FACTORS INFLUENCING INSTRUMENTALITY BELIEFS
IN A MERIT PAY ENVIRONMENT

by

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FACTORS INFLUENCING INSTRUMENTALITY BELIEFS IN A MERIT PAY ENVIRONMENT

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(ABSTRACT)

This research attempts to identify factors which may influence instrumentality beliefs in a merit pay environment. Specifically, the purpose was to investigate the relationship of: (1) perceived performance appraisal accuracy, merit increase satisfaction, trust in top management, and trust in supervisor to instrumentality beliefs, (2) performance appraisals, deviations between self and supervisor ratings of performance, and trust in supervisor to perceived performance appraisal accuracy, and (3) merit pay increases and perceived relative size of merit pay increase to merit increase satisfaction.

The research site for this study was a large transit authority on the West Coast. Results of this study of 1,260 managerial, professional, and clerical employees suggest that individuals are more likely to believe that pay is tied to performance if they are satisfied with their merit pay increase and they trust top management. Findings also suggest that for individuals who receive a lower than
expected performance appraisal, higher levels of perceived performance appraisal accuracy are likely to be associated with stronger beliefs that pay is tied to performance.

Findings further suggest that individuals are more likely to perceive their performance appraisal to be accurate if the supervisor rating of performance is consistent with their self-rating of performance and they trust their supervisor. Also, the higher the performance appraisal, the more likely an individual is to perceive it to be accurate. Finally, individuals are more likely to be satisfied with their merit pay increase if they perceive it to be large relative to the average pay increase. In addition, the larger the merit pay increase, the more likely an individual is to be satisfied with it.

Study findings in total suggest that a large number of employees are likely to believe that pay is not tied to performance. To the extent successful merit pay programs require strong beliefs that pay is tied to performance, findings cast doubt about the ability of merit pay to elicit improved job performance. Implications for compensation practice are discussed and suggestions for future research are presented.
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CHAPTER I
INTRODUCTION

NATURE OF PROBLEM

Numerous factors such as foreign competition and inflation have forced both public and private sector managers to seek out ways to improve productivity. One result of this concern with productivity has been increased interest in pay-for-performance (merit pay) programs. Weeks (1976) reports the results of a 1975 Conference Board survey of pay practices. Well over 80% of the 493 companies surveyed reported utilizing merit pay programs for some portion of their workforce. A similar survey by the Personnel Policies Forum (1981) also indicated that over 80% of the 183 responding companies used merit pay programs. Horn (1987) reports the results of a 1986 survey by the American Productivity Center and the American Compensation Association of 1,598 companies concerning compensation practices. Results of this survey also attest to the popularity of merit pay programs as 73% of the responding firms reported using individual incentive programs with a resultant positive impact on performance.

Merit pay programs attempt to improve motivation and ultimately performance by making pay increases contingent upon performance. The conceptual literature on merit pay
strongly argues that for merit pay programs to be successful, employees must believe pay is related to performance (Collins, 1981; Dyer, Schwab, and Fossum, 1978; Hamner, 1975; Hills, 1979; Kopelman, 1983; Lawler, 1971; and Mount, 1987). In spite of the apparent popularity of merit pay programs, the research literature suggests merit pay programs are subject to numerous problems which impact on employee beliefs that pay is tied to performance (also called instrumentality beliefs) and ultimately on the ability of merit pay programs to motivate improved job performance (Balkin and Gomez-Mejia, 1987; Lawler, 1987).

Lawler (1987) summarizes several problems commonly associated with merit pay programs. The first common problem which plagues merit pay programs is the inability to accurately measure performance. Most organizations do a poor job of performance appraisal and do not have good measures of individual performance (Hills, 1979; Lawler, 1987; and Winstanley, 1975). The lack of credible measures of performance makes it impossible to tie pay to performance in such a manner that employees will be motivated. Another frequent problem with merit pay programs relates to the practice of pay secrecy. Many organizations keep raises a secret and as a result, individuals do not have enough information to make an accurate assessment about whether pay is tied to performance.
Poor pay delivery systems are also a problem which may obscure the relationship between pay and performance. For example, pay system policies and procedures may be so complex as to cloud the relationship between pay and performance. Finally, Lawler (1987) argues that poor managerial behavior adversely affects the perceived relationship between pay and performance. The most serious example of this is the failure of managers to adequately distinguish between high and low performers when recommending size of pay increases. Lawler (1987, p. 163) concludes: "The existence in most corporations of any one of the common problems that plague merit pay programs is usually enough to destroy the belief among most employees that pay is related to performance."

These problems suggest that a major obstacle to successful merit pay programs is the failure of employees to perceive an adequate link between pay and performance. Despite the importance placed on instrumentality beliefs in the conceptual literature on merit pay, there is virtually no empirical research with respect to what factors actually influence instrumentality beliefs. As a result, there are many unanswered questions pertaining to determinants of instrumentality beliefs.
PURPOSE OF STUDY

Merit pay programs typically consist of at least two major components: (1) a formal performance appraisal system which yields a performance appraisal score, and (2) some process for allocating pay increases which yields a merit pay increase based on the performance appraisal outcome. The literature suggests that affective reactions to both performance appraisals and merit pay increases may influence instrumentality beliefs. Perceived performance appraisal accuracy is frequently argued to be an important determinant of instrumentality beliefs (Brinks, 1980; Kopelman, 1983; and Lawler, 1981). There is also limited evidence to suggest that satisfaction with merit pay increases may influence employee instrumentality beliefs (Reitz, 1981). However, no empirical studies were identified which directly investigated the relationship of either perceived performance appraisal accuracy or merit increase satisfaction to instrumentality beliefs. The first purpose of this study is to investigate the relationship of perceived performance appraisal accuracy and merit increase satisfaction to instrumentality beliefs.

The research literature also suggests that level of trust may influence instrumentality beliefs. Goodman and Moore (1976), in the only study identified which investigated this issue, found a significant positive relation-
ship between organizational trust and instrumentality beliefs. Research by Scott (1980) provides support for the use of situationally specific trust variables rather than some global variable such as organizational trust. Situationally specific trust variables refer to separate measures of trust for supervisors and top management. No empirical studies were identified which investigated the relationship of either trust in supervisors or trust in top management to instrumentality beliefs. The second purpose of this study is to investigate the relationship of situational trust measures to instrumentality beliefs.

Factors which influence perceived performance appraisal accuracy and merit increase satisfaction are the final issue of interest in this research. To the extent perceived performance appraisal accuracy and merit increase satisfaction are determinants of instrumentality beliefs, factors influencing perceived performance appraisal accuracy and merit increase satisfaction are also determinants of instrumentality beliefs. A review of the research literature indicates numerous unresolved issues with respect to what factors actually influence perceived performance appraisal accuracy and merit increase satisfaction. For example, the conceptual literature provides strong support for the importance of trust to perceived appraisal accuracy (Bernardin and Beatty, 1984; Hamner,
1975; and Lawler, 1971). However, only one study was identified which investigated this important issue (O'Reilly and Anderson, 1980). The third and final purpose of this study is to investigate correlates of perceived performance appraisal accuracy and merit increase satisfaction.

SIGNIFICANCE OF STUDY

A thorough review of the literature on merit pay reveals that it is largely conceptual in nature. This is particularly true with respect to determinants of instrumentality beliefs. Empirical support for the relationship of variables such as perceived performance appraisal accuracy, merit increase satisfaction, and trust to instrumentality beliefs is lacking. There are also numerous unresolved issues in the literature with respect to factors influencing perceived performance appraisal accuracy and merit increase satisfaction. This empirical study provides a valuable contribution to the literature on merit pay as it addresses these gaps in the research literature.

This study also has practical significance to organizations. Through their pay and promotion policies, organizations have enormous potential to influence instrumentality beliefs and ultimately performance. Lawler (1987) summarized problems commonly associated with merit pay programs. These problems suggest organizations may not be
using this potential to their advantage, and this study should provide insight into how organizations can use pay policies to foster instrumentality beliefs and ultimately, higher levels of performance.

SUMMARY

In spite of the problems associated with merit pay in practice, merit pay is frequently touted as a means of improving productivity. A major problem with merit pay programs has been the failure of employees to perceive a link between pay and performance. Despite the importance attached to instrumentality beliefs in the literature, very little empirical research has been done on what factors actually influence instrumentality beliefs. This study should provide valuable insight into factors influencing instrumentality beliefs and employee reactions to the merit pay process.

Chapter II reviews research literature relevant to the proposed study. Topics covered include the expectancy model of motivation and factors related to instrumentality beliefs, perceived performance appraisal accuracy, and merit increase satisfaction. Research questions, conceptual hypotheses, and proposed models are also presented in Chapter II. Chapter III includes a detailed discussion of research methodology. Topics addressed in the methodology
discussion include the research site, survey instrument measures and scoring, quality of measurements, survey instrument administration, operational hypotheses, and statistical analyses. Chapter IV presents research findings with respect to quality of measurements and operational hypotheses. Finally, Chapter V provides a discussion of results, conclusions, study limitations, and suggestions for future research.
Chapter II

LITERATURE REVIEW

INTRODUCTION

Empirical and conceptual research literature relevant to the proposed study is reviewed in Chapter II. While it is not the purpose of this study to test the validity of expectancy theory, a brief review of the large body of literature on expectancy theory is presented to provide support for the importance of both the expectancy model and instrumentality in a merit pay context. Topics covered include a description of a typical expectancy model of work motivation and research on the validity of expectancy theory to predict effort and performance. Empirical support for the relationship of instrumentality beliefs to effort and performance is also provided.

Research on factors related to instrumentality beliefs, perceived performance appraisal accuracy, and merit increase satisfaction is then presented. The discussion of factors related to each of these variables concludes with: (1) identification of research questions and related conceptual hypotheses, and (2) presentation of a model which graphically summarizes the proposed relationships. A typical expectancy model of motivation is discussed below.
EXPECTANCY MODEL OF MOTIVATION

There are numerous theories under the general classification of expectancy models of work motivation. These models all have their origins in Vroom's (1964) work on motivation and their similarities are more important than their differences (Pinder, 1984). The basic expectancy model of work motivation described here is that advocated by Lawler (1973). This model contains the basic components found in expectancy models of work motivation and can be considered representative of expectancy models in general.

Lawler (1973) suggests motivation to perform is determined by three variables. The strength of an individual's motivation to perform is influenced by expectancy, instrumentality, and valence beliefs. Each of these components is a belief where belief is defined as: an individual's "...subjective probability judgment concerning a relation between the object of the belief and some other object, value, concept, or attribute" (Fishbein and Ajzen, 1975, p. 131).

Beliefs are important because of their role in individual behavior. Fishbein and Ajzen (1975) have developed a conceptual model of the components of job attitudes. The model consists of four components including: (1) beliefs (cognitions), (2) attitudes (affective responses), (3) behavioral intentions, and (4) actual behavior. Ac-
According to the model, beliefs influence attitudes which in turn influence behavioral intentions. These behavioral intentions then become the basis for actual job behavior. For example, an individual might believe the pay for a job is too low. This could result in an attitude of job dissatisfaction and a behavioral intention to leave. The individual's actual job behavior, after investigating job alternatives, might be to decide to stay and be a poor performer.

Expectancy is the belief that effort will lead to some first level outcome. In the case of merit pay, the first level outcome is higher performance. Lawler (1973) operationalizes expectancy as a subjective probability which can vary from 1 (effort will lead to first level outcome) to 0 (effort will not lead to first level outcome). For example, an individual who strongly believes that working harder will result in higher performance might have a 0.9 effort to performance (E → P) expectancy.

Instrumentality is the term used to refer to the belief that obtaining some first level outcome will result in a particular second level outcome. For example, a strong belief that high performance (first level outcome) will result in higher pay (second level outcome) would result in a high (P → O) belief. Lawler (1973) operationalizes instrumentality as a subjective probability
which can range from 1 (first level outcome results in second level outcome) to 0 (first level outcome does not result in second level outcome).

Valence (V) is the term used to refer to the value an individual places on a particular second level outcome. It is the level of satisfaction an individual expects to receive from an outcome, not the actual value an individual derives from the outcome. According to Lawler (1973), valence is considered to vary from +1 (the second level outcome is very desirable) to -1 (the second level outcome is very undesirable). For example, a large pay increase (second level outcome) would generally be viewed as having a positive valence while being fired (second level outcome) would generally be viewed as having a negative valence.

Lawler (1973) argues that the three components of the model should be combined in the following manner. The products of all instrumentality times valence combinations [(P --> (O)(V))] should be summed together for all possible outcomes which are associated with a particular level of performance. An individual’s belief that effort will lead to performance (E --> P) and [(P --> (O)(V))] are said to combine multiplicatively. According to the model, an individual will have no motivation to perform if any of the components are zero.
Expanding the formula to take into account the fact that people often consider both the possibility of obtaining or failing to obtain the intended level of performance yields: \[ \Sigma [(E \rightarrow P) \times \Sigma [(P \rightarrow (O)(V))]]. \] For each possible level of performance, an individual will make a subjective judgement about each of the probabilities. An individual can be expected to behave in whatever way has the highest motivational force, i.e. whatever combination has the highest \[ \Sigma [(E \rightarrow P) \times \Sigma [(P \rightarrow (O)(V))]] \] score. In other words, an individual will choose to perform in a particular manner only if performing in that manner is believed to lead to more positively valued or fewer negatively valued outcomes. Research on expectancy theory is discussed below.

**RESEARCH ON EXPECTANCY THEORY**

Campbell and Pritchard (1976) have classified research on expectancy theory into the following categories: (1) empirical studies investigating the relationship of valence to both effort and performance, (2) empirical studies investigating the relationship of instrumentality beliefs to both effort and performance, (3) empirical studies investigating the relationship of expectancy beliefs to both effort and performance, and (4) empirical studies investigating the relationship of the expectancy "model" to
both effort and performance. As the focus of this research is instrumentality beliefs and not the other components of the expectancy model, this discussion of expectancy theory research will address only the relationship of the expectancy model and instrumentality beliefs to effort and performance.

**Expectancy Model to Effort and Performance**

Numerous studies have investigated the ability of the expectancy model to predict both effort and performance. As previously noted, it is not the purpose of this study to test the ability of either the expectancy model or instrumentality beliefs to predict effort or performance. It is the purpose of this research to investigate variables which may influence instrumentality beliefs. While the large number of studies and the purpose of this research preclude an exhaustive treatment of research on the validity of expectancy theory, a brief review of these studies is presented below to provide support for the importance of the expectancy model and instrumentality beliefs in a merit pay environment.

Lawler and Suttle (1973) multiplicatively combined expectancy, instrumentality, and valence to investigate the relationship of the entire expectancy model to rankings of effort in a sales organization. The expectancy model was
correlated \( r = .39 \) (\( p < .01 \), \( n = 69 \)) with self-ranking of effort and \( r = .28 \) (\( p < .01 \), \( n = 69 \)) with supervisor ranking of performance. No significant relationship was found between peer rankings of effort and the expectancy model.

