healthy	0.434	
Quality of youth in zone	0.412	0.398
M to get out with good record	0.388	
National advertising	0.369	0.321
Hometown recruiter aides	0.365	0.256
Closeness to area where grew up	0.319	0.265
Luck	0.248	
Regional Command		0.636
Paperwork, administrative burden		0.624
District Command		0.621
Distance to Army presence		0.577
Going-to-college-rate in zone		0.557
USAREC Command	0.348	0.513

Table 17 (continued)

	COMPONENTS	
	1	2
Local opinion	0.372	0.508
Distances for testing and processing	0.271	0.501
Station commander performance	0.258	0.492
Local cost of living	0.281	0.482
Sales training from station commander		0.452
Local advertising	0.358	0.449
Disruptions from rezoning		0.447
Distances for contacts in zone	0.384	0.429
Help from TAIR (Army PR events)	0.289	0.412
Negative climate from other recruiters		0.407
Help from other recruiters' PR events	0.398	0.399
Local unemployment	0.323	0.356
Disruptions from PCS (relocation)		0.257

Table 18
Principal Components of Internal Performance Attributions

	4 FACTOR SOLUTION				2 FACTOR SOLUTION	
	1	2	3	4	1	2
M to do everything well	0.940				0.933	
M to do a good job for Army	0.886				0.859	
Usual efforts	0.804				0.864	
M to help young people	0.752				0.821	
Comfortableness with people	0.738				0.833	
Personality	0.736				0.830	
M to get out with good record	0.688			-0.310	0.616	
Unusual effort in last six months	0.659				0.687	
M for rewards, approval	0.628				0.615	
Recruiter's opinions on Army life	0.579				0.590	
Natural sales ability	0.552			0.353	0.673	
Intelligence	0.518			0.447	0.684	
Education, experiences	0.476			0.368	0.604	
Dependents		0.945				0.919
Marital status		0.937				0.911
Friends, family life		0.809				0.851
Money handling ability		0.541				0.565

Table 18 (continued)

	4 FACTOR SOLUTION				2 FACTOR SOLUTION	
	1	2	3	4	1	2
Being ill or particularly healthy			0.925			0.365
General health and stamina			0.732		0.415	0.423
Physical appearance			0.557	0.323	0.476	0.365
Age				0.676		0.477
Gender				0.538	0.317	0.383
EIGENVALUES:	6.509	2.881	1.857	1.647	7.951	3.682
FACTOR CORRELATIONS FOR ROTATED FACTORS						
FACTOR 1	1.000				1.000	
FACTOR 2	0.412	1.000			0.509	1.000
FACTOR 3	0.456	0.378	1.000			
FACTOR 4	0.324	0.258	0.229	1.000		

There are also 4 components of the intermediate performance attributions with eigenvalues greater than 1.0. These four components account for 60% of the variance (Table 19). Each of these components is clear and has been seen in previous analyses: (1) Similarity, (2) Help from others, (3) Hurt from others, and (4) Luck.

Five principal components of the external performance attributions have eigenvalues greater than 1.0 (Table 20). These components account for 61% of the variance. Compared to prior analyses, the major difference appears to be that this analysis isolates smaller groups of very similar attributions. Disruptions from rezoning, which was isolated in the analysis of intermediate attributions would probably load heavily on component 4 in this analysis. A recruiter's work on PR events may also be misplaced in location and only load where it does because the zone variables are "located" closest to the recruiter among the variables in this analysis.

The loading of the recruiter's work on PR events with area fertility variables (numbers, quality, and military propensity of youth in zone) may also be explainable as a mixing of causes and effects from a causal chain (see Elig & Frieze, 1975). For example, performance is affected by zone fertility which is affected by the recruiter's work on PR (as well as other's recruiters PR work and the Army PR program) so that attributions of performance to any one variable in the chain is often accompanied by attributions to other events in the chain. Similar reasoning fits the placement of the variables which do not load uniquely on any one of the 5 principal components of external attributions. For example, local opinion on military service is influenced by both the local economy and advertising. This reasoning, however, cannot explain the placement of going-to-college rate. Attributions of recruiting performance to the rate of youth going to the competition (i.e., college) is not associated as expected with attributions to youth quality or military propensity. This may be because while high-quality aides recruiting, a high going-to-college rate depresses recruiting performance. As seen previously in the 5 and 11 component solutions for all attributions, a major clustering rationale after location may be whether the attribution variable aides or impedes performance (cf. Wimer & Kelley, 1982).

Two component solutions for each group of attributions is also of interest. Two component solutions suggest themselves as indicators of the major distinction made after location in the use of performance attributions. Eigenvalues also suggest the appropriateness of two factors for the internal and intermediate variables (Table 21). In each of these cases, components 2, 3, 4 of the 4 factor solution are collapsed into one component of the 2 factor solution. Internal attributions are grouped as the Person and Personal Life. Intermediate attributions are grouped as Impersonal and Help-Hurt Interactions. External attributions are grouped as the Task Situation and Help-Hurt From Others. In each case one component can be interpreted as controllable (the Person, Help-Hurt Interactions, and Help-Hurt From Others) and the other as less controllable (Personal Life, Impersonal, and Task Situation) although this interpretation is not as clear as were interpretations of previous factor solutions.

Table 19
Principal Components of Intermediate Location Performance Attributions

	4 FACTOR SOLUTION				2 FACTOR SOLUTION	
	1	2	3	4	1	2
Comfortable with people in area	0.855				0.808	
Similarity to people in zone	0.844				0.859	
Educational similarity to youth in zone	0.769				0.761	
Closeness to area where grew up	0.768				0.787	
Ethnic similarity to people in zone	0.744				0.756	
Likes living in area	0.680				0.706	
Interest similarity to youth in zone	0.644				0.663	
Sales skills developed/trained	0.440	0.385			0.339	0.396
Sales training from station commander		0.852				0.842
Station commander performance		0.849				0.842
Help from other recruiters		0.607		0.332		0.686
Paperwork, administrative burden			0.776		0.273	
Negative climate from other recruiters			0.775		0.293	
Luck				0.830		
Hometown recruiter aides		0.255		0.586		0.378
Disruptions from PCS (relocation)			0.345	0.397		0.284

Table 19 (continued)

	4 FACTOR SOLUTION				2 FACTOR SOLUTION	
	1	2	3	4	1	2
EIGENVALUES:	4.269	2.124	1.470	1.441	4.528	2.265
FACTOR CORRELATIONS FOR ROTATED FACTORS						
FACTOR 1	1.000				1.000	
FACTOR 2	0.314	1.000			0.383	1.000
FACTOR 3	0.186	59	1.000			
FACTOR 4	0.202	0.125	71	1.000		

Table 20
Principal Components of External Performance Attributions

	5 FACTOR SOLUTION					2 FACTOR SOLUTION	
	1	2	3	4	5	1	2
National advertising	0.881						0.880
Local advertising	0.796						0.870
Army guidance counselors	0.554						0.593
Help from other recruiters' PR events	0.480		0.334				0.635
Regional Command		0.842				0.367	0.423
District Command		0.731				0.265	0.497
USAREC Command		0.714				0.288	0.457
Help from TAIR (Army PR events)	0.303	0.343	0.301			0.597	0.519
Quality of youth in zone		0.272	0.688				
Number of youth in zone			0.676			0.690	
Work on public relation events			0.645			0.350	
Propensity for military service in zone			0.628		0.365	0.728	
Distances for testing and processing				0.837		0.665	
Distances for contacts in zone				0.671		0.644	
Distance to Army presence		0.265		0.638		0.459	
Disruptions from rezoning				0.566		0.447	
Going-to-college-rate in zone		0.259		0.348		0.707	

Table 20 (Continued)

	5 FACTOR SOLUTION					2 FACTOR SOLUTION	
	1	2	3	4	5	1	2
Local unemployment					0.824	0.550	
Local cost of living					0.724	0.446	
Local opinion	0.332				0.430	0.351	0.407
EIGENVALUES	2.345	2.270	2.203	2.139	1.860	4.260	3.476
FACTOR CORRELATIONS							
FACTOR 1	1.000					1.000	
FACTOR 2	0.320	1.000				0.501	1.000
FACTOR 3	0.278	0.314	1.000				
FACTOR 4	0.201	0.309	0.235	1.000			
FACTOR 5	0.167	0.236	0.221	0.180	1.000		

Table 21

Unrotated Component Variances for Grouped Performance Attributions

COMPONENT	INTERNAL ATTRIBUTIONS		INTERMEDIATE ATTRIBUTIONS		EXTERNAL ATTRIBUTIONS	
	ROOTS	CUMULATIVE VARIANCE	ROOTS	CUMULATIVE VARIANCE	ROOTS	CUMULATIVE VARIANCE
1	10.10	0.46	5.12	0.32	6.70	0.33
2	2.12	0.56	1.71	0.43	1.62	0.42
3	1.24	0.61	1.37	0.51	1.53	0.49
4	1.01	0.66	1.31	0.59	1.24	0.55
5	0.79	0.69	0.93	0.65	1.19	0.61
6	0.72	0.73	0.81	0.70	0.97	0.66
7	0.66	0.76	0.73	0.75	0.85	0.71
8	0.60	0.78	0.68	0.79	0.75	0.74
9	0.55	0.81	0.60	0.83	0.73	0.78
10	0.52	0.83	0.54	0.86	0.59	0.81
11	0.50	0.85	0.48	0.89	0.56	0.84
12	0.49	0.88	0.43	0.92	0.53	0.86
13	0.45	0.90	0.40	0.94	0.45	0.89
14	0.40	0.92	0.33	0.97	0.42	0.91
15	0.37	0.93	0.30	0.98	0.38	0.93
16	0.30	0.95	0.26	1.00	0.38	0.94
17	0.28	0.96			0.34	0.96
18	0.25	0.97			0.29	0.98
19	0.21	0.98			0.24	0.99
20	0.19	0.99			0.23	1.00
21	0.16	0.99				
22	0.12	1.00				

Interpretability of Attribution Components

As we have seen, the components of performance attributions are easily interpretable in terms of location. Interpretation by whether the components are loaded by variables helping or depressing performance are also readily made, as are interpretations made in terms of logical association in causal chains. While interesting, these interpretations do not support a three dimensional model of location, stability and control.

Interpretations in terms of the control and stability dimensions are not as readily made by sight inspection. Though interpretations of certain components readily suggest themselves in terms of personal or impersonal agency, these interpretations are best reserved until after testing the components for association with personal control ratings. Interpretations of the components of performance attributions are tested by correlating each component tested by correlating each component pattern with the original and residual dimensional scales from the judges' ratings of attribution dimensions.

Interpretability of general factors. Table 22 presents the correlations of the dimensional scales with the component patterns of the 3 principal components (first order analysis with all subjects) of all performance attributions (Table 13). On face appearance these components were labeled Internal, External, and Intermediate. The first two components indeed have opposite correlations with the dimensions. Based on correlations with the original scales, the first component is loaded by attributions which are internal, recruiter controlled, uncontrolled by others, and stable. The second component is loaded by attributions which are external, not recruiter controlled, other controlled, and unstable. However, these first two components are not uniquely correlated with any one dimension. When the common variance is removed from the original scales (in the residual scales) the dimensional correlations tend to disappear, though component three is associated with the residual location dimension. This component which has its highest loadings on intermediate variables, correlates significantly with externality. This correlation is perhaps the result of two internal variables (marital status and dependents) which load negatively on this component. When these two variables are removed, correlations of Component 3 with the location and stability dimension scales are shrunk, correlations with location (L), location-residual of recruiter and other control (LRESRO), and stability-residual of location, recruiter and other control (SRESLRO) are, respectively: $r(55) = .18$, $p = .17$; $r(55) = .24$, $p = .07$; and $r(55) = .204$, $p = .13$.

Table 22

Correlations of Dimensional Scales with Three Principal Components

SCALE	FACTOR 1	FACTOR 2	FACTOR 3
(L)ocation	-0.822**	0.764**	0.259*
LRESRO	-0.195	0.218	0.275*
(C)ontrol	0.323*	-0.128	-0.202
CRESL	0.023	0.164	-0.115
CRESLS	0.070	0.112	-0.059
CRESS	0.244	-0.047	-0.216
(R)ecruiter (C)ontrol	0.793**	-0.669**	-0.172
RCRESL	0.206	-0.071	0.072
RCRESLS	0.159	-0.013	0.010
RCRESO	0.596**	-0.425**	-0.197
(O)thers' (C)ontrol	-0.596**	0.665**	-0.015
OCRESR	-0.284*	0.420**	-0.098
OCRESLR	-0.173	0.286*	-0.206
OCRESLS	-0.051	0.167	-0.072
(S)tability	0.733**	-0.733**	0.113
SRESLRO	0.197	-0.225	0.285*

Note: N = 58 first order component patterns. Residuals are named D(imension) RES(idual of) D(imension) so that LRESRO is short for L(ocation) RES(idual of) R(ecruiter control and) O(thers' control).

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

Thus the three component solution presents us with a structure of 3 clusters of performance attributions: (a) internal, stable, recruiter controlled, and not other controlled; (b) external, unstable, other controlled, and not recruiter controlled; and (c) intermediate on all dimensions. No cluster is uniquely and strongly associated with any one dimension.

Table 23 presents the correlations of the two components of the second order analysis of performance attributions (Table 17) with the dimensional scales. In the second order analysis, the Intermediate component of the first order analyses has been folded primarily into the first component. The components in the two component solution correlate with dimensional scales much in the same way as the first two components of the first order, 3 component solution. However, in this analysis the second component does show unique associations with Others' Control and Location which persist when common variance is removed in the residual scales.

Since no correlation of a dimensional scale and the second order components varies by more than .03 when obliquely rotated components are examined, the dimensional structure of the general factors of performance attributions do not seem to be related to the rotation method used nor to a moderate degree of nonorthogonality ($r = .235$).

The dimensional structure of general factors of performance attributions in these analyses is separate clusters of (a) Stable, Internal, Recruiter (and not Others') Controlled attributions and (b) Unstable, External, Other

Table 23

Correlations of Dimensional Scales with Second Order Components

SCALE	FACTOR 1	FACTOR 2
(L)ocation	-0.665**	0.787**
LRESRO	-0.030	0.310*
(C)ontrol	0.174	-0.017
CRESL	-0.075	0.292*
CRESLS	-0.019	0.284*
CRESS	0.099	0.044
(R)ecruiter (C)ontrol	0.679**	-0.609**
RCRESL	0.232	0.066
RCRESLS	0.174	0.080
RCRESO	0.454**	-0.330*
(O)thers' (C)ontrol	-0.628**	0.728**
OCRESR	-0.374**	0.518**
OCRESLR	-0.325*	0.335**
OCRESLS	-0.186	0.337**
(S)tability	0.684**	-0.548**
SRESLRO	0.195	0.053

Note: N = 58 second order component patterns. Residuals are named D(imension) RES(idual of) D(imension) so that LRESRO is short for L(ocation) RES(idual of) R(ecruiter control and) O(thers' control).
 * $p < .05$. ** $p < .01$.

(not Recruiter) Controlled attributions. In the first order analysis a separate cluster of attributions intermediate on this dimension is also found. When Control is used instead of separate Other and Recruiter Control, the separate aspects of Control cancel each other out and the clusters are defined by location and stability.

When more specific factor solutions of performance attributions are examined, this clear structure is less apparent. More specific factors tend to have unique dimensional associations.

Interpretability of specific factors. The clearest interpretations are possible for the components of the separately analyzed groups of internal, intermediate, and external attributions. Because much of the variance for location has been removed by separate analyses of variables grouped by location, it is not surprising that the location dimension shows small, generally nonsignificant correlations with these components. From the two component analysis of internal attributions (Table 24) we can see that the primary distinction among internal attributions is whether they are stable-controllable or unstable-uncontrollable. The first component of the two and four component solutions are nearly identical (Table 18) with high loadings on personal characteristics of the recruiter. Note that these loadings correlate very highly with control-by-others even when location, stability and recruiter control are removed from the measure of other's control. Variables

Table 24

Correlations of Dimensional Scales with Internal Attribution Components

SCALE	4 FACTOR SOLUTION				2 FACTOR SOLUTION	
	1	2	3	4	1	2
(L)ocation	-0.102	0.191	-0.022	-0.409	-0.223	0.082
LRESRO	0.208	0.057	0.033	-0.546**	0.103	-0.084
(C)ontrol	0.731**	-0.508*	-0.072	-0.479*	0.692**	-0.677**
CRESL	0.702**	-0.472*	-0.073	-0.523*	0.649**	-0.652**
CRESLS	0.733**	-0.517*	-0.068	-0.504*	0.691**	-0.690**
CRESS	0.705**	-0.472*	-0.075	-0.498*	0.656**	-0.647**
(R)ecruiter C	0.573**	-0.304	-0.021	-0.418*	0.535**	-0.441*
RCRESL	0.487*	-0.196	-0.030	-0.577**	0.396	-0.373
RCRESLS	0.425*	-0.121	-0.032	-0.590**	0.321	-0.301
RCRESO	0.691**	-0.416*	-0.081	-0.509*	0.633**	-0.597**
(O)thers' C	0.655**	-0.482*	-0.176	-0.492*	0.578**	-0.684**
OCRESR	0.720**	-0.493*	-0.151	-0.537**	0.645**	-0.701**
OCRESLR	0.748**	-0.620**	-0.198	-0.347	0.715**	-0.793**
OCRESLS	0.848**	-0.716**	-0.151	-0.370	0.837**	-0.882**
(S)tability	0.560**	-0.584**	0.013	0.028	0.654**	-0.584**
SRESLRO	0.689**	-0.713**	-0.044	-0.073	0.763**	-0.760**

Note: N = 22 internal attributions. Residuals are named D(imension) RES(idual of) D(imension).

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

loading on the second component in the 2 component solution form the 2nd, 3rd, and 4th components in the four component solution (Table 18). While all correlations for these latter three components are negative with stability and control, the correlations are not uniform. Personal affair variables (Component 2 of 4) are markedly more unstable and more uncontrollable by others than are the other internal variables not loading on this factor. The physical health and appearance component (Component 3) is not correlated with any dimension. Component 4 with high loadings on age and gender is negatively correlated with recruiter control.

Components of the intermediate location variables (Table 19) are not as distinguishable by dimensional differences (Table 25) as were the internal attribution components. Similarity of the recruiter to the zone (Component 1 of both the 2 and the 4 factor solution) is less controllable by others' and may be more stable than are the intermediate variables with low loadings on this dimension. Help from other recruiters and the station commander (Component 2 of the four factor solution) is markedly under others' control.

Others' control is also strongly correlated with each component in the two component solution of external attribution variables (Table 26). Variables with high loadings on the second of two components are more under others' control than are the external attributions which do not load this component. However, when this component is disaggregated into the first 2 components in the five component solution (Table 20), the disaggregated components are differentially related to the attribution dimension scales. Variables loading on the first of five components (e.g., advertising and guidance counselors) are more controllable by others than are the external variables not loading on this component, while the second component is correlated with the stability dimension rather than the control dimension. Recruiting commands (Component 2 of 5) are more unstable than are the external attributions as a group.

The first component of the two component analysis of external attributions has a high negative correlation with others' control (Table 26). In the 5 factor solution the 3rd, 4th, and 5th components are loaded by the same variables as the first component of the two component solution. The direction but not the magnitude of correlation with others' control is maintained in these more specific factors. Variables loading on the third and fifth component are significantly less controllable by others than are the other external attributions. However, they may differ in being respectively more and less recruiter controllable than are the external attributions as a whole. Component 4 is not strongly correlated with any dimension; distances and disruptions which load most highly on this component cannot therefore be said to differ from the other external variables on any of the dimensions.

Components of performance attributions grouped by location before factor analysis are most clearly distinguishable by others' control. In the two component solutions for internal, intermediate, and external attributions, one component is always controllable by others while the other component is uncontrollable by others. Among internal causes, stability is also strongly related to the components. Also, the components of the largest solutions supported by the eigenvalue ≥ 1.0 rule are usually but not always associated with others' control. Some of these components also correlate with the stability dimension of attributions. Recruiter control is less correlated with

Table 25

Correlations of Dimensional Scales with Intermediate Attribution Components

SCALE	4 FACTOR SOLUTION				2 FACTOR SOLUTION	
	1	2	3	4	1	2
(L)ocation	-0.040	-0.394	0.501*	-0.010	0.121	-0.415
LRESRO	0.375	-0.227	-0.521*	0.228	0.322	-0.173
(C)ontrol	-0.410	0.547*	0.166	-0.184	-0.474	0.517*
CRESL	-0.428	0.531*	0.216	-0.191	-0.480	0.498*
CRESLS	-0.323	0.555*	0.140	-0.270	-0.401	0.508*
CRESS	-0.465	0.526*	0.214	-0.141	-0.512*	0.502*
(R)ecruiter C	0.051	0.248	-0.402	0.054	-0.064	0.273
RCRESL	0.050	0.174	-0.331	0.065	-0.038	0.199
RCRESLS	-0.082	0.165	-0.242	0.152	-0.143	0.204
RCRESO	-0.245	0.477	-0.075	-0.098	-0.340	0.469
(O)thers' C	-0.560*	0.493*	0.548*	-0.282	-0.545*	0.432
OCRESR	-0.531*	0.557*	0.411	-0.259	-0.551*	0.505*
OCRESLR	-0.565*	0.541*	0.509*	-0.289	-0.566*	0.481
OCRESLS	-0.348	0.624**	0.339	-0.474	-0.413	0.534*
(S)tability	0.597*	0.113	-0.494*	-0.378	0.444	0.055
SRESLRO	0.439	0.267	-0.215	-0.580*	0.303	0.164

Note: $N = 16$ intermediate location attributions.

Table 26

Correlations of Dimensional Scales with External Attribution Components

SCALE	5 FACTOR SOLUTION					2 FACTOR SOLUTION	
	1	2	3	4	5	1	2
L	-0.398	0.043	0.002	-0.190	0.726**	0.395	-0.339
LRESRO	-0.170	-0.309	0.579**	-0.332	0.432	0.318	-0.215
C	0.772**	0.088	-0.177	-0.287	-0.516*	-0.815**	0.803**
CRESL	0.790**	0.102	-0.193	-0.342	-0.464*	-0.838**	0.833**
CRESLS	0.848**	0.010	-0.189	-0.345	-0.395	-0.843**	0.848**
CRESS	0.742**	0.132	-0.181	-0.294	-0.533*	-0.810**	0.795**
RC	0.444*	-0.218	0.349	-0.266	-0.319	-0.352	0.390
RCRESL	0.331	-0.244	0.430	-0.430	-0.000	-0.219	0.297
RCRESLS	0.335	-0.135	0.397	-0.446*	-0.113	-0.284	0.349
RCRESO	0.673**	-0.054	0.054	-0.282	-0.474*	-0.655**	0.662**
OC	0.704**	0.300	-0.555**	-0.140	-0.485*	-0.843**	0.785**
OCRESR	0.773**	0.200	-0.386	-0.210	-0.537*	-0.868**	0.828**
OCRESLR	0.667**	0.268	-0.511*	-0.045	-0.576**	-0.795**	0.726**
OCRESLS	0.815**	0.072	-0.530*	-0.035	-0.448*	-0.829**	0.776**
S	0.049	-0.605**	0.127	0.212	0.433*	0.288	-0.245
SRESLRO	0.197	-0.454*	-0.198	0.224	0.405	0.078	-0.063

Note: $N = 20$ internal attributions. Residuals are named D(imension) RES(idual of) D(imension).

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

the components than is others' control, though the difference is less among the internal attributions than among the intermediate and external attributions.

The first, third, and sixth components of the eleven component solution are internal on face appearance (Table 14). Each of these components in fact have the expected negative correlation with location; however, in each case the correlation with the location residual is nonsignificant (Table 27). The first Component (Personal Characteristics Variables) is correlated with the rating and residual scales of both recruiter control and stability. Personal characteristics are more stable and recruiter controlled than are the attribution variables which do not load on this component. In contrast, Personal & Family Affairs Variables which load on Component 3 are more unstable and less controlled by others than are attribution variables not loading Component 3. Physical Health and Appearance Variables (Component 6) is not associated with any dimension. These associations for the first, third and sixth components are similar to what was found for the equivalent components in the analysis of internal variables alone (Tables 18 and 24). The one exception is that Personal Characteristics which are more controlled by others than are the other internal variables (Table 24) are not associated with others' control when compared to all other attribution variables (Table 27).

Intermediate variables define the second, fifth, and eleventh components (Table 14). The Intermediate factor (Component 3 of the three component solution) showed no association with any dimension. This is also true for 2 of the 3 intermediate components of the eleven factor solution, Recruiter/zone similarity (Component 2) and Luck (component 11). Others' Help (Component 5) is more under others' control than are the attribution variables not loading on this component. With one exception, this pattern of component-dimension associations was also found when intermediate attributions were analyzed separately. In that analysis, recruiter/zone similarity was found to be less under others' control than were the other intermediate attribution variables.

External attributions load on five of the eleven components. When these variables are combined to define a single factor in the three factor solution (Table 13) the combined factor defines a dimensional pole of unstable, external, other controlled, not recruiter controlled variables. This combined factor had no unique single dimension characteristics. The specific factors in the eleven factor solution, however, do have unique dimensional identities. One component is uniquely under others' control, Advertising (Component 8). Distances in the zone (Component 9) has high correlations with not being under recruiter control, while Disruptions (Component 10) is most associated with being unstable. The Local Economy (Component 7) is more external than the attribution variables not loading on this component.