Reinharth and Wahba (1975), in a study of the sales forces at four industrial organizations, investigated the ability of the classical expectancy model to predict effort expenditure (supervisor ratings), work motivation (self and supervisor ratings), and job performance (supervisor ratings and objective measures). Findings provided no support for the ability of the expectancy model to predict effort, motivation, or performance. The study did find that results were inconsistent from plant to plant. The authors suggest the inconsistent results might indicate that some combination of environmental or demographic differences in the various sample groups is a better predictor of effort and performance than the expectancy model or its components.

Parker and Dyer (1976) investigated the validity of expectancy theory to predict the decision of career naval officers to retire after 20 years. The study participants consisted of a random sample of 702 officers, 414 on active duty and 288 who had retired. It was hypothesized that the expectancy model would be able to distinguish between officers who chose to retire and those who chose to remain
on active duty. Results indicated that the model made correct predictions in 62.6% of the cases (phi = 0.319, p < .001, n = 697). The authors acknowledge the potential problems associated with eliciting perceptions relating to decision making after the decision has been made. For example, an individual may consciously or unconsciously attempt to reduce cognitive dissonance. The authors point out that care was taken in questionnaire design to minimize this problem.

Matsui, Kagawa, Nagamatsu, and Ohtsuka (1977) utilized a within-person approach to investigate the validity of the expectancy model to predict which of six different types of insurance policies an agent would sell. Subjects for this study were 62 female life insurance agents in Japan. The number of each type of policy sold was utilized as the performance criterion and individuals completed questionnaire items measuring expectancy, instrumentality, and valence. Strong support was found for the validity of the expectancy model to predict which of the six types of insurance policies the agent would sell. The average correlation between the expectancy model prediction and actual type of policy sold was r = 0.50 (p < .001).

In conclusion, there is limited empirical support for the validity of expectancy theory to predict effort and performance. There is also support for the heuristic value
of the expectancy model. Campbell and Pritchard (1976, p. 92) conclude: "...the heuristic value of the expectancy framework will remain a powerful force in organizational psychology even though its empirical house is certainly not in order" (Campbell & Pritchard, 1976, p. 92). Campbell and Pritchard (1976, p. 95) further argue: "Rather than strive for large scale studies that provide a complete test of the full model with superficial measures of poorly understood variables, we think researchers could better spend their time studying the individual components in depth." For example, what is instrumentality and how does it relate to other variables such as perceived performance appraisal accuracy? In their opinion, this would be more useful than correlating instrumentality with some global measure of effort.

Pinder (1984) points to what he calls the "self-correcting" cycle of research activity with respect to expectancy theory. Recent studies have taken the numerous problems associated with expectancy theory research into account and made efforts to correct the deficiencies. He concludes that there are: "...grounds for optimism that the theory is a reasonably valid model of the causes of work behavior" (Pinder, 1984, p. 147). The relationship of instrumentality beliefs to effort and performance is discussed below.
Instrumentality to Effort and Performance

The conceptual literature on merit pay emphasizes the importance of instrumentality beliefs to successful merit pay programs. It is a well documented belief in the conceptual literature on merit pay that employees must believe pay is tied to performance (instrumentality beliefs) if merit pay is to elicit improved job performance (Collins, 1981; Dyer, Schwab, and Fossum, 1978; Hamner, 1975; Hills, 1979; Kearney, 1979; Kopelman, 1983; Lawler, 1971; and Milbourn, 1980). In addition to conceptual support for the importance of instrumentality beliefs to job performance, numerous empirical studies were identified which provide support for a positive relationship between instrumentality beliefs and both effort and performance.

Georgopolous, Mahoney, and Jones (1957), in a study of 621 production employees in an appliance factory, investigated the relationship of instrumentality beliefs to productivity. It was hypothesized that individuals who have high instrumentality beliefs (i.e., good performance leads to rewards) would perform at higher levels. Survey results indicated individuals with high instrumentality beliefs tended to produce at higher levels. When asked whether high productivity would lead to more money in the long run, 38% said yes while 21% said no. Similarly, 30% of the respondents felt that low productivity would hurt
the chance of receiving rewards while 22% felt that low productivity would enhance obtaining rewards. These percentage differences between high and low instrumentality individuals were significant with a Chi square test at the .05 level.

Wofford (1971) hypothesized that employee performance is significantly correlated with the expectation of reward. Participants for the study included 151 white-collar employees from various organizations and 56 blue-collar employees from a warehousing company. Expectancy of reward was measured with a 17 item Likert scale while supervisor ratings were utilized for the performance criterion. Results provided support for the proposed hypothesis as the point-biserial correlation between supervisor performance ratings and expectancy beliefs (instrumentality) was $r_b = .43 \ (p < .01, n = 139)$.

Jorgenson, Dunnette, and Pritchard (1973) tested the hypothesis that high levels of perceived effort-reward probabilities (instrumentality beliefs) would result in greater effort expended and higher performance (with valence held constant). Results from this study of 256 undergraduate males provided no support for the relationship between instrumentality beliefs and self-reported effort. However, there was a significant relationship between instrumentality beliefs and objective (quantita-
tive) measures of performance. Over the six days of the experiment the median correlation between instrumentality and performance was \( r = .45 \) (\( p < .05, n = 187 \)).

Kopelman (1976), in a study of 210 design and development engineers from three different companies, investigated the relationship of control system responsiveness (instrumentality beliefs) to effort expenditure. It was hypothesized that perceived organizational control system responsiveness will vary positively with self-reported effort expenditure. Self-reported measures of effort expenditure included hours worked per week, hours per week spent reading technical or professional literature, and level of effort expended compared to others. Results indicated a significant positive relationship between perceived control system responsiveness (instrumentality beliefs) and effort.

In conclusion, there is empirical support for a positive relationship between instrumentality beliefs and effort or performance. Campbell and Pritchard (1976, p. 87) argue: "The literature on this component of the model is fairly extensive and offers consistent support for the effects of this component on effort and performance." Factors influencing instrumentality beliefs are discussed below.
DETERMINANTS OF INSTRUMENTALITY BELIEFS

Very little empirical research has been done with respect to what factors actually influence instrumentality beliefs. There is limited evidence to suggest that the actual situation, perceived performance appraisal accuracy, merit increase satisfaction, and trust are related to instrumentality beliefs. Conceptual and empirical research on the relationship of these variables to instrumentality beliefs is presented below. The discussion concludes with identification of research questions and related conceptual hypotheses to be investigated in this study and presentation of a model which graphically summarizes the proposed relationships.

Actual Situation

Lawler (1973) proposed a conceptual model of the determinants of performance-outcome (instrumentality) beliefs. These determinants include: (1) the actual situation, (2) past experience in a similar situation, (3) communication from others, (4) effort-performance expectancies, (5) attractiveness of outcomes, and (6) belief in internal versus external control. A diagram of the Lawler (1973) model of the determinants of instrumentality beliefs is presented in Figure 1. The importance of the actual situation to instrumentality beliefs is of primary interest
Past Experience in Similar Situations

Attractiveness of Outcomes

Belief in Internal Versus External Control

Effort-Performance Expectancies

Actual Situation

Communication From Others

Instrumentality Beliefs

Figure 1

Lawler (1973) Determinants of Instrumentality Beliefs
to this research as the actual situation consists of factors such as performance appraisal scores, merit increases, and the resultant actual pay-to-performance relationship.

According to the Lawler (1973) model, employee instrumentality beliefs are most strongly influenced by the actual situation. Research on belief and attitude formation provides support for the importance of the actual situation to belief formation. Fishbein and Ajzen (1975) argued for the existence of three different types of beliefs, each of which is formed by different means. The three types of beliefs include: (1) descriptive beliefs which result from an individual's own observations of the events occurring around them (i.e., observations of the actual situation), (2) inferential beliefs which are the result of logical connections between thoughts, and (3) beliefs based on information from outside information sources. Fishbein and Ajzen (1975) suggest that descriptive beliefs are less likely to be influenced by an individual's prior attitudes and beliefs than are inferential beliefs.

Lawler (1973) further argued that instrumentality beliefs tend to be accurate. There is limited empirical support for this position. Lawler (1967) found employee instrumentality beliefs high (i.e., employees strongly believe that pay is tied to performance) in a group of
managers where pay actually was tied to performance and low where pay was not closely tied to performance. Similarly, Kopelman (1976) investigated the relationship of actual performance-reward relationships to perceived performance-reward relationships in a study of engineers and found them to closely parallel one another.

No empirical test of the Lawler (1973) model was identified in the research literature. In fact, no studies were identified which tested any model with instrumentality beliefs as the dependent variable. Conspicuously absent from the Lawler (1973) model is any mention of the importance of perceived performance appraisal accuracy to instrumentality beliefs. This is surprising in light of the importance placed on the relationship between perceived performance appraisal accuracy and instrumentality beliefs in the conceptual literature on merit pay. The relationship of perceived performance appraisal accuracy to instrumentality beliefs is discussed below.

Perceived Performance Appraisal Accuracy

A major criticism of merit pay programs is the inability to accurately measure performance (Brinks, 1980; Hamner, 1975; Katzell and Yankovich, 1976; Kearney, 1979; Kopelman, 1983; Lawler, 1981; and Winstanley, 1975). According to Hills (1979, p. 29), employee evaluations:
"...are not very reliable and are subject to a host of biases that threaten their validity." This is particularly true for management and professional jobs which tend to be qualitative rather than quantitative in nature (Brinks, 1980; Lawler, 1971; and Mihal, 1983). Landy and Farr (1980) identify errors commonly found in performance appraisals including unreliability, leniency, central tendency, recency, and halo. The lack of reliable and accurate measures with which to assess performance makes it impossible to tie pay to performance in a way that is motivating (Lawler, 1987). If individuals do not perceive the performance evaluation system as fair and accurate, it is unlikely they will feel that pay is tied to performance (Brinks, 1980; Hills, 1979; Kopelman, 1983; Lawler, 1981; and Winstanley, 1975). No empirical studies relating perceived performance appraisal accuracy to instrumentality beliefs were identified in the research literature.

**Merit Increase Satisfaction**

There is also limited support in the research literature for a relationship between satisfaction and instrumentality beliefs. Only one study was identified which investigated the relationship between satisfaction and instrumentality beliefs. Reitz (1971) hypothesized that instrumentality beliefs would be significantly related to
attitudes about the job, supervision, and the work itself. Semantic differential scales were utilized to measure general satisfaction, job satisfaction, incentive motivational state, and competence of supervisor and a 20 item Likert scale was utilized to measure instrumentality. Results from this study of 510 managers in a large financial organization provided support for the hypothesized relationships across seven different levels of managers. General satisfaction ($r = .36$ to $r = .83$, $p < .01$) and job satisfaction ($r = .18$ to $r = .56$, $p < .05$) were found to have positive relationships with instrumentality beliefs. No studies were identified which investigated the relationship between merit increase satisfaction and instrumentality beliefs.

Trust

"Perhaps there is no single variable which so thoroughly influences interpersonal and group behavior as does trust..." (Golembiewski and McConkie (1975, p. 131). Trust can be defined as the firm reliance on the integrity, ability, or character of a person or thing. Similarly, trust can be defined as reliance on something in the future. Based on these and similar definitions, several elements of the trust concept can be identified. Trust suggests reliance on or confidence in some event, process,
or person and trust reflects expectations about outcomes based on perceptions and past experiences (Golembiewski and McConkie, 1975).

The conceptual literature on merit pay strongly argues that high levels of trust are required if merit pay programs are to be accepted by employees and have the intended motivational effects (Brennan, 1984; Hamner, 1975; Lawler, 1971; and Winstanley, 1982). There is limited empirical evidence to suggest that trust is an important determinant of instrumentality beliefs. In the only study identified which examined the relationship of trust to instrumentality beliefs, Goodman and Moore (1976) investigated factors influencing the acquisition of beliefs about a new reward system. Organizational trust was hypothesized to be related to system expectancies for both blue collar and managerial employees. System expectancies were defined to be: (1) the belief that making suggestions leads to a reward (instrumentality) and (2) the belief that the individual can make productivity-related suggestions (expectancy). Results from this study of 95 (25 exempt and 70 nonexempt) employees indicated a significant ($r = .23, p < .05$) positive relationship between organizational trust and system expectancies for the blue collar but not the managerial group. The authors attributed the managerial group finding to severe range restriction in managerial responses.
to the system expectancy scales.

Support was also found in the research literature for the use of situational trust variables (as opposed to a global measure such as organizational trust). Situational trust variables refer to separate measures of trust for supervisors and top management. Scott (1980) investigated the importance of trust in supervisors, top management, and consultants to successful management by objectives (MBO) programs. Measures were collected for trust in supervisors, trust in top management, and trust in the consultant implementing an MBO program. Results indicated that both trust in supervisor and trust in top management affected the assessed value of the MBO program. Scott (1980) concluded that the study provides support for the use of situational trust variables (separate measures of trust for supervisors, top management, and the MBO consultant) as: (1) the three measures of trust were not uniformly related to the assessed value of the MBO program and (2) factor analytic results indicated three separate constructs. No empirical studies were identified which investigated the relationship of situational trust variables to instrumentality beliefs.
Research Questions and Conceptual Hypotheses

In summary, there is very little empirical research on what factors actually influence instrumentality beliefs. The literature review does suggest several variables which may influence instrumentality beliefs. These variables include: (1) the actual pay-to-performance relationship (Lawler, 1973; Kopelman, 1976), (2) perceived performance appraisal accuracy (Kopelman, 1983; Lawler, 1981), (3) merit increase satisfaction (Reitz, 1981), and (4) trust in both supervisors and top management (Goodman and Moore, 1976). This study will not investigate the relationship between the actual pay-to-performance relationship and instrumentality beliefs due to the strong relationship between performance appraisals and merit pay increases at this research site.

To elaborate, merit pay increases at this transit authority are specified in guidecharts according to an individual's performance appraisal and position in the wage structure (pay step). Pay steps within pay grades are divided into quintiles with steps 1 through 5 forming Quintile 1, steps 6 through 10 forming Quintile 2, and so on. These guidecharts were strictly adhered to as indicated by the within Quintile pay-to-performance correlations for 1985. The correlation between pay and performance level during 1985 was \( r = 0.81 \) (\( p < 0.0001 \)) for
Quintile 1 and 2, $r = 0.84 \ (p < 0.0001)$ for Quintile 3, $r = 0.90 \ (p < 0.0001)$ for Quintile 4, and $r = 0.87 \ (p < 0.0001)$ for Quintile 5. This lack of variability in the actual pay-to-performance relationship makes it inappropriate for use as an independent variable in this study.

Figure 2 presents a model which graphically summarizes the proposed determinants of instrumentality beliefs. It is acknowledged here that the causal relationships proposed in the model cannot be tested in this study. The cross-sectional data collected in this study are suitable for use with correlation and regression analysis to establish relationships among the variables. Any significant findings with respect to the proposed relationships are indicative of potential causal relationships which can then be investigated in future research with appropriate data.