Of these 5 external components, only the eighth Component (Advertising) has the same dimensional association as its equivalent component in the external variables only analysis. Commands (Component 4 of 11) is most associated with being under others' control while the equivalent Component (2 of 5) in the external attributions analysis is most associated with being unstable. Note however, that in the eleven component solution the association of others' control with Commands (Component 4) disappears when stability is partialled out of the residual OCRESLS. This component thus appears to be both unstable and other controlled, but not uniquely either. Local Economy

Table 27

Correlations of Dimensional Scales with Eleven Principal Components

SCALE	1	2	3	4	5	6	7	8	9	10	11
(L)OCATION	-0.598M	0.103	-0.365M	0.477M	0.180	-0.260M	0.519M	0.121	0.169	0.190	0.117
(L)RESR	-0.119	0.079	-0.172	0.105	0.044	0.012	0.620M	-0.061	-0.080	-0.140	0.140
(C)ONTROL	0.459M	-0.232	-0.201	0.006	0.211	0.120	-0.274M	0.379M	-0.297M	0.014	-0.234
CRESL	0.250M	-0.209	-0.361M	0.194	0.298M	0.026	-0.089	0.455M	-0.252	0.091	-0.206
CRESLS	0.309M	-0.182	-0.400M	0.151	0.296M	0.038	-0.030	0.440M	-0.218	0.025	-0.236
CRESS	0.395M	-0.242	-0.210	0.064	0.228	0.097	-0.271	0.401M	-0.507M	0.063	-0.213
(R)ECRUITER C	0.658M	-0.126	0.207	-0.411M	-0.079	0.287M	-0.279M	-0.040	-0.296M	-0.241	-0.112
RCRESL	0.292M	-0.072	-0.165	-0.033	0.121	0.128	0.260M	0.105	-0.276M	-0.149	-0.028
RCRESLS	0.245M	-0.105	-0.129	0.017	0.130	0.118	0.198	0.130	-0.321M	-0.079	0.001
RCRESO	0.603M	-0.186	-0.001	-0.222	0.090	0.206	-0.304M	0.173	-0.326M	-0.106	-0.184
(O)THERS' C	-0.264M	-0.099	-0.405M	0.491M	0.375M	-0.235	0.010	0.461M	0.002	0.340M	-0.1278
OCRESR	0.019	-0.169	-0.439M	0.349M	0.377M	-0.125	-0.121	0.490M	-0.137	0.262M	-0.194
OCRESLR	0.068	-0.187	-0.323M	0.271M	0.322M	-0.118	-0.375M	0.469M	-0.090	0.297M	-0.235
OCRESLS	0.220	-0.135	-0.449M	0.173	0.344M	-0.087	-0.228	0.462M	-0.031	0.141	-0.323M
(S)TABILITY	0.599M	0.075	0.063	-0.517M	-0.140	0.215	-0.038	-0.178	0.073	-0.433M	-0.202
SRESLR	0.294M	0.131	-0.344M	-0.187	0.077	-0.003	0.191	0.040	0.268M	-0.207M	-0.281M

Note: N = 58 first order component patterns. * p < .05. ** p < .01.

(Component 7) is uniquely external compared to all other variables (Table 27), but when compared to just external variables (Component 5, Table 26), it is better defined as not being under others' control. Components 9 and 10 in Table 27 (Distances and Disruptions) are not-recruiter-controlled and unstable respectively; when combined as Component 4 in Table 26, however, they have no association with the dimensions compared to the other external attributions.

It is to be expected that differences in recruiter control and others' control that are large enough to differentiate components among internal and external variables analyzed separately may not be large enough to differentiate them when all variables are analyzed together. For example, Personal Characteristics are other-controlled compared to the other internal attributions (Table 24) but are not associated with Others' Control when all attributions are analyzed (Table 27). It is also understandable that a component such as Commands can be near the centroid of external causes on others' control and thus uncorrelated with others' control in the analysis of external variables (Table 26), but still be far enough from the centroid of all variables that it does correlate with others' control when all variables are used in the analysis (Table 27).

Do the Data Support the Three Dimensional Model?

Data provided by judges dimensional ratings for location, stability, actor control and other's control of 58 causal attributions are strongly intercorrelated. The ratings are explainable as one factor with opposite poles of internal-stable-recruiter (and not other) controlled and external-unstable-other (and not recruiter) controlled (cf. Wiley et al., 1979; Bar-Tal et al., in press). However, dimension-specific variance can be untangled. First of all, general control--controllable by the recruiter and/or others vs not controllable by either--is a separate factor from location/stability. More importantly, location and stability can also be disentangled.

Dimension-specific variance can be tapped as a residual of the common variance in the data and the dimension-specific variance can be used in further analyses. It remains to be seen, however, how useful this dimension-specific variance will be in understanding and predicting antecedents and consequences of attributions. As we have seen, the residual dimensional variance is useful in interpreting clusters of attributions used together in performance attributions.

Data on attributions made for six months of performance yield 3 major clusterings defined by the location dimension: internal, intermediate, and external attributions. Separate factor analyses of the internal, intermediate, and external attributions were interpretable in terms of controllability: separate clusters of controllable and uncontrollable attributions were found among the internal and the external attributions and perhaps among the intermediate attributions (cf. Michela et al., 1982). However, these factors are in some cases also correlated with stability. And only among internal attributions was a factor found that uniquely correlated with stability.

Interpretation of factors representing the covariation in the attributions made for performance were aided by the dimensions of location, stability, and control, as well as by the dicotomy of helping or hurting performance (cf. Wimer & Kelley, 1982) and the concept of causal chains (Elig & Frieze, 1975). Factor analyses did not yield factors for the three dimensions as did the analyses of Meyer (1980).

Motivational Antecedents of Attributions

Data were collected on performance attributions of recruiters and are analyzed for evidence of motivated biasing. These results are analyzed in part to test the construct validity of the dimensions hypothesized to be at the heart of the attribution process of antecedents --> attributions --> consequences. That is, I am testing whether I have isolated dimension-specific variance which is related to the performance outcome and the attributor role (actor-observer) as the theory predicts. This will provide only a first step, of course, since I am not testing the important linkages of attributions --> consequences. It is, however, a very important test for understanding the subordinate-supervisor relationship.

It is an important question whether people's understanding of why they succeed or fail is biased in self-serving ways. It is equally important to know whether or not immediate supervisors share similar biases. An understanding of potential biases is a necessary step in understanding performance management.

Before examining the data for evidence of the hypothesized biases, I first analyze the performance attribution and performance outcome data and develop summary measures for each.

Dimensional and Summary Statistics for Performance Attributions

The results discussed above indicate that neither general nor specific factors of performance attributions are uniquely identified with the dimensions hypothesized to underlie causal attributions. General factors are either correlated with all dimensions or no dimensions. While specific factors may be uniquely correlated with a single dimension, they are not uniquely representing all of the dimensional variance in all the attributions the person makes. This is evident in the fact that two (or more) specific components may correlate with the same dimension. For example, Components 1 and 9 each correlate with Recruiter Control in the 11 factors solution of performance attributions (Table 27), while Components 3, 5, and 8 each correlate with Others' Control.

These results, however, do show that the grouping of sets of attribution variables commonly used in concert as causal explanations can be explained in terms of the dimensions hypothesized to underly antecedent and consequent relationships of casual attributions. Groups of attributions used in concert do in fact differ from other attributions in patterns clearly associated with Location, Stability, Recruiter Control, and Others' Control; though no grouping uniquely represents all of the dimensional variance underlying a recruiters' performance attributions.

Thus, neither general nor specific components of performance attributions can be used to test the adequacy of the hypothesized dimensions as explanatory factors of the antecedent and consequent relationships of causal attributions. Nor would separate tests for each of the 58 attribution variables provide an adequate test in and of themselves.

Bipolar attribution scores. Dimensional summary statistics of performance attributions were derived to test the adequacy of the hypothesized dimensions as explanatory variables. As previously discussed the 58 attribution variables have been scaled to represent the original and residual variance in judges ratings of Location, Stability, Recruiter Control, Others' Control, and Control --the sum of Recruiter and Others' Control (Table 9). These scalings can be used to weight performance attributions to represent dimensional variance.

Wiley et al. (1979) used the simplest possible weighting scheme of unit weights where a general control attribution score was the difference between the average attribution to 5 generally controlled causes and the average attribution to 4 generally uncontrolled causes. In the present study scaled values were used rather than unit weights in order to analyze the separable effects of the dimensions possible with residual scales. However, the logic of constructing dimensional attribution scores in this study is the same as in Wiley et al. (1979).

The dimensional attribution scores used in this study are the differences between attributions to variables loading positively and negatively on each original and residual dimensional scale. Note that since the original mean dimensional ratings have been standardized as are the residual scale weights, the weights for each scale have a mean of zero. Positive weights indicate degrees of external location, increasing stability, and increasing control while negative weights indicate degrees of internal location, increasing instability, and increasing uncontrollableness.

As can be seen in Table 28, summary dimensional attribution scales were derived for total (T) performance attributions as well as for performance attributions of positive (P) and negative (N) influences on performance. Each scale is a weighted sum where the weights are the dimensional ratings (either original or residual, as indicated in Table 28). The T attribution scales are weighted sums of the attributed influence of all performance attributions made whether in a positive or negative direction. The attribution metric for each attribution variable for T attribution scales ranges from 0 to 3 and is sum of the absolute values of the differences between 4 (No effect for the variable) and the attribution made on the 1 to 7 scale (1 = large negative effect, 4 = no effect, and 7 = large positive effect). For the P and N attribution scales the attribution metric also ranges from 0 to 3 and is the same absolute difference but is summed over performance attributions made only over positive and negative influences respectively.

The metric of the dimensional attribution scales derives sign and the meaning of its anchors from the weights. Thus a negative value for a Location attribution scale indicates that the person's attributions were more internal while a positive value indicates that the attributions were more external. The magnitude of the dimensional attribution scales derives from both the dimension weights and the performance attribution metric.

Table 28

Summed Dimensional Attributional Scales

Scale	<u>N</u>	<u>M</u>	<u>SD</u>	LOW VALUE	HIGH VALUE
T L	276	-5.68	5.66	-28.23	10.07
P L	275	-6.98	6.38	-28.53	11.69
N L	250	1.41	4.43	-24.72	13.70
T LRESRO	276	-0.67	1.85	-5.62	4.72
P LRESRO	275	-0.64	1.82	-5.53	4.65
N LRESRO	250	-0.04	1.38	-4.38	4.43
T LRESS	276	-1.60	3.77	-17.19	9.40
P LRESS	275	-1.69	3.70	-17.43	9.42
N LRESS	250	0.09	2.90	-13.41	8.98
T C	276	9.13	11.18	-19.82	49.27
P C	275	11.92	10.78	-15.93	48.18
N C	250	-3.03	6.77	-30.20	16.87
T CRESL	276	4.45	9.48	-19.78	37.66
P CRESL	275	6.16	9.02	-14.91	36.86
N CRESL	250	-1.87	5.91	-25.01	18.20
T CRESLS	276	5.75	9.59	-16.80	38.84
P CRESLS	275	7.96	9.20	-15.66	38.20
N CRESLS	250	-2.41	5.70	-24.54	18.12
T CRESS	276	7.51	10.72	-21.05	46.41
P CRESS	275	9.81	10.15	-17.77	45.28
N CRESS	250	-2.50	6.60	-30.42	16.29
T RC	276	24.65	22.63	-37.48	107.48
P RC	275	31.48	25.20	-50.19	108.98
N RC	250	-7.41	17.02	-58.64	87.20
T RCRESL	276	5.67	8.64	-19.09	29.75
P RCRESL	275	8.14	8.53	-14.97	34.38
N RCRESL	250	-2.70	5.18	-21.40	12.73
T RCRESLS	276	4.11	8.13	-17.52	28.13
P RCRESLS	275	5.99	7.90	-15.88	30.74
N RCRESLS	250	-2.048	4.82	-19.68	12.45
T RCRESO	276	20.04	19.62	-30.38	81.26
P RCRESO	275	25.91	20.24	-19.84	82.47
N RCRESO	250	-6.38	12.87	-52.44	50.58
T OC	276	-11.07	19.51	-79.65	37.74
P OC	275	-13.36	22.15	-82.20	72.87
N OC	250	2.47	17.23	-87.90	56.92
T OCRESLR	276	1.67	14.19	-34.98	47.01
P OCRESLR	275	2.14	13.97	-33.40	54.35
N OCRESLR	250	-0.52	11.75	-47.36	33.96
T OCRESLS	276	7.36	13.92	-28.22	51.00
P OCRESLS	275	10.04	13.64	-24.82	50.46
N OCRESLS	250	-2.93	10.08	-40.72	34.20
T OCRESR	276	-0.29	16.60	-51.96	46.59
P OCRESR	275	0.41	16.91	-47.86	61.12
N OCRESR	250	-0.77	12.95	-54.51	39.80

Table 28 (continued)

Scale	<u>N</u>	<u>M</u>	<u>SD</u>	LOW VALUE	HIGH VALUE
T S	276	10.49	8.78	-17.39	35.03
P S	275	13.63	9.81	-28.27	37.61
N S	250	-3.41	6.38	-22.86	29.14
T SRESLRO	276	4.49	5.06	-9.12	20.99
P SRESLRO	275	6.16	4.75	-8.69	20.99
N SRESLRO	250	-1.81	3.14	-14.71	15.10

Note: These scales are weighted sums of the influence of performance attributions where the weights are dimensional ratings. The attribution influence metric contains a zero. T = Total of all attributions made. P = Positive Impact attributions only. N = Negative Impact attributions only. Residuals are named D(imension) RES(idual of) D(imension) so that LRESRO is short for L(ocation) RES(idual of) R(ecruiter control and) O(thers' control).

Unipolar attribution scores. In addition to the bipolar dimensional attribution scales already described, unipolar scales were also computed. Where the bipolar scales are, for example, the difference external minus internal attributions, unipolar scales are separate measures of just internal attributions and just external attributions.

Summary statistics. The final set of measures developed for attributional tendency are nondimensional (Table 29). These measures were developed to summarize the intensity of attributions and may thus indicate the certainty with which attributions are made. The mean of each person's mean attribution is 4.75 (SD = .79) indicating an overall tendency to rate the attribution variables as helping performance. The mean intensity of all attributions (4-pt MEAN) is 1.32 (SD = .54) where 0 = No effect, 1 = Some effect, 2 = Moderate effect, and 3 = Large effect of the attribution variable on performance. This indicates that the average attribution variable is seen to have some effect. This may be misleading because of the number of attributions seen as having no effect. The mean intensity of attributions having some effect (3-pt MEAN) is 1.96 (SD = .45) where 1 = Some effect, 2 = Moderate effect, and 3 = Large effect. This indicates that for the variables seen as having at least some effect, the effect averages as Moderate. Thus while the attributions made are intense enough to indicate some degree of certainty was felt in making them, the strength of the attributions is diverse enough to allow differences to be detected.

Table 29

Summary Statistics of Performance Attributions

	<u>N</u>	<u>M</u>	<u>SD</u>
7-pt MEAN	276	4.75	.79
4-pt MEAN	276	1.32	.54
3-pt MEAN	276	1.96	.45
3-pt MEAN - positively affected	275	1.98	.49
3-pt MEAN - negatively affected	250	1.65	.52

Number of Attributions:

No Effect	276	19.71	11.00
Positively Affected	276	28.93	12.94
Negatively Affected	276	9.36	8.54

Note: Metric for 7-pt MEAN is 1 = large negative effect, 2 = moderate negative effect, 3 = some negative effect, 4 = no effect, 5 = some positive effect, 6 = moderate positive effect, 7 = large positive effect. Metric for 4-pt MEAN is 0 = no effect, 1 = some effect, 2 = moderate effect, 3 = large effect. Metric for 3-pt MEANS is 1 = some effect, 2 = moderate effect, 3 = large effect.

Development of Performance Measures

Performance attributions were made by recruiters and station commanders for six months of performance. Recruiters and station commanders rated the recruiters' performance on 17 measures (see Appendix B-Part III and Appendix C-Part I).

Recruiter and station commander preference for the performance measures is presented in Table 30. Such a wide diversity of outcome measures were included because of the ambiguity currently inherent in Army recruiter performance indicators (see Elig, Gade, & Eaton, 1982). Elig et al. (1982) found little agreement on how performance should be measured:

There were sharp differences between recruiters and station commanders on what recruiters can and should be held responsible for.

The respondents choosing an applicant processing measure emphasized in their comments that the recruiter lacks control over the quality of the people he/she processes and over whether an individual will contract. However, the largest number of residents chose "total contracts" or "contracts as a percentage of the contract objectives" as the best measure of recruiter performance because, as many of them commented, it is "what the job is all about".

While many recruiters communicated a concern with the issue of "quality" recruits, only 4% of the recruiters choose a quality indicator as the best measure of recruiter performance. The 28% of recruiters who chose subjective indicators of enlistee quality may be unconvinced that the objective measures (education level and AFQT percentile) are better predictors of applicants' Army performance than are the recruiters' own evaluation. We cannot know to what extent this preference is self-serving. (p. 8).

Performance rating summary statistics are presented in Table 31. Note that the DEP loss (Items 8-9), recruit processing (Items 2-5), and recruit-quality (Items 10-17) measures have been converted to percentages of recruits contracted. One reason for using percentages for DEP loss and recruits quality is that many subjects originally reported these as percentages of signed contracts. More importantly, as percentages, these items are pure measures of quality of recruits; the variance of quantity of recruits is reserved to Item 6. Processing items were converted to percentages to conform to Recruiting Command policy on performance management. USAREC considers a successful recruiter to be one who achieves mission (quantity and quality) with an efficient conversion in processing applicants to be signed recruits. Note also that Item 1 was rescaled to have 5 = Excellent and 1 = Poor, so that the higher the number, the better the rating.

Each item was also standardized to the mean and variance of the item over past performance and future expectancy. Standardized items were combined to form a limited number of performance scales based on factor analysis of the performance measures. It is impractical to consider separate analyses for each of the 16 outcome measures, many of which are strongly correlated.

Table 30

Percentage of Respondents Choosing Each Measure as the Best Measure of Performance

Measures	Station	
	Commanders <u>n</u> = 49	Recruiters <u>n</u> = 103
Overall Ratings		
1. 5-pt scale	6	4
17. 7-pt scale	0	5
Applicant Processing		
2. Contacted for at least 20 min.	16	17
3. Tested	4	5
4. Sent for physical	0	1
5. Sent for contracting	8	4
Contracts and Mission Objective		
6. Contracts	32	24
7. % of objective	20	21
Delayed Entry Program (DEP)		
8/9. Number of DEP losses	0	2
Objective Quality of Enlistees		
10. High School Diploma Graduates	6	0
11. AFQT I thru IIIa	2	0
12. HSDG and AFQT I thru IIIa	4	4
Subjective Quality of Enlistees		
13. Quality service for term of enlistment	8	7
14. They are right for Army	4	11
15. Army right for them	2	5
16. Become quality NCOs	4	5
	<u>116%</u>	<u>115%</u>

Note: From "Role ambiguity and conflict in reactions to performance measures" by T.W. Elig, P.A. Gade, and N.K. Eaton, 1982. Totals do not sum to 100 because of multiple responses.

Table 31
Performance Measures

Measure	n	M	SD	Low Value		High Value		Scaled as Percent of Number Recruited	
				Value	SD	Value	SD	M	SD
Overall Ratings									
1. 5-pt scale	196	3.82	1.02	1	5				
17. 7-pt scale	206	5.61	1.48	1	7				
Applicant Processing									
2. Contacted for at least 20 min.	203	118.80	78.42	5	600	648.89	537.70		
3. Tested	203	58.29	50.67	8	600	293.43	199.58		
4. Sent for physical	205	29.94	15.51	4	100	151.46	80.88		
5. Sent for contracting	205	25.69	12.35	0	75	127.50	52.59		
Contracts and Mission Objective									
6. Contracts	206	21.33	10.18	3	85				
7. % of objective	205	106.12	29.43	18	200				

Table 31 (continued)

Measure	N	M	SD	Low		High		Scaled as Percent of Number Recruited	
				Value	Value	M	SD		
Delayed Entry Program (DEP)									
8. Number of DEP losses	203	0.83	1.36	0	10	3.89	5.96		
9. Expected DEP losses	203	0.19	0.48	0	3	0.96	2.31		
Objective Quality of Enlistees									
10. High School Diploma Graduates	203	14.61	8.53	0	65	65.45	19.21		
11. AFQT I thru IIIa	201	10.89	7.56	0	50	49.91	20.96		
12. MSDG and AFQT I thru IIIa	201	9.36	7.42	0	50	42.12	20.08		
Subjective Quality of Enlistees									
13. Quality service for term of enlistment	200	16.96	13.78	0	100	72.46	28.67		
14. They are right for Army	198	18.05	12.78	1	100	78.58	25.18		
15. Army right for them	200	18.76	14.05	1	100	79.40	25.15		
16. Become quality NCOs	197	10.88	10.56	0	75	45.49	27.33		

Table 12
Correlation Matrix of Performance Measures

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	1.00																
2	-.07	1.00															
3	.03	.48	1.00														
4	-.09	.34	.51	1.00													
5	-.06	.28	.34	.63	1.00												
6	.40	-.35	-.17	-.24	-.21	1.00											
7	.46	-.26	-.15	-.25	-.19	.52	1.00										
8	.16	.02	.14	.22	.06	.12	.02	1.00									
9	-.11	-.01	.01	.16	-.06	-.08	-.02	.26	1.00								
10	.13	.19	.27	.11	.11	.12	.09	-.01	-.04	1.00							
11	.07	.14	-.05	.06	-.01	-.13	-.08	-.21	.04	.10	1.00						
12	.02	.15	-.06	.10	.04	-.07	-.07	-.15	.00	.36	.72	1.00					
13	.17	-.09	-.06	.01	-.06	.14	.09	-.12	.07	.08	.17	.14	1.00				
14	.23	.03	.05	.05	.09	.16	.08	-.06	.03	.21	.25	.25	.79	1.00			
15	.23	.02	.11	.05	.06	.18	.09	-.03	.01	.20	.21	.23	.77	.97	1.00		
16	.22	-.04	-.00	-.00	-.03	.16	.11	-.15	-.12	.11	.16	.20	.52	.57	.56	1.00	
17	.82	-.20	-.05	-.16	-.17	.52	.55	.10	-.10	.17	-.06	-.02	.19	.23	.23	.25	1.00

Note: N = 175.

The intercorrelations of the performance outcome measures are presented in Table 32. Note that when raw measures are used rather than the percentage, converted measures, recruit quality items are more highly correlated with recruit quantity.

The first column and last row of Table 32 show that the overall subjective performance measures are most related to the quantity of recruits and percentage of mission accomplished. DEP loss and applicant processing as percentages of quantity recruited are generally negatively correlated with the other indices of performance. Subjective recruit quality measures clearly form a closely related set of measures.

The orthogonally rotated principal components of the performance measures (Table 33) support the logical grouping of the measures. Separate components are obtained for: (a) objective quality, Component 4; (b) subjective quality, Component 1; (c) objective processing flow, Component 4; and (d) sales loss, Component 5. Only Component 2 with loadings for both objective production quantity and subjective overall ratings diverges from a logical categorization measures. It is not surprising that these measures do load together on Component 2 since the Recruiting Command traditionally placed such a heavy emphasis on quantity production. In fact, the high intercorrelation of the bottom line production measures (Items 6 and 7) and the overall ratings (Items 1 and 2) indicates that these measures are the best measures of recruiter performance. As noted above they are the measures most likely to be considered important by recruiters and station commanders (Table 30).

Based on the logical grouping of measures and the correlational analyses, six performance measures were developed to preserve as much as possible a separation of objective and subjective measures of performance. Overall subjective performance is the mean of the subjective ratings in Items 1 and 17. Quantity production is the mean of the objective outcome measures of number recruited (Item 6) and the accomplishment of mission objective (Item 7). Objective Quality and Subjective Quality are respectively, the means of measures of recruit quality defined by the Recruiting Command (Items 10-12) and by the recruiter's personal evaluation of the recruits (Items 13-16). Processing is the mean of the objective processing-flow, Items 2 through 5. DEP Loss management is the mean of an objective measure of number already lost (Item 8) and of a subjective measure of additional loss expected (Item 9). Before averaging over items, each item was standardized to provide uniform metrics and equal weighting of the items in the combined measures. The objective measures are based on the numbers provided by the station commander since he or she in all cases used the official record, which recruiters in many cases did not do.

As can be seen in Table 34, these measures do not provide independent measures of outcome. However, each measure does contain a large amount of unique variance. As expected, the Quantity and Overall measures have the highest correlation though they only share 25% of their variance.

The objective Quantity and subjective Overall measures can be expected to provide the best test of attribution theory since their intercorrelation is an indication of concurrent validity and their selection as good measures by recruiters and station commanders is evidence of face validity.

Table 33

Orthogonal Principal Components of Performance Measures

	1	2	3	4	5
15. Army right for them	.914				
14. They are right for Army	.905				
13. Quality service	.826				
16. Become quality NCOs	.761				
17. 7-pt overall rating		.889			
1. 5-pt overall rating		.835			
7. % of objective		.703			
6. # of contracts		.677			
3. Tested			.776		
4. Sent for physical			.768		
5. Sent for contracting			.721		
2. Contacted			.681		
12. HSDG and upper AFQT				.936	
11. Upper AFQT				.827	
10. HSDG				.561	
9. Expected DEP loss					.845
8. Number of DEP loss					.679
EIGENVALUES	3.042	2.724	2.443	2.078	1.339

Table 34

Correlations of the Combined Performance Measures

	Objective		Subjective		DEP Loss	Squared Multiple Correlations
	Proces.	Quantity Quality	Quality Overall	Overall		
Processing	1.00					.305
Quantity	-.43	1.00				.356
Obj. Quality	.38	-.11	1.00			.170
Sub. Quality	-.03	.15	-.02	1.00		.084
Overall	-.30	.51	-.17	.27	1.00	.313
DEP Loss	.01	-.07	-.11	-.10	-.00	1.00

Note: N = 97.