Research questions and conceptual hypotheses dealing with the relationship of perceived performance appraisal accuracy, merit increase satisfaction, trust in top management, and trust in supervisor to instrumentality beliefs are discussed below. Assuming that perceived performance appraisal accuracy, merit increase satisfaction, trust in top management, and trust in supervisor are each independently and positively associated with instrumentality beliefs, it is also of interest whether they each exhibit a
Figure 2
Determinants of Instrumentality Beliefs
significant main effect on instrumentality beliefs when controlling for the presence of the other variables. This issue is addressed in the conceptual hypotheses presented below.

**Perceived Performance Appraisal Accuracy:** While strong conceptual support was found for a relationship between perceived performance appraisal accuracy and instrumentality beliefs (Brinks, 1980; Hills, 1979; Kopelman, 1983; and Winstanley, 1975), no empirical studies were identified which empirically investigated the relationship. This suggests the following research question (RQ) and related conceptual hypotheses (CH):

RQ1: What is the relationship between perceived performance appraisal accuracy and instrumentality beliefs?

CH1(a): Perceived performance appraisal accuracy will be positively associated with instrumentality beliefs.

CH1(b): Perceived performance appraisal accuracy will be positively associated with instrumentality beliefs when controlling for the presence of merit increase satisfaction, trust in supervisor, and trust in top management.

**Merit Increase Satisfaction:** Only one empirical study was identified which investigated the relationship between satisfaction and instrumentality beliefs. Reitz (1971) found both general satisfaction (where the general satis-
faction measure contained items investigating satisfaction with rewards) and job satisfaction exhibited a positive relationship with instrumentality beliefs. These results suggest that level of satisfaction with rewards (in this case merit pay increases) may influence instrumentality beliefs.

Satisfaction with merit pay increase is potentially a very important factor in the success of merit pay programs. To the extent that: (1) individuals believe they deserve above average rewards, (2) rewards which are perceived as below average lead to dissatisfaction with rewards, and (3) dissatisfaction with rewards leads to perceptions that pay is not tied to performance, it casts doubt about the ability of merit pay to motivate improved job performance. No empirical studies were identified which investigated the relationship between merit increase satisfaction and instrumentality beliefs. This discussion suggests the following research question (RQ) and related conceptual hypotheses (CH):

RQ2: What is the relationship between merit increase satisfaction and instrumentality beliefs?

CH2(a): Merit increase satisfaction will be positively associated with instrumentality beliefs.
CH2(b): Merit increase satisfaction will be positively associated with instrumentality beliefs when controlling for the presence of perceived performance appraisal accuracy, trust in supervisor, and trust in top management.

Trust: The final variable argued to influence instrumentality beliefs is trust. As previously noted, the merit pay process typically consists of a formal performance appraisal system and some process for allocating pay increases. Management at various levels determines policies and administers both the performance appraisal system and the process for allocating pay increases. As such, employees must have high levels of interpersonal trust in management at various levels (immediate supervisors and top management) if merit pay is to elicit improved job performance. Research by Scott (1980) provides support for the use of situationally specific measures of trust.

It is argued here that trust can impact on the merit pay process in two ways. First, trust is important in the formal performance appraisal process. This issue will be addressed when determinants of perceived performance appraisal accuracy are discussed. Second, trust is also important in the pay increase allocation process. Assuming employees believe they have been treated fairly in the performance appraisal process, they must also trust management at various levels to actually allocate pay increases based on performance. Employees must believe that manage-
ment can be trusted to follow through with what they say they are going to do. Thus, level of trust in the performance appraisal process can be distinguished from trust in the allocation process. For example, an individual may trust his immediate supervisor to treat him fairly in the performance appraisal process but not trust top management to actually link pay with performance.

Only one study was identified which investigated the relationship between trust and instrumentality beliefs. Goodman and Moore (1976) found that organizational trust was positively related to instrumentality beliefs. No empirical studies were identified which investigated the relationship between situational measures of trust and instrumentality beliefs. This discussion suggests the following research questions (RQ) and related conceptual hypotheses (CH):

RQ3: What is the relationship between trust in top management and instrumentality beliefs?

CH3(a): Level of trust in top management will be positively associated with instrumentality beliefs.

CH3(b): Level of trust in top management will be positively associated with instrumentality beliefs when controlling for the presence of perceived performance appraisal accuracy, merit increase satisfaction, and trust in supervisor.

RQ4: What is the relationship between trust in supervisors and instrumentality beliefs?
CH4(a): Level of trust in immediate supervisors will be positively associated with instrumentality beliefs.

CH4(b): Level of trust in immediate supervisors will be positively associated with instrumentality beliefs when controlling for the presence of perceived performance appraisal accuracy, merit increase satisfaction, and trust in top management.

DETERMINANTS OF PERCEIVED APPRAISAL ACCURACY

The second purpose of this study is to investigate factors related to perceived performance appraisal accuracy. As previously noted, factors which influence perceived performance appraisal accuracy are of interest in this study because of their potential relationship to instrumentality beliefs. To the extent perceived performance appraisal accuracy is a determinant of instrumentality beliefs, factors which influence perceived performance appraisal accuracy are also determinants of instrumentality beliefs. Numerous studies have investigated factors influencing employee perceptions of performance appraisal accuracy. Research investigating the relationship of performance appraisal scores, employee expectations with respect to performance appraisal scores, and trust in supervisors to perceived performance appraisal accuracy is of particular interest to this study. Research which addresses these issues is discussed below. The discussion concludes with identification of research questions and
related conceptual hypotheses to be investigated in this study and presentation of a model which graphically summarizes the proposed relationships.

Performance Appraisal Scores

The literature provides inconsistent support for a relationship between performance appraisals and perceived performance appraisal accuracy. Landy, Barnes, and Murphy (1978) examined employee perceptions of the fairness and accuracy of a performance appraisal system in a study of 711 exempt management and professional employees at a large manufacturing organization. Study results indicated no significant relationship between perceived desirability (favorability) of the rating and perceived fairness or accuracy. Landy, Barnes-Farrell, and Cleveland (1980) tested the hypothesis that individuals who receive high performance appraisal ratings will consider the appraisal process to be fair and accurate. Results from the study of 284 middle-level managers at a large manufacturing firm provided no support for a relationship between employee perceptions of performance appraisal accuracy and perceived favorability of the rating.

On the positive side, Dipboye and de Pontbriand (1981), in a study of 474 exempt employees in a research and development organization, investigated the hypothesis
that employee opinions of the appraisal process are positive to the extent they perceive the evaluations to be favorable. Contrary to the findings of Landy, Barnes, and Murphy (1978) and Landy, Barnes-Farrell, and Cleveland (1980), study findings indicated that perceived favorability of the rating is a significant correlate of opinions toward the appraisal \( (r = .58, p < .01) \) and the appraisal system \( (r = .42, p < .01) \).

Researchers have also investigated employee reactions to receiving merely "satisfactory" as opposed to higher performance appraisal scores (Pearce and Porter, 1986). It was hypothesized that individuals receiving satisfactory ratings would exhibit a decrease in organization commitment and negative changes in attitudes toward the performance appraisal system while individuals who received higher than satisfactory performance appraisal ratings would have no change in attitudes following receipt of the performance appraisal score. It was argued that this decrease in organization commitment and attitudes toward the performance appraisal system would result from disconfirmed expectancies. Participants were 449 federal civil service employees (101 managers and 348 employees) who were surveyed on three occasions: (1) prior to implementing a formal appraisal system, (2) after receiving their first formal performance appraisal score, and (3) after receiving
their second formal performance appraisal score. As hypothesized, results from this study indicated a significant decrease in organization commitment by individuals receiving satisfactory performance ratings. Individuals who received higher than satisfactory performance ratings exhibited no change in organization commitment. Results were mixed with respect to attitudes toward the appraisal system. Management employees receiving satisfactory ratings exhibited negative changes in attitude toward the performance appraisal system while nonmanagement employees did not. The authors speculated this difference between management and nonmanagement employees might be due to the fact that a portion of the managers's pay increases were based on performance appraisals while pay increases of nonmanagement employees were not.

**Expectations**

Taylor, Fisher, and Ilgen (1984) argued that employee expectations with respect to performance appraisal ratings can influence affective responses to feedback. For example, being told you are merely satisfactory (as in Pearce and Porter, 1986) could result in an entirely different response from an individual who expected to receive a poor rating and an individual who expected to receive an outstanding performance rating. The studies discussed below
illustrate the importance of expectations to the performance appraisal process.

Ilgen and Hamstra (1972) investigated performance appraisal satisfaction as a function of the difference between expected and reported performance in a study of 150 male undergraduate students. The researchers set five levels of expectation and then provided feedback to individuals which indicated that performance level was below, the same as, or above the expected level of performance. Results indicated that deviation of reported performance below expectations affected satisfaction with performance level.

Bernstein and Lecomte (1979) also investigated the value individuals attach to feedback which is more positive than expected, the same as expected, slightly more negative than expected, and much more negative than expected. Results indicated that feedback consistent with what was expected was valued most. Feedback more positive than expected was the next most valued and feedback more negative than expected was valued least. Finally, Taylor (1981) studied the impact of feedback which differed from individual's expectations on perceptions of performance appraisal accuracy. Where performance expectations were either very high or very low, feedback which deviated from what was expected resulted in perceptions that performance
appraisals were inaccurate.

The evidence suggests that deviations between employee expectations and actual ratings are likely to exist. Thornton (1968) investigated differences between self and superior ratings of performance in a study of 64 top executives at a large manufacturing corporation. Research findings indicated: (1) in general, executives tended to rate themselves higher overall than their supervisors rated them, (2) there was considerable disagreement between executives and raters on the various components of performance, and (3) executives who rated their performance higher than their raters were considered to be the least promotable. There was a significant difference (at the .05 level) between mean supervisor and subordinate ratings with respect to the following specific performance components: (1) accuracy in analyzing problems, (2) decisiveness, and (3) training and development of subordinates. Thornton (1968) cautions about the accuracy of saying which evaluation of performance is correct.

Smircich and Chesser (1981) also investigated differences between supervisor and subordinate perceptions of performance. Participants in this study were 141 employees of two large corporations. Supervisors rated subordinate performance and subordinates were asked to rate their performance the way they believed their supervisor would
rate it. The degree of shared perceptions between supervisors and subordinates was tested using correlations and the Wilcoxon matched-pairs signed ranks test. Results of the correlation analysis indicated no significant relationship between supervisor ratings of performance and subordinate perceptions of supervisor evaluations. The authors argue this result indicates that subordinates do not understand supervisor perspectives. It is further argued that this misunderstanding is an obstacle to communication and change. Results also indicated that subordinates consistently thought superiors would rate their performance higher than they actually did.

This tendency of individuals to rate their performance higher than their supervisor would rate it serves as a basis for criticism of merit pay programs. Meyer (1975) argued that merit pay is likely to threaten the self-esteem of a great majority of employees. He further argued that a majority of individuals will evaluate their performance as above average whether they are or not. What happens when an individual receives a smaller than expected pay increase based on an evaluation which is lower than their self-appraisal? An individual in this position is likely to cope with this threat to his/her self-esteem by downgrading the importance of the activity or disparaging the source of the criticism, both of which are counterproductive to the
organization (Meyer, 1975). As such, these individuals are not likely to be motivated by a merit pay program.

**Trust in Supervisors**

There is also support in the literature for the importance of trust in supervisors to perceived performance appraisal accuracy. A formal performance appraisal program is an integral part of any merit pay program and the conceptual literature supports the importance of trust in the feedback and performance appraisal process (Bernardin and Beatty, 1984; Ilgen, Fisher, and Taylor, 1979; and Lawler, 1971). Trust is argued to be particularly important where, as in the case of management or professional employees, subjective measures of performance must be used (Lawler, 1971). Bernardin and Beatty (1984) stress the importance of trust in performance appraisal systems which are utilized for serious personnel decisions such as merit increases. There is also limited empirical support for the importance of trust in the performance appraisal process.

O'Reilly and Anderson (1980) investigated the relationship of trust to individual perceptions of feedback in a study of 100 managers from a manufacturing firm. Individuals were classified according to whether they exhibited high or low trust in their superior. Results indicated a significant ($p < .01$) difference between high
and low trust groups with respect to perceptions of feedback accuracy. Individuals in the high trust group perceived feedback to be more relevant, more accurate, and greater in quantity than individuals in the low trust subgroup. As previously noted, the work of Scott (1980) also provides empirical support for the importance of trust in both supervisors and top management to the performance appraisal process.

**Research Questions and Conceptual Hypotheses**

Limited empirical support was found for: (1) the tendency of individuals to view performance ratings which differ from expectations as inaccurate (Taylor, 1981), (2) the importance of trust to perceived performance appraisal accuracy (O’Reilly and Anderson, 1980), and (3) the tendency of individuals to rate their performance higher than their supervisors rate it (Smircich and Chesser, 1981; Thornton, 1968). While empirical support is limited, the literature does suggest several variables which may influence perceived performance appraisal accuracy. These variables include: (1) performance appraisal scores, (2) deviations between self and supervisor ratings, and (3) trust in supervisor. Figure 3 presents a model which graphically summarizes proposed determinants of perceived performance appraisal accuracy. It is again acknowledged
Figure 3

Determinants of Perceived Performance Appraisal Accuracy
that the causal relationships proposed in the model cannot be tested due to the lack of longitudinal data. Any significant findings with respect to the proposed relationships are indicative of potential causal relationships which can then be investigated in future research with appropriate data.

Research questions and conceptual hypotheses which address the relationship of performance appraisal scores, deviations between self and supervisor ratings, and trust in supervisors to perceived performance appraisal accuracy are discussed below. Assuming that performance appraisal scores, deviations between self and supervisor ratings, and trust in supervisors are each independently and positively associated with perceived performance appraisal accuracy, it is again of interest whether they each exhibit a significant main effect on perceived performance appraisal accuracy when controlling for the presence of the other variables. This issue is addressed in the conceptual hypotheses presented below.

**Performance Appraisal Score:** There is contradictory evidence with respect to the relationship between performance appraisal scores and perceived performance appraisal accuracy. Pearce and Porter (1986) found that performance appraisal scores were positively related to level of organ-
ization commitment and attitudes toward the performance appraisal system. Similarly, research by Dipboye and de Pontbriand (1981) found that perceived favorability of the rating was positively related to opinions of the appraisal and the appraisal system. However, Landy, Barnes-Farrell, and Cleveland (1980) found no significant relationship between performance appraisal score and perceived accuracy and fairness of the appraisal process. The following research question (RQ) and related conceptual hypotheses (CH) address these apparently contradictory findings:

**RQ5:** What is the relationship between performance appraisal scores and perceived performance appraisal accuracy?

**CH5(a):** Performance appraisal scores will be positively associated with perceived performance appraisal accuracy.

**CH5(b):** Performance appraisal scores will be positively associated with perceived performance appraisal accuracy when controlling for the presence of deviations between self and supervisor ratings and trust in supervisor.