Self-serving Biases

Data on recruiters' attributions for six months of performance are analyzed to test a motivational model of self-serving biases. I propose that people in general tend to make causal ascriptions which are biased to enhance their self-image in a manner which is adaptive for continuing task performance. The core biases are: (a) self-enhancement (internal ascription of success); (b) self-protection (external ascription of failure); and (c) expectancy-protection (stable ascription for success and unstable ascriptions for failure). My specific hypotheses are:

Hypothesis 2: I expect to find a self-serving bias that an actor's attributions are more internal for success than failure. I also expect to find evidence that this effect is a motivated bias that has two components, self-enhancement and self-protection:

Hypothesis 2a: An actor's internal attributions are greater for success than for neutral outcomes and are greater for neutral than for failure outcomes.

Hypothesis 2b: An actor's external attributions are greater for failure than for neutral outcomes and are greater for neutral than for success outcomes.

Hypothesis 3: An actor's stable attributions are greater for success than for failure outcomes.

Results are presented first that show that the traditional self-serving bias of greater internal attribution for success than failure was found. I then present the results of tests to show that this effect better fits a motivated bias model rather than an information processing model.

General attributional effects of performance outcome. A series of one way ANOVAS were performed with the recruiter sample to test the effect of outcome on attributions. Dependent variables were the bipolar dimensional attribution scales of location and stability--based on both original and residual scales--for Total attributions, Positive Impact attributions, and Negative Impact attributions (see Table 28). These bipolar scales provide a test of the existence of the self-serving bias for internal relative to external attributions and of an expectancy protection bias for stable relative to unstable attributions.

Each of the six performance measures described above (see Table 34) were tricotomized and used as a blocking factor in this first series of ANOVAs. Two of these measures, Quantity and Overall, show the best concurrent and face validities as I described above. They are tested for predictive validity in this first set of analyses. The other four measures (Processing, Objective Quality, Subjective Quality, and DEP or sales loss) are used only in this first set of analyses as a test of the impact of relatively minor performance outcomes on attributions.

Table 35 presents the F tests for this first set of analyses. It can be quickly seen that three of the minor performance outcome measures have no

Table 35

F Values for Bipolar Dimensional Scales for Six Outcome Measures

Analysis	Objective			Subjective		Mixed
	Processing	Quantity	Quality	Quality	Overall	DEP Loss
----- Total Impact Attributions -----						
(L)ocation	<1	-4.03*	1.88	1.37	5.27**	<1
L Res S	<1	1.37	-3.68*	2.36	3.39*	<1
L Res RO	<1	2.11	2.08	2.22	1.81	<1
(S)tability	<1	-4.03*	<1	<1	3.15*	<1
S Res LRO	<1	2.32	<1	<1	<1	<1
	<u>df</u> : 2, 100	2, 100	2, 100	2, 95	2, 100	2, 100
----- Positive Impact Attributions -----						
L	<1	2.01	<1	1.11	5.46**	<1
L Res S	<1	1.69	<1	2.68	2.93	<1
L Res RO	<1	1.27	1.11	1.86	2.45	<1
S	<1	2.49	<1	<1	5.86**	<1
S Res LRO	<1	2.79	<1	2.28	1.29	<1
	<u>df</u> : 2, 99	2, 99	2, 99	2, 94	2, 99	2, 99
----- Negative Impact Attributions -----						
L	<1	<1	2.29	<1	<1	<1
L Res S	<1	<1	2.69	<1	<1	<1
L Res RO	<1	<1	<1	<1	<1	<1
S	<1	<1	<1	<1	1.74	<1
S Res LRO	<1	2.19	<1	1.16	<1	<1
	<u>df</u> : 2, 100	2, 100	2, 100	2, 95	2, 100	2, 100

Note: Residuals are named D(imension) RES(idual of) D(imension) so that LRESRO is short for L(ocation) RES(idual of) R(ecruiter control and) O(thers' control).

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

significant impact on attributions, while the fourth, Objective Quality, has only one minor significant effect. At the time that these data were collected the Recruiting Command had been emphasizing Objective Quality for a short time; so it is to be expected that the Objective Quality outcome measure would be more important to the recruiters than any measure except the long-established Quantity and Overall measures and therefore more likely to be defensively attributed. However, since the emphasis on quality was still new--recruiters had been missioned on quality for only 9 months at the time the data were collected--and very controversial (see Elig, Gade, & Eaton, 1982), it is not surprising that Objective Quality has less impact on attributions than do the major measures of Quantity and Overall evaluation.

It is noteworthy that attributional differences in location and stability are significantly related to the measures that have the best face validity (see Table 30). In a sense this is a "manipulation check" that location and stability differences in attributions are related to the more important aspects of the outcome rather than to unimportant or random aspects of the outcome.

Table 36 presents the means of the performance attribution bipolar scales for the major performance outcome measures. Self-serving biases are seen in the analyses for the subjective Overall outcome measure but not for the objective Quantity outcome measure. Total and Positive Impact attributions are more internal and more stable for subjective success than for subjective neutral or failing outcomes. The stability difference, however, does not show up when location is partialled out.

Contrary to the expected pattern, there are no significant differences in the location and stability of attributions for success and failure according to the objective performance measure; rather, neutral outcomes by the objective measure were attributed significantly more to internal and stable causes than to external or unstable causes than were successful or failing performance.

An information processing model a la Kelley (1967, 1972) could be extended to fit the data for the objective outcome measure. If average objective performance is the norm, then by covariation it could become associated with stable internal attributes, while unusually high or unusually low performance by objective criteria could be attributable to shifting, unstable aspects of the situations. Furthermore, this need not contradict an information processing basis for the subjective outcome results. Using self-defined criteria, someone objectively average in performance could be as likely to consider himself or herself as successful as someone who objectively was above average in performance. This is particularly true of these data since the average or neutral objective outcome includes people who made 100% of mission objective with the mission objectives being set so that the average recruiter working hard can achieve objective. These average recruiters working hard may in fact feel a great sense of accomplishment and consider themselves as fully successful if not more so than someone achieving 150% of objective but who expects more of himself or herself.

Similar reasoning can reconcile results for both the Quality and Overall outcomes to the motivated biasing hypothesis. The essential difference is that the results are not explained as covariation but as motivated self-serving

Table 36

Means of Bipolar Performance Attribution Scales by Outcome

Bipolar Scale	Quantity Outcome			Overall Outcome		
	Success	Neutral	Failure	Success	Neutral	Failure
----- Total Attributions -----						
(L)ocation	-3.95a	-7.12b	-4.18a	-7.38a	-3.84b	-4.02b
L Res S	-0.81	-2.11	-1.20	-2.51a	-0.57b	-1.03b
L Res RO	-0.46	-1.33	-0.78	-1.23	-0.431	-0.94
(S)tability	8.09a	12.93b	7.67a	12.55a	8.41b	7.71b
S Res LRO	4.14	5.91	3.59	4.86	5.00	3.78
<u>n</u> =	34	36	33	36	36	31
----- Positive Impact Attributions -----						
L	-5.81	-8.58	-6.56	-9.59a	-5.58b	-5.67b
L Res S	-0.67	-2.09	-1.87	-2.60	-0.66	-1.33
L Res RO	-0.39	-1.11	-0.78	-1.07	-0.20	-1.06
S	13.26	16.72	12.08	18.02a	12.67b	11.19b
S Res LRO	7.01	7.83	5.36	7.38	7.10	5.73
<u>n</u> =	34	36	32	36	35	31
----- Negative Impact Attributions -----						
L	2.11	1.50	2.25	2.48	1.68	1.65
L Res S	-0.17	-0.01	0.66	-0.09	0.08	0.30
L Res RO	-0.08	-0.22	-0.02	-0.18	-0.25	0.12
S	-5.86	-3.90	-4.16	-6.15	-4.13	-3.48
S Res LRO	-3.24	-1.98	-1.66	-2.83	-2.02	-1.95
<u>n</u> =	30	35	32	32	34	31

Note: Planned comparisons of means were performed if the F was significant. In these cases, means sharing the same letter are not significantly different at the .05 level. If the F was nonsignificant, no letters mark the means. Bipolar scales are anchored at the positive end by External for Location and Stable for Stability. Residuals are named D(imension) RES(idual of) D(imension) so that LRESRO is short for L(ocation) RES(idual of) R(ecruiter control and) O(thers' control).

bias. Thus, the recruiter who is just average by objective criteria may feel the most need to bolster his or her self-image by labeling the performance as successful and by attributing it to stable and to internal causes. Another recruiter who achieves unusual success by objective standards need not expect the exceptionally good performance to last in order to still feel successful; that is, a more usual outcome of average performance will still mean successfully making mission. Recruiters with the lowest performance compared to the average objective performance and/or by self-evaluation would be motivated to protect self-esteem by biasing their attributions to more external and/or unstable causes.

As expected, the bipolar attribution scales fit the information processing and motivated biasing hypotheses equally well--or poorly. I next examine the results of analyses of the unipolar scales.

Unipolar scales of performance attributions. Miller and Ross (1975) questioned whether self-serving bias effects reflect enhanced responsibility for success, avoidance of responsibility for failure, or both. They had noted the answer to this question depends upon studies which compare success and failure outcomes to a neutral outcomes. They argued that people infer internal causes from the co-occurrences of their behavior with positive events (success) and ignore the co-occurrences of their behavior with negative events. Specifically "positive instances of the co-occurrence of the response and the desired outcomes (i.e., success) induce perception of self-control. Negative instances (i.e. failure), on the other hand, are less informative and, hence, yield neither stable nor environmental attributions" (Miller & Ross 1975, p. 218).

The essential element of this argument is that "the self-serving bias" only operates for success not failure and that the effect is not a bias but only the result of information processing. Even if we grant that an information processing approach could explain the "self-serving" effect of greater internal ascriptions for success than for failure by way of a seemingly "self-enhancement bias" for success, a "self-protection bias" is ruled out by the information processing approach.

Unipolar scales for Internal ascription and External ascription are examined for evidence of self-enhancement bias and self-protection bias as a test of an information-processing versus a motivated biasing explanation of greater internal ascription of success than of failure. In a similar manner, unipolar scales for Stable ascription and Unstable ascription are examined for evidence that the stability effects found above result from both greater attribution to Stable causes for success and greater Unstable attribution for failure.

Table 37 present the F tests for the impact on each separate unipolar attribution scale of the major outcome measures, objective Quantity and subjective Overall self-evaluation. The Quantity outcome measure has no significant effects on any unipolar measure. However, every unipolar scale of positive impact is significantly influenced by the subjective outcome which also significantly impacts the Internal and Stable unipolar scales for Negative impact and Total Impact (Table 37). The means for each unipolar scale by both outcome measures are presented in Table 38.

Table 37

F Values for Unidimensional Scales by Outcome Measure by Direction of Impact

Analysis	Total Impact		Positive Impact		Negative Impact	
	Quantity	Overall	Quantity	Overall	Quantity	Overall
----- Location -----						
(I)nternal	1.41	4.24*	1.66	7.57***	<1	4.01*
I Res S	<1	2.99*	1.29	6.45**	<1	2.13
I Res RO	<1	2.15	<1	5.18**	<1	1.56
(E)xternal	<1	1.65	1.52	4.47*	1.16	1.38
E Res S	<1	<1	2.21	3.71*	2.22	2.56
E Res RO	<1	1.97	<1	5.16**	1.41	2.94
----- Stability -----						
(S)table	1.64	4.04*	1.95	7.29***	<1	5.84**
S Res LRO	1.03	2.18	2.63	5.23**	2.51	4.24*
(U)nstable	<1	1.80	<1	4.54*	<1	<1
U Res LRO	<1	1.22	<1	4.79*	<1	1.17

Note: Residuals are named D(imension) RES(idual of) D(imension) so that LRESRO is short for L(ocation) RES(idual of) R(ecruiter control and) O(thers' control).

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

Table 38

Means of Unipolar Performance Attribution Scales by Outcome

Unipolar Scale	Quantity Outcome			Overall Outcome		
	Success	Neutral	Failure	Success	Neutral	Failure
----- Total Impact Attributions -----						
(I)nternal	15.56	17.41	14.72	18.27a	15.67ab	13.54b
I Res S	9.82	10.63	9.24	11.07a	9.57ab	8.65b
I Res RO	5.86	6.09	5.75	6.48	5.89	5.26
(E)xternal	11.61	10.29	10.54	10.88	11.84	9.52
E Res S	8.58	7.84	7.67	8.12	8.56	7.27
E Res RO	4.69	4.10	4.37	4.56	4.76	3.73
(S)table	24.49	26.86	22.26	27.79a	24.85a	20.62b
S Res LRO	16.11	16.63	14.44	16.88	16.36	13.75
(U)nstable	16.40	13.93	14.59	15.24	16.44	12.91
U Res LRO	12.25	10.98	11.10	12.30	11.64	10.20
<u>n</u> =	34	36	33	36	36	31
----- Positive Impact Attributions -----						
(I)nternal	13.74	15.31	12.04	16.93a	13.59b	10.21b
I Res S	7.38	8.11	6.44	9.05a	7.24ab	5.44b
I Res RO	4.30	4.64	3.86	5.14a	4.25ab	3.30b
(E)xternal	7.93	6.73	5.68	7.34a	8.17a	4.54b
E Res S	6.37	5.67	4.36	6.11a	6.23a	3.88b
E Res RO	3.38	3.00	2.72	3.53a	3.51a	1.91b
(S)table	22.45	24.49	19.08	26.64a	22.36a	16.46b
S Res LRO	14.17	14.74	11.18	15.35a	14.20a	10.24b
(U)nstable	9.19	7.77	7.37	8.62a	10.05a	5.27b
U Res LRO	7.41	7.12	6.16	8.21a	7.50a	4.71b
<u>n</u> =	34	36	33	36	36	31

Table 38 (continued)

Unipolar Scale	Quantity Outcome			Overall Outcome		
	Success	Neutral	Failure	Success	Neutral	Failure
----- Negative Impact Attributions -----						
(I)nternal	1.82	2.11	2.68	1.34a	2.08ab	3.33b
I Res S	2.44	2.23	2.80	2.02	2.33	3.21
I Res RO	1.57	1.45	1.90	1.34	1.65	1.96
(E)xternal	3.68	3.56	4.86	3.54	3.67	4.98
E Res S	2.21	2.17	3.31	2.04	2.33	3.38
E Res RO	1.31	1.09	1.65	1.03	1.25	1.82
(S)table	2.04	2.38	3.18	1.16a	2.49ab	4.16b
S Res LRO	1.94	1.88	3.26	1.53a	2.16ab	3.51b
(U)nstable	7.21	6.16	7.22	6.62	6.39	7.64
U Res LRO	4.84	3.86	4.94	4.09	4.14	5.49
<u>n</u> =	30	35	32	32	34	31

Note: Planned comparisons of means were performed if the F was significant. In these cases, means sharing the same letter are not significantly different at the .05 level. If the F was nonsignificant, no letters mark the means. Residuals are named D(imension) RES(idual of) D(imension).

Manipulation check. The means for Positive and Negative Impact and the the associated F tests in Table 37 are in one sense a manipulation check. That is, when outcome is defined by the subjective Overall measure, Positive Impact attributions are greater for success than failure while Negative Impact attributions are greater for failing performance than for successful performance. However, when outcome is defined by the objective Quantity measure there is no significant effect of outcome on any unipolar scale. These results when combined with the preceding set of analyses indicate that the objective Quantity measure may have an ambiguous meaning for recruiters.

Tests of the hypotheses. The means in Table 38 give mixed support for a motivated biasing model of attributions. Total Internal attributions are greater after subjective success than after subjective failure (Ms of 18.27 vs 13.54) with the neutral outcome in between (M = 15.67) as predicted for self-enhancement. Total External attributions, however, showed no significant differences for the performance groups. This supports an information processing explanation rather than a motivated biasing explanation.

Expectancy protection biasing was found for Total Stable attributions with Stable ascriptions being higher after subjective success (M = 27.79) or neutral (M = 24.85) outcomes than after failure (M = 20.62). However, no differences were found for Total Unstable attributions. Furthermore, the effect for Total Stable ascription is nonsignificant when Location is partialled out, though Total Internal attributions remain significant when stability is partialled out.

The Positive and Negative unipolar scales--which are combined in the Total scales--show a similar pattern of results for the outcome consistent causes. Outcome-consistent scales are Positive Impact scales for success and Negative Impact scales for failure. Examining the outcome-consistent means for outcome defined by subjective overall ratings in Table 39 we find that Internal attributions for success are greater than Internal ascriptions for failure but External ascriptions for success are also slightly greater than External ascriptions for failure. Likewise, Stable ascriptions are greater for success than are Stable ascriptions for failure but Unstable ascriptions for success are also marginally greater than are Unstable ascriptions for failure.

Figures 4 and 5 display these outcome consistent unipolar scales for location and stability, respectively. These results support the information processing model of Miller and Ross (1975) who argue that "self-serving bias" of greater Internal than External ascription of success is the result only of differences in Internality for success--which is explainable by information processing models. The marginal effects for External (and by extension of the model, Unstable) ascription are consistent with Miller and Ross' model and directly contradict Zuckerman's (1979) argument that External ascriptions for failure would be greater for failure than success.

However, my results may be affected by truncated performance measures. My performance measures are tricotomized measures from a basically successful group of recruiters. The "failure" group probably contains few true failures -- notable failures are removed rather quickly from recruiting duty and therefore be less likely to be in my sample of "failing performance" than

Table 39

Outcome Consistent Unipolar Scale Means and F Values

Unipolar Scale	Quantity			Overall		
	Positive Impact on Success	Negative Impact on Failure	F(1,65)	Positive Impact on Success	Negative Impact on Failure	F(1,65)
(I)nternal	13.74	2.68	56.23****	16.93	3.33	73.00****
I Res S	7.38	2.80	23.25****	9.05	3.21	33.75****
I Res RO	4.30	1.90	18.98****	5.14	1.96	3.08
(E)xternal	7.93	4.86	5.79*	7.34	4.98	3.71*
E Res S	6.37	3.31	11.42***	6.11	3.38	9.26**
E Res RO	3.38	1.65	10.83**	3.53	1.82	<1
(S)table	22.45	3.18	76.17****	26.64	4.16	87.76****
S Res LRO	14.17	3.26	62.28****	15.35	3.15	66.49****
(U)nstable	9.19	7.22	1.15	8.62	7.64	<1
U Res LRO	7.41	4.94	3.50*	8.21	5.49	4.37*
	<u>n</u> = 34	32		36	31	

Note: Residuals are named D(imension) RES(idual of) D(imension) so that LRESRO is short for L(ocation) RES(idual of) R(ecruiter control and) O(thers' control).

* $p < .05$. ** $p < .01$. *** $p < .001$. **** $p < .00001$.

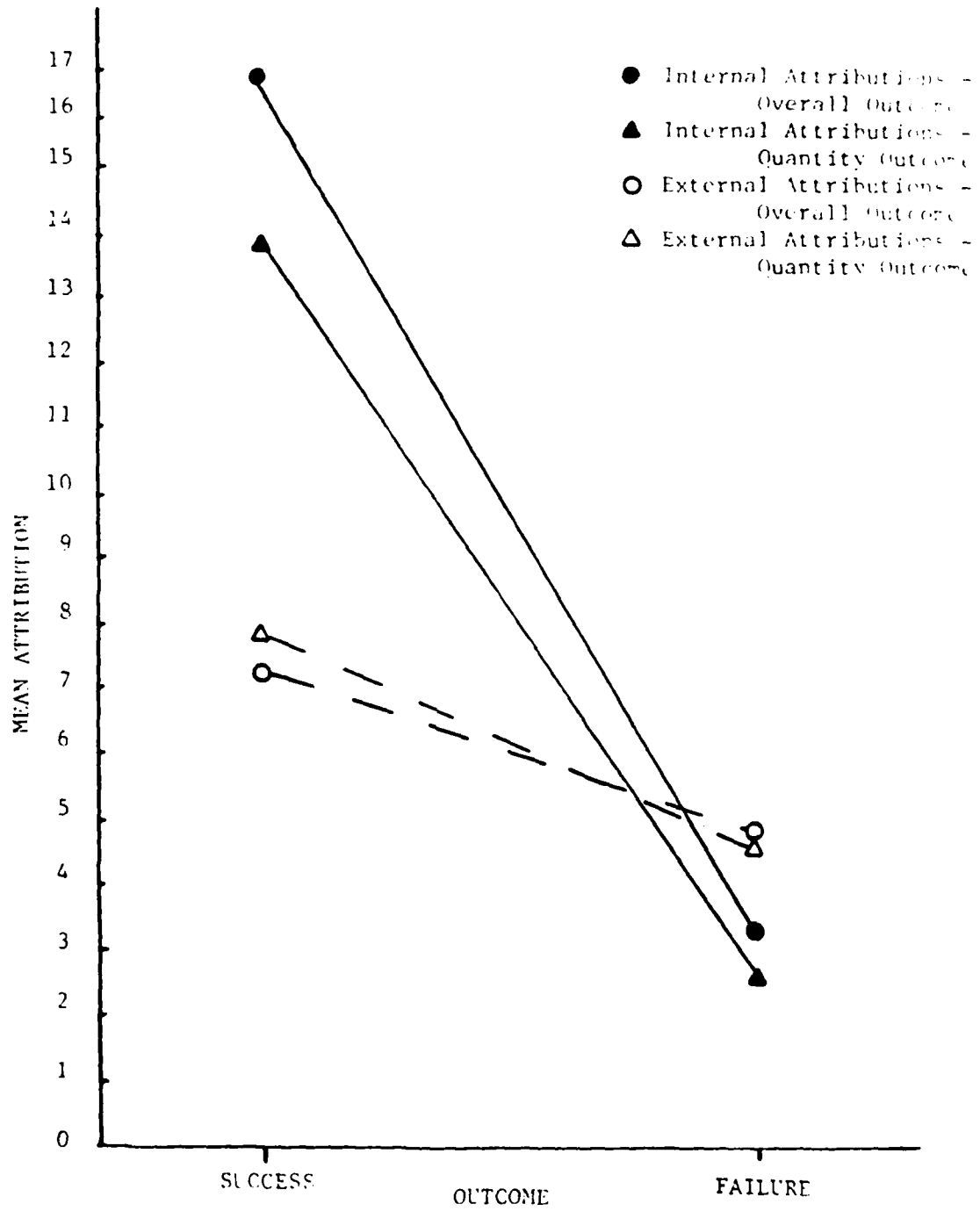


Figure 4. Outcome Consistent Attributions on Unidimensional Scales of Location.

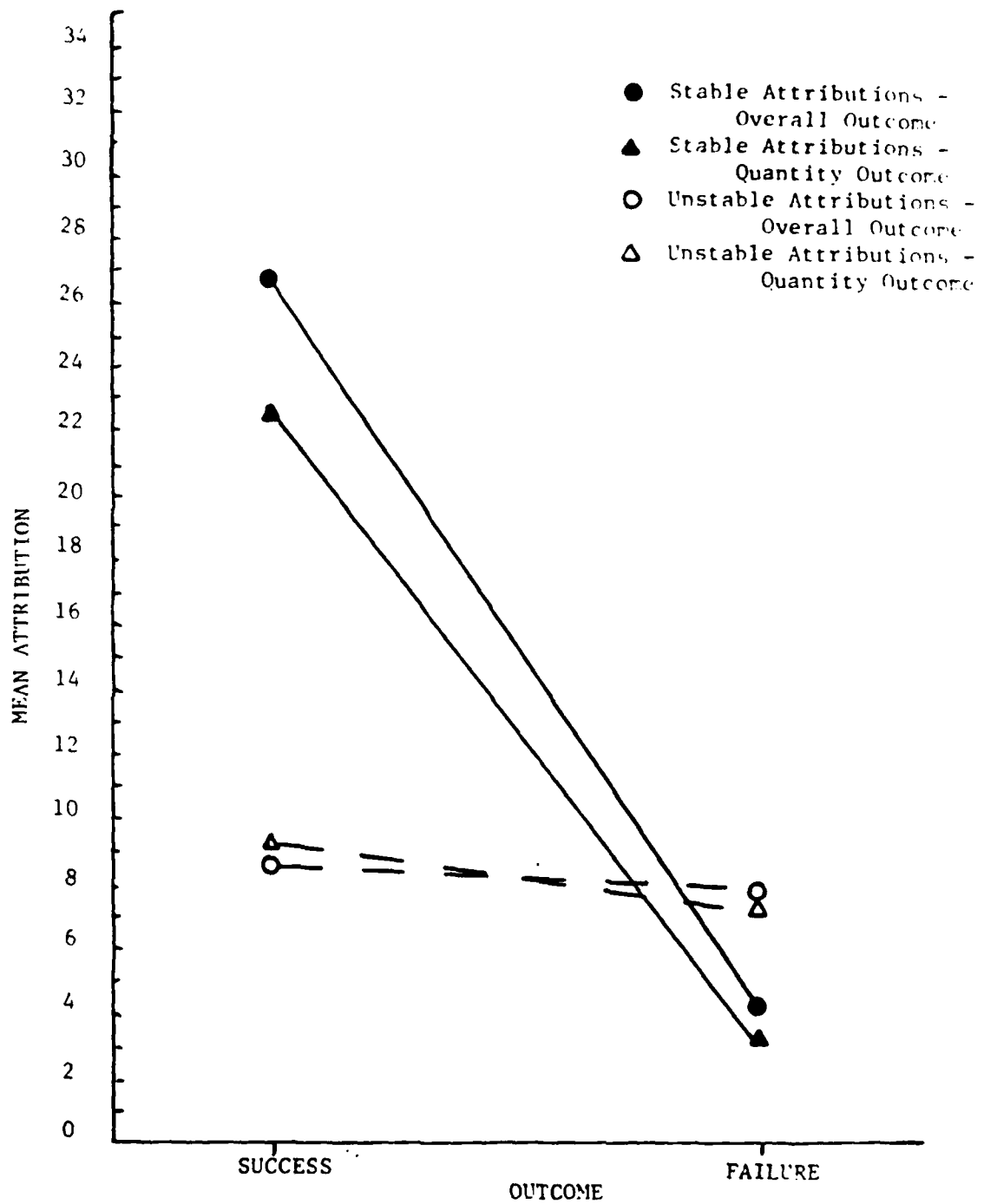


Figure 5. Outcome Consistent Attributions on Unidimensional Scales of Stability.

would marginally acceptable performers. This truncation in performance may be associated with three times as many attributions being made for Positive Impact ($\bar{M} = 28.93$, $SD = 12.94$) than for Negative Impact ($\bar{M} = 9.36$, $SD = 8.54$). Therefore, Zuckerman's critical test for a motivated biasing model may fail in my data because of truncated performance outcomes that lead to deficient ascriptions to Negative Impact variables. As can be seen in Figures 4 and 5 there are in fact marginal effects of External ascription for failure exceeding Internal ascription for failure, and Unstable ascription for failure exceeding Stable ascription for failure. More extreme failure could magnify this difference and reverse the trend for more External and Unstable ascription for success than for failure. This possibility can be examined by separately analyzing Positive Impact and Negative Impact attributions.