**Deviation in Ratings:** Only one empirical study was identified which investigated the relationship between appraisals which differed from expectations and perceived performance appraisal accuracy. Taylor (1981) found that supervisor appraisals which deviate from what is expected result in perceptions that performance appraisals are inaccurate. This finding is potentially significant as it relates to
the ability of merit pay programs to motivate improved performance. To the extent that: (1) individuals rate their performance higher than their supervisors (Meyer, 1975; Smircich and Chesser, 1981; and Thornton, 1968), (2) supervisor ratings which are lower than self-ratings are perceived as inaccurate (Taylor, 1981), (3) inaccurate ratings result in low instrumentality beliefs (Kopelman, 1983; Lawler, 1981), and (4) instrumentality beliefs are a requirement of successful merit pay programs (Lawler, 1971; Kopelman, 1976), doubt is cast about the ability of merit pay to elicit improved job performance. The following research question (RQ) and related conceptual hypotheses (CH) address the need for more research on this issue:

RQ6: What is the relationship of deviations between self and supervisor ratings to perceived performance appraisal accuracy?

CH6(a): Deviations between self and supervisor ratings of performance will be negatively associated with perceived performance appraisal accuracy.

CH6(b): Deviations between self and supervisor ratings of performance will be negatively associated with perceived performance appraisal accuracy when controlling for the presence of performance appraisal score and trust in supervisor.

Trust in Supervisor: The conceptual literature on merit pay provides strong support for the importance of trust to perceived feedback and appraisal accuracy (Bernardin and
Beatty, 1984; Hamner, 1975; and Lawler, 1971). However, only one study was identified which provides empirical support for the importance of trust in supervisors to perceived feedback and performance appraisal accuracy (O’Reilly and Anderson, 1980). The literature review suggests the following research question (RQ) and related conceptual hypotheses (CH):

**RQ7:** What is the relationship between trust in supervisor and perceived performance appraisal accuracy?

**CH7(a):** Level of trust in supervisors will be positively associated with perceived performance appraisal accuracy.

**CH7(b):** Level of trust in supervisors will be positively associated with perceived performance appraisal accuracy when controlling for the presence of performance appraisal score and discrepancy between self and supervisor ratings?

**DETERMINANTS OF MERIT INCREASE SATISFACTION**

The third and final purpose of this research is to investigate factors related to merit increase satisfaction. Factors influencing merit increase satisfaction are of interest because of their potential relationship to instrumentality beliefs. To the extent merit increase satisfaction is a determinant of instrumentality beliefs, factors influencing merit increase satisfaction are also determinants of instrumentality beliefs. The lack of empirical research on what factors actually influence merit
increase satisfaction necessitates looking at empirical and conceptual research related to reactions to pay increases in general. Topics addressed include: (1) factors influencing the size of smallest meaningful pay increases, (2) the relationship between incentive level and pay level satisfaction, and (3) factors influencing merit increase satisfaction. The discussion concludes with identification of research questions and related conceptual hypotheses to be investigated in this study and presentation of a model which graphically summarizes the proposed relationships.

**Smallest Meaningful Pay Increase**

A review of the conceptual literature on merit pay suggests it is not enough to simply value pay as a reward. For a pay increase to motivate improved job performance, it must be large enough to be meaningful (Brennan, 1984; Brinks, 1980; Hills, 1979; Kopelman and Reinhart, 1982; and Lawler, 1981). Heneman and Ellis (1982, p. 533) theoretically define a smallest meaningful pay increase (also known as a just noticeable difference pay increase) as: "...the minimum or threshold pay raise that would be perceived to make a difference to an employee." According to this definition, a pay increase must be at or above the smallest meaningful pay increase level if it is to have the desired impact on employee attitudes and subsequent job
behaviors. It is also pointed out there must be a substantial difference in the size of pay increases paid to poor performers and the size of pay increases paid to high performers or high performers will see little reason to exert the extra effort required for high levels of performance (Lawler, 1981, 1987; Kopelman and Reinhart, 1982). Numerous researchers have investigated what constitutes a meaningful pay increase and factors affecting the size of meaningful pay increases.

Hinrichs (1969) investigated correlates of employee evaluations of pay increases in a study of approximately 1,500 white-collar employees in a large industrial organization. Individuals were presented with a list of possible monthly salary increases (in dollars) which ranged from $1 to $1,000. They were then asked whether each of the possible pay increases was small, average, or large and their monthly salary level. Findings suggest that perceptions of the dollar amount which constitutes a small, average, or large pay increase are a function of current salary level. For example, higher current salary levels were found to predict higher dollar amounts with respect to what constitutes a small, average, or large pay increase.

Krefting and Mahoney (1977) investigated factors influencing the size of meaningful pay increases (SMPI). In a study of 186 individuals in various occupations and or-
ganizations, these researchers found factors determining the SMPI to be a function of the significance an individual attaches to pay. For individuals who valued pay increases as recognition for good work, expected pay increase ($r = .51, p < .05$) and anticipated changes in the cost of living ($r = .29, p < .05$) exhibited a significant positive relationship with SMPI. For individuals who valued pay increases for the money (i.e., individuals who valued pay for what it will buy), anticipated changes in the cost of living ($r = .33, p < .05$), size of the last pay increase ($r = .39, p < .05$), and pay satisfaction ($r = -.20, p < .05$) exhibited a significant relationship with SMPI.

In a related study, Krefting (1980) attempted to identify variables which differentiate individuals with respect to whether they value pay increases as recognition for good work (recognition orientation) or whether they value pay increases for what they will buy (money orientation). Orientation toward pay increases was found to be a function of whether the individual was represented by a union, whether the organization based pay on performance, and level of pay satisfaction. According to Krefting (1980), individuals can be classified into groups according to union membership, type of pay increase, and pay satisfaction. Individuals who were in the union member/merit increase/satisfied group exhibited a recognition orienta-
tion while individuals in all other groups exhibited a money orientation. A slight majority of 164 employees in the study (83 or 51%) exhibited a money orientation toward pay increases. Individual differences such as age, sex, education did not differentiate between money and recognition orientations.

Heneman and Ellis (1982) investigated the relationship of just noticeable differences (JND) in pay increases to personal characteristics, economic factors, and future expectations with a group of 76 nonunion construction workers. Personal characteristics such as age, number of dependents, and tenure exhibited no significant relationship with JND pay increases. With respect to economic factors, both current wage \( r = .44, p < .05 \) and average work week \( r = .23, p < .05 \) were significantly related to JND pay increases. Two future expectation variables were related to JND pay increases. The anticipated size of the next pay increase \( r = .36, p < .01 \) and estimated difficulty in finding a new job \( r = -.27, p < .05 \) were both significantly related to JND pay increases.

Krzystofiat, Newman, and Krefting (1982) investigated individual variation in perceptions of the size of meaningful pay increases as a function of: (1) psychophysical laws relating stimulus change to initial stimulus level, (2) perceived equitable treatment, (3) the symbolic role of
money, and (4) individual pay/job satisfaction and perceived increases needed to establish equilibrium. The psychophysical approach to determination of a just noticeable difference (JND) pay increase argues that the JND between stimuli on any attribute (in this case, money) is a constant function of the initial stimulus level (in this case, salary level). The symbolic approach to determination of a JND pay increase focuses on how pay increases acquire value. Measures utilized include: (1) current salary level as a measure of initial stimulus level, (2) perceptions of a typical salary increase and actual personal salary increase as measures of equitable treatment, (3) a 16 item Likert scale adapted from Krefting (1980) measuring money orientation and recognition orientation as a measure of the symbolic role of money, (4) a single Likert item as a measure of pay satisfaction, and (5) a 9 item Likert scale as a measure of job satisfaction. This study of 77 business school alumni found that all of the above except psychophysical laws (current salary level) exhibited a significant relationship with size of a meaningful pay increase. Typical salary increase, personal salary increase, pay satisfaction, job satisfaction, and pay meaning were all significant (at .05 level) predictors of the size of a meaningful pay increase. Individuals had larger smallest meaningful pay increases if: (1) they had
a recognition orientation, (2) they received larger personal pay increases, (3) they perceived larger typical pay increases, (4) they were dissatisfied with their pay, and (5) they were satisfied with their jobs.

Varadarajan and Futrell (1984), in a study of 275 marketing executives also investigated factors affecting perceptions of smallest meaningful pay increases (SMPI). As with Krefting and Mahoney (1977), individuals in this study were categorized according to whether they viewed pay increases as a form of recognition (recognition orientation) or whether they valued pay increases for the money (money orientation). Predictors of SMPI in order of importance (based on partial R²) for the recognition oriented group included: (1) current salary, (2) job difficulty, (3) age, (4) job satisfaction, (5) total work experience, (6) tenure in present job, and (7) tenure with present employer. Predictors of SMPI in order of importance (based on partial R²) for the money oriented group included: (1) current salary, (2) education, (3) job difficulty, (4) job satisfaction, (5) job level, (6) tenure in present job, and (7) age.

In summary, there is strong support in the literature for the importance of current salary level as a determinant of the size (in dollars) of a meaningful pay increase. Findings also suggest that other factors such as expecta-
tions with respect to pay increase, perceived typical pay increase, pay satisfaction, pay system, union membership, and perceived equity influence perceptions of smallest meaningful pay increases.

Size of Pay Increase to Pay Satisfaction

Several studies were identified which investigated the relationship between size of pay increases and pay level satisfaction. Fossum (1979), in a laboratory study investigating individual reactions to rewards, hypothesized that "satisfaction" would be related to reward magnitude. Satisfaction with respect to seven different areas was investigated including: (1) general affective tone, (2) personal competence, (3) general satisfaction with pay, (4) equity of pay, (5) general arousal, (6) attractiveness of fellow workers, and (7) attractiveness of task. Results of the study indicated that satisfaction with respect to pay, pay equity, personal competence, and general affective tone (for example, me at work: satisfied or dissatisfied, rewarded or unrewarded) were significantly related (at .05 level) to reward magnitude.

Berger and Schwab (1980) also investigated the relationship of pay incentives to pay satisfaction in a study of 77 undergraduate students. Results from this study found no evidence: "...that either the payment system or
incentive level, per se, had a direct impact on pay satisfaction beyond their impacts on pay level" (Berger and Schwab, 1980, p. 209). In addition to research on the relationship of incentive level to pay satisfaction, researchers have investigated the relationship of level of reward to satisfaction with rewards.

Research was also identified which investigated the relationship between level of reward and satisfaction with reward. Porter and Lawler (1968) developed a theoretical model of motivation and tested it on a sample of 563 managers. Empirical support was found for the relationships proposed in the model. A diagram of the Porter and Lawler (1968) model is provided in Figure 4. The level of effort an employee exerts is argued to be determined jointly by the value an individual places on a reward (valence) and the perceived effort-reward probability. According to Porter and Lawler (1968), an individual's perceived effort-reward probability can be broken down into the belief that effort leads to performance (expectancy) and the belief that performance leads to reward (instrumentality).

Job performance is then argued to be a function of effort, abilities/traits, and role perceptions/clarity. An individual receives rewards, both intrinsic and extrinsic, based on job performance. The level of performance an individual believes he/she has obtained will influence the
Figure 4

Porter and Lawler Model
perceived level of equitable rewards. Data from their study suggest that higher levels of self-rated performance are associated with higher expected rewards. A related study by Motowidlo (1982) provides support for these findings. Motowidlo (1982), in a study of 101 sales representatives, found self-rated performance exhibited a significant negative relationship \( r = -0.30, \ p < 0.01 \) with pay satisfaction.

Porter and Lawler (1968) further argued that performance leads to satisfaction if the level of rewards received meets or exceeds the perceived equitable level of rewards. Satisfaction was defined to be: "...the extent to which rewards actually received meet or exceed the perceived equitable level of rewards..." (Porter and Lawler, 1968, p. 31). Two loops in the model illustrate the dynamic nature of motivation and provide insight into determinants of expectancy, instrumentality, and valence. First, satisfaction influences the value an individual attaches to a reward (valence). Second, level of performance/accomplishment influences the perceived effort-reward probability (expectancy and instrumentality). In addition to the empirical support provided by Porter and Lawler (1968), Kopelman (1979) tested the entire model and found strong support for the proposed relationships.
Two studies were also identified which investigated the relationship between size of pay increase and satisfaction with pay increase. Giles and Barrett (1971) investigated the level of satisfaction with merit pay increases in a study of 64 professional employees in an electronics organization. Research results indicated that satisfaction with pay increases was a function of size of pay increase (in dollars). In other words, larger pay increases (in dollars) resulted in higher levels of satisfaction with the pay increase.

A similar study by Schuster, Colletti, and Knowles (1973) compared public and private sector organizations with respect to satisfaction with size of merit pay increases. Similar to the findings of Giles and Barrett (1971), satisfaction with pay increases was found to be a function of size of pay increase (in dollars) in the public sector organization. In the private sector organization, there was a point beyond which each dollar of pay increase did not result in higher levels of satisfaction with the pay increase. The authors attributed this difference to how pay was determined in these particular organizations.

Finally, one study was identified which investigated the relationship between pay satisfaction and merit increase satisfaction. Weiner (1980) found support for a significant positive relationship between pay level satis-
faction and merit increase satisfaction. Study participants were 186 employees from a public sector organization. Pay satisfaction was found to be significantly positively related to perceived equitable salary \( (r = .26, p < .05) \), satisfaction with job structure \( (r = .36, p < .05) \), satisfaction with amount of pay increase \( (r = .32, p < .05) \), and satisfaction with pay increase administration \( (r = .18, p < .05) \).

**Research Questions and Conceptual Hypotheses**

In summary, there is support in the literature for the importance of current salary level in determining the size (in dollars) of a meaningful pay increase (Hinrichs, 1969; Varadarajan and Futrell, 1984). Findings also suggest that other factors such as expectations with respect to size of pay increase (Heneman and Ellis, 1982; Krefting and Mahoney, 1977), the perceived size of a typical pay increase (Krzystofiak, Newman, and Krefting, 1982), the size of the last pay increase (Krefting and Mahoney, 1977), and pay satisfaction (Krefting and Mahoney, 1977; Krzystofiak, Newman, and Krefting, 1982) influence perceptions of what (in dollars) constitutes a smallest meaningful pay increase. Limited empirical support was also found for relationships between: (1) incentive level and pay satisfaction (Fossum, 1979), (2) size of pay increase and pay
increase satisfaction (Giles and Barrett, 1971; Schuster, Colletti, and Knowles, 1973), (3) pay satisfaction and pay increase satisfaction (Weiner, 1980), (4) pay satisfaction and self-rated performance (Motowidlo, 1982), and (5) reward magnitude and satisfaction with reward (Porter and Lawler, 1968).

The literature review suggests several variables which may influence merit increase satisfaction. These variables include: (1) size of pay increase (Giles and Barrett, 1971; Schuster, Colletti, and Knowles, 1973), (2) pay level satisfaction (Weiner, 1980), (3) perceptions that pay increases are large enough to be meaningful (Krefting and Mahoney, 1977; Krzystofik, Newman, and Krefting, 1982), (4) perceived typical pay increase (Krzystofik, Newman, and Krefting, 1982), and (5) employee expectations with respect to size of pay increase (Heneman and Ellis, 1982; Krefting and Mahoney, 1977). This study will focus only on the relationship of size of pay increase, perceived typical pay increase (perceived relative size of increase), and perceptions that pay increases are large enough to be meaningful, to merit increase satisfaction.

Figure 5 presents a model which graphically summarizes the proposed relationships. It is again acknowledged that the causal relationships proposed in the model cannot be tested. Any significant findings with respect to the pro-
Figure 5

Determinants of Merit Increase Satisfaction
posed relationships are indicative of potential causal relationships which can then be investigated in a future study with appropriate data. Research questions and conceptual hypotheses which address the relationship of size of merit pay increase, perceived relative size of merit pay increase, and perceptions that pay increases are large enough to be meaningful to merit increase satisfaction are discussed below. Assuming that each of these variables is independently and positively related to merit increase satisfaction, it is also of interest whether they each exhibit a significant main effect on merit increase satisfaction when controlling for the presence of the other variables. This issue is addressed in the conceptual hypotheses presented below.

**Size of Merit Pay Increase**: There is limited empirical support for a positive relationship between size of pay increase and merit increase satisfaction (Giles and Barrett, 1971; Schuster, Colletti, and Knowles, 1973). The literature review suggests the following research question (RQ) and related conceptual hypotheses (CH):

**RQ8**: What is the relationship between size of merit pay increase and merit increase satisfaction?

**CH8(a)**: Size of merit pay increase will be positively associated with merit increase satisfaction.
CH8(b): Size of merit pay increase will be positively associated with merit increase satisfaction when controlling for the presence of perceived relative size of increase and perceptions that pay increases are large enough to be meaningful.

Perceived Relative Size of Increase: Employee perceptions of where their pay increase falls relative to a typical pay increase (perceived relative size of increase) are also argued to influence merit increase satisfaction. No studies were identified which investigated the relationship between perceived relative size of increase and merit increase satisfaction. Research does suggest that higher levels of self-rated performance are associated with higher levels of expected rewards (Motowidlo, 1982; Porter and Lawler, 1968). This suggests that individuals who consider themselves as above average may not be satisfied with what they perceive to be a below average pay increase. While no studies were identified which specifically addressed this issue, Krzystofiak, Newman, and Krefting (1982) did investigate the relationship of perceived typical (average) pay increases to size of smallest meaningful pay increases. Individuals who perceived larger typical pay increase had larger smallest meaningful pay increases. This suggests the following research question (RQ) and related conceptual hypotheses (CH):
RQ9: What is the relationship between perceived relative size of increase and merit increase satisfaction?

RQ9(a): Perceived relative size of increase will be positively associated with merit increase satisfaction.

RQ9(b): Perceived relative size of increase will be positively associated with merit increase satisfaction when controlling for the presence of size of pay increase and perceptions that pay increase is large enough to be meaningful.

**Meaningful Pay Increases:** No studies were identified in the research literature which investigated the relationship between merit increase satisfaction and perceptions that pay increases are large enough to be meaningful. Limited empirical support was found for a relationship between pay satisfaction and perceptions that pay increases are large enough to be meaningful (Krefting and Mahoney, 1977; Krzystofiak, Newman, and Krefting, 1982). Pay satisfaction was also found to be related to satisfaction with amount of pay increase (Weiner, 1980). These studies suggest the following research question (RQ) and related conceptual hypotheses:

RQ10: What is the relationship between merit increase satisfaction and perceptions that pay increases are large enough to be meaningful?

CH10(a): Perceptions that pay increases are large enough to be meaningful will be positively associated with merit increase satisfaction.
CH10(b): Perceptions that pay increases are large enough to be meaningful will be positively associated with merit increase satisfaction when controlling for the presence of size of pay increase and perceived relative size of increase.

SUMMARY

In this chapter, three distinct models based on a review of earlier empirical and conceptual works have been presented. Each of the three proposed models with their related hypotheses is summarized below. First, a model of instrumentality beliefs was presented. It is argued that instrumentality beliefs are a function of perceived performance appraisal accuracy, merit increase satisfaction, trust in top management, and trust in supervisor. Each of these independent variables is hypothesized to have a positive correlation with instrumentality beliefs. It is further hypothesized that each of these independent variables will exhibit a significant positive relationship with instrumentality beliefs when controlling for the presence of the other three.

The second model proposes determinants of perceived performance appraisal accuracy. In the model, perceived performance appraisal accuracy is argued to be a function of performance appraisal, deviation between self and supervisor rating of performance, and trust in supervisor. It is hypothesized that both performance appraisal and trust
in supervisor will exhibit a positive correlation with perceived performance appraisal accuracy while deviation between self and supervisor rating of performance will exhibit a negative relationship with perceived performance appraisal accuracy. Finally, it is also hypothesized that each of these three variables will exhibit a significant main effect on perceived performance appraisal accuracy when controlling for the presence of the other two.

The third and final model proposes that merit increase satisfaction is a function of merit pay increase and perceived relative size of increase. Merit increase satisfaction is hypothesized to be positively correlated with both merit pay increase and perceived relative size of increase. It is further hypothesized that both merit pay increase and perceived relative size of increase will have a significant main effect on merit increase satisfaction when controlling for the presence of the other variable.

Chapter III will now provide a detailed discussion of the research methodology utilized to investigate the proposed relationships. Topics addressed include the research site, survey instrument measures and scoring, quality of measurements, survey instrument administration, and operational hypotheses and related statistical analyses.
CHAPTER III
METHODOLOGY

INTRODUCTION

Chapter III discusses research methodology utilized in this study. The chapter begins with a description of the research site and survey instrument. Issues addressed in the survey instrument discussion include survey instrument development, measures and scoring, measurement quality, and survey instrument administration. Data obtained directly from personnel records are also identified. Chapter III concludes with a discussion of operational hypotheses and statistical analyses.

RESEARCH SITE

The data analyzed here were obtained from a 1985 study funded by the Office of Technical Assistance of the Urban Mass Transportation Administration (UMTA), U. S. Department of Transportation. The purpose of the UMTA grant was to investigate the feasibility of merit pay in a transit environment. Three professors from Virginia Polytechnic Institute and State University served as principal investigators for this research project and the author was a member of the research project team.
The research site for the UMTA grant was carefully selected. Numerous transit authorities were considered and the principal investigators contacted potential sites to determine if they were suitable for the study and if they were interested in participating in the study. Research site selection criteria included: (1) a merit program which had functioned for two or more years, (2) an organization of sufficient size to yield the required sample sizes, (3) a suitable performance appraisal system which quantified individual performance appraisal scores, (4) the availability of pay and performance data, and (5) a transit authority which expressed strong support for the study.

The research site selected for the UMTA grant was a large transit authority located on the West Coast. This authority employs over 4,500 people, 1,260 of which participated in a merit pay plan during 1985. These 1,260 managerial, professional, and clerical employees are the focus of this current study. Population demographic data for these 1,260 employees indicates that 76% were male and 24% were female. Ages ranged from 25 to 72 with a mean of 45.5 years. Length of service ranged from newly hired to 45 years with a mean of 13.7 years. Time in job class varied from newly hired to 15.0 years with a mean of 3.8 years. A diverse ethnic mix was also present. Of the 1,260 individuals eligible to participate in the study,
28.5% were black, 53.6% were white, 6.3% were Asian Pacific Islanders, and 11.6% were Hispanic. Sample demographic characteristics are reported in Chapter IV.

The transit authority requires a formal annual performance appraisal which serves as the basis for the merit pay increase. It is a typical system in which supervisors examine work habits such as attendance, safety, and observance of rules and then combine this information with an evaluation of performance on job related tasks. Individuals are then evaluated along a five point continuum including unsatisfactory, needs improvement, competent, superior, and outstanding. For the purpose of this analysis, unsatisfactory is assigned the value 1, needs improvement 2, competent 3, and so on.

Merit increases at this transit authority are based on an individual's performance appraisal score and position in the wage structure. Pay steps within pay grades are divided into five Quintiles. Pay steps 1 through 5 form Quintile 1, 6 through 10 form Quintile 2, and so on. The amount of merit increase an individual receives is specified in guidecharts according to Quintile and performance level. For example, in 1985 an outstanding individual received 9% if in Quintile 1 or 2, 8% if in Quintile 3, 7% if in Quintile 4, and 6% if in Quintile 5. Size of merit pay increases were also specified for other levels of
performance as well. It is noted here that the size of within-quintile pay increases varies by year as a function of budget. These guidecharts were strictly adhered to as indicated by the within Quintile pay-to-performance correlations for 1985. The correlation between pay and performance level during 1985 was $r = 0.81 \ (p < 0.0001)$ for Quintile 1 and 2, $r = 0.84 \ (p < 0.0001)$ for Quintile 3, $r = 0.90 \ (p < 0.0001)$ for Quintile 4, and $r = 0.87 \ (p < 0.0001)$ for Quintile 5.

No across-the-board pay increases were given during the period for which data were collected. Pay ranges were adjusted upward by 4.0% in 1985. Individuals whose pay rate was below the minimum pay rate in the adjusted range did receive an automatic pay increase to move their pay rate to the new minimum value in the pay range. While the pay range adjustment increased the amount an individual could potentially earn in a pay range, an individual must still get merit increases as determined by performance to move up in the pay range. The average merit increase was 5.2% in 1985 ($\text{std dev} = 1.52$, $\text{min} = 0.0$, $\text{max} = 9.6$).

**SURVEY INSTRUMENT**

Discussion of the survey instrument begins with a description of survey instrument development. Research measures and quality of measures are then addressed. This
section concludes with a discussion of survey instrument administration.

Survey Instrument Development

As previously noted, data utilized in this study were obtained from a 1985 UMTA grant to study the feasibility of merit pay in a transit environment. The survey instrument was developed following a thorough review of the research literature on merit pay. The focus of the literature review was to identify individual perceptions and other issues critical to successful merit pay programs. Once relevant information and constructs were identified, scales to measure the constructs had to be identified in the research literature or developed.

The principal investigators reviewed relevant scales identified in the research literature and found it necessary to modify the scales (sometimes extensively) for use on the survey instrument. As a result, all scales utilized on the survey instrument have their origin in the research literature but were modified prior to use. Reasons for modifying scales included: (1) the scale was too long, (2) the scale did not contain a representative sample of items, and (3) scale items were poorly constructed.
As a further check on content and clarity, the survey instrument was pilot tested prior to administering it to employees at the research site. The initial draft of the survey instrument was administered to managerial, professional, and clerical employees at a small transit authority on the East Coast. The pretest sample was representative of employees at the research site. Following administration of the survey instrument, a debriefing was held at which time suggestions and comments about the survey instrument were obtained. These comments and suggestions were utilized to improve the content and clarity of the survey instrument.

Research Measures

Measures collected on the survey instrument and utilized in this study include: (1) instrumentality beliefs, (2) merit increase satisfaction, (3) perceptions that pay increases are large enough to be meaningful, (4) trust in supervisors, (5) trust in top management, (6) perceived performance appraisal accuracy, (7) perceived relative size of increase, and (8) self-rated performance. A copy of the survey instrument is provided in Appendix 1.

Summative or Likert-type scales were used for the following measures: (1) instrumentality beliefs, (2) merit increase satisfaction, (3) perceptions that pay increases

are large enough to be meaningful, (4) trust in supervisors, and (5) trust in top management. These scales consist of a series of statements with six Likert-type responses which range from strongly agree (scored 6) to strongly disagree (scored 1). A seventh "not applicable" response category was also provided. Not applicable responses were treated as missing values. Final scoring was adjusted for reverse scored items.

Scale scores for instrumentality, trust in supervisor, trust in top management, merit increase satisfaction, and perceptions that pay increases are large enough to be meaningful were obtained by summing the responses to the individual scale items and then calculating the mean value for the scale for each respondent. This approach has two advantages. First, utilization of scale means equally weights scale items. Nunnally (1978) argued for equal treatment of all items noting that it is difficult to defend arbitrary weighting systems and unweighted and weighted scores are usually highly correlated. Second, utilization of scale means allows for use of pair-wise as opposed to list-wise deletion when missing values are encountered. Missing values were handled in the following manner. When a scale has more than two items, failure to answer at least one-half of the items in the scale resulted in that individual's responses being deleted from the
particular analysis. For example, a respondent would have to answer at least three of the five items in the instrumentality beliefs scale before the scale is used in the analysis. When a scale has only one or two items, failure to answer any of the items results in that individual being deleted from the particular analysis.

Measures of perceived performance appraisal accuracy, perceived relative size of increase, and self-rated performance all used different formats. Scoring for these measures will be discussed on an individual basis when the measure is presented. Measures utilized in this study are discussed below.

**Instrumentality Beliefs:** The instrumentality beliefs scale was adapted in part from the work of Kopelman (1976). Employee instrumentality beliefs were measured with the following five-item Likert scale:

20. Merit increases accurately reflect an individual's job performance.
21. This organization gives pay increases on the basis of job performance.
22. Poor performers at my organization are not likely to get pay increases.
23. At my organization, the highest performers get the highest percentage pay increases.
24. At my organization, the highest performers get the highest dollar pay increases.
Merit Increase Satisfaction: Employee satisfaction with merit pay increases was measured with the following four-item Likert scale:

16. I am very satisfied with the last merit increase I received.

17. My last pay increase was consistent with my job performance.

18. I was satisfied with the size of my last pay increase when I think about what other employees received.

19. I was very disappointed with the size of my last pay increase when I think about what my coworkers got. (Reverse Scored)

Meaningful Pay Increase: Employee perceptions that pay increases are large enough to be meaningful were measured with the single Likert item listed below:

5. The size of my last pay increase was meaningful to me.

Trust in Supervisor: The trust in supervisor scale was adapted in large part from the work of Scott (1980). Employee trust in supervisor was measured with the following Likert items:

48. I trust my supervisor to treat me fairly.

49. If I share job problems with my supervisor, it is not likely to be held against me later.
50. If I make a mistake on my job, my supervisor usually holds it against me. (Reverse Scored)

51. Generally speaking, my supervisor can be trusted.

Trust in Top Management: The trust in top management scale was adapted in large part from the work of Scott (1980). Employee trust in top management was measured with the four Likert items listed below:

52. I trust top management to treat me fairly.

53. Top management attempts to resolve employee complaints fairly.

54. Top management has little regard for the average employee. (Reverse Scored)

55. Top management always follows through with what they say they are going to do.

Perceived Performance Appraisal Accuracy: Perceived performance appraisal accuracy was measured with the two items listed below. The first item asked individuals:

22. Compared to your actual level of performance, do you believe your performance rating was:

Responses and response scores for this item include: much too high (0), too high (1), about right (2), too low (1), and much too low (0). The second item measuring perceptions of performance appraisal accuracy asked individuals:
23. If you had rated your performance at the last review, the evaluation would have been:

Responses and response scores for this item include: much higher (0), higher (1), about the same (2), lower (1), and much lower (0). Perceived performance appraisal accuracy scores were obtained by summing the responses to these two questions and then taking the mean value for the scale for each respondent. This yields a range of possible responses from 0 (appraisal is inaccurate) to 2 (appraisal is accurate). Respondents must have answered both questions before the scale score is used in the analysis.