If in fact the small number of Negative Impact attributions in my data results from the truncated range of low performance, then tests for motivated biasing of attributions for success and failure outcomes need to be tested separately among Positive Impact and Negative Impact ascriptions, respectively. Any tests of motivated biasing that mix Positive Impact and Negative Impact attributions could fail because of the truncated range of performance outcomes leading to few Negative Impact attributions.

The results of separately analyzed Positive Impact and Negative Impact attributions are in fact consistent with a motivated biasing model. Table 40 presents the means for comparing Internal with External and Stable with Unstable ascriptions. Internal Positive Impact attributions are greater than External Positive Impact attributions while External Negative Impact attributions are greater than Internal Negative Impact attributions. Stable Positive Impact attributions are greater than Unstable Positive Impact attributions while Unstable Negative Impact attributions are greater than Stable Negative Impact attributions.

Summary. The results of analyses of bipolar scales are as expected for the subjective outcome measure. Attributions are more internal and more stable for subjective success than for subjective failure. However, results for the objective outcome measure show an unexpected pattern of more internal and more stable ascriptions for the neutral outcome than for either success or failure. Information processing and motivated biasing models explain these results equally well or poorly.

The results of directly testing the hypotheses using unipolar scales seem to fit an information processing model. That is, Miller and Ross (1975) offer an information processing explanation of greater internal ascription for success than failure that depends on perceptual distortions leading to Internal ascription of success compared to failure but no effect of failure magnifying External ascription. This argument can be extended to imply Stable ascription of success but no effect of Unstable ascription. My results are consistent with this model in that subjective outcome effects were found for Internal and for Stable ascriptions but not for External or Unstable ascriptions. (These effects were only for the subjective outcome measure; no effects were found for the objective outcome measure).

However, truncated outcome variance could account for the lack of findings for External and Unstable ascriptions. Since the sample probably contains few

Table 40

Mean Attributions by Direction of Impact on Performance

Unipolar Scale	Positive Impact		Negative Impact	
	<u>M</u>	<u>F</u> (1,100)	<u>M</u>	<u>F</u> (1,100)
(I)nternal	13.74	145.17****	2.20	21.54****
(E)xternal	6.79		4.02	
I Res S	7.34	30.01****	2.48	<1
E Res S	5.48		2.55	
I Res RO	4.27	46.74****	1.34	4.68*
E Res Ro	3.04		1.63	
(S)table	22.08	244.58****	2.52	54.95****
(U)nstable	8.11		6.85	
S Res LRO	13.41	220.41****	2.35	48.22****
U Res LRO	6.91		4.53	

Note: Residuals are named D(imension) RES(idual of) D(imension) so that LRESRO is short for L(ocation) RES(idual of) R(ecruiter control and) O(thers' control).

* $p < .05$. **** $p < .00001$.

true failure, the poorest one third of the subjects are mainly marginal performers rather than true failure. This could explain the fact that relatively few Negative Impact attributions were made. Therefore a better test of the models for my data is a comparison of attributions within impact segregated attributions. Either information processing or motivated biasing could explain greater Internal or Stable ascription among Positive Impact attributions. However, the motivated biasing model would also predict greater External and Unstable ascriptions among Negative Impact attributions while the information processing model would not predict a difference. Consistent with a motivated biasing model, differences are found among the Negative Impact attributions in my data.

Thus, while my data do not support Hypothesis 2b and thus failed a key test for motivated biasing, I believe that this test failed because of truncation of the performance range. Results on ascription within negative impact are consistent with a motivated biasing model.

Self-Other Differences

The design employed in the present study is a between subject, actor/observer paradigm. Actors attributions for their own performance can be compared to attributions for their behavior made by their immediate supervisor. To the extent that the observer's generosity matches the actor's self-serving bias, no actor/observer differences would be evident (Zuckerman, 1979). However, we cannot expect supervisors in a real world situation to be as generous as a college student assigned as an observer in a typical laboratory experiment. In work organizations, it seems likely that both the subordinate and supervisor can fall prey to self-serving biases. Supervisors may attribute causation to themselves for successful ventures and attribute failures to external causes, perhaps their subordinates. Or when faced with a poor-performing subordinate, the superior may be more likely to see the cause as something internal to the subordinate (for which the leader cannot be blamed) than something about the task (which might be seen by some as an indication of poor supervision). When one combines the actor-observer difference with the self-serving biases, it seems that leaders are likely to make mistakes in the direction of attributing subordinate poor performance to internal causes.

To the extent that realism is maintained in the study and supervisors are functionally in a supervisor role rather than a perceived role of a research participant, they are not expected to be empathic and share the self-serving biases of the actors. Of course, this depends on the assumption that Army Recruiting Station Commanders identify with a supervisory role (identifying with command concerns) rather than having an empathic identification with recruiters. I am predicting:

Hypothesis 4. Supervisors will be biased toward their own-self-enhancement and own-self-protection to the detriment of the subordinate's enhancement or protection.

Before testing this hypothesized interaction effect of outcome and self-other differences, I look first at the basic actor-observer difference.

Self-other differences in the attributions. Table 41 presents the attributions made by the recruiters and station commanders for the recruiters performance for a six month period. Mean effect on performance (1= Large negative effect, 7= Large positive effect) is reported in this Table. Station commanders in general rated the variables as having a greater positive influence on performance than did the recruiters. For seven attributions this difference was significant at the .01 level: (a) station commander performance, (b) sales training from station commander, (c) help from other recruiters' PR events, (d) distances for testing and processing, (e) recruiter likes living in area, (f) recruiter's education is similar to youth in zone, and (g) recruiter's unusual effort in the last six months. Four of these are external while three are intermediate and depend on the recruiting area; the only internal attribution is unstable effort. Recruiters rated only 8 of the 58 attributions as having a more positive influence than did the station commanders, though only two of these are significant at the .05 level: (a) motivation to do everything well and (b) motivation to help young people. The other six attributions seen as more positive by recruiters are the recruiter's: (a) usual efforts, (b) motivation to do a good job for the Army, (c) intelligence, (d) motivation to get out of recruiting with a good record, (e) personality, and (f) comfortableness with people. It is significant that judged by the face appearance of the attributions, recruiters reversed the trend of attributing less positive influence than station commanders for the 8 variables dealing with stable internal characteristics of motivation and personality. Station commanders were more likely to see the recruiters' performance resulting from external and less stable causes than were the recruiters.

These results are typical of the results found in competitive situations. The station commanders do not appear to be acting as uninvolved or generous observers: "competitive subjects cannot be too generous about the other person because the more credit they give him, the less favorable the comparison is for them. In contrast, observers . . . can afford to be generous, as they do not perform the actor's task and consequently do not compare themselves with him" (Zuckerman, 1979, p. 273).

These results should be interpreted somewhat cautiously since they are based on the face appearance of the attributions. Also, in testing 58 pairs of means, three significant differences at the .05 level could be expected by chance--and the probability of at least one difference at this level just being by chance is near certain. However, note that most of the differences reported are significant at levels well beyond .05 and that the pattern of results is consistent across the 58 tests.

Self-other differences and positivity bias. Results from analyses of individual attributions indicate that on the face appearance of the attributions, station commanders make more external attributions than do the recruiters; this is contrary to the usual actor-observer difference. Dimensional summary scales are analyzed to further test these results. In the same set of ANOVA's, I test Hypothesis 4 that recruiters, not station commanders, will attribute success to more internal and more stable causes than they attribute failure.

Table 41

Performance Attributions by Sample Group

	MEANS		SD		PROB t 2 TAILED
	SC	REC	SC	REC	
M ^a to do everything well	5.54	5.94	1.56	1.43	.0341
Usual efforts	5.62	5.84	1.60	1.35	
M to do a good job for Army	5.44	5.83	1.72	1.41	.0647
Intelligence	5.52	5.59	1.33	1.34	
M to help young people	5.38	5.72	1.53	1.23	.0459
Sales skills developed/trained	5.72	5.53	1.32	1.29	
Recruiter's opinions on Army life	5.64	5.61	1.59	1.68	
M to get out with good record	5.32	5.60	1.55	1.46	
Personality	5.26	5.50	1.75	1.49	
Comfortableness with people	5.26	5.58	1.79	1.40	
Station commander performance	5.73	5.22	1.15	1.70	.0028
M for rewards, approval	5.42	5.17	1.67	1.44	
Physical appearance	5.23	5.14	1.57	1.40	
Education, experiences	5.17	4.99	1.30	1.42	
General health and stamina	5.26	5.07	1.48	1.47	
Unusual effort in last six months	5.42	4.82	1.67	1.58	.0102
Help from other recruiters	5.31	5.14	1.15	1.33	
Sales training from station commander	5.50	4.88	1.10	1.42	.0001
Natural sales ability	5.14	4.89	1.77	1.79	
Comfortable with people in area	5.18	4.95	1.60	1.43	
Number of youth in zone	5.06	4.87	1.44	1.22	
Age	4.85	4.86	1.38	1.39	
Army guidance counselors	4.95	4.71	1.28	1.51	
Local unemployment	4.88	4.83	1.17	1.27	
National advertising	4.62	4.83	1.06	1.27	
Gender	4.81	4.60	1.31	1.49	
Educational similarity to youth in zone	5.00	4.53	1.20	1.24	.0069
Interest similarity to youth in zone	4.76	4.68	1.33	1.21	
Work on public relation events	4.65	4.70	1.39	1.30	
Ethnic similarity to people in zone	4.84	4.47	1.45	1.37	.0324
Local advertising	4.70	4.55	1.08	1.27	
Likes living in area	4.90	4.31	1.70	1.87	.0078
Similarity to people in zone	4.76	4.43	1.56	1.53	.0876
Luck	4.62	4.54	1.04	1.12	
Help from other recruiters' PR events	4.79	4.35	1.08	1.17	.0079
Distances for testing and processing	4.87	4.40	1.27	1.19	.0013
Help from TAIR (Army PR events)	4.56	4.35	1.14	1.18	
Distances for contacts in zone	4.61	4.42	1.32	1.30	
Being ill or particularly healthy	4.49	4.44	1.13	1.49	
Quality of youth in zone	4.70	4.34	1.64	1.62	
Local opinion	4.52	4.18	1.32	1.47	.0713
Hometown recruiter aides	4.55	4.22	1.24	1.25	.0308
P propensity for military service in zone	4.58	4.19	1.46	1.43	.0553
Closeness to area where grew up	4.41	4.18	1.48	1.45	
Money handling ability	4.22	4.16	1.58	1.38	

Table 41 (continued)

	MEANS		SD		PROB t 2 TAILED
	SC	REC	SC	REC	
Local cost of living	4.35	4.21	1.54	1.60	
District Command	4.34	3.97	1.33	1.70	.0750
Friends, family life	4.19	3.98	1.50	1.45	
Marital status	4.03	3.81	1.43	1.44	
USAREC Command	4.10	3.91	1.59	1.81	
Dependents	3.84	3.77	1.35	1.32	
Regional Command	3.87	3.83	1.14	1.23	
Disruptions from PCS (relocation)	3.85	3.91	0.73	0.94	
Disruptions from rezoning	3.94	3.77	0.96	1.16	
Going-to-college-rate in zone	3.94	3.67	1.41	1.51	
Distance to Army presence	3.89	3.62	1.41	1.44	
Negative climate from other recruiters	3.73	3.64	0.93	1.10	
Paperwork, administrative burden	3.56	3.22	1.64	1.81	

Note: Attributions were rated on a 7-point scale of affecting performance: 1=To a LARGE extent NEGATIVELY, 2=To a MODERATE extent NEGATIVELY, 3=To a SMALL extent NEGATIVELY, 4=To NO EXTENT, 5=To a SMALL extent POSITIVELY, 6=To a MODERATE extent POSITIVELY, and 7=To a LARGE extent POSITIVELY. Probabilities $\leq .10$ (2 tailed) for correlated t-tests are reported. N = 103.

^aMotivation is abbreviated M.

A series of ANOVA's were run with between subjects' factors of outcome and attributor role. In each ANOVA the attributor's role contrasted recruiters' with station commanders' attributions for recruiter performance. Performance outcome was either the trichotomized Quantity or trichotomized Overall measure. The dependent attribution measure was one of the set of bipolar scales for Total, Positive, and Negative Impact attribution. Table 42 presents the F values for the self/other factor and for the interaction of self/other with outcome.

This set of dimensional analyses confirm the reversal of the usual self/other difference that was seen in the individual attributions. Attributions having a Positive Impact were on the average more internal for recruiters (M = -7.02) than for station commanders (M = -5.86). Attributions having a Negative Impact were on the average more external for recruiters (M = 1.93) than for station commanders (M = 0.64) and were more unstable for recruiters (M = -4.59) than for station commanders (M = -2.01). This indicates that recruiters were more influenced by self-serving biases than were station commanders.

Table 42

F Values for 2-way ANOVAs of Outcome and Self/Other Differences

Bipolar Scale	Total Impact		Positive Impact		Negative Impact	
	Quantity	Overall	Quantity	Overall	Quantity	Overall
----- Self/Other -----						
(L)ocation	<1	<1	4.05*	3.87*	4.80*	5.29*
L Res S	<1	<1	<1	1.36	<1	<1
L Res RO	9.79**	9.11**	5.49*	5.49*	<1	<1
(S)tability	<1	1.87	2.01	1.23	9.75**	9.45**
S Res LRO	<1	<1	2.40	1.15	3.90*	2.70
	<u>df</u> : 1, 200	1, 200	1, 199	1, 199	1, 183	1, 183
----- Self/Other x Outcome -----						
L	3.20*	3.93*	3.71*	8.08***	<1	3.32*
L Res S	2.01	1.06	3.29*	3.88*	<1	1.82
L Res RO	2.54	<1	1.72	<1	<1	<1
S	1.89	5.62**	2.04	9.32***	<1	2.95
S Res LRO	<1	3.33*	<1	4.37*	<1	<1
	<u>df</u> : 2, 200	2, 200	2, 199	2, 199	2, 183	2, 183

Note: Residuals are named D(imension) RES(idual of) D(imension).

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

Cell means for the interaction effects are presented in Table 43. The significant interaction effects (listed in Table 42) for these means indicate that station commanders may be slightly more generous for success but are not generous for failure.

Figures 6 and 7 display the Positive Impact attributions by outcome for recruiters' and station commanders' attributions scaled by location and stability respectively. Station commanders see Positive Impact attributions for success as slightly more internal than do recruiters, but in the case of failure see Positive contributions to the performance as less internal than recruiters. Recruiters still give themselves credit for positive contributions to performance even when the performance outcome is relatively poor. Likewise recruiters see the Positive Impact on poor performance as more stable than do the station commanders.

Figures 8 & 9 display the Negative Impact attributions by outcome for recruiters' and station commanders' attributions scaled by location and stability, respectively. A major difference here is that recruiters see the Negative Impact causal agents of failure as more external than do station commanders. In fact, station commanders see Negative Impact in less external and more internal causes, the poorer the performance (see Figure 8). Recruiters in general see Negative Impacts on their performance as unstable while station commanders see less unstable Negative Impact attributions as having an effect on the recruiters' performance (see Figure 9).

Summary. These results indicate that recruiters compared to station commanders make self-serving attributions. This set of supervisors do not show a positivity or generosity bias by making enhancing attributions for subordinates.

The usual actor-observer difference is reversed in these data with the observers (station commanders) making less internal or dispositional attributions than the actors (recruiters). This is contradictory to the information processing explanation of self-other differences, that others focus on the actor in the field of perception. The reversal of actor-observer differences in my data is consistent with a motivated bias model. The data fits expected patterns of attribution for a "competitive" situation where blame and reward may be assigned by higher levels of supervision.

Table 43

Means of Bipolar Attributions by Contributor Role and Performance Outcome

Ripolar Scale and Contributor Role		Quantity			Overall		
		Success	Neutral	Failure	Success	Neutral	Failure
----- Total Impact -----							
L	(O)ther	-6.70	-5.78	-3.31	-7.79	-5.69	-2.43
	(S)elf	-3.95	-7.12	-4.18	-6.27	-3.67	-4.80
L Res S	O	-1.99	-1.11	-0.48	-2.01	-1.06	-0.42
	S	-0.81	-2.11	-1.20	-1.43	-1.23	-1.44
L Res RO	O	-0.46	-0.06	0.29	-0.49	0.16	-0.22
	S	-0.46	-1.33	-0.78	-0.97	-0.56	-0.94
S	O	12.15	12.05	7.28	14.91	11.92	5.18
	S	8.09	12.93	7.68	12.48	6.30	8.64
S Res LRO	O	5.12	5.17	3.16	6.653	5.08	1.93
	S	4.14	5.92	3.59	6.043	3.08	3.94
<u>n</u> =		34	36	33	41	23	39
----- Positive Impact -----							
L	O	-7.68	-6.63	-3.15	-9.64	-5.89	-1.88
	S	-5.81	-8.58	-6.56	-7.70	-6.12	-6.84
L Res S	O	-1.92	-1.05	-0.21	-2.49	-0.58	0.13
	S	-0.67	-2.09	-1.87	-1.36	-1.59	-1.72
L Res RO	O	-0.46	-0.15	0.13	-0.59	0.13	0.12
	S	-0.39	-1.11	-0.78	-0.88	-0.55	-0.77
S	O	14.84	14.37	7.58	18.44	13.69	5.16
	S	13.26	16.72	12.08	16.33	11.67	13.19
S Res LRO	O	6.54	6.62	4.21	7.90	6.69	3.13
	S	7.01	7.84	5.36	8.31	5.25	6.06
<u>n</u> =		34	36	33	41	23	39

Table 43 (continued)

Bipolar Scale and Attributor Role		Quantity			Overall		
		Success	Neutral	Failure	Success	Neutral	Failure
----- Negative Impact -----							
L	O	1.19	0.95	-0.16	2.23	0.24	-0.56
	S	2.10	1.50	2.25	1.58	2.55	1.92
L Res S	O	-0.08	-0.06	-0.28	0.58	-0.59	-0.55
	S	-0.17	-0.01	0.63	-0.07	0.38	0.24
L Res RO	O	-0.00	0.09	0.17	0.12	0.03	0.10
	S	-0.08	-0.22	-0.02	-0.09	-0.01	-0.19
S	O	-3.27	-2.61	-0.31	-4.26	-2.14	0.02
	S	-5.86	-3.90	-4.16	-4.26	-5.61	-4.32
S Res LRO	O	-1.72	-1.62	-1.09	-1.50	-1.95	-1.20
	S	-3.24	-1.98	-1.66	-2.51	-2.26	-2.02
	<u>n</u> =	28	32	32	34	19	39

Note: Bipolar scales are anchored at the positive end by external for Location scales and stable for Stability scales. Residuals are named D(imension) RES(idual of) D(imension) so that LRESRO is short for L(ocation) RES(idual of) R(ecruiter control and) O(thers' control).

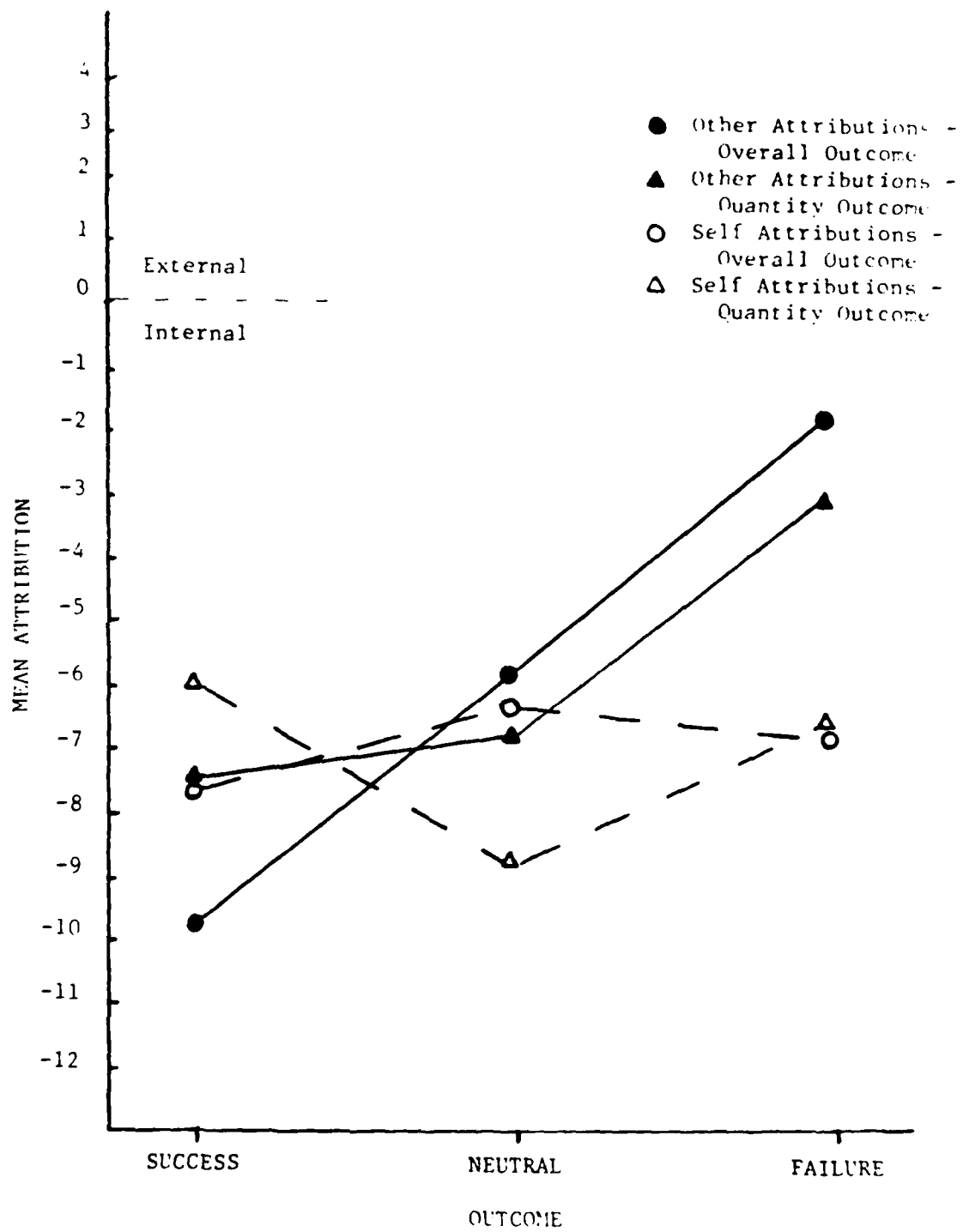


Figure 6. Externality-Internality of Positive Impact Ascription by Attributor Role, Outcome, and Outcome Measure.

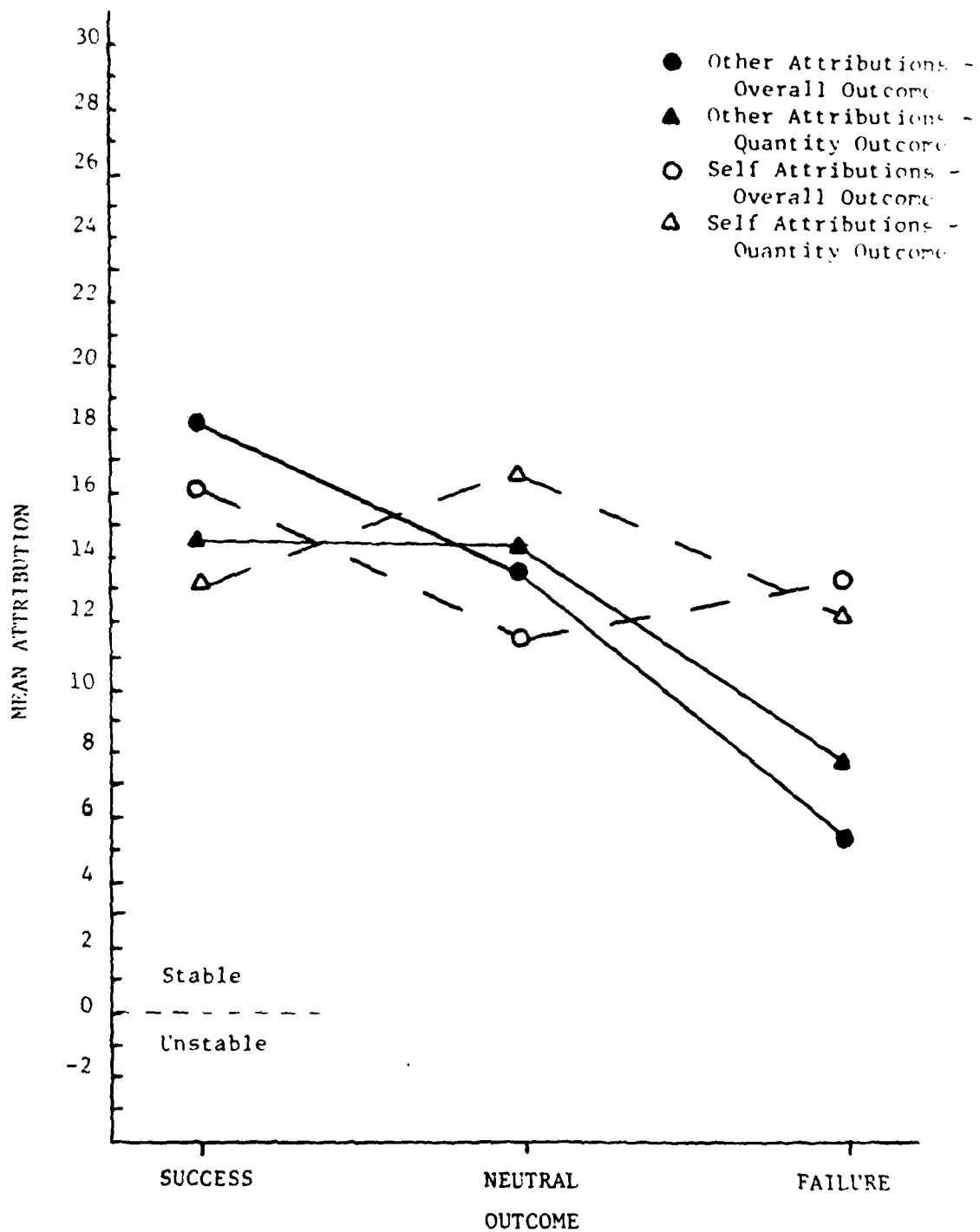


Figure 7. Stability of Positive Impact Ascription by Attributor Role, Outcome, and Outcome Measure.