Perceived Relative Size of Increase: Employee perceptions of where their pay increase falls relative to a typical (average) pay increase were measured with the single item listed below:

24. Consider the average pay increase this past year. Where did you fall with respect to the average increase?

Responses and response scores for this item include: well above average (2), above average (1), about the same as average (0), below average (-1), and well below average (-2).
**Self-Rated Performance:** Individuals were asked the following question to assess self-rated performance:

21. How would you evaluate your job performance?

Responses and response scores for this question include: outstanding (5), superior (4), competent (3), needs improvement (2), and unsatisfactory (1). These responses and response scores are identical to those utilized in the research site's performance appraisal system. Self-rated performance was utilized in conjunction with supervisor evaluations of performance to calculate deviations between self and supervisor ratings of performance. Supervisor ratings of performance were obtained directly from personnel records.

**Deviation Between Self and Supervisor Rating:** The deviation between self and supervisor rating of performance was calculated by subtracting self-rated performance from the supervisor rating and then taking the absolute value of the result. For example, an individual rated his/her performance as outstanding (value of 5) and the supervisor rating was merely superior (value of 4). The deviation between self and supervisor rating was $4 - 5 = -1$ or 1. This method yields a range of responses from 0 (no deviation in ratings) to 4 (large deviation in ratings).
The measure of deviation between self and supervisor ratings is of the type typically known as a difference score. A difference score is a new variable created by subtracting one existing variable from another existing variable. Difference scores are distinguished from gain (change) scores which are calculated in a similar manner but whose purpose is to measure change from time 1 to time 2. Several problems are commonly associated with difference scores including potential unreliability and systematic correlation with their components (Cronbach and Furby, 1970; Johns, 1981). Gain scores are typically more unreliable than difference scores and in no case should difference or gain scores be utilized when both components are provided by the same source (Johns, 1981).

Johns (1981) conceded that there may be cases where difference scores are the only method available to the researcher. However, he cautioned that the use of measures from two different sources must be carefully justified. The following justification is presented in support of the proposed measure for deviation between self and supervisor ratings. First, there is no other satisfactory method to measure the extent to which supervisor and self ratings disagree. Second, the proposed measure is not a gain score. The measure does not investigate changes from time 1 to time 2. Third, both components of the difference
score do not come from the same source. Supervisor ratings are used in conjunction with self ratings to calculate the score.

The final justification for the measure addresses the potential low reliability of difference scores. Stone (1982, p. 50) argued: "The reliability of a measure places an upper limit on the degree to which it will correlate with any other variable." Stone (1982, p. 50) further argued: "...measurement of variables with instruments having less than perfect reliability will lead to an observed relationship that is often considerably lower than the true relationship." The true relationship between two variables would be obtained if both variables were measured with perfectly reliable measures. To the extent the measure for deviation between self and supervisor ratings has low reliability and a significant relationship is found between perceived performance appraisal accuracy and deviation between self and supervisor ratings of performance, it suggests the true relationship between the two variables may be larger than the observed relationship.

**Demographic Data:** In addition to the measures discussed above, individuals were asked to include their badge number on the survey instrument. Employee badge numbers were required to match survey instrument data to demographic
data obtained directly from personnel records. Demographic information obtained directly from employee personnel records included: (1) employee badge number, (2) pay rate, and (3) performance appraisal score. Data obtained from personnel records was utilized to calculate both the size of merit pay increases and deviations between self and supervisor ratings of performance.

Measurement Quality

Measurement quality is a serious consideration in any study utilizing self-report attitudinal data. Topics addressed in this discussion include problems associated with the use of self-report attitudinal data, validity of measures, and reliability of measures. Self-report attitudinal data is discussed below.

Self-Report Attitudinal Data: This study is based primarily on the use of self-report attitudinal data. Nunnally (1978) identified several problems associated with the use of self-report measures of attitudes. First, self-report attitudinal measures are limited to what individuals know about their attitudes. Second, even if individuals know what their attitudes are, they might not be willing to disclose them to someone else. Finally, verbalized (expressed) attitudes frequently do not correlate highly with
behavior related to the attitude. Nunnally (1978, p. 592) cautioned: "This does not necessarily mean, however, that verbalized attitudes are invalid. In some cases they may be highly valid measures of reported attitudes but not valid measures of attitudes measurable in other ways." While acknowledging these problems, the cognitive nature of this study necessitates the use of self-report attitudinal measures.

In support of the use of self-report (expressed) attitudinal data, Nunnally (1978, p. 592) argued that expressed attitudes are often more predictive of an individual's behavior than "what they may feel in any deeper sense". He further argued that expressed attitudes may represent the "cutting edge" of changes in feelings. Nunnally (1978, p. 592) concluded: "...one has the right to be directly interested in verbalized attitudes, without claiming they have a high degree of correspondence with other attitude-related forms of behavior."

Confidentiality of Responses: Due to the sensitive nature of survey instrument content, it was anticipated that some individuals would not want to participate in the study if they were required to put their badge number on the survey instrument. Even worse, some individuals might not answer the survey items honestly. To address this potential
problem, confidentiality of responses was stressed during administration of the survey instrument and individuals were not required to fill out the survey instrument or to include their badge number. Employees also had the option of leaving items blank or choosing the "not applicable" response if they felt uncomfortable answering certain questions.

Validity of Measures: "To the extent that a variable is abstract rather than concrete, we speak of it as being a construct" (Nunnally, 1978). To validate an attitude as a construct requires a multi-indicator approach (Nunnally, 1978; Cascio, 1982). Nunnally (1978) identified three major aspects of construct validation including: (1) specifying the domain of observables related to the construct, (2) determining the extent to which the observables measure the same thing, and (3) performing studies to determine the extent to which measures of the construct produce predictable results (i.e., the measure correlates with variables that research suggests it should correlate with and the measure does not correlate with measures that research suggests it should not correlate with). Due to the nature of this study, the multiple indicators necessary to establish the construct validity of measures were not available.
While the multiple indicators necessary to establish construct validity were not present, it is argued that the measures utilized in this study are content valid. Content validity does provide one form of evidence for construct validity (Nunnally, 1978). Nunnally (1978) identified two ways in which content validity provides support for construct validity. First, the procedures required to ensure content validity are very similar to those used in defining the domain of observables in construct validity. Second, to the extent the measure can be shown to be representative of a domain of content, it provides circumstantial evidence for construct validity. Nunnally (1978, p. 592) further argued that content validity is the major issue where the researcher is interested primarily in "verbalized attitudes for their own sake" (i.e. the relationship of verbalized (expressed) attitudes to some other object).

According to Nunnally (1978), two major standards must be met to ensure content validity. These standards include: (1) there must be a representative collection of items in the scale and (2) the researcher must use "sensible" methods of test construction. Sensible methods of test construction refers to factors such as properly specifying the domain of content and following a systematic, well thought out plan in developing the instrument. Based on these criteria, measures utilized in this study are
argued to be content valid.

It is first argued that all scales utilized in this study include a representative sample of items. All scales utilized in this study have their origin in the research literature and a thorough review of the research literature was conducted to identify any additional items to be included in the scales. In addition, the decision on scale contents was the result of a systematic process in which the three principal investigators utilized their expertise to ensure that scale items were properly constructed and that scales contained a representative sample of items.

It is also argued that the survey instrument was constructed in a "sensible" manner. A thorough review of the research literature was conducted to identify factors critical to successful merit pay programs (i.e., the domain of content). The decision on which scales to include and the format of both the scales and the survey instrument was again the result of a systematic process in which the three principal investigators utilized their expertise to develop a reliable and valid survey instrument.

With respect to scale format, the majority of scales utilized in this study consist of summative or Likert-type scales. Nunnally (1978, p. 604) concluded, "Summative scales have a number of attractive advantages over all
other methods: they (1) follow from an appealing model, (2) are rather easy to construct, (3) usually are highly reliable, (4) can be adapted to the measurement of many different kinds of attitudes, and (5) have produced meaningful results in many studies to date." Nunnally (1978) further argued that the additive assumption of the summative model is important because it does not overly weight any particular item which may contain considerable measurement error.

Finally, the survey instrument was pilot tested prior to administering it to employees at the research site. The initial draft of the survey instrument was administered to a representative sample of employees at a small transit authority on the East coast. Information obtained through the pilot test was utilized to improve the content and clarity of the survey instrument.

**Reliability of Measures:** Reliability, or the extent to which measures are free from variance due to random errors, is of interest as it sets the ceiling for validity. In order to assess reliability, coefficient alpha values will be computed for all scales utilized in this research in which there is more than one item. Nunnally (1978, p. 230) argued: "Coefficient alpha provides a good estimate of reliability in most situations, since the major source of
measurement error is because of the sampling of content." Coefficient alpha values are also presented in Chapter IV.

Factor Analysis: Factor analysis provides evidence useful in establishing both construct and content validity. Nunnally (1978, p. 112) argued: "Factor analysis is at the heart of the measurement of psychological constructs." It was further argued: "...the explication of constructs mainly consists of determining: (1) the internal statistical structure of a set of variables said to measure a construct and (2) the statistical cross structures between the different measures of one construct and those of other constructs" (Nunnally, 1978, p. 112). Factor analysis is used to determine the internal statistical structure of a set of variables and procedures related to factor analysis are important in determining cross structures for sets of variables.

Factor analysis also provides useful evidence with respect to measures intended to have content validity (Nunnally, 1978). While factor analysis does not provide information on whether a particular scale contains a representative sample of items, it does provide evidence with respect to whether any of the items included in a particular scale introduce an unwanted factor into the scale. Nunnally (1978, p. 113) concluded: "...factor analysis is
important in suggesting ways to revise instruments for the better." As such, factor analysis is also a useful tool in improving scale reliability.

Principal component factor analysis (with Varimax Rotation) is employed in this research to investigate the internal statistical structure of scales utilized in this study. All scale items for measures of interest will be simultaneously entered into the factor analysis. Harman (1976) and Nunnally (1978) argued that the minimum acceptable eigenvalue is typically 1. As such, the minimum acceptable eigenvalue for retaining a factor in this research will be 1. Factor analysis results are presented in Chapter IV.

Survey Instrument Administration

The survey was administered to transit authority employees in a conference room at the main transit administration building. Sixteen one-hour sessions were set up over the period of one week. The transit authority personnel department set up the schedule and notified participants by memo of the times when sessions were being held. Participation in the study was not mandatory. The purpose of the study and instructions for completing the survey instrument were explained to each group. Due to the sensitive nature of several measures on the survey instrument,
it was anticipated that asking for employee badge numbers might result in some employees refusing to participate in the study. Confidentiality of responses was stressed at the beginning of each session and questions pertaining to the study or survey instrument were answered. Completed survey instruments were collected prior to participants leaving the room.

OPERATIONAL HYPOTHESES AND ANALYSES

Conceptual hypotheses previously discussed will now be phrased in terms more appropriate for statistical analyses. Operational hypotheses related to instrumentality beliefs, perceived performance appraisal accuracy, and merit increase satisfaction are presented below. The discussion of operational hypotheses includes related statistical analyses.

Instrumentality Beliefs: The conceptual hypotheses (CH) listed below are concerned with factors related to instrumentality beliefs. They include:

CH1(a): Perceived performance appraisal accuracy will be positively associated with instrumentality beliefs.

CH1(b): Perceived performance appraisal accuracy will be positively associated with instrumentality beliefs when controlling for the presence of merit increase satisfaction, trust in supervisor, and trust in top management.
CH2(a): Merit increase satisfaction will be positively associated with instrumentality beliefs.

CH2(b): Merit increase satisfaction will be positively associated with instrumentality beliefs when controlling for the presence of perceived performance appraisal accuracy, trust in supervisor, and trust in top management.

CH3(a): Level of trust in top management will be positively associated with instrumentality beliefs.

CH3(b): Level of trust in top management will be positively associated with instrumentality beliefs when controlling for the presence of perceived performance appraisal accuracy, merit increase satisfaction, and trust in supervisor.

CH4(a): Level of trust in supervisors will be positively associated with instrumentality beliefs.

CH4(b): Level of trust in supervisors will be positively associated with instrumentality beliefs when controlling for the presence of perceived performance appraisal accuracy, merit increase satisfaction, and trust in top management.

These conceptual hypotheses can be restated to form the following operational hypotheses (OH):

OH1(a): There will be a significant (p < .05) positive correlation between perceived performance appraisal accuracy and instrumentality beliefs.

OH1(b): There will be a significant (p < .05) positive relationship between perceived performance appraisal accuracy and instrumentality beliefs when controlling for the presence of merit increase satisfaction, trust in supervisor, and trust in top management.
OH2(a): There will be a significant \((p < .05)\) correlation between merit increase satisfaction and instrumentality beliefs.

OH2(b): There will be a significant \((p < .05)\) positive relationship between merit increase satisfaction and instrumentality beliefs when controlling for the presence of perceived performance appraisal accuracy, trust in top management, and trust in supervisors.

OH3(a): There will be a significant \((p < .05)\) positive correlation between level of trust in top management and instrumentality beliefs.

OH3(b): There will be a significant \((p < .05)\) positive relationship between level of trust in top management and instrumentality beliefs when controlling for the presence of perceived performance appraisal accuracy, merit increase satisfaction, and trust in supervisor.

OH4(a): There will be a significant \((p < .05)\) positive correlation between level of trust in supervisors and instrumentality beliefs.

OH4(b): There will be a significant \((p < .05)\) positive relationship between level of trust in supervisors and instrumentality beliefs when controlling for the presence of perceived performance appraisal accuracy, merit increase satisfaction, and trust in top management.

The Pearson product-moment correlation \((r)\) is utilized to test operational hypotheses OH1(a), OH2(a), OH3(a), and OH4(a). Multiple regression analysis is utilized to test operational hypotheses OH1(b), OH2(b), OH3(b), and OH4(b). The dependent variable is instrumentality beliefs and independent variables include perceived performance appraisal accuracy, merit increase satisfaction, trust in supervisor, and trust in top management. Variance infla-
tion factors, condition numbers, and variance proportions are utilized to identify any potential multicollinearity problems in the regression model.

Perceived Performance Appraisal Accuracy: The conceptual hypotheses (CH) listed below are concerned with factors related to perceived performance appraisal accuracy.

CH5(a): Performance appraisal scores will be positively associated with perceived performance appraisal accuracy.

CH5(b): Performance appraisal scores will be positively associated with perceived performance appraisal accuracy when controlling for the presence of deviations between self and supervisor ratings of performance and trust in supervisors.

CH6(a): Deviations between self and supervisor ratings of performance will be negatively associated with perceived performance appraisal accuracy.