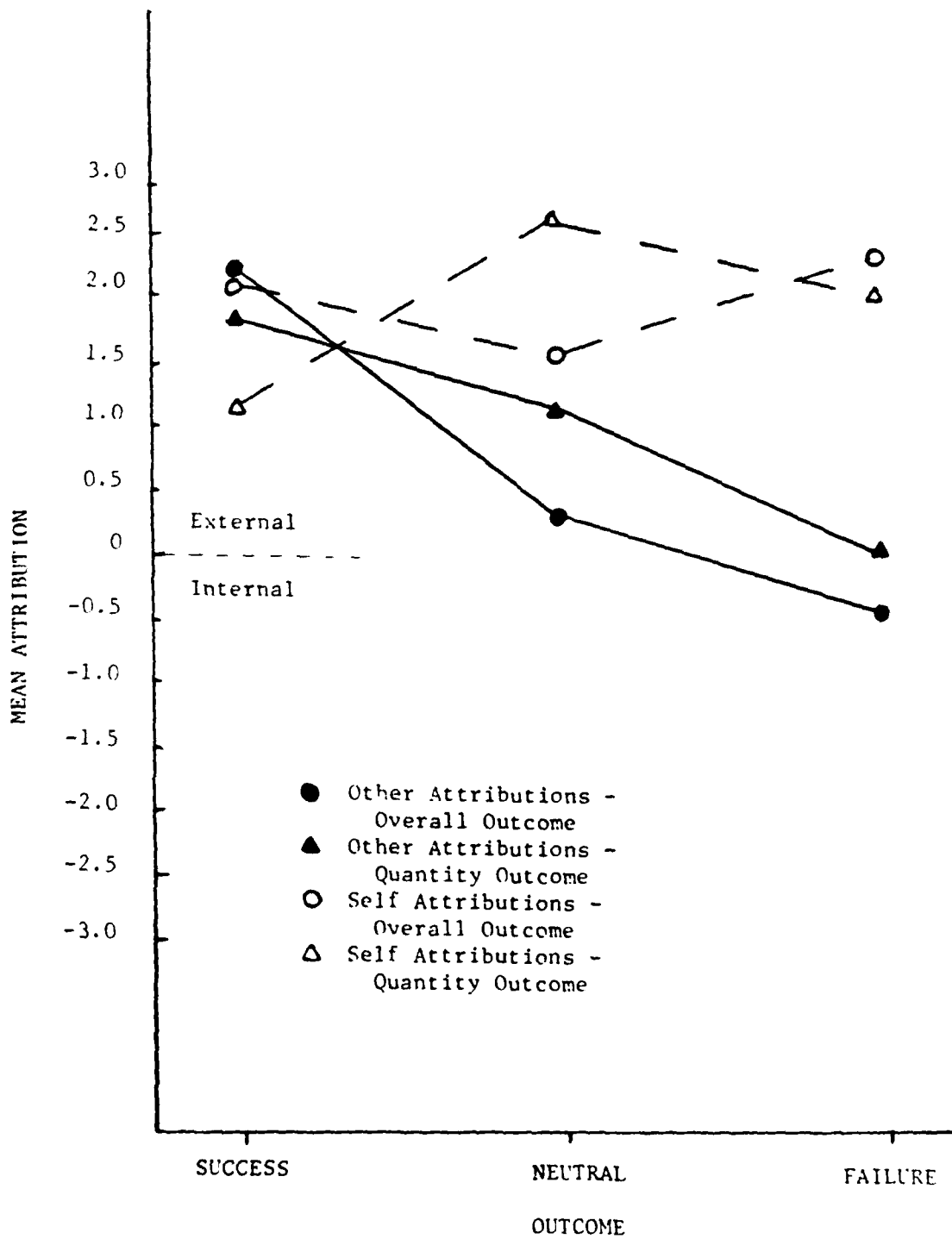


Figure 8. Externality-Internality of Negative Impact Ascription by Attributor Role, Outcome, and Outcome Measure.

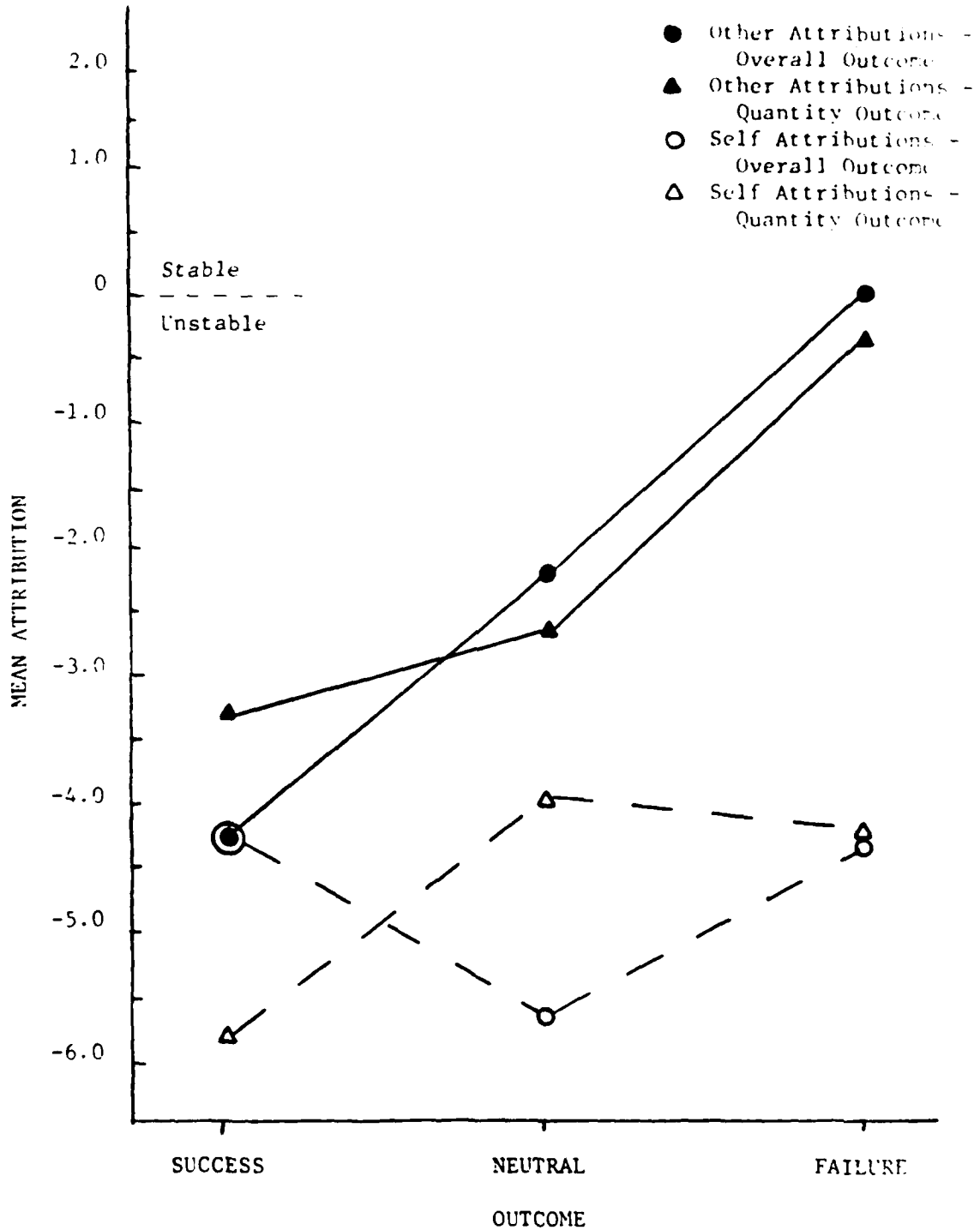


Figure 9. Stability of Negative Impact Ascription by Attributer Role, Outcome, and Outcome Measure.

SUMMARY AND CONCLUSIONS

In brief, the analyses of causal dimensions did not lead to direct verification of a three dimensional model of causal attributions. However, the results are supportive of the usefulness of the dimensional concept in understanding and interpreting causal attributions. Dimensional analyses were essential to understanding the self-serving biases found in performance attributions.

Attribution Dimensions

Dimension ratings by judges were found to be strongly correlated, as they were by Wiley et al. (1979) and my analysis of data reported by Bar-Tal, Goldberg, and Knaani (in press). The ratings are explainable as one factor with opposite poles of internal-stable-recruiter (and not other) controlled and external-unstable-other (and not recruiter) controlled (cf. Wiley et al., 1979; Bar-Tal et al., in press). However, dimension-specific variance can be untangled. First of all, general control--controllable by the recruiter and/or others vs not controllable by either--is a separate factor from location/stability. More importantly, location and stability can also be disentangled.

Dimension-specific variance can be tapped as a residual of the common variance in the data and the dimension-specific variance was used in further analyses of performance attributions and their antecedents.

The residual dimensional variance was useful in interpreting clusters of attributions used together in making performance attributions by recruiters and station commanders. Data on attributions made for six months of performance yield 3 major clusterings defined by the location dimension: internal, intermediate, and external attributions. Separate factor analyses of the internal, intermediate, and external attributions were interpretable in terms of controllability: separate clusters of controllable and uncontrollable attributions were found among the internal and the external attributions and perhaps among the intermediate attributions (cf. Michela et al., 1982). However, these factors are in some cases also correlated with stability. Only among internal attributions was a factor found that uniquely correlated with stability.

Interpretation of factors representing the covariation in the attributions made for performance were aided by the dimensions of location, stability, and control, as well as by the dichotomy of helping or hurting performance (cf. Wimer & Kelley, 1982) and the concept of causal chains (Elig & Frieze, 1975). Factor analyses did not yield factors for the three dimensions as were found in the analyses of Meyer (1980).

Implications of Dimensional Results

My results add more weight to Weiner's (1979, 1983) warning that:

the relative placement of a cause on a dimension is not invariant over time or between people. For example, health might be perceived as an internal ("I am a sickly person") or an external ("The flu bug got me") cause of failure. Inasmuch as attribution theory deals with phenomenological causality, such personal interpretations must be taken into account. (1979, p. 6)

Moreover, we need to consider more carefully in our research and models the phenomenology of causal chains and an additional dimension of good-bad (or help-hurt). Inherent in the factor analysis derived organization of performance attributions, causal chains and a good-bad evaluation of help or hurt seem to be important facets of how the supervisors and the subordinates ascribed causality for recruiting performance.

An additional consideration for future development is that both the dimensional ratings of attributions and the factor analyses of performance attributions indicate that there is a natural association of attributional location, stability, and, perhaps, control. Dimensional ratings were also strongly correlated in quite different outcome areas in studies by Wiley et al. and Bar-Tal et al. This is not to say that these results challenge the usefulness of separable dimensions of location, stability, and control. Arguing by analogy, the fact that pressure, temperature, and volume covary in the real world does not preclude the usefulness in the real world of the Ideal Gas Laws developed in artificial environments in a physicist's laboratory. However, we do need to take a look at the usefulness of the laboratory derived constructs in real world settings. Thus construct validity in a field study involves the concept of utility of the construct in understanding the situation being studied.

Utility of the Dimensional Constructs

Superiors' and subordinates' attributions for the subordinates' performance were analyzed for evidence of motivated biasing. The results of this analysis support the construct validity of the dimensions hypothesized to be at the center of the attribution process of antecedents --> attributions --> consequences. The dimension-specific variance I isolated in the judges' dimensional ratings was related in meaningful ways to the performance outcome and the attributor role (actor-observer). My results are, of course, only a first step since I did not test any of the important linkages of attributions --> consequences.

These results are important for testing our understanding of the dimensional implications of performance attributions of both supervisors and subordinates in a field setting.

Motivational Antecedents of Attributions

As expected I found more internal and more stable attributions for successful performance than for failing performance. Consistent with a motivated biasing model I found a strong-effect of Internal and Stable ascriptions being much greater for success than failure and that attributions for Positive Impact on attributions are more internal and stable while attributions for

Negative Impact on attributions are more external and unstable. Self-other differences are also consistent with a motivated biasing model. Support for a motivated biasing model fails only on one key comparison with an information processing model.

Self-serving Biases

The results of analyses of bipolar scales are as expected for the subjective outcome measures. Attributions are more internal and more stable for subjective success than for subjective failure. However, results for the objective outcome measure show an unexpected pattern of more internal and more stable ascriptions for the neutral outcome than for either success or failure. Information processing and motivated biasing models explain these results equally well or poorly.

The results of directly testing the hypotheses using unipolar scales seem to fit an information processing model. That is, Miller and Ross (1975) offer an information processing explanation of greater internal ascription for success than failure that depends on perceptual distortions leading to Internal ascription of success compared to failure but no effect of failure magnifying External ascription. This argument can be extended to imply Stable ascription of success but no effect of Unstable ascription. My results are consistent with this model in that outcome effects were found for Internal and for Stable ascriptions but not for External or Unstable ascriptions. (Effects were found only for the subjective outcome measure; no effects were found for the objective outcome measure).

However, truncated outcome variance could account for the lack of findings for External and Unstable ascriptions. Since the sample probably contains few true failures, the poorest one third of the subjects are mainly marginal performers rather than true failures. This could explain the fact that relatively few Negative Impact attributions were made. Therefore a better test of the models for my data is a comparison of attributions within impact segregated attributions. Either information processing or motivated biasing could explain greater Internal or Stable ascription among Positive Impact attributions. However, the motivated biasing model would also predict greater External and Unstable ascriptions among Negative Impact attributions while the information processing model would not predict a difference.

The results of separately analyzed Positive Impact and Negative Impact attributions are in fact consistent with a motivated biasing model. Internal Positive Impact attributions are greater than External Positive Impact attributions while External Negative Impact attributions are greater than Internal Negative Impact attributions. Stable Positive Impact attributions are greater than Unstable Positive Impact attributions while Unstable Negative Impact attributions are greater than Stable Negative Impact attributions.

Thus, while my data do not support Hypothesis 2b and thus failed a key test for motivated biasing, I believe that this test may have failed because of truncation of the performance range. Results on ascription within negative impact are consistent with a motivated biasing model.

Self-Other Differences

The actor-observer difference (Jones & Nisbett, 1972; Jones, 1979) is essentially represented as the tendency of observers to explain other's behaviors in dispositional terms or as internally caused, whereas actors attribute their own behavior relatively more to situational or external factors. One of the most plausible of the possible explanations for this phenomenon (Monson & Snyder, 1977) has been that the actor and the observer process different sources of information. The environment is the central focus of the actor, while the actor is the central focus of the observer. More specifically, we, as actors, are aware of and focus on the environment around us. People observing us do not have direct access to our awareness or perceptions. Instead, they focus on what we do. As a result, observers are likely to report that other people's behavior is caused by something about them as persons--internal dispositional characteristics such as effort or ability.

The results presented here directly contradict this information processing model and are better explained as motivated biasing, as I hypothesized. Specific attributions for performance are on face appearance more external for station commanders (observers) than for recruiters (actors). Note that the two causes internal to the observer and external to the actor--station commander performance and sales training from the station commander--were seen as having a significantly more positive impact by the observers than the actors.

The dimensional analyses confirm the reversal of the usual self/other difference in the individual attributions. Attributions having a Positive Impact were on the average more internal for recruiters than for station commanders. Attributions having a Negative Impact were on the average more external for recruiters than for station commanders and were more unstable for recruiters than for station commanders. This indicates that recruiters were influenced by self-serving biases compared to station commanders.

The interaction effects of outcome and attributor role indicate that station commanders may be slightly more generous than recruiters for success but are not generous for failure. Station commanders see Positive Impact attributions for success as slightly more internal than do recruiters, but in the case of failure see Positive contributions to the performance as less internal than recruiters. Recruiters still give themselves credit for positive contributions to performance even when the performance outcome is relatively poor. Likewise recruiters see the Positive Impact on poor performance as more stable than do the station commanders. Results of the Negative Impact attributions are complementary. Station commanders in a sense give recruiters credit for succeeding in spite of external Negative influence but attribute the Negative influence less externally if the recruiter performs poorly. Recruiters see the Negative Impact causal agents of failure as more external than do station commanders. In fact, station commanders see Negative Impact in less external and more internal causes, the poorer the performance. Recruiters in general see Negative Impacts on their performance as unstable while station commanders see less unstable Negative Impact attributions as having an affect on the recruiters' performance.

These results indicate that recruiters compared to station commanders make self-serving attributions. Supervisors in this study do not show a positivity or generosity bias by making protective attributions for subordinates experiencing performance deficits.

The usual actor-observer difference is reversed in these data with the observers (station commanders) making less internal or dispositional attributions than the actors (recruiters). This is contradictory to the information processing explanation of self-other differences, that others focus on the actor in the field of perception. The reversal of actor-observer differences in my data is consistent with a motivated bias model. The data fits expected patterns of attribution for a "competitive" situation where blame and reward may be assigned by higher levels of supervision.

Impact of Anticipated Evaluation

Snyder, Stephan, and Rosenfield (1978) have suggested that self-enhancement and self-protective biases are likely to be limited when they are likely to be contradicted by other's explanations. If an individual's self-serving ascriptions for performance are proven false by others, then he or she may lose all benefits of enhanced self-image.

Zuckerman (1979) reviewed studies which examined the prediction that people who anticipate some form of future evaluation may employ counterdefensive attributions for their performance. In two studies cited by Zuckerman, (Regan et al., 1975; Zucker, 1976), actors were found to derogate themselves and use counterdefensive attributions as compared to observers under conditions of anticipating future behavior. In a third study where the future evaluation manipulation was future performance, Wortman et al. (1973) found counterdefensive attributions. Subjects anticipating taking a social perception test made more external attributions, regardless of outcome on the sample test compared to subjects not anticipating taking the test.

The concept of strategic self-presentation (Bradley, 1978; Weary, 1979) --which is supported in these studies of anticipated future behavior or continuing evaluation--offers an alternative explanation of my results. I cannot rule out that my test of the information processing model versus the motivated biasing model failed because recruiters were motivated to be counterdefensive for low relative performance rather than being self-protective. In anticipation of my comparing their attributions with their supervisors attributions, the recruiters may have moderated defensively attributing failure to external and/or unstable causes, though they still were more external and unstable in their attributions for low performance than were the supervising station commanders.

Care must be taken in extending the results of this study to other performance situations since the effects of strategic self-presentation may moderate extreme self-protection and self-enhancement biases. Strategic self-presentation may, in fact, be a key ingredient in moderating conflicting attributions made by supervisors and subordinates. We need to know more about the attribution process in continuing performance situations.

Generalizability of the Results

As noted in the chapter on the Research Design, there were sample-population differences that resulted directly from the sampling plan, notably the oversampling of women and recruiters in larger stations. To the extent that the population of interest is defined as the junior (E5-E7) NCO's in the Recruiting Command as of August 1981, the sampling plan has led to distortions in the sample. However, the population the sample was compared to contained about 1500 NCO's in higher management and support positions in addition to field recruiters and station commanders. Thus it can be argued that the sample is fairly representative of field recruiters and station commanders, with certain limitations, most notably the intended oversampling of women. Also, the sampling plan is likely to have resulted in oversampling larger stations in larger population centers. This may have contributed to an oversampling of non-white recruiters.

To the extent the population of interest is defined as station commanders and the recruiters they supervise on a day to day basis, the sample is representative. This population excludes the attributional patterns of recruiters in one person stations under no day to day supervision, as well as senior NCO's and officers in management positions. To an unknown extent the attributional patterns of these other groups may differ from those of the studied sample.

Care must be taken in generalizing results to populations other than U.S. Army recruiters. Military training emphasizes the need for and efficacy of a can-do attitude and maximum effort. Basic training consists of pushing trainees beyond what the trainees had always considered to be natural limitations. Trainees are taught that they have the skills and the ability to overcome the environment that includes natural barriers, hostile enemies, and a command structure that may not always support them. These lessons are reinforced throughout the soldiers career in required courses such as the Primary Leadership Course and the Advanced Leadership Course.

Recruiters are selected from a pool of service members who have worked successfully and advanced in this environment, and are then put to work in the demanding field of direct sales. This selection is often involuntary and always involves personal and family disruptions from geographic moves.

For these reasons, direct generalization of results to other populations must be made cautiously.

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APPENDIX A

Coordination of Recruiting Research Data
Collection with USAREC

PERI-RP

SUBJECT: Coordination of Recruiting Research Data Collection for USAREC

Major George Thompson
USMCFAE-RE
Fort Sheridan, IL 60036

1. The purpose of this letter is to request that you coordinate recruiting research data collection efforts referenced in a letter dated 18 May 1981 (attached).
2. Please notify the Regional and District Recruiting Commands of our requirements to collect data from two stations in each region; two stations in each of five DRCs. In each DRC, we need to collect data from the first two stations which meet the attached criterion checklist. Also attached is a list of desired stations within each of 25 DRCs. We would like to visit the first two stations listed under each DRC, provided they meet the requirements of the criterion checklist. If either or both of these stations cannot meet these requirements, the next station on the list to be used until the requirements are met or the list exhausted. Since we want to collect data from recruiters at all levels of production, substitute selections from other than the first two stations listed need to be minimized. Obviously, substitutions for a station where production is low or where a recruiter is about to be relieved are not adequate reasons. Where DRC substitutions are made, we would appreciate it if the reasons for such substitutions could be provided.
3. Please notify me, Dr. Gade or Mr. Elig (AV 234-8275) by 13 July 1981 of the command's responses. DRC's which have two acceptable stations are asked to provide us with POC's at the DRC and at each of the two stations. DRC's which do not have two acceptable stations from the list are asked to give us the names of other stations in the DRC which do meet the criteria. We will then either select stations to be surveyed from among these DRC provided stations or choose an alternate from the same region.
4. As we have agreed, please communicate to all involved that while the project is important to the Recruiting Command, reports will not identify individuals, stations nor District Recruiting Command. All commands, down to the station commander, should know that while the research is fully supported and sponsored by USAREC, the data will be maintained by ARI and will not be available to USAREC for management decisions regarding particular individuals, stations, or DRCs. Only data without individual or unit identification below Region level will be reported.

PERI-RP

SUBJECT: Coordination of Recruiting Research Data Collection for USAREC

5. We are planning on spending 3 days in each DRC (1.5 days at each of 2 stations). We will survey all military personnel at each station (in pre-testing surveys were completed in 30 to 60 minutes). We will also interview the station commander, one male and one female field recruiter (in pretesting these interviews took 2 to 2.5 hours). We also will interview any hometown Recruiter Aides assigned to the stations (less than 1 hour in pretesting).

SIGNED

3 Incl
as

NEWELL K. EATON, Ph.D.
Chief, Soldier Recruitment and
Retention

CRITERION CHECKLIST
FOR STATION SELECTION

Each of the following personnel must be available for interviewing
(not on leave or on TDY) on the dates indicated in the schedule.

- 1) Station Commander who has been in command
of the station for at least 3 months.
- 2) One male recruiter.
- 3) One female recruiter.

3 Incl

APPENDIX B

1981 Recruiter Survey

- Part I: Job Appraisal Self-Report
- Part II: Job History and Status
- Part III: Recruiting Performance Self-Report
- Part IV: Factors Affecting My Performance
- Part V: Reactions to Past Performance
- Part VI: Recruiting Trend Report

The Army Research Institute is conducting research on experiences in Army Recruiting. Your honest answers will help us to make Army Recruiting better for you and for those following you. Your answers to this questionnaire will be kept confidential and will not in any way become a part of any file maintained on you.

July 1981

U. S. Army Research Institute
5001 Eisenhower Avenue
Alexandria, VA 22333

PT-5440

DATA REQUIRED BY THE PRIVACY ACT OF 1974
(5 U.S.C. 552a)

TITLE OF FORM 1981 Recruiter Survey		PRESCRIBING DIRECTIVE AR 70-1
1 AUTHORITY 10USC Sec 4503		
2 PRINCIPAL PURPOSE(S) The data collected with the attached form are to be used for research purposes only.		
3 ROUTINE USES You are being asked to participate in research conducted by the Army Research Institute. The research will determine the extent to which personal data and behavioral factors and environmental factors relate to performance in Army recruiting. The results will be used for research purposes only and <u>will not in any way become a part of any Army personnel file.</u> When identifiers (name or Social Security Number) are requested, they are to be used for administrative and statistical control purposes only. Full confidentiality of the responses will be maintained in the processing of these data. For the research to be successful it is necessary that we obtain information from you (including your Social Security Number). Data collected will be handled in strict confidence and used for statistical purposes only. We cannot obtain all the information necessary unless we have your permission. If you agree to participate in the study, please complete the following pages. <p style="text-align: center;"><u>THANK YOU FOR YOUR COOPERATION.</u></p>		
4 MANDATORY OR VOLUNTARY DISCLOSURE AND EFFECT ON INDIVIDUAL NOT PROVIDING INFORMATION Your participation in this research is strictly voluntary. Individuals are encouraged to provide complete and accurate information in the interests of the research, but there will be no effect on individuals for not providing all or any part of the information. This notice may be detached from the rest of the form and retained by the individual if so desired.		