CH6(b): Deviations between self and supervisor ratings of performance will be negatively associated with perceived performance appraisal accuracy when controlling for the presence of performance appraisal scores and trust in supervisor.

CH7(a): Level of trust in supervisors will be positively associated with perceived performance appraisal accuracy.

CH7(b): Level of trust in supervisors will be positively associated with perceived performance appraisal accuracy when controlling for the presence of performance appraisal score and deviations between self and supervisor ratings of performance.
These conceptual hypotheses can be restated to form the following operational hypotheses (OH):

**OH5(a):** There will be a significant ($p < .05$) positive correlation between performance appraisal scores and perceived performance appraisal accuracy.

**OH5(b):** There will be a significant ($p < .05$) positive relationship between performance appraisal scores and perceived performance appraisal accuracy when controlling for the presence of deviations between self and supervisor ratings of performance and trust in supervisor.

**OH6(a):** There will be a significant ($p < .05$) negative correlation between deviations between self and supervisor ratings of performance and perceived performance appraisal accuracy.

**OH6(b):** There will be a significant ($p < .05$) negative relationship between deviations between self and supervisor ratings of performance and perceived performance appraisal accuracy when controlling for the presence of performance appraisal scores and trust in supervisor.

**OH7(a):** There will be a significant ($p < .05$) positive correlation between level of trust in supervisors and perceived performance appraisal accuracy.

**OH7(b):** There will be a significant ($p < .05$) positive relationship between level of trust in supervisors and perceived performance appraisal accuracy when controlling for the presence of performance appraisal score and deviations between self and supervisor ratings of performance.

Operational hypotheses **OH5(a), OH6(a), and OH7(a)** are tested utilizing the Pearson product-moment correlation ($r$). Multiple regression analysis is utilized to test operational hypotheses **OH5(b), OH6(b), and OH7(b).** The
dependent variable is perceived performance appraisal accuracy and independent variables include size of performance appraisal score, deviations between self and supervisor ratings of performance, and trust in supervisor. Variance inflation factors, condition numbers, and variance proportions are utilized to identify any potential multicollinearity problems in the regression model.

Merit Increase Satisfaction: The conceptual hypotheses listed below deal with factors related to merit increase satisfaction. These conceptual hypotheses include:

CH8(a): Size of merit pay increase will be positively associated with merit increase satisfaction.

CH8(b): Size of merit pay increase will be positively associated with merit increase satisfaction when controlling for the presence of perceived relative size of increase and perceptions that pay increases are large enough to be meaningful.

CH9(a): Perceived relative size of increase will be positively associated with merit increase satisfaction.

CH9(b): Perceived relative size of increase will be positively associated with merit increase satisfaction when controlling for the presence of size of merit pay increase and perceptions that pay increases are large enough to be meaningful.

CH10(a): Perceptions that pay increases are large enough to be meaningful will be positively associated with merit increase satisfaction.
CH10(b): Perceptions that pay increases are large enough to be meaningful will be positively associated with merit increase satisfaction when controlling for the presence of size of merit pay increase and perceived relative size of increase.

These conceptual hypotheses can be restated to form the following operational hypotheses (OH):

OH8(a): There will be a significant (p < .05) positive correlation between size of pay increase and merit increase satisfaction.

OH8(b): There will be a significant (p < .05) positive relationship between size of pay increase and merit increase satisfaction when controlling for the presence of perceived relative size of increase and perceptions that pay increases are large enough to be meaningful.

OH9(a): There will be a significant (p < .05) correlation between perceived relative size of increase and merit increase satisfaction.

OH9(b): There will be a significant (p < .05) positive relationship between perceived relative size of increase and merit increase satisfaction when controlling for the presence of size of merit pay increase and perceptions that pay increases are large enough to be meaningful.

OH10(a): There will be a significant (p < .05) positive correlation between perceptions that pay increases are large enough to be meaningful and merit increase satisfaction.

OH10(b): There will be a significant (p < .05) positive relationship between perceptions that pay increases are large enough to be meaningful and merit increase satisfaction when controlling for the presence of size of merit pay increase and perceived relative size of increase.
The Pearson product-moment correlation \( r \) is utilized to test operational hypotheses OH8(a), OH9(a), and OH10(a). Multiple regression analysis is used to test operational hypotheses OH8(b), OH9(b), and OH10(b). The dependent variable is merit increase satisfaction and independent variables include size of merit pay increase, perceived relative size of increase, and perceptions that pay increases are large enough to be meaningful. Variance inflation factors, condition numbers, and variance proportions are utilized to identify any potential multicollinearity problems in the regression model. Research results with respect to these hypotheses are presented in the next chapter.
CHAPTER IV

RESULTS

INTRODUCTION

Chapter IV begins with a discussion of sample demographic characteristics. Measures utilized in this research are then addressed. Factor analysis results, internal reliability estimates, and descriptive statistics for measures utilized in this research are presented. Results of operational hypotheses investigating variables related to instrumentality beliefs are then presented. This discussion is followed by results of operational hypotheses investigating variables related to perceived performance appraisal accuracy. Chapter IV concludes with results of operational hypotheses which investigate variables related to merit increase satisfaction.

SAMPLE DEMOGRAPHIC CHARACTERISTICS

Of the 1,260 employees eligible to participate in the study, 842 completed the survey instrument for a response rate of 66.8%. Comparison of sample and population demographic characteristics indicates they are quite similar in all respects. Chi square and t-test analyses were performed to determine whether there was any significant difference (at the 0.05 level) between sample and popula-
tion demographic characteristics. Results of these analyses indicated no significant differences. Sample demographic characteristics, population demographic characteristics, and comparison statistics are summarized in Table 1.

Analysis of sample demographic characteristics indicates that the age of respondents ranged from 26 to 67 with a mean of 44.8 years. Of those individuals participating in the research, 78.6% were male and 21.4% were female. Length of service ranged from one year to 44 years with a mean of 13.5 years while time in job class varied from one year to 10 years with a mean of 3.8 years. A diverse ethnic mix was present as 54.6% of the respondents were white, 25.6% were black, 13.0% were Hispanic, and 6.8% were Asian/Pacific Islanders. Level of education was high with 8.2% of respondents having at least a high school education, 42.8% having some college or trade school, 21.4% having a college degree, 11.0% having some graduate work, and 15.1% having a masters degree or higher. Only 1.4% of the respondents had less than a high school degree.

MEASURES

Principal components factor analysis with Varimax rotation was utilized to investigate the internal statistical structure of measures utilized in this study. Items
### TABLE 1
SAMPLE/POPULATION DEMOGRAPHIC DATA

<table>
<thead>
<tr>
<th>VARIABLE</th>
<th>SAMPLE</th>
<th>POP</th>
<th>COMPARISON STAT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (Years):</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>44.8</td>
<td>45.3</td>
<td>$t = -1.00, df = 546$ *</td>
</tr>
<tr>
<td>Std Dev</td>
<td>9.0</td>
<td>9.3</td>
<td></td>
</tr>
<tr>
<td>Min</td>
<td>26.0</td>
<td>25.0</td>
<td></td>
</tr>
<tr>
<td>Max</td>
<td>67.0</td>
<td>70.0</td>
<td></td>
</tr>
<tr>
<td>Sex (Percent):</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>78.6</td>
<td>76.0</td>
<td>chi sq = 0.48, df = 1 **</td>
</tr>
<tr>
<td>Female</td>
<td>21.4</td>
<td>24.0</td>
<td></td>
</tr>
<tr>
<td>Length of Service (Years):</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>13.5</td>
<td>13.6</td>
<td>$t = -0.36, df = 546$ *</td>
</tr>
<tr>
<td>Std Dev</td>
<td>7.8</td>
<td>8.2</td>
<td></td>
</tr>
<tr>
<td>Min</td>
<td>1.0</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>Max</td>
<td>44.0</td>
<td>44.0</td>
<td></td>
</tr>
<tr>
<td>Time in Job Class (Years):</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>3.8</td>
<td>3.8</td>
<td>$t = -1.00, df = 700$ *</td>
</tr>
<tr>
<td>Std Dev</td>
<td>2.5</td>
<td>2.6</td>
<td></td>
</tr>
<tr>
<td>Min</td>
<td>1.0</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>Max</td>
<td>10.0</td>
<td>15.0</td>
<td></td>
</tr>
<tr>
<td>Race (Percent):</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>54.6</td>
<td>52.4</td>
<td>chi sq = 2.26, df = 3 ***</td>
</tr>
<tr>
<td>Black</td>
<td>25.6</td>
<td>29.2</td>
<td></td>
</tr>
<tr>
<td>Hispanic</td>
<td>13.0</td>
<td>12.1</td>
<td></td>
</tr>
<tr>
<td>Asian/Pacific</td>
<td>6.8</td>
<td>6.3</td>
<td></td>
</tr>
<tr>
<td>Education (Percent):</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Some High School</td>
<td>1.4</td>
<td>****</td>
<td>****</td>
</tr>
<tr>
<td>High School Grad</td>
<td>8.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Some College or</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trade School</td>
<td>42.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>College Degree</td>
<td>21.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Some Graduate Work</td>
<td>11.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Masters or Higher</td>
<td>15.1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* $t (\infty, \alpha = .05, 2\ tail) = 1.96$
** chi square (df = 1, $\alpha = .05$) = 3.84
*** chi square (df = 3, $\alpha = .05$) = 7.82
**** education level was available only for sample
for six proposed measures including instrumentality beliefs, merit increase satisfaction, perceptions that a pay increase is meaningful, trust in supervisor, trust in top management, and perceived performance appraisal accuracy were entered into the factor analysis. It was anticipated these items would load onto six discrete factors. Factor loadings for these items are presented in Table 2. As previously noted, the minimum acceptable eigenvalue is typically 1 (Harman, 1976; Nunnally, 1978). As such, the minimum acceptable eigenvalue for retaining a factor in this research was set at 1. All items except the single item dealing with employee perceptions that pay increases are meaningful loaded as anticipated.

While it was expected the single item dealing with perceived meaningful pay increases (item 5) would load as a separate factor, the item listed below loaded under merit increase satisfaction:

5. The size of my last pay increase was meaningful to me.

As a result, the factor analysis yielded only five rather than the six anticipated factors. Several possible explanations for the failure of this item to load as expected are presented. First, it is possible that perceptions that a pay increase is meaningful are part of the domain of content (content validity) for merit increase satisfaction.
TABLE 2  
Factor Loadings  
(Principal Components - Varimax Rotation)  

<table>
<thead>
<tr>
<th>FACTOR NAME</th>
<th>ITEM</th>
<th>ITEM</th>
<th>ITEM</th>
<th>ITEM</th>
<th>ITEM</th>
<th>ITEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instrumentality</td>
<td>24</td>
<td>0.829</td>
<td>0.175</td>
<td>0.031</td>
<td>0.196</td>
<td>0.135</td>
</tr>
<tr>
<td>Beliefs</td>
<td>23</td>
<td>0.825</td>
<td>0.185</td>
<td>0.048</td>
<td>0.247</td>
<td>0.155</td>
</tr>
<tr>
<td></td>
<td>22</td>
<td>0.698</td>
<td>-0.056</td>
<td>0.109</td>
<td>0.014</td>
<td>-0.026</td>
</tr>
<tr>
<td></td>
<td>21</td>
<td>0.681</td>
<td>0.188</td>
<td>0.184</td>
<td>0.260</td>
<td>0.112</td>
</tr>
<tr>
<td></td>
<td>20</td>
<td>0.626</td>
<td>0.278</td>
<td>0.101</td>
<td>0.201</td>
<td>0.004</td>
</tr>
<tr>
<td>Merit Increase</td>
<td>16</td>
<td>0.211</td>
<td>0.820</td>
<td>0.137</td>
<td>0.143</td>
<td>0.257</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>18</td>
<td>0.277</td>
<td>0.799</td>
<td>0.108</td>
<td>0.129</td>
<td>0.222</td>
</tr>
<tr>
<td></td>
<td>17</td>
<td>0.277</td>
<td>0.782</td>
<td>0.110</td>
<td>0.073</td>
<td>0.316</td>
</tr>
<tr>
<td></td>
<td>5*</td>
<td>0.100</td>
<td>0.725</td>
<td>0.144</td>
<td>0.026</td>
<td>-0.071</td>
</tr>
<tr>
<td></td>
<td>19</td>
<td>-0.068</td>
<td>0.509</td>
<td>0.075</td>
<td>0.210</td>
<td>0.153</td>
</tr>
<tr>
<td>Trust in Supervisor</td>
<td>50</td>
<td>-0.016</td>
<td>0.123</td>
<td>0.852</td>
<td>0.131</td>
<td>0.126</td>
</tr>
<tr>
<td></td>
<td>49</td>
<td>0.074</td>
<td>0.052</td>
<td>0.850</td>
<td>0.113</td>
<td>0.135</td>
</tr>
<tr>
<td></td>
<td>51</td>
<td>0.169</td>
<td>0.142</td>
<td>0.814</td>
<td>0.187</td>
<td>0.059</td>
</tr>
<tr>
<td></td>
<td>48</td>
<td>0.231</td>
<td>0.216</td>
<td>0.756</td>
<td>0.191</td>
<td>0.047</td>
</tr>
<tr>
<td>Trust in Top</td>
<td>53</td>
<td>0.242</td>
<td>0.188</td>
<td>0.190</td>
<td>0.799</td>
<td>0.152</td>
</tr>
<tr>
<td>Management</td>
<td>52</td>
<td>0.260</td>
<td>0.142</td>
<td>0.219</td>
<td>0.779</td>
<td>0.133</td>
</tr>
<tr>
<td></td>
<td>54</td>
<td>0.055</td>
<td>0.062</td>
<td>0.182</td>
<td>0.700</td>
<td>0.077</td>
</tr>
<tr>
<td></td>
<td>55</td>
<td>0.247</td>
<td>0.110</td>
<td>0.045</td>
<td>0.673</td>
<td>-0.105</td>
</tr>
<tr>
<td>Appraisal</td>
<td>23</td>
<td>0.074</td>
<td>0.275</td>
<td>0.153</td>
<td>0.034</td>
<td>0.850</td>
</tr>
<tr>
<td>Accuracy</td>
<td>22</td>
<td>0.156</td>
<td>0.269</td>
<td>0.171</td>
<td>0.138</td>
<td>0.824</td>
</tr>
</tbody>
</table>

| EIGENVALUE | 3.231 | 3.193 | 2.981 | 2.603 | 1.798 |
| % VAR EXPLAINED | 16.16 | 15.97 | 14.91 | 13.02 | 8.99 |

* Item 5 (Perceived Meaningful Pay Increase) loaded under Merit Increase Satisfaction
A second alternative is that merit increase satisfaction and perceptions that a pay increase is meaningful are two distinct factors but the single item for perceptions that a pay increase is meaningful was not sufficient or appropriate to make the distinction. For example, the item may be poorly constructed. Finally, it is possible that for the average employee, a "satisfying pay increase" may be synonymous with or essentially the same as a "meaningful pay increase".