FORM Privacy Act Statement - 26 Sep 75

DA Form 4368-R, 1 May 75

1981 RECRUITER SURVEY

Part I:
Part II:
Part III:
Part IV:
Part V:
Part VI:

Job Appraisal Self-Report
Job History and Status
Recruiting Performance Self-Report
Factors Affecting My Performance
Reactions to Past Performance
Recruiting Trend Report

July 1981

PT-5440

PERSONAL IDENTIFICATION

First Four Letter of Last Name _____ Recruiting Station _____

SSAN: _____ RSID _____

Is your mission (circle one) 1 - Active Duty 2 - Reservists

Part I

JOB APPRAISAL SELF-REPORT

Below are a number of statements and questions about you and your job. Please circle the number in front of your response or answer to each statement or question.

1. How well do you know how to do your job? 4. The job I have is a respected one.

- 1. Very Well
- 2. Fairly Well
- 3. Not Very Well
- 4. Hardly At All

- 1. Strongly Agree
- 2. Somewhat Agree
- 3. Somewhat Disagree
- 4. Strongly Disagree

2. My job gives me the chance to learn skills that are useful outside the Army.

- 1. Strongly Agree
- 2. Somewhat Agree
- 3. Somewhat Disagree
- 4. Strongly Disagree

- 1. Strongly Agree
- 2. Somewhat Agree
- 3. Somewhat Disagree
- 4. Strongly Disagree

3. In my job I have more work to do than one person can handle.

- 1. Strongly Agree
- 2. Somewhat Agree
- 3. Somewhat Disagree
- 4. Strongly Disagree

6. My job lets me help young people.

- 1. Strongly Agree
- 2. Somewhat Agree
- 3. Somewhat Disagree
- 4. Strongly Disagree

7. I enjoy doing the type of work that my job requires
1. Strongly Agree
 2. Somewhat Agree
 3. Somewhat Disagree
 4. Strongly Disagree
8. My job is important.
1. Strongly Agree
 2. Somewhat Agree
 3. Somewhat Disagree
 4. Strongly Disagree
9. What do you think you will do when your present enlistment is up?
1. Retire from the Army.
 2. Stay in the Army until I retire.
 3. Re-up, but I am not sure about staying until retirement.
 4. Not sure whether I will re-up.
 5. Leave the Army (not for retirement).
10. What is your preference for your next re-enlistment?
0. Definitely will not reenlist
 1. Will retire after this enlistment
 2. Production Recruiting
 3. Guidance Counselor (OOE)
 4. Station Commander
 5. USAREC, but not production recruiting, guidance counselor, or station commander
 6. MOS I held before recruiting
 7. Reenlistment MCO (79D)
 8. A different MOS (specify MOS preferred: _____)
11. In this job I have the responsibility and authority that I feel is usually given to someone with a rank of: (circle "E" or "O" and indicate rank by number)
- E O
12. My assignment in the Recruiting Command will definitely help my career in the Army.
1. Strongly Agree
 2. Somewhat Agree
 3. Somewhat Disagree
 4. Strongly Disagree
13. Aside from active duty pay and retirement benefits, how do you feel about service life--the way a person lives and works in the armed services.
1. I like it very much.
 2. I like it somewhat.
 3. I dislike it somewhat.
 4. I dislike it very much.
14. Taking all things together, how satisfied or dissatisfied are you with the military as a way of life? Circle one number on the line below.
- | | | | | | | | | |
|-------------------|---|---|---|---|---|---|---|----------------|
| Very Dissatisfied | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Satisfied |
| Very Dissatisfied | | | | | | | | Very Satisfied |
15. How has your job as a recruiter affected your personal life and your family?
- | | | | | | | | | |
|-----------------|---|---|---|---|---|---|---|-----------------|
| Very Negatively | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Positively |
| Very Negatively | | | | | | | | Very Positively |

How do you feel about yourself since becoming a recruiter?

Circle one number on each line below; the closer a number is to an adjective the more strongly you are indicating that that adjective describes your feelings about yourself since becoming a recruiter.

- | | | | | | | | | | | | |
|-----|------------------|---|---|---|---|---|---|---|---|---|------------------|
| 16. | Powerful | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Powerless |
| 17. | Shame | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Pride |
| 18. | Passive | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Active |
| 19. | Good | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Bad |
| 20. | Rewarding myself | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Punishing myself |
| 21. | Weak | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Strong |
| 22. | Unsurprised | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Surprised |
| 23. | Self Disapproval | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Self Approval |
| 24. | Anxious | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Calm |
| 25. | Happy | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Depressed |
| 26. | Hostile | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Grateful |
| 27. | Competent | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Incompetent |
| 28. | Resigned | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Contented |
| 29. | Confident | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Insecure |
| 30. | Guiltless | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Guilty |

PART II

JOB HISTORY AND STATUS

This section contains questions about you, and covers topics such as your personal characteristics, your job history, your education and training, and your physical fitness. Please answer each question by drawing a circle around the number next to the correct answer or by writing the correct answer on the line next to the question. For example, if you were a 33 year old male, you would answer question one by writing 33 in the space next to question one, and you would answer question two by drawing a circle around the number 1 next to the word Male which follows question two.

1. _____ How old were you on your last birthday?
2. What is your sex?
1 = Male
2 = Female
3. How many dependents do you have living with you?
0 = None
1 = One
2 = Two
3 = Three
4 = Four
5 = Five or more
4. What is your race/ethnic background?
1 = American Indian or Alaskan Native
2 = Asian or Pacific Islander
3 = Black, not of Hispanic Origin
4 = Hispanic
5 = White, not of Hispanic Origin
6 = Other
5. Are you a sole parent?
1 = Yes 2 = No
6. _____ What is your marital status?
1 = Single, never married
2 = Separated
3 = Divorced
4 = Widowed
5 = Married
6 = Married to another service member
7. How many older brothers and sisters do you have? Do not consider step brothers or sisters or adopted children who joined your family after you were born; do count them if they were in your family before birth.
0 = None (no children in family before me)
1 = One
2 = Two
3 = Three
4 = Four or more
8. _____ What state were you born in?
(Please give two letter postal code. Put FB if born outside 50 states, DC (District of Columbia) or PR (Puerto Rico). If you don't know code, put state name here: _____)

Please enter a DISTANCE CODE in each blank for questions 9 thru 17.

DISTANCE CODE - DISTANCE IN MILES

- 1 0 to 10
- 2 11 to 20
- 3 21 to 50
- 4 51 to 100
- 5 101 to 200
- 6 201 to 500
- 7 501 to 1000
- 8 1001 to 2000
- 9 over 2000

0 (zero) N/A or Do not know

9. ___ Distance from this station to your place of birth.

10. ___ Distance from this station to the place you would most like to live.

Distance from this station to the schools you attended most in

11. ___ Grades K to 6

12. ___ Grades 7 to 9

13. ___ Grades 10 to 12

14. ___ College or trade school

15. ___ Distance from this station to the closest place where you lived for more than one year PRIOR to assignment to the Recruiting Command.

16. ___ Distance from this station to the AFRES.

17. ___ Distance from this station to Mobile Test Site.

18. What high school education did you have at enlistment?

- 1 = No GED or HSDC
- 2 = CED
- 3 = HSDC

19. What is your current high school education?

- 1 = No GED or HSDC
- 2 = CED
- 3 = HSDC

Please enter an education code for questions 20 thru 22 and 24.

EDUCATION CODE - POST HIGH SCHOOL EDUCATION

- 0 No post secondary education
- 1 Civilian trade school
- 2 Some college credits
- 3 Associate college degree
- 4 College--4 year degree
- 5 Post college degree

20. ___ What postsecondary education did you have at enlistment?

21. ___ What postsecondary education did you have when you became a recruiter?

22. ___ What is your current postsecondary education?

23. Are you currently enrolled in a civilian education program?

- 1 = YES
- 2 = NO

24. ___ If you answered Yes to question 23, use the codes (1-5 above) to indicate type of program.

25. Are you currently enrolled in a military education program?

- 1 = YES
- 2 = NO

26. Did you play on a high school sports team?

1 - YES

2 - NO

27. Did you play in high school intramural sports?

1 - YES

2 - NO

If you answered YES to either 26 or 27 above, please list up to three sports that most interested you in order of interest to you.



28. _____
code Most Interesting Sport

29. _____
code Second Most Interesting Sport

30. _____
code Third Most Interesting Sport

Go back to the sports just listed and code them to indicate if it was a team sport (like baseball and the relay events in swimming or track) or if it was an individual performance sport (like wrestling, shotput, or 100 yard dash)?



CODES: 1 - TEAM 2 - INDIVIDUAL

Please indicate your current favorite participant sport and indicate if it is team competition, individual competition, or noncompetitive (like jogging or fishing).

31. _____
code Sport

CODES: 1 - TEAM COMPETITIVE 2 - INDIVIDUAL COMPETITIVE
3 - NONCOMPETITIVE TEAM 4 - NONCOMPETITIVE INDIVIDUAL

32. Are you overweight by Army standards?

1 - YES

2 - NO

JOB HISTORY

33. _____ How many years have you been in the Army?

34. _____ How many months have you been assigned to the Recruiting Command?

35. _____ How many months have you been in production recruiting since graduation from the Recruiting Course?

36. _____ How many months have you been assigned to this DRC?

37. _____ How many months have you been at this recruiting station (if less than one month, write 1).

38. _____ What is your current grade?

4 - E4

5 - E5

6 - E6

7 - E7

39. _____ How many months have you been in your present grade?

40. What was your grade when you were selected for the Army Recruiting Course (ARC)?

- 4 - E4
- 5 - E5
- 6 - E6
- 7 - E7

41. How many months were you in grade when selected for ARC?

42. How did you get assigned to recruiting?

- 1 - DA Selection
- 2 - Volunteered

43. Have you taken the S/T in MOS OOE?

- 1 - YES
- 2 - NO

44. If yes, what was your S/T score?

45. Before being assigned to the Recruiting Command, how many certificates of appreciation or commendation from a battalion (or higher) commander had you received?

46. Since being assigned to the Recruiting Command, how many certificates of appreciation or commendation from a DRC (or higher) commander have you received?

47. For service before being assigned to the Recruiting Command, how many Army Commendation Medals have you been awarded?

ARMY JOB HISTORY PRIOR TO RECRUITING

48. What is your secondary MOS?

code _____ title _____

Please list the last 3 PMOS's you held before OOE. List the most recent first and work back; leave blanks if you had fewer than 3 previous PMOS's.

FROM mo/yr	TO mo/yr	CODE	TITLE
49. / /	50. / /	51. ---	---
52. / /	53. / /	54. ---	---
55. / /	56. / /	57. ---	---

Please list the last 2 Duty MOS's you held before OOE (a Duty MOS is an MOS you worked in that was not a PMOS). List the most recent first and work back; leave blanks if you had fewer than 2 Duty MOS's.

FROM mo/yr	TO mo/yr	CODE	TITLE
58. / /	59. / /	60. ---	---
61. / /	62. / /	63. ---	---

The remaining questions in this section all pertain to your assignment before recruiting. Do not consider temporary assignments you may have been given while awaiting an opening in ARC (the Recruiting Course).

Please circle the number in front of your response to each question about your LAST ASSIGNMENT BEFORE RECRUITING.

69. My last job let me do things I was good at.

1. Strongly Agree
2. Somewhat Agree
3. Somewhat Disagree
4. Strongly Disagree

70. I enjoyed doing the type of work that my last job required.

1. Strongly Agree
2. Somewhat Agree
3. Somewhat Disagree
4. Strongly Disagree

71. My last job was important.

1. Strongly Agree
2. Somewhat Agree
3. Somewhat Disagree
4. Strongly Disagree

72. Aside from active duty pay and retirement benefits, during your last job how did you feel about service life--the way a person lives and works in the armed services.

1. I liked it very much.
2. I liked it somewhat
3. I disliked it somewhat
4. I disliked it very much.

73. Taking all things together, how satisfied or dissatisfied were you with the military as a way of life during your last job? (Circle one number)

VERY DISSATISFIED 1 2 3 4 5 6 7 SATISFIED
VERY

74. How had your last job affected your personal life and your family?

VERY NEGATIVELY 1 2 3 4 5 6 7 POSITIVELY
VERY

64. All in all, my job performance was

1. Excellent
2. Above Average
3. Average
4. Below Average
5. Poor

65. How well did you know how to do your last job?

1. Very Well
2. Fairly Well
3. Not Very Well
4. Hardly At All

66. My last job gave me the chance to learn skills that are useful outside the Army.

1. Strongly Agree
2. Somewhat Agree
3. Somewhat Disagree
4. Strongly Disagree

67. In my last job I had more work to do than one person could handle.

1. Strongly Agree
2. Somewhat Agree
3. Somewhat Disagree
4. Strongly Disagree

68. The last job I had was a respected one.

1. Strongly Agree
2. Somewhat Agree
3. Somewhat Disagree
4. Strongly Disagree

How did you feel about yourself during your last assignment before recruiting? Circle one number on each line below.

75.	Powerful	1	2	3	4	5	6	7	8	9	Powerless
76.	Shame	1	2	3	4	5	6	7	8	9	Pride
77.	Passive	1	2	3	4	5	6	7	8	9	Active
78.	Good	1	2	3	4	5	6	7	8	9	Bad
79.	Rewarding Myself	1	2	3	4	5	6	7	8	9	Punishing Myself
80.	Weak	1	2	3	4	5	6	7	8	9	Strong
81.	Unsurprised	1	2	3	4	5	6	7	8	9	Surprised
82.	Self Disapproval	1	2	3	4	5	6	7	8	9	Self Approval
83.	Anxious	1	2	3	4	5	6	7	8	9	Calm
84.	Happy	1	2	3	4	5	6	7	8	9	Depressed
85.	Hostile	1	2	3	4	5	6	7	8	9	Grateful
86.	Competent	1	2	3	4	5	6	7	8	9	Incompetent
87.	Resigned	1	2	3	4	5	6	7	8	9	Contented
88.	Confident	1	2	3	4	5	6	7	8	9	Insecure
89.	Guiltless	1	2	3	4	5	6	7	8	9	Gulity

PART III

Recruiting Performance Self-Report

In this section there are a number of statements and questions about your performance as a recruiter during the last six months. Think over the last six months and answer each question with your best estimate.

1. All in all, my job performance in recruiting is
 1. Excellent
 2. Above Average
 3. Average
 4. Below Average
 5. Poor
2. _____ In the last six months, how many prospects have you had at least twenty minutes contact with?
3. _____ In the last six months, how many applicants did you send to take the ASVAB?
4. _____ In the last six months, how many applicants did you send to an AFES for a physical?
5. _____ In the last six months, how many applicants did you send to an AFES to see a guidance counselor?
6. _____ In the last six months, how many people you recruited and sent to an AFES signed a contract?
7. _____ In the last six months, what percentage of objective did you make?

OF THE SIGNED RECRUITS FROM THE LAST SIX MONTHS,

8. _____ How many dropped out of DEP?

9. _____ How many more do you think will drop out of DEP?

10. _____ How many counted for you as high school diploma graduates?
11. _____ How many scored above the 49th percentile (categories I thru IIIA) on the AFQT?
12. _____ How many BOTH scored above the 49th percentile AND were counted for you as a diploma graduate?
13. _____ How many do you expect to contribute quality service to the Army and not attrite before the end of their contract?
14. _____ How many do you feel are right for the Army?
15. _____ How many do you feel the Army is the right place for during the period of their contract?
16. _____ How many do you think are going to become the quality career NCO's the Army needs?
17. During the last six months, how would you rate your performance as an Army Recruiter?

COMPLETE FAILURE	1	2	3	4	5	6	7	COMPLETE SUCCESS
------------------	---	---	---	---	---	---	---	------------------

PART IV

Factors Affecting My Performance

Many different possible causes for a recruiter's performance have been suggested. Please rate the extent to which each of the following factors affected your performance during the last six months. Make your ratings on the overall effect of each possible cause. Please rate each factor on the extent to which it positively or negatively affected your performance.

- 1 To a LARGE extent NEGATIVELY affected my performance
- 2 To a MODERATE extent NEGATIVELY affected my performance
- 3 To a SMALL extent NEGATIVELY affected my performance
- 4 To NO EXTENT affected my performance
- 5 To a SMALL extent POSITIVELY affected my performance
- 6 To a MODERATE extent POSITIVELY affected my performance
- 7 To a LARGE extent POSITIVELY affected my performance

- 1. ___ My opinions on the Army as a way of life
- 2. ___ My natural sales ability
- 3. ___ My gender
- 4. ___ My intelligence
- 5. ___ My age
- 6. ___ My marital status
- 7. ___ My dependents
- 8. ___ My friends and family life
- 9. ___ My budgeting and money handling ability
- 10. ___ My level of education and experience
- 11. ___ Sales skills I've developed or been trained in
- 12. ___ My usual efforts to get a job done
- 13. ___ Unusual levels of effort for me in the last six months
- 14. ___ My work on Public Relations events
- 15. ___ My physical appearance
- 16. ___ My general health and stamina
- 17. ___ My being ill or particularly healthy
- 18. ___ My motivation to help young people
- 19. ___ My motivation to do a good job for the Army
- 20. ___ My motivation to do everything well

- | | | | |
|---------|--|---------|--|
| 21. ___ | My motivation to get rewards and approval | 40. ___ | Distance to an Army base that provided a military presence |
| 22. ___ | My motivation to get out of recruiting with a good record | 41. ___ | Local unemployment rates |
| 23. ___ | USAREC Command | 42. ___ | Local cost of living |
| 24. ___ | My personality | 43. ___ | Regional Command |
| 25. ___ | My comfortableness with people | 44. ___ | My Station Commander |
| 26. ___ | How similar my ethnic background is to people in my recruiting zone | 45. ___ | Guidance Counselors in the AFZES |
| 27. ___ | How much I like living in this area | 46. ___ | Help to me from other recruiters |
| 28. ___ | How similar I am to people in my zone | 47. ___ | Hometown Recruiter Aides |
| 29. ___ | How similar my educational experiences are to young people in my zone | 48. ___ | Luck |
| 30. ___ | How similar my interests (like sports or music) are to young people in my zone | 49. ___ | Station Commander helping me learn to sell |
| 31. ___ | How close to this area I grew up | 50. ___ | Help from Public Relation events staged or worked on by other recruiters |
| 32. ___ | How comfortable I am with people in this area | 51. ___ | Help from military units in the Total Army Involvement in Recruiting program |
| 33. ___ | The number of young people in my zone | 52. ___ | Disruptions from one-time occurrences such as rezoning |
| 34. ___ | The quality of young people in my zone | 53. ___ | Disruptions from a PCS move |
| 35. ___ | The military propensity of young people in my zone | 54. ___ | Other recruiters setting up a negative climate in the area |
| 36. ___ | Paperwork and administrative burdens | 55. ___ | National advertising |
| 37. ___ | The "going-to-college-rate" in my zone | 56. ___ | Local area advertising |
| 38. ___ | Distances to high schools and other prospect contact points in my zone | 57. ___ | Local opinion |
| 39. ___ | Distances to AFZES and mobile test sites | 58. ___ | District Command |

PART V

REACTIONS TO PAST PERFORMANCE

How do you feel about your performance as an Army Recruiter during the last six months?

Circle one number on each line below:

1.	Powerful	1	2	3	4	5	6	7	8	9	Powerless
2.	Shame	1	2	3	4	5	6	7	8	9	Pride
3.	Passive	1	2	3	4	5	6	7	8	9	Active
4.	Good	1	2	3	4	5	6	7	8	9	Bad
5.	Rewarding myself	1	2	3	4	5	6	7	8	9	Punishing myself
6.	Weak	1	2	3	4	5	6	7	8	9	Strong
7.	Unsurprised	1	2	3	4	5	6	7	8	9	Surprised
8.	Self Disapproval	1	2	3	4	5	6	7	8	9	Self Approval
9.	Anxious	1	2	3	4	5	6	7	8	9	Calm
10.	Happy	1	2	3	4	5	6	7	8	9	Depressed
11.	Hostile	1	2	3	4	5	6	7	8	9	Grateful
12.	Competent	1	2	3	4	5	6	7	8	9	Incompetent
13.	Resigned	1	2	3	4	5	6	7	8	9	Contented
14.	Confident	1	2	3	4	5	6	7	8	9	Insecure
15.	Guiltless	1	2	3	4	5	6	7	8	9	GUILTY

PART IV

Recruiting Trend Report

On this page there are a number of statements and questions about how you expect to perform as a recruiter in the first half of FY82. Answer all questions as if you would be staying in the same zone as a field recruiter regardless of any planned or probable moves.

1. All in all, my job performance will be
 1. Excellent
 2. Above Average
 3. Average
 4. Below Average
 5. Poor
2. In the first half of FY82, how many prospects do you expect to have at least twenty minutes contact with?
3. In the first half of FY82, how many applicants do you expect to send to take the ASVAB?
4. In the first half of FY82, how many applicants do you expect to send to an AFES for a physical?
5. In the first half of FY82, how many prospects do you expect to send to an AFES to see a guidance counselor?
6. In the first half of FY82, how many people recruited and sent to an AFES by you do you expect to sign a contract?
7. In the first half of FY82, what percentage of objective do you expect to make?
OF THE RECRUITS WHO SIGN IN THE FIRST HALF OF FY82:
8. How many do you expect to drop out of DEP?

9. How many do you expect to count for you as a high school diploma graduate?
10. How many do you expect to score above the 49th percentile on the AFQT?
11. How many do you expect to BOTH score above the 49th percentile AND to count for you as a diploma graduate?
12. How many do you expect to contribute quality service to the Army and not attrite before the end of their contract?
13. How many do you expect you will feel are right for the Army?
14. How many do you expect you will feel the Army is the right place for during the period of their contract?
15. How many do you expect you will think are going to be the quality career NCO's the Army needs?
16. How would you rate your performance as an Army Recruiter in the next six months?

COMPLETE	1	2	3	4	5	6	7	COMPLETE
FAILURE								SUCCESS

APPENDIX C

1981 Experimental Recruiter Performance Report

- Part I: Performance Report for Last Six Months
- Part II: Factors Affecting Performance
- Part III: Expectations
- Part IV: Recommendations and Comments

The Army Research Institute is conducting research on experiences in Army Recruiting. Your honest answers will help us to make Army Recruiting better for you and for those following you. Your answers to this questionnaire will be kept confidential. The results will not in any way become a part of your personnel files or the personnel files of the recruiter you are asked to rate.

July 1981

U. S. Army Research Institute
3001 Eisenhower Avenue
Alexandria, VA 22333

PT-5437

DATA REQUIRED BY THE PRIVACY ACT OF 1974
18 U.S.C. 852e1

TITLE OF FORM 1981 Experimental Recruiter Performance Report		PRACER 8-400 DIRECTIVE AR 70-1
1 AUTHORITY 10USC Sec 4503		
2 PRINCIPAL PURPOSE(S) The data collected with the attached form are to be used for research purposes only.		
3 ROUTINE USES You are being asked to participate in research conducted by the Army Research Institute. The research will determine the extent to which personal data and behavioral factors and environmental factors relate to performance in Army recruiting. The results will be used for research purposes only and <u>will not in any way become a part of any Army personnel file.</u> When identifiers (name or Social Security Number) are requested, they are to be used for administrative and statistical control purposes only. Full confidentiality of the responses will be maintained in the processing of these data. For the research to be successful it is necessary that we obtain information from you (including your Social Security Number). Data collected will be handled in strict confidence and used for statistical purposes only. We cannot obtain all the information necessary unless we have your permission. If you agree to participate in the study, please complete the following pages. <p style="text-align: center;"><u>THANK YOU FOR YOUR COOPERATION.</u></p>		
4 MANDATORY OR VOLUNTARY DISCLOSURE AND EFFECT ON INDIVIDUAL NOT PROVIDING INFORMATION Your participation in this research is strictly voluntary. Individuals are encouraged to provide complete and accurate information in the interests of the research, but there will be no effect on individuals for not providing all or any part of the information. This notice may be detached from the rest of the form and retained by the individual if so desired.		

FORM Privacy Act Statement 28 Sep 75

DA Form 4368-R, 1 May 75

PERSONAL IDENTIFICATION

First Four Letters of Last Name _____ Recruiting Station _____

SSAN _____ RSID _____

RECRUITING PERFORMANCE REPORT FOR _____

SSAN _____

Part I

Performance Report for Last Six Months

In this section there are a number of statements and questions about this recruiter's performance during the last six months. Think over the last six months and answer each question with your best estimate.

1. All in all, her/his job performance in recruiting is _____
 1. Excellent
 2. Above Average
 3. Average
 4. Below Average
 5. Poor
 2. _____ In the last six months, how many prospects has he/she had at least twenty minutes contact with?
 3. _____ In the last six months, how many applicants did he/she send to take the ASVAB?
 4. _____ In the last six months, how many applicants did he/she send to an AFZES for a physical?
 5. _____ In the last six months, how many applicants did he/she send to an AFZES to see a guidance counselor?
 6. _____ In the last six months, how many people he/she recruited and sent to an AFZES signed a contract?
 7. _____ In the last six months, what percentage of objective did he/she make?
- OF THE SIGNED RECRUITS FROM THE LAST SIX MONTHS,
8. _____ How many dropped out of DEP?
 9. _____ How many more do you think will drop out of DEP?
10. _____ How many counted for him/her as high school diploma graduates?
 11. _____ How many scored above the 49th percentile (categories I thru IIIA) on the APQT?
 12. _____ How many BOTH scored above the 49th percentile AND were counted for her/him as a diploma graduate?
 13. _____ How many do you expect to contribute quality service to the Army and not attrite before the end of their contract?
 14. _____ How many do you feel are right for the Army?
 15. _____ How many do you feel the Army is the right place for during the period of their contract?
 16. _____ How many do you think are going to become the quality career WCO's the Army needs?
 17. During the last six months, how would you rate his/her performance as an Army Recruiter?

COMPLETE							
FAILURE	1	2	3	4	5	6	7
SUCCESS							
 18. _____ How many more do you think you would give him/her for last six months.

Part II

Factors Affecting Performance

Many different possible causes for a recruiter's performance have been suggested. Please rate the extent to which each of the following factors affected this recruiter's performance during the last six months. Make your ratings on the overall effect of each possible cause. Please rate each factor on the extent to which it positively or negatively affected his/her performance.

- 1 To a LARGE extent NEGATIVELY affected his/her performance
- 2 To a MODERATE extent NEGATIVELY affected his/her performance
- 3 To a SMALL extent NEGATIVELY affected his/her performance
- 4 To NO EXTENT affected his/her performance
- 5 To a SMALL extent POSITIVELY affected his/her performance
- 6 To a MODERATE extent POSITIVELY affected his/her performance
- 7 To a LARGE extent POSITIVELY affected his/her performance

- 1. ___ Her/his opinions on the Army as a way of life 12. ___ Her/his usual efforts to get a job done
- 2. ___ Her/his natural sales ability 13. ___ Her/his unusual levels of effort in the last six months
- 3. ___ Her/his gender 14. ___ Her/his work on Special Public Relations events
- 4. ___ Her/his intelligence 15. ___ Her/his physical appearance
- 5. ___ Her/his age 16. ___ Her/his general health and stamina
- 6. ___ Her/his marital status 17. ___ Her/his being ill or particularly healthy
- 7. ___ Her/his dependents 18. ___ Her/his motivation to help young people
- 8. ___ Her/his friends and family life 19. ___ Her/his motivation to do a good job for the Army
- 9. ___ Her/his budgeting and money handling ability 20. ___ Her/his motivation to do everything well
- 10. ___ Her/his level of education and experience 21. ___ Her/his motivation to receive rewards and approval
- 11. ___ Sales skills he/she has developed or been trained in

- 22. ___ Her/his motivation to get out of recruiting with a good record
- 23. ___ USAREC Command
- 24. ___ Her/his personality
- 25. ___ Her/his comfortableness with people
- 26. ___ How similar her/his ethnic background is to people in her/his recruiting zone
- 27. ___ How much he/she likes living in this area
- 28. ___ How similar he/she is to people in his/her zone
- 29. ___ How similar his/her educational experiences are to young people in his/her zone
- 30. ___ How similar his/her interests (like sports or music) are to young people in his/her zone
- 31. ___ How close to this area he/she grew up
- 32. ___ How comfortable he/she is with people in this area
- 33. ___ The number of young people in his/her zone
- 34. ___ The quality of young people in his/her zone
- 35. ___ The military propensity of young people in his/her zone
- 36. ___ Paperwork and administrative burdens
- 37. ___ The "going-to-college-rate" in his/her zone
- 38. ___ Distances to high schools and other prospect contact points in his/her zone
- 39. ___ Distances to AFFES and mobile test sites
- 40. ___ Distance to Army base that provides military presence
- 41. ___ Local unemployment rates
- 42. ___ Local cost of living
- 43. ___ Regional Command
- 44. ___ My performance as commander
- 45. ___ Guidance Counselors in the AFFES
- 46. ___ Help to him/her from other recruiters
- 47. ___ Hometown Recruiter Aides
- 48. ___ Luck
- 49. ___ My helping him/her learn to sell
- 50. ___ Help from Public Relation events staged or worked on by other recruiters
- 51. ___ Help from military units in the Total Army Involvement in Recruiting program
- 52. ___ Disruptions from one-time occurrences such as rezoning
- 53. ___ Disruptions from a PCS move
- 54. ___ Other recruiters setting up a negative climate in the area
- 55. ___ National advertising
- 56. ___ Local area advertising
- 57. ___ Local opinion
- 58. ___ District Command

Part III

Expectations

In this section there are a number of statements and questions about how you expect this recruiter to perform during the first half of FY82. Please circle the number or provide the requested information as each question indicates. ANSWER ALL QUESTIONS AS IF HE/SHE WOULD BE STAYING IN THE SAME ZONE, REGARDLESS OF ANY PCS ORDERS OR OTHER MOVES OR CHANGES.

1. All in all, her/his job performance will be
 1. Excellent
 2. Above Average
 3. Average
 4. Below Average
 5. Poor
2. _____ In the first half of FY82, how many prospects do you expect him/her to have at least twenty minutes contact with?
3. _____ In the first half of FY82, how many applicants do you expect him/her to send to take the ASVAB?
4. _____ In the first half of FY82, how many applicants do you expect him/her to send to an AFES for a physical?
5. _____ In the first half of FY82, how many applicants do you expect him/her to send to an AFES to see a guidance counselor?
6. _____ In the first half of FY82 how many people recruited and sent to an AFES by him/her do you expect to sign a contract?
7. _____ In the first half of FY82, what percentage of objective do you expect him/her to make?
OF HIS/HER RECRUITS WHO SIGN IN THE FIRST HALF OF FY82.
8. _____ How many do you expect to drop out of DEPT?
9. _____ How many do you expect to count for her/him as a high school diploma graduate?
10. _____ How many do you expect to score above the 49th percentile on the AFQT?
11. _____ How many do you expect to BOTH score above the 49th percentile AND to count for him/her as a diploma graduate?
12. _____ How many do you expect to contribute quality service to the Army and not attrite before the end of their contract?
13. _____ How many do you expect you will feel are right for the Army?
14. _____ How many do you expect you will feel the Army is the right place for during the period of their contract?
15. _____ How many do you expect you will think are going to become the quality career MCO's the Army needs?
16. How would you expect to rate his/her performance as an Army Recruiter in the next six months?

COMPLETE FAILURE	1	2	3	4	5	6	7	COMPLETE SUCCESS
------------------	---	---	---	---	---	---	---	------------------

APPENDIX D

1981 Recruiter Comments

Part I: Comments on Inventory and Survey
Part II: Factors Affecting Performance
Part III: Performance Influences
Part IV: Research Needs

Your answers to this questionnaire are totally confidential.
You are not to put any personal identification of any type
on this survey, and under the Privacy Act of 1974, no personal
identification may be added by anyone else.

July 1981

U. S. Army Research Institute
5001 Eisenhower Avenue
Alexandria, VA 22333

PT-5445A

Part I

Comments on Inventory and Survey

The question formats used in the Self Evaluation Inventory and the 1981 Recruiter Survey are the best possible formats to efficiently collect information from a large number of individuals. However, these formats do not always allow people to express everything they want to express. We would like to give you an opportunity to make whatever comments you would like to make on the Inventory and the Survey. If you need to, you may use the back side of this page, and/or add other sheets of paper.

A. Comments on the 1981 Recruiter Survey:

B. Comments on particular parts or questions in the 1981 Recruiter Survey (be sure to identify by number the part(s) and question(s) you comment on or clarify):

C. Comments on the Self Evaluation Inventory;

D. Comments on particular parts or questions in the Self Evaluation Inventory (be sure to identify by number the part(s) and question(s) you comment on or clarify):

- 2 -

Part II

Location of Factors Affecting Performance

Part IV of the 1981 Recruiter Survey asked you to rate the extent to which several factors affected your performance in the last six months. We need more information from you in order to correctly interpret what recruiters believe about factors which may influence their performance.

Please use the following scale to rate for each factor where you think that factor is located. Internal factors are located in individual recruiters and differ from recruiter to recruiter. External factors are located in the environment (including people other than the recruiter) and differ from situation to situation. Some factors that influence performance may be located in both the individual recruiter and the particular environment.

- 1 = Internal (in a recruiter)
- 2 = Both the recruiter and the environment
- 3 = External (in the environment and other people)

There may be times when more than one answer will seem appropriate; please choose whichever response you feel is best.

Please put your ratings in the blanks numbered 1 thru 58 (Column I) on the following two pages. (Column II - blanks numbered 59 thru 116 - will be used in Part III.)

Columns		Columns	
I	II	I	II
1. ___ 59. ___	Recruiter's opinions on the Army as a way of life	17. ___ 75. ___	Recruiter's being ill or particularly healthy
2. ___ 60. ___	Recruiter's natural sales ability	18. ___ 76. ___	Recruiter's motivation to help young people
3. ___ 61. ___	Recruiter's gender	19. ___ 77. ___	Recruiter's motivation to do a good job for the Army
4. ___ 62. ___	Recruiter's intelligence	20. ___ 78. ___	Recruiter's motivation to do everything well
5. ___ 63. ___	Recruiter's age	21. ___ 79. ___	Recruiter's motivation to get rewards and approval
6. ___ 64. ___	Recruiter's marital status	22. ___ 80. ___	Recruiter's motivation to get out of recruiting with a good record
7. ___ 65. ___	Recruiter's dependents	23. ___ 81. ___	USAREC Command
8. ___ 66. ___	Recruiter's friends and family life	24. ___ 82. ___	Recruiter's personality
9. ___ 67. ___	Recruiter's budgeting and money handling ability	25. ___ 83. ___	Recruiter's comfortableness with people
10. ___ 68. ___	Recruiter's level of education and experience	26. ___ 84. ___	How similar recruiter's ethnic background is to people in his/her recruiting zone
11. ___ 69. ___	Sales skills recruiter has developed or been trained in	27. ___ 85. ___	How much recruiter likes living in his/her area
12. ___ 70. ___	Recruiter's usual efforts to get a job done	28. ___ 86. ___	How similar recruiter is to people in his/her zone
13. ___ 71. ___	Unusual levels of effort for recruiter in the last six months	29. ___ 87. ___	How similar recruiter's educational experiences are to young people in his/her zone
14. ___ 72. ___	Recruiter's work on Public Relations events	30. ___ 88. ___	How similar recruiter's interests (like sports or music) are to young people in his/her zone
15. ___ 73. ___	Recruiter's physical appearance		
16. ___ 74. ___	Recruiter's general health and stamina		

Columns		Columns	
I	II	I	II
31. ___	89. ___	45. ___	103. ___
	How close to this area recruiter grew up		Guidance Counselors in the APZES
32. ___	90. ___	46. ___	104. ___
	How comfortable recruiter is with people in his/her area		Help to recruiter from other recruiters
33. ___	91. ___	47. ___	105. ___
	The number of young people in recruiter's zone		Hometown Recruiter Aides
34. ___	92. ___	48. ___	106. ___
	The quality of young people in recruiter's zone		Lack
35. ___	93. ___	49. ___	107. ___
	The military propensity of young people in recruiter's zone		Station Commander helping recruiter learn to sell
36. ___	94. ___	50. ___	108. ___
	Paperwork and administrative burdens		Help from Public Relation events staged or worked on by other recruiters
37. ___	95. ___	51. ___	109. ___
	The "going-to-college-rate" in recruiter's zone		Help from military units in the Total Army involvement in Recruiting program
38. ___	96. ___	52. ___	110. ___
	Distances to high schools and other prospect contacts points in recruiter's zone		Disruptions from one-time occurrences such as rezoning
39. ___	97. ___	53. ___	111. ___
	Distances to APZES and mobile test sites		Disruptions from a PCS move
40. ___	98. ___	54. ___	112. ___
	Distance to an Army base that provided a military presence		Other recruiters setting up a negative climate in the area
41. ___	99. ___	55. ___	113. ___
	Local unemployment rates		National advertising
42. ___	100. ___	56. ___	114. ___
	Local cost of living		Local area advertising
43. ___	101. ___	57. ___	115. ___
	Regional Command		Local opinion
44. ___	102. ___	58. ___	116. ___
	Recruiter's Station Commander		District Command

Part III

Stability of Factors Affecting Performance

Please go back now and rate each factor on the extent to which it has a stable, continuing effect on performance in field recruiting. By stable we mean that the factor has a continuing impact that would last from the past six months through the first two quarters of FY62; unstable factors are ones whose influence would be variable and change from time to time.

UNSTABLE 1 2 3 4 5 6 7 8 9 STABLE

There may be times when more than one answer will seem appropriate; please choose whichever response you feel is best.

Write your ratings in Column II (numbered 59 thru 116) on the preceding two pages.

Part IV

Research Needs

We would like to give you an opportunity to guide us in our continuing efforts to aid the recruiting force. Please take a few moments to identify for us issues which (1) you think are relevant to improving recruiter effectiveness and the quality of life of recruiters and (2) which are not covered in the survey or this comment section.

1981 RECRUITER COMMENTS

Part I: Comments on Inventory and Survey
Part II: Factors Affecting Performance
Part III: Performance Influences
Part IV: Research Needs

Your answers to this questionnaire are totally confidential. You are not to put any personal identification of any type on this survey, and under the Privacy Act of 1974, no personal identification may be added by anyone else.

July 1981

U. S. Army Research Institute
5001 Eisenhower Avenue
Alexandria, VA 22333

PT-5445B

Part III

External Control Over Factors

Affecting Performance

Please use the scale that follows to rate each factor that you indicated was located in the environment or in both the recruiter and the environment. You are asked to go back and rate these factors on whether they are controllable or uncontrollable by people other than the recruiter. A controllable factor is one that an individual can decide to change and then can actually change. An uncontrollable factor is one that cannot be changed when an individual wants to change it. Look at each factor which you just rated as a "2" or "3" on location and rate each of these factors on the extent to which other people can (if they decide to) change the factor in a way which would influence recruiter productivity.

Uncontrollable 1 2 3 4 5 6 7 8 9 Controllable
By Others By Others

There may be times when more than one answer will seem appropriate; please choose whichever response you feel is best.

Write your ratings in column II (numbered 59 thru 116) on the preceding two pages.

1981 RECRUITER COMMENTS

Part I: Comments on Inventory and Survey
Part II: Factors Affecting Performance
Part III: Performance Influences
Part IV: Research Needs

Your answers to this questionnaire are totally confidential.
You are not to put any personal identification of any type
on this survey, and under the Privacy Act of 1974, no personal
identification may be added by anyone else.

July 1981

U. S. Army Research Institute
5001 Eisenhower Avenue
Alexandria, VA 22333

PT-3445C

Part III

Recruiter Control Over Factors Affecting Performance

Please use the scale that follows to rate each factor that you indicated was located in the recruiter or in both the recruiter and the environment. You are asked to go back and rate these factors on whether they are controllable or uncontrollable by the recruiter. A controllable factor is one that an individual can decide to change and then can actually change. An uncontrollable factor is one that cannot be changed when an individual wants to change it. Look at each factor which you just rated as a "1" or "2" on location and rate each of these factors on the extent to which the recruiter can (if he/she decides to) change the factor in a way which would influence recruiter productivity.

Uncontrollable 1 2 3 4 5 6 7 8 9 Controllable
By Recruiter By Recruiter

There may be times when more than one answer will seem appropriate; please choose whichever response you feel is best.

Write your ratings in column II (numbered 59 thru 116) on the preceding two pages.

APPENDIX E

Letter From Recruiting Command to Research Participants



DEPARTMENT OF THE ARMY
HEADQUARTERS UNITED STATES ARMY RECRUITING COMMAND
FORT SHERIDAN, ILLINOIS 60037

USARCTAR-RE

13 AUG 1951

SUBJECT: Participation in Recruiting Research

ALL RESEARCH PARTICIPANTS

1. You are being asked to participate in research efforts to improve the utilization of US Army Recruiting Command (USAREC) personnel. This research is being conducted for USAREC by the Army Research Institute (ARI). After reading this letter, please answer the attached questionnaire(s) as fully and as honestly as possible. ARI personnel may also interview you on other topics which are not covered in the questionnaire(s).
2. ARI is a field operating agency of the Deputy Chief of Staff for Personnel (DCSPER) that conducts much of the Army's personnel management research and development. The mission of ARI is to conduct behavioral and social science research when requested by sponsors in the various Army commands. ARI provides its sponsors with statistical results and interpretations from its research efforts. ARI also develops research products such as handbooks and training courses. Information on individuals is not provided to anyone who is not an ARI researcher. The information you provide will be used only by qualified researchers to analyze and interpret groups of data and to develop handbooks and training courses. Your supervisors will not have access to this information, nor will it appear in any of your personnel records. The information being gathered will remain completely confidential, so try to be as accurate as possible in your answers. Your social security number and part of your last name are being used for accuracy in data collection since several different questionnaires are being used. As soon as all the information from the questionnaires is put into an ARI computer file all personal identification associated with these data will be destroyed.
3. USAREC has asked ARI to produce research reports concerning field recruiter and recruiter aide training and utilization. Reports to USAREC on this research effort will be statistical in nature. Results will be reported in percentages and averages for different types of recruiters (e.g., male or female), types of recruiting stations (e.g., rural or urban) or geographic areas.

13 AUG 1981

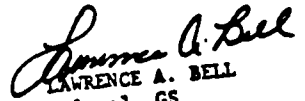
USARCPAE-RE
SUBJECT: Participation in Recruiting Research

4. If you would like to be put on a distribution list for a report on results from this research, please fill out the inclosed form and return it to the researcher or mail it to ARI.

5. Work at your own pace and be sure to be as complete and accurate as possible. Please feel free to ask the researcher questions at any time.

FOR THE COMMANDER:

1 Incl
as


LAWRENCE A. BELL
Colonel, GS
Acting Chief of Staff

DISPOSITION FORM

For use of this form, see AR 360-13, the program sponsor is TAGCEN.

REFERENCE OR OFFICE SYMBOL

SUBJECT

Request for Report

TO

CDR, ARI
ATTN: PERI-RP (Mr. Ellig)
Soldier Recruitment and
Retention Team
5001 Eisenhower Avenue
Alexandria, VA 22333

FROM

DATE

COPY

1. Please put me on the distribution list to receive a report on ARI's research on Recruiting Command personnel utilization.
2. I understand that publication of this report is projected for the 4th quarter of FY 82.
3. My address is below. I understand that it is my responsibility to see that a forwarding order is left for this address and that I might have to pay for forwarding of 3rd class mail.

Name:

Address:

DA FORM 2496

REPLACES DD FORM 24, WHICH IS OBSOLETE

GPO: 1976-316-011-8120

Supplementary Tables

Table F1
Correlation Matrix of Ratings and Residuals

	L	S	RC	OC	C	LRESRO	LESSRO	LRESSC	LRESS	LRESC	LRESR	LRESO
L	1.00000											
S	-0.62408	1.00000										
RC	-0.82248	0.59176	1.00000									
OC	-0.57135	-0.42686	0.59849	1.00000								
C	-0.38730	0.11180	0.65393	0.39849	1.00000							
LRESRO	0.51399	-0.88623	0.00000	-0.00000	-0.02328	1.00000						
LESSRO	0.51017	-0.00000	0.00000	0.00000	-0.02166	0.99259	1.00000					
LRESSC	0.72150	0.00002	-0.38205	0.46899	0.60084	0.63204	0.62803	1.00000				
LRESS	0.78134	0.00003	-0.57997	0.25353	-0.38142	0.58994	0.72594	0.68944	1.00000			
LRESR	0.93010	-0.62714	-0.62605	0.77167	0.00001	0.56341	0.77573	0.68944	0.72994	1.00000		
LRESO	0.56880	-0.24151	-0.70459	0.38724	-0.72981	0.98368	0.86969	0.77552	0.42347	0.59607	1.00000	
SRESLRO	0.82970	0.78986	0.00003	-0.00000	0.01453	-0.12149	0.50056	0.48705	0.00003	-0.06141	-0.10976	1.00000
SRESLRC	-0.86246	0.00001	0.00002	-0.00000	0.01177	0.00001	0.58167	0.56278	0.00465	0.00001	0.00001	-0.00002
SRESL	-0.00001	0.77095	0.10042	-0.20539	0.00001	0.33355	0.63107	2.61579	0.00001	0.00001	0.00001	0.14297
SRESR	-0.58695	0.99362	0.52242	-0.64628	-0.15130	0.50016	0.40749	0.62410	-0.05976	-0.05976	0.14521	-0.21515
SRESO	-0.17943	0.80611	-0.00000	-0.42855	-0.00004	-0.08417	0.00244	0.04262	-0.31843	-0.31843	-0.27669	-0.07612
RCRESL	-0.35233	0.80145	0.41983	-0.00001	-0.43587	-0.10757	0.00005	0.18323	-0.20647	-0.20647	-0.01233	-0.52931
RCRESL	-0.00001	0.13795	0.56879	-0.00000	0.61856	0.74326	0.73777	0.11018	0.24426	0.24426	0.82247	-0.05271
RCRESS	-0.56217	-0.00001	0.80611	-0.09050	0.72972	0.08333	0.00004	-0.71948	-0.31625	-0.31625	0.17728	-0.62196
RCRESO	-0.63979	0.37204	0.90431	0.00002	0.91123	0.00003	0.00005	-0.52166	-0.32802	-0.32802	0.18280	-0.77958
RCRESLS	-0.00001	0.00002	0.55987	-0.13235	0.65558	0.70128	0.67645	0.00000	0.25887	0.25887	0.86955	-0.09215
RCRESLSO	-0.00002	0.16583	0.56638	-0.00004	0.55252	0.77960	0.77384	0.13243	0.21813	0.21813	0.81896	-0.00001
RCRESSO	-0.00001	0.00001	0.55131	-0.00002	0.53514	0.75888	0.72544	0.00000	-0.26207	-0.26207	0.79719	-0.00001
OCRESL	-0.53772	0.00002	0.80998	-0.00002	0.80034	0.05642	0.00003	-0.68316	0.29275	0.29275	0.21284	-0.65516
OCRESL	0.00001	-0.29428	0.02471	-0.00001	0.74125	-0.35782	-0.35516	0.41950	0.49482	0.49482	0.71587	-0.00001
OCRESS	0.24717	0.00004	-0.09101	0.80142	0.58005	0.00001	0.00001	0.06915	0.55782	0.55782	0.30294	-0.25679
OCRESLR	-0.00001	-0.38205	-0.00003	0.90433	0.74930	0.00001	0.00001	0.58520	0.31636	0.31636	0.42821	-0.33277
OCRESLS	-0.00001	0.00001	0.09746	0.76028	0.73864	-0.26427	-0.27777	0.30828	0.00661	0.00661	0.14089	-0.52932
OCRESLSO	-0.00001	-0.30828	0.00001	0.81720	0.68711	-0.39228	-0.42505	0.30891	-0.00002	-0.00002	0.00003	-0.56894
OCRESSR	0.00004	-0.00002	-0.00002	0.74670	0.63420	-0.05756	-0.00003	0.25329	0.26225	0.26225	0.00002	-0.52119
OCRESSR	0.18489	-0.00000	0.00002	0.79632	0.66673	-0.05756	-0.00003	0.53510	0.46209	0.46209	0.32507	-0.32912
CRESL	0.00001	-0.12710	0.37826	0.65407	0.66673	-0.17795	0.00001	0.28598	0.36732	0.36732	0.54697	-0.45535
CRESS	-0.29990	0.00003	0.59191	0.46775	0.99382	-0.01381	-0.02182	0.00003	0.07004	0.07004	0.32863	-0.69107
CRESLS	-0.00001	0.00001	0.39995	0.61192	0.91772	-0.22985	-0.24778	0.38382	0.36241	0.36241	0.57829	-0.42603

Table F1 (continued)

	SRESB	SRESL0	SRESLC	SRESL	SRESC	SRESR	SRESO	ACRESL	ACRESS	ACRESO	ACRESLS	ACRESLO
L	-0.06266	-0.00001	0.00000	-0.00001	-0.58895	-0.17043	-0.35233	-0.00001	-0.56217	-0.03979	-0.00001	-0.00002
S	0.70084	0.70460	0.77095	0.78136	0.99382	0.80611	0.80445	0.13795	-0.00001	0.37204	0.00002	0.16583
RC	0.0000	0.0002	0.16514	0.10042	0.52242	0.00000	0.41983	0.56879	0.80611	0.9431	0.55987	0.56618
OC	-0.0000	-0.0001	-0.20239	-0.30907	-0.64428	-0.52855	-0.00001	0.07571	-0.09950	0.0002	0.13235	-0.0004
C	0.01953	0.01177	0.00001	0.35130	0.00004	0.36234	0.43387	0.18526	0.72372	0.01123	0.65358	0.55232
LRSSB	-0.12149	0.00001	0.33355	0.30016	-0.00417	-0.10703	-0.10257	0.74326	0.06333	0.00003	0.70128	0.77960
LRSSB0	0.50000	0.12150	0.44238	0.50749	0.00264	0.00005	0.00005	0.73777	0.00006	0.00003	0.67645	0.77304
LRSSC	0.50000	0.50167	0.63107	0.57630	0.00002	0.28065	0.35001	0.37161	0.00006	-0.20108	0.27418	0.36679
LRSS	0.48709	0.56270	0.61579	0.62410	0.04262	0.52525	0.18923	0.11018	-0.71948	-0.52166	-0.00000	0.13243
LRSC	0.06441	0.00665	0.00001	-0.05976	-0.43104	0.18463	-0.20667	0.24426	-0.31625	-0.32882	0.25087	0.21816
LRSR	-0.10376	0.00003	0.23336	0.44521	-0.27649	-0.20963	-0.13235	0.07267	0.17128	-0.18288	0.80955	0.81096
LRSS0	-0.00002	0.00002	0.74597	0.49521	-0.26326	0.09067	-0.42931	-0.05271	-0.62196	-0.77958	-0.09215	0.00000
LRSS00	0.07613	0.09259	0.80271	0.21515	-0.71265	0.08057	0.88372	-0.09027	-0.52387	0.00002	-0.24378	-0.09467
LRSS000	0.99259	1.00000	0.91003	0.90176	0.78767	0.07405	0.87919	0.00002	-0.51722	0.00000	-0.16170	0.00004
LRSS0000	0.86271	0.91603	1.00000	0.90668	0.77374	0.03506	0.80669	0.28057	-0.36233	0.00454	0.11622	0.00000
LRSS00000	0.85001	0.98176	0.98668	1.00000	0.80312	0.09556	0.74531	0.17654	-0.44902	-0.03486	0.00000	0.21221
LRSS000000	0.71265	0.78767	0.77374	0.80312	1.00000	0.84935	0.75727	0.04975	-0.08149	0.27261	-0.07319	0.10517
LRSS0000000	0.80957	0.74093	0.35886	0.89556	0.85195	1.00000	0.68082	-0.26446	-0.59177	-0.20232	-0.41101	-0.21010
LRSS00000000	0.88372	0.87919	0.80889	0.74431	0.75777	0.80002	1.00000	0.22866	-0.06353	0.66424	0.09081	0.20691
LRSS000000000	-0.09277	0.00002	0.28037	0.17654	0.06973	-0.29466	0.22804	1.00000	-0.00334	0.66473	0.98429	0.99573
LRSS0000000000	-0.52107	-0.51722	-0.56233	-0.44902	-0.08149	-0.59177	-0.22804	-0.00000	0.00000	0.84869	0.69452	0.58887
LRSS00000000000	0.00002	0.00000	0.06534	-0.03486	0.27261	-0.20232	0.46524	0.66473	1.00000	1.00000	0.68160	0.62630
LRSS000000000000	-0.24378	0.00000	0.11622	0.00000	-0.07319	-0.51101	0.09081	0.98429	0.84869	0.68160	1.00000	0.97356
LRSS0000000000000	-0.09467	0.00004	0.31082	0.21221	0.10517	0.21010	0.20691	0.99573	0.98429	0.62630	0.97356	1.00000
LRSS00000000000000	-3.1952	-0.27982	0.09087	0.00000	-0.05274	-0.06474	0.00003	0.04926	0.48191	0.60945	0.96973	0.97341
LRSS000000000000000	-0.46524	-0.60878	-0.32938	-0.62945	-0.08934	-0.08474	0.00002	0.30026	0.49360	0.80572	0.71776	0.59807
LRSS0000000000000000	0.00345	0.00005	-0.25029	-0.37662	-0.37088	-0.08356	0.24324	0.09226	0.28111	0.44543	0.16129	-0.00002
LRSS00000000000000000	0.52974	0.00002	0.31966	0.19746	-0.06973	0.06685	0.59009	0.97761	-0.11293	0.27767	0.16515	0.12378
LRSS000000000000000000	0.00000	0.00002	0.14966	-0.29439	-0.46009	-0.07391	0.19814	0.35220	0.28061	-0.62685	0.41062	-0.26729
LRSS0000000000000000000	0.39597	0.56454	0.13094	-0.00001	-0.08268	0.17154	0.56333	0.17133	0.12089	0.66665	0.17407	0.08621
LRSS00000000000000000000	0.42804	0.00001	-0.27084	-0.09455	-0.30882	-0.08241	0.22431	0.00001	0.22431	0.58576	0.17077	-0.09229
LRSS000000000000000000000	0.44356	0.00005	0.11246	0.00001	-0.07003	0.00002	0.55067	-0.00002	-0.00002	0.35339	0.00003	-0.08552
LRSS0000000000000000000000	0.47390	0.47037	0.27991	0.10761	-0.07443	0.00001	0.59823	0.00002	0.00002	0.27591	0.24317	0.19023
LRSS00000000000000000000000	-0.00903	0.01267	0.00003	-0.16266	-0.23174	-0.03535	0.32950	0.06504	0.56254	0.27004	0.70063	0.59482
LRSS000000000000000000000000	-0.06683	-0.00008	-0.00008	-0.23950	-0.11094	-0.03647	0.34909	0.06699	0.73025	0.07535	0.69063	0.53741
LRSS0000000000000000000000000	0.13239	0.16149	0.16270	0.00001	-0.10266	-0.20959	0.45066	0.70314	0.49413	0.73113	0.71436	0.63785

Table F2

Spearman's Rank Correlations of Performance Attributions

	PA1	PA2	PA3	PA4	PA5	PA6	PA7	PA8	PA9	PA10	PA11	PA12	PA13
PA1	1.000												
PA2	0.428	1.000											
PA3	0.283	0.458	1.000										
PA4	0.484	0.582	0.531	1.000									
PA5	0.242	0.310	0.412	0.531	1.000								
PA6	0.248	0.310	0.320	0.325	0.344	1.000							
PA7	0.355	0.324	0.378	0.312	0.414	0.467	1.000						
PA8	0.381	0.383	0.305	0.428	0.393	0.498	0.464	1.000					
PA9	0.484	0.505	0.447	0.436	0.456	0.524	0.343	0.468	1.000				
PA10	0.412	0.422	0.378	0.519	0.365	0.324	0.184	0.292	0.468	1.000			
PA11	0.599	0.561	0.373	0.640	0.366	0.216	0.219	0.306	0.466	0.509	1.000		
PA12	0.404	0.418	0.273	0.450	0.183	0.263	0.226	0.293	0.466	0.580	0.648	1.000	
PA13	0.230	0.417	0.312	0.391	0.310	0.208	0.226	0.293	0.382	0.459	0.572	0.658	1.000
PA14	0.371	0.503	0.490	0.533	0.468	0.334	0.341	0.295	0.261	0.432	0.583	0.673	0.658
PA15	0.384	0.444	0.464	0.427	0.440	0.327	0.338	0.439	0.463	0.485	0.614	0.759	0.588
PA16	0.280	0.242	0.263	0.297	0.188	0.232	0.248	0.285	0.284	0.281	0.412	0.432	0.400
PA17	0.458	0.345	0.337	0.555	0.337	0.270	0.265	0.332	0.370	0.283	0.572	0.648	0.568
PA18	0.586	0.507	0.327	0.546	0.363	0.264	0.269	0.321	0.311	0.548	0.614	0.759	0.568
PA19	0.551	0.597	0.349	0.608	0.294	0.278	0.276	0.323	0.311	0.548	0.614	0.759	0.568
PA20	0.366	0.458	0.312	0.473	0.344	0.318	0.279	0.335	0.335	0.463	0.614	0.759	0.568
PA21	0.355	0.307	0.258	0.374	0.174	0.209	0.237	0.199	0.244	0.319	0.412	0.432	0.400
PA22	0.356	0.305	0.276	0.228	0.180	0.159	0.196	0.239	0.230	0.230	0.334	0.211	0.284
PA23	0.474	0.603	0.353	0.627	0.389	0.295	0.223	0.320	0.332	0.356	0.629	0.711	0.505
PA24	0.489	0.593	0.354	0.568	0.302	0.211	0.292	0.321	0.322	0.356	0.519	0.577	0.483
PA25	0.167	0.357	0.294	0.299	0.270	0.094	0.139	0.210	0.201	0.287	0.294	0.245	0.313
PA26	0.273	0.365	0.291	0.295	0.250	0.234	0.207	0.329	0.329	0.323	0.319	0.267	0.345
PA27	0.172	0.369	0.308	0.328	0.202	0.114	0.106	0.235	0.241	0.204	0.294	0.267	0.345
PA28	0.187	0.367	0.308	0.328	0.202	0.114	0.106	0.235	0.241	0.204	0.294	0.267	0.345
PA29	0.246	0.487	0.310	0.445	0.372	0.200	0.227	0.330	0.333	0.323	0.368	0.335	0.272
PA30	0.428	0.466	0.363	0.471	0.372	0.200	0.242	0.330	0.337	0.362	0.423	0.375	0.283
PA31	0.254	0.466	0.172	0.171	0.164	0.070	0.051	0.148	0.223	0.211	0.274	0.166	0.159
PA32	0.234	0.415	0.287	0.439	0.276	0.167	0.152	0.248	0.343	0.334	0.426	0.408	0.341
PA33	0.280	0.282	0.185	0.217	0.304	0.170	0.171	0.334	0.356	0.411	0.419	0.399	0.341
PA34	0.210	0.322	0.246	0.331	0.262	0.173	0.165	0.363	0.274	0.226	0.269	0.224	0.207
PA35	0.149	0.322	0.246	0.331	0.271	0.194	0.165	0.363	0.274	0.226	0.269	0.224	0.207
PA36	0.086	0.322	0.246	0.331	0.271	0.194	0.165	0.363	0.274	0.226	0.269	0.224	0.207
PA37	0.092	0.322	0.246	0.331	0.271	0.194	0.165	0.363	0.274	0.226	0.269	0.224	0.207
PA38	0.164	0.245	0.244	0.272	0.261	0.141	0.132	0.232	0.316	0.105	0.090	0.108	0.161
PA39	0.086	0.322	0.246	0.331	0.271	0.194	0.165	0.363	0.274	0.226	0.269	0.224	0.207
PA40	0.213	0.322	0.246	0.331	0.271	0.194	0.165	0.363	0.274	0.226	0.269	0.224	0.207
PA41	0.129	0.239	0.146	0.195	0.152	0.144	0.134	0.192	0.323	0.103	0.096	0.080	0.225
PA42	0.180	0.239	0.146	0.195	0.152	0.144	0.134	0.192	0.323	0.103	0.096	0.080	0.225
PA43	0.180	0.239	0.146	0.195	0.152	0.144	0.134	0.192	0.323	0.103	0.096	0.080	0.225
PA44	0.315	0.250	0.176	0.178	0.095	0.090	0.095	0.238	0.170	0.327	0.330	0.237	0.322
PA45	0.208	0.311	0.290	0.308	0.260	0.090	0.095	0.238	0.170	0.327	0.330	0.237	0.322
PA46	0.208	0.229	0.266	0.256	0.130	0.222	0.206	0.294	0.367	0.470	0.391	0.332	0.294
PA47	0.081	0.145	0.247	0.199	0.151	0.126	0.156	0.265	0.176	0.248	0.326	0.265	0.259
PA48	0.027	0.016	0.224	0.195	0.112	0.062	0.208	0.233	0.179	0.156	0.195	0.109	0.187
PA49	0.164	0.120	0.082	0.082	0.090	0.058	0.095	0.066	0.100	0.110	0.047	0.079	0.040
PA50	0.129	0.254	0.231	0.118	0.114	0.157	0.191	0.212	0.174	0.195	0.248	0.117	0.216
PA51	0.163	0.239	0.191	0.093	0.126	0.157	0.105	0.131	0.166	0.110	0.256	0.181	0.258
PA52	0.156	0.110	0.180	0.061	0.096	0.122	0.109	0.146	0.119	0.041	0.217	0.079	0.216
PA53	0.086	0.173	0.210	0.117	0.096	0.223	0.241	0.210	0.250	0.058	0.117	0.020	0.174

Table F2 (continued)

	PA1	PA2	PA3	PA4	PA5	PA6	PA7	PA8	PA9	PA10	PA11	PA12	PA13
PA50	-0.031	0.019	0.102	-0.020	0.059	0.181	0.260	0.226	0.133	0.015	0.004	0.042	0.150
PA51	0.146	0.172	0.208	0.252	0.142	0.121	0.121	0.123	0.210	0.117	0.249	0.225	0.261
PA52	0.132	0.126	0.283	0.159	0.127	0.171	0.202	0.261	0.218	0.337	0.172	0.172	0.248
PA53	0.168	0.255	0.213	0.211	0.157	0.213	0.213	0.277	0.229	0.267	0.266	0.273	0.311
PA54	0.193	0.127	0.119	0.069	0.085	0.077	0.087	0.156	0.155	0.111	0.192	0.156	0.262
PA14	1.000	PA15	PA16	PA17	PA18	PA19	PA20	PA21	PA22	PA23	PA24	PA25	PA26
PA15	0.426	1.000											
PA16	0.389	0.749	1.000										
PA17	0.331	0.400	0.557	1.000									
PA18	0.530	0.480	0.448	0.299	1.000								
PA19	0.458	0.413	0.422	0.229	0.687	1.000							
PA20	0.431	0.476	0.445	0.266	0.661	0.620	1.000						
PA21	0.389	0.414	0.387	0.194	0.450	0.523	0.610	1.000					
PA22	0.342	0.387	0.263	0.209	0.461	0.476	0.507	0.451	1.000				
PA23	0.323	0.358	0.389	0.194	0.282	0.378	0.307	0.383	0.321	1.000			
PA24	0.670	0.556	0.529	0.237	0.629	0.693	0.507	0.502	0.623	0.313	1.000		
PA25	0.406	0.459	0.460	0.237	0.626	0.579	0.636	0.681	0.398	0.320	0.320	1.000	
PA26	0.367	0.400	0.384	0.168	0.389	0.279	0.301	0.359	0.219	0.333	0.359	0.401	1.000
PA27	0.222	0.368	0.334	0.115	0.255	0.282	0.299	0.341	0.210	0.363	0.359	0.406	0.448
PA28	0.329	0.285	0.328	0.110	0.205	0.258	0.299	0.293	0.198	0.366	0.337	0.382	0.444
PA29	0.365	0.337	0.324	0.169	0.363	0.281	0.351	0.378	0.288	0.466	0.416	0.464	0.516
PA30	0.408	0.373	0.434	0.202	0.392	0.401	0.380	0.388	0.283	0.591	0.549	0.426	0.487
PA31	0.363	0.219	0.147	0.080	0.189	0.224	0.184	0.217	0.185	0.258	0.265	0.309	0.404
PA32	0.436	0.433	0.398	0.170	0.407	0.393	0.430	0.386	0.283	0.367	0.482	0.573	0.541
PA33	0.430	0.459	0.502	0.270	0.459	0.434	0.411	0.437	0.237	0.325	0.457	0.463	0.489
PA34	0.316	0.270	0.366	0.146	0.276	0.326	0.268	0.335	0.156	0.307	0.347	0.349	0.360
PA35	0.370	0.462	0.397	0.224	0.295	0.318	0.294	0.370	0.246	0.366	0.365	0.380	0.401
PA36	0.186	0.028	0.093	0.110	0.088	0.074	0.041	0.105	0.133	0.166	0.167	0.113	0.140
PA37	0.201	0.164	0.175	0.143	0.114	0.131	0.118	0.174	0.187	0.236	0.184	0.236	0.162
PA38	0.353	0.320	0.357	0.237	0.260	0.285	0.255	0.321	0.280	0.327	0.328	0.326	0.261
PA39	0.277	0.247	0.227	0.166	0.179	0.168	0.214	0.231	0.207	0.251	0.247	0.277	0.253
PA40	0.081	0.035	0.075	0.003	0.117	0.076	0.079	0.134	0.130	0.203	0.115	0.150	0.099
PA41	0.174	0.192	0.211	0.148	0.246	0.261	0.281	0.263	0.157	0.165	0.274	0.325	0.170
PA42	0.205	0.232	0.256	0.140	0.245	0.274	0.252	0.250	0.111	0.107	0.211	0.304	0.232
PA43	0.221	0.242	0.257	0.111	0.138	0.150	0.209	0.292	0.182	0.221	0.210	0.171	0.261
PA44	0.222	0.193	0.192	0.135	0.165	0.170	0.307	0.285	0.249	0.335	0.275	0.313	0.160
PA45	0.255	0.300	0.309	0.227	0.371	0.361	0.368	0.295	0.237	0.339	0.380	0.345	0.232
PA46	0.288	0.290	0.333	0.137	0.322	0.321	0.225	0.249	0.173	0.220	0.252	0.249	0.284
PA47	0.315	0.204	0.185	0.054	0.165	0.056	0.103	0.167	0.074	0.222	0.141	0.193	0.180
PA48	0.034	0.009	0.041	0.054	0.068	0.057	0.025	0.067	0.029	0.062	0.001	0.011	0.128
PA49	0.124	0.194	0.164	0.058	0.217	0.185	0.116	0.133	0.119	0.274	0.076	0.110	0.212
PA50	0.376	0.343	0.313	0.150	0.276	0.200	0.187	0.133	0.119	0.274	0.076	0.110	0.212
PA51	0.275	0.257	0.296	0.110	0.181	0.198	0.158	0.121	0.050	0.130	0.156	0.213	0.235
PA52	0.166	0.113	0.117	0.169	0.000	0.001	-	0.072	0.000	0.170	0.076	0.060	0.115
PA53	0.129	0.124	0.069	0.165	0.059	0.034	0.049	0.102	0.161	0.081	0.076	0.076	0.105
PA54	0.159	0.150	0.243	0.093	0.319	0.029	0.235	0.274	0.191	0.256	0.249	0.102	0.224
PA55	0.224	0.264	0.215	0.093	0.319	0.214	0.235	0.274	0.191	0.256	0.249	0.102	0.224
PA56	0.240	0.292	0.222	0.050	0.256	0.164	0.117	0.190	0.151	0.229	0.229	0.231	0.189
PA57	0.292	0.238	0.300	0.135	0.278	0.249	0.231	0.281	0.113	0.259	0.280	0.351	0.319
PA58	0.238	0.288	0.228	0.063	0.196	0.183	0.138	0.255	0.142	0.357	0.142	0.180	0.211

Table F2 (continued)

	PA27	PA28	PA29	PA30	PA31	PA32	PA33	PA34	PA35	PA36	PA37	PA38	PA39
PA27	1.000												
PA28	0.504	1.000											
PA29	0.614	0.600	1.000										
PA30	0.449	0.526	0.610	1.000									
PA31	0.516	0.451	0.528	0.554	1.000								
PA32	0.375	0.451	0.444	0.320	0.326	1.000							
PA33	0.440	0.441	0.537	0.547	0.326	0.541	1.000						
PA34	0.277	0.179	0.131	0.104	0.118	0.127	0.189	1.000					
PA35	0.359	0.180	0.280	0.192	0.135	0.201	0.367	0.397	1.000				
PA36	0.261	0.203	0.300	0.231	0.205	0.253	0.394	0.280	0.355	1.000			
PA37	0.259	0.260	0.303	0.237	0.185	0.253	0.344	0.153	0.260	0.330	1.000		
PA38	0.252	0.156	0.002	0.000	0.148	0.114	0.129	0.096	0.430	0.069	0.301	1.000	
PA39	0.195	0.296	0.361	0.253	0.106	0.314	0.376	0.276	0.203	0.156	0.223	0.261	1.000
PA40	0.331	0.296	0.233	0.256	0.212	0.301	0.332	0.321	0.395	0.380	0.335	0.320	0.219
PA41	0.268	0.248	0.147	0.274	0.170	0.257	0.306	0.385	0.368	0.300	0.222	0.261	0.296
PA42	0.165	0.145	0.190	0.240	0.079	0.210	0.283	0.218	0.243	0.244	0.183	0.297	0.268
PA43	0.277	0.177	0.272	0.277	0.215	0.271	0.321	0.318	0.306	0.244	0.203	0.297	0.254
PA44	0.374	0.228	0.225	0.335	0.084	0.237	0.280	0.285	0.323	0.067	0.203	0.195	0.254
PA45	0.252	0.228	0.225	0.303	0.158	0.237	0.280	0.285	0.323	0.067	0.203	0.195	0.254
PA46	0.174	0.203	0.190	0.199	0.158	0.241	0.057	0.044	0.369	0.156	0.190	0.195	0.146
PA47	0.093	0.093	0.190	0.174	0.028	0.097	0.057	0.044	0.092	0.109	0.060	0.064	0.070
PA48	0.210	0.210	0.225	0.222	0.123	0.175	0.271	0.176	0.286	0.109	0.176	0.172	0.218
PA49	0.250	0.248	0.298	0.355	0.143	0.303	0.311	0.319	0.286	0.200	0.230	0.223	0.186
PA50	0.204	0.263	0.141	0.310	0.177	0.261	0.310	0.328	0.264	0.249	0.274	0.175	0.163
PA51	0.138	0.135	0.044	0.146	0.073	0.070	0.216	0.181	0.223	0.291	0.224	0.248	0.311
PA52	0.214	0.135	0.044	0.146	0.073	0.070	0.216	0.181	0.223	0.291	0.224	0.248	0.311
PA53	0.139	0.108	0.125	0.176	0.249	0.158	0.115	0.084	0.137	0.090	0.096	0.211	0.195
PA54	0.276	0.140	0.211	0.216	0.086	0.088	0.115	0.125	0.133	0.380	0.328	0.189	0.183
PA55	0.046	0.046	0.206	0.206	0.093	0.202	0.258	0.160	0.257	0.228	0.190	0.207	0.188
PA56	0.358	0.358	0.283	0.358	0.161	0.264	0.243	0.247	0.279	0.243	0.190	0.279	0.252
PA57	0.101	0.101	0.109	0.115	0.259	0.356	0.352	0.364	0.608	0.248	0.367	0.279	0.252
PA58	0.225	0.174	0.109	0.115	0.217	0.221	0.250	0.295	0.297	0.361	0.309	0.351	0.316
PA40	1.000												
PA41	0.105	1.000											
PA42	0.150	0.500	1.000										
PA43	0.253	0.290	0.347	1.000									
PA44	0.249	0.262	0.216	0.322	1.000								
PA45	0.190	0.319	0.287	0.349	0.370	1.000							
PA46	0.197	0.196	0.200	0.190	0.335	0.374	1.000						
PA47	0.170	0.187	0.167	0.191	0.192	0.282	0.330	1.000					
PA48	0.016	0.077	0.040	0.080	0.093	0.134	0.119	0.241	1.000				
PA49	0.186	0.167	0.263	0.286	0.036	0.245	0.427	0.191	0.047	1.000			
PA50	0.151	0.195	0.294	0.366	0.347	0.366	0.476	0.356	0.049	0.515	1.000		
PA51	0.239	0.088	0.282	0.383	0.170	0.268	0.303	0.270	0.090	0.224	0.481	1.000	
PA52	0.232	0.063	0.185	0.227	0.192	0.070	0.111	0.215	0.074	0.145	0.112	0.136	0.674
PA53	0.107	0.036	0.131	0.058	0.052	0.011	0.141	0.182	0.150	0.137	0.112	0.136	0.336
PA54	0.238	0.036	0.196	0.333	0.075	0.070	0.084	0.064	0.064	0.050	0.212	0.108	0.336
PA55	0.150	0.212	0.183	0.227	0.228	0.460	0.327	0.230	0.184	0.250	0.408	0.175	0.175
PA56	0.182	0.238	0.298	0.335	0.262	0.400	0.390	0.314	0.138	0.265	0.408	0.175	0.175
PA57	0.191	0.378	0.421	0.352	0.261	0.314	0.270	0.222	0.138	0.265	0.336	0.156	0.156
PA58	0.255	0.174	0.119	0.115	0.328	0.309	0.250	0.245	0.024	0.276	0.299	0.286	0.286

Table F2 (continued)

	PAS3	PAS4	PAS5	PAS6	PAS7	PAS8
PAS3	1.000					
PAS4	0.208	1.000				
PAS5	0.159	0.068	1.000			
PAS6	0.230	0.173	0.487	1.000		
PAS7	0.173	0.223	0.352	0.512	1.000	
PAS8	0.036	0.188	0.321	0.455	0.377	1.000

Note: B = 244. Performance Attributions are listed by order of presentation.

Table F3

Three Second Order Orthogonal Components of Eleven Primary Factors

	COMPONENTS		
	1	2	3
Intelligence	0.782		
General health and stamina	0.710		
Physical appearance	0.709		
Personality	0.702		
Education, experiences	0.687		
Natural sales ability	0.675		
Gender	0.661		
M to do everything well	0.658		
Usual efforts	0.650		
Comfortableness with people	0.640		
M to help young people	0.632		
Friends, family life	0.625		
Age	0.621		
Sales skills developed/trained	0.617		
Money handling ability	0.597		
M to do a good job for Army	0.587		
M for rewards, approval	0.564		
Dependents	0.561		
Work on public relation events	0.559	0.255	
Marital status	0.557		
Interest similarity to youth in zone	0.546	0.388	

Table F3 (continued)

	COMPONENTS		
	1	2	3
Unusual effort in last six months	0.538		0.334
Number of youth in zone	0.537	0.446	
Comfortable with people in area	0.526	0.368	
Educational similarity to youth in zone	0.523	0.318	
Being ill or particularly healthy	0.508		
Recruiter's opinions on Army life	0.505		
M to get out with good record	0.481		0.308
Ethnic similarity to people in zone	0.452	0.336	
Distances for contacts in zone	0.434	0.279	0.362
Likes living in area	0.426	0.382	
Similarity to people in zone	0.415	0.339	
Closeness to area where grew up	0.317		
Regional Command		0.625	
Help from other recruiters' PR events		0.623	
Local advertising		0.621	
District Command		0.618	
Local opinion	0.259	0.610	
Propensity for military service in zone	0.407	0.572	
Sales training from station commander		0.562	
Local cost of living		0.547	
Help from TAIR (Army PR events)		0.542	

Table F3 (continued)

	COMPONENTS		
	1	2	3
National advertising		0.516	
Quality of youth in zone	0.311	0.514	
USAREC Command	0.302	0.496	
Station commander performance		0.491	
Local unemployment		0.487	
Help from other recruiters	0.314	0.485	
Army guidance counselors	0.384	0.483	
Hometown recruiter aides		0.451	
Going-to-college-rate in zone		0.450	0.337
Distance to Army presence		0.292	0.568
Disruptions from rezoning			0.544
Paperwork, administrative burden		0.415	0.483
Distances for testing and processing	0.332	0.298	0.450
Negative climate from other recruiters			0.441
Disruptions from PCS (relocation)	0.341		0.388
Luck			-0.272