The definitive answer with respect to the relationship of perceptions that a pay increase is meaningful to merit increase satisfaction cannot be determined with the data available in this research. This issue should be the focus of future research with more appropriate data, e.g. carefully constructed multiple-item measures of both merit increase satisfaction and perceived meaningful pay increase. Factor loadings in Table 2 provide no statistical support for the treatment of perceptions that a pay increase is meaningful (item 5) as a separate construct. Analysis of factor loadings for merit increase satisfaction indicates item 5 loaded at 0.725 under merit increase satisfaction and in fact loaded at a higher level than one of the proposed merit increase satisfaction items (item 19 loaded at 0.509).
It is acknowledged that factor analysis is merely a tool and that factor analytic results should not be utilized without consideration of relevant conceptual theory or empirical research. Limited empirical support was found for a relationship between pay satisfaction and perceptions that a pay increase is meaningful (Krefting and Mahoney, 1977; Krzystofiak, Newman, and Krefting, 1982). A small but significant relationship was also found between pay satisfaction and merit increase satisfaction (Weiner, 1980). Based on these studies, it was anticipated that perceptions that a pay increase is meaningful would be distinct from but related to merit increase satisfaction.

However, no studies were identified in the literature which empirically or conceptually addressed the relationship between merit increase satisfaction and perceptions that a pay increase is meaningful. As a result, there is no strong conceptual or prior empirical justification to treat perceptions that a pay increase is meaningful and merit increase satisfaction as distinct constructs in the presence of factor analytic evidence to the contrary. In addition, correlating merit increase satisfaction with perceptions that a pay increase is meaningful, an item which loaded strongly with other merit increase satisfaction scale items, is certain to yield significant but questionable results. Based on these arguments and the pres-
ence of factor analytic support for a single construct, the item dealing with perceptions that the pay increase is meaningful (item 5) is not treated as a separate construct but is included as part of the merit increase satisfaction scale.

This treatment of item 5 resulted in a modified model of the determinants of merit increase satisfaction. The proposed model of the determinants of merit increase satisfaction as presented in Figure 5 (page 63) originally suggested that merit increase satisfaction is a function of the merit pay increase, the perceived relative size of the pay increase, and perceptions that the pay increase is meaningful. In the modified model, merit increase satisfaction is argued to be a function only of the size of the merit pay increase and the perceived relative size of the pay increase. This revised model of the determinants of merit increase satisfaction is presented in Figure 6. Including item 5 as a component of the merit increase satisfaction measure also eliminates the need for operational hypotheses which address the relationship of perceptions that pay increases are meaningful to merit increase satisfaction. As such, operational hypotheses OH10(a) and OH10(b) were not investigated.
Figure 6

Revised Model of the Determinants of Merit Increase Satisfaction
Factor loadings were also utilized to identify potential items to be dropped from the analysis. Criteria considered for dropping an item included: (1) the magnitude of the factor loading for the item relative to the factor loading for other items making up the measure, (2) the item itself (for example, is the item properly constructed or is the item an important component of the domain of content for the measure in question), and (3) the impact of dropping the item on measure reliability.

Analysis of factor loadings in Table 2 indicated that item 19 in the merit increase satisfaction measure was a potential candidate for being dropped from the analysis due to the low magnitude of the factor loading. The factor loading for item 19 was 0.509 (variance explained = 25.9%) while item 5 loaded directly above item 19 with a factor loading of 0.725 (variance explained = 52.6%). In other words, item 19 explained less than half the variance explained by item 5. This suggested that item 19 may not have as much in common with the other items in the measure (items 16, 18, 17, and 5) as desired. Item 19 reads as follows:

19. I was very disappointed with the size of my last pay increase when I think about what my coworkers got.
Inspection of item 19 indicates that it is essentially a negatively worded version of item 18 which reads as follows:

18. I was satisfied with the size of my last pay increase when I think about what other employees received.

Two possible explanations for the failure of item 19 to load at a higher level are presented below. The similarity of these two items suggests one possible explanation for the failure of item 19 to load at a higher level. It may be that some individuals did not read item 19 as carefully as they should have. As a result, these individuals thought item 19 was the same as item 18 rather than identifying the negative nature of item 19. Fortunately, there is no evidence to suggest that this type of response bias is common in the data. No other items were identified which would indicate the widespread existence of this type of response bias.

An alternative explanation is that for some or all of the respondents, "very disappointed with" (item 19) may not be the reverse/opposite of "satisfied with" (item 18) when it comes to size of pay increases. This is potentially significant as item 19 was reverse scored. In retrospect, it would probably have been better to use the phrase "very dissatisfied with" rather than "very disappointed with" in
constructing item 19. Whatever the reason for the failure of item 19 to load at a higher level, item 19 is sufficiently similar to item 18 that dropping it would not undermine the intent of the measure.

The final consideration in dropping an item from the analysis was the impact of dropping the item on measure reliability. Internal reliability estimates were calculated for both a five-item (includes item 19) and a four-item (does not include item 19) merit increase satisfaction measure. The coefficient alpha value was 0.84 for the five-item measure and 0.88 for the four-item measure. Dropping item 19 from the analysis would therefore result in improved measure reliability without undermining the intent of the measure. As a result, item 19 was dropped from the analysis. The merit increase satisfaction measure then consists of items 16, 18, 17, and 5. No other items were dropped from the analysis and all other measures remain as proposed in Chapter III.

Internal reliability estimates were calculated for all measures which contained two or more items. The coefficient alpha value was 0.84 for instrumentality beliefs, 0.88 for merit increase satisfaction, 0.89 for trust in supervisor, 0.81 for trust in top management, and 0.84 for perceived performance appraisal accuracy. All other measures utilized in this research consisted of single items.
Nunnally (1978) argued that reliability estimates in excess of .80 are acceptable for basic research. Based on this criteria, the measures utilized in this research have acceptable reliability. Final measure composition and internal reliability estimates for multiple item measures utilized in this research are summarized in Table 3. Descriptive statistics including mean, standard deviation, minimum value, and maximum value for all measures utilized in this research are summarized in Table 4.

**CORRELATES OF INSTRUMENTALITY BELIEFS**

Several variables were identified in the research literature which have the potential to influence instrumentality beliefs. These variables include perceived performance appraisal accuracy, merit increase satisfaction, trust in top management, and trust in supervisor. Operational hypotheses were developed to test: (1) the relationship of each of these variables to instrumentality beliefs and (2) the relationship of each of these variables to instrumentality beliefs when controlling for the presence of the other variables.

The Pearson product moment correlation was utilized to test operational hypotheses OH1(a), OH2(a), OH3(a), and OH4(a). These hypotheses test the relationship of perceived appraisal accuracy, merit increase satisfaction,
Table 3

Measure Composition and Reliability Estimates

**Instrumentality Beliefs**  \( \alpha = 0.84 \)

20. Merit increases accurately reflect an individual's job performance.

21. This organization gives pay increases on the basis of job performance.

22. Poor performers at my organization are not likely to get the highest percentage pay increases.

23. At my organization, the highest performers get the highest percentage pay increases.

24. At my organization, the highest performers get the highest dollar pay increases.

**Merit Increase Satisfaction**  \( \alpha = 0.88 \)

5. The size of my last pay increase was meaningful to me.

16. I am very satisfied with the last merit increase I received.

17. My last pay increase was consistent with my job performance.

18. I was satisfied with the size of my last pay increase when I think about what other employees received.

**Perceived Appraisal Accuracy**  \( \alpha = 0.84 \)

22. Compared to your actual level of performance, do you believe your performance rating was:

23. If you had rated your performance at the last review, the evaluation would have been:
Table 3 (Continued)

Measure Composition and Reliability Estimates

**Trust in Supervisor**  \( \alpha = 0.89 \)

48. I trust my supervisor to treat me fairly.

49. If I share job problems with my supervisor, it is not likely to be held against me later.

50. If I make a mistake on my job, my supervisor usually holds it against me. (Reverse Scored)

51. Generally speaking, my supervisor can be trusted.

**Trust in Top Management**  \( \alpha = 0.81 \)

52. I trust top management to treat me fairly.

53. Top management attempts to resolve employee complaints fairly.

54. Top management has little regard for the average employee. (Reverse Scored)

55. Top management always follows through with what they say they are going to do.
Table 4
Descriptive Statistics Summary

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<td>Accuracy</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trust in Top Management</td>
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<td>3.04</td>
<td>1.23</td>
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trust in top management, and trust in supervisor to instrumentality beliefs. A correlation matrix is presented in Table 5 which summarizes results of these hypotheses.

Multiple regression analysis was utilized to test operational hypotheses OH1(b), OH2(b), OH3(b), and OH4(b). These hypotheses test the relationship of perceived performance appraisal accuracy, merit increase satisfaction, trust in top management, and trust in supervisor to instrumentality beliefs when controlling for the presence of the other variables. A General Linear Model (GLM) regression procedure was run with instrumentality beliefs as the dependent variable and perceived performance appraisal accuracy, merit increase satisfaction, trust in top management, and trust in supervisor as the independent variables. Type III SS (sum of squares) obtained for the independent variables as a result of the GLM procedure were utilized to test the research hypotheses listed above. The Type III SS are appropriate for this purpose as they yield a partial F-test which represents the contribution of the regressor/independent variable as the last variable entered into the regression model, i.e. the significance of one independent variable when controlling for the presence of all other independent variables. Variance inflation factors, condition numbers, and variance proportions were also obtained through the regression analysis to identify any potential
TABLE 5
Test of Hypotheses OH1(a), OH2(a), OH3(a), OH4(a)

Pearson Correlation Coefficient/
Number of Observations*

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<th>(3)</th>
<th>(4)</th>
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<td>Accuracy</td>
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<tr>
<td>(5) Trust in</td>
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<td>--</td>
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<td>Supervisor</td>
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* All Pearson Correlation Coefficients in Table 5 are significant at p < 0.0001
multicollinearity problems. Meyers (1986) argued that condition numbers of less than 1000 indicate there is not a high degree of multicollinearity in the regression model. In addition, Meyers (1986) argues that variance inflation factor values of less than 10 indicate that the regressor coefficients are not adversely affected by the presence of linear dependencies among the regressor variables. These criteria were utilized to evaluate multicollinearity among variables used in this research. Empirical results for operational hypotheses OH1(b), OH2(b), OH3(b), and OH4(b) are summarized in Table 6. The maximum condition number for the instrumentality regression model is 9.42 indicating a very low degree of multicollinearity in this particular model. Results of operational hypotheses investigating variables related to instrumentality beliefs are presented below.

Perceived Appraisal Accuracy: Operational hypotheses OH1(a) and OH1(b) test the relationship of perceived performance appraisal accuracy to instrumentality beliefs:

OH1(a): There will be a significant (p < .05) positive correlation between perceived performance appraisal accuracy and instrumentality beliefs.

OH1(b): There will be a significant (p < .05) positive relationship between perceived performance appraisal accuracy and instrumentality beliefs when controlling for the presence of merit increase satisfaction, trust in top management, and trust in supervisor.
Table 6

Test of Hypotheses $OH_1(b)$, $OH_2(b)$, $OH_3(b)$, $OH_4(b)$

GLM PROCEDURE

Dependent Variable: Instrumentality Beliefs

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<tr>
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R-SQUARE 0.35

TYPE III SS

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<td>Merit Satisfaction</td>
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<td>48.80</td>
<td>0.0001</td>
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<td>Trust in Top Mgt</td>
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<td>75.6981</td>
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<td>Trust in Supervisor</td>
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<td>1.6843</td>
<td>1.70</td>
<td>0.1935</td>
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</table>

PARAMETER ESTIMATES

| VARIABLE    | PARAM EST | STD ERROR | T FOR H0: PARAM = 0 | PROB > |T| | VARIANCE INFLATION* |
|-------------|-----------|-----------|---------------------|--------|------|---------------------|
| Intercep    | 0.36      | 0.15      | 2.32                | 0.0207 |      | 0                   |
| Accuracy    | 0.06      | 0.08      | 0.75                | 0.4563 | 1.42 |                     |
| Satisfac    | 0.26      | 0.03      | 6.99                | 0.0001 | 1.52 |                     |
| Trust Top   | 0.36      | 0.39      | 8.73                | 0.0001 | 1.35 |                     |
| Trust Sup   | 0.05      | 0.04      | 1.30                | 0.1935 | 1.32 |                     |

* Variance Inflation Factors were calculated with the SAS PROC REG procedure
Operational Hypothesis OH1(a) is supported: As indicated in Table 5, a significant positive correlation \( r = 0.30, \ p < 0.0001, \ n = 658 \) was found between perceived performance appraisal accuracy and instrumentality beliefs.

Operational Hypothesis OH1(b) is not supported: Multiple regression results summarized in Table 6 provide no support for operational hypothesis OH1(b). No significant positive relationship (Type III SS = 0.5522, \( F = 0.56, \ \text{prob} > F = 0.4563 \)) was found between perceived performance appraisal accuracy and instrumentality beliefs when controlling for the presence of merit increase satisfaction, trust in top management, and trust in supervisor. The variance inflation factor for perceived performance appraisal accuracy was 1.42 indicating the regressor coefficient for this variable was not adversely affected by the presence of linear dependencies among the regressor variables.

Merit Increase Satisfaction: Operational hypotheses OH2(a) and OH2(b) test the relationship of merit increase satisfaction to instrumentality beliefs:

- **OH2(a):** There will be a significant \( p < 0.05 \) positive correlation between merit increase satisfaction and instrumentality beliefs.
**OH2(b):** There will be a significant ($p < .05$) positive relationship between merit increase satisfaction and instrumentality beliefs when controlling for the presence of perceived performance appraisal accuracy, trust in top management, and trust in supervisor.

Operational Hypothesis OH2(a) is supported: As indicated in Table 5, a significant positive correlation ($r = 0.46$, $p < 0.0001$, $n = 643$) was found between merit increase satisfaction and instrumentality beliefs.

Operational Hypothesis OH2(b) is supported: A significant positive relationship (Type III $SS = 48.4852$, $F = 48.80$, $prob > F = 0.0001$) was found between merit increase satisfaction and instrumentality beliefs when controlling for the presence of perceived performance appraisal accuracy, trust in top management, and trust in supervisor (see Table 6). The variance inflation factor for merit increase satisfaction in the regression model was 1.52 indicating the regressor coefficient for this variable was not adversely affected by the presence of linear dependencies among the regressor variables.

**Trust in Top Management:** Operational hypotheses OH3(a) and OH3(b) test the relationship of trust in top management to instrumentality beliefs:
OH3(a): There will be a significant ($p < .05$) positive correlation between level of trust in top management and instrumentality beliefs.

OH3(b): There will be a significant ($p < .05$) positive relationship between level of trust in top management and instrumentality beliefs when controlling for the presence of perceived performance appraisal accuracy, merit increase satisfaction, and trust in supervisor.

Operational Hypothesis OH3(a) is supported: As indicated in Table 5, a significant positive correlation ($r = 0.50$, $p < 0.0001$, $n = 545$) was found between trust in top management and instrumentality beliefs.

Operational Hypothesis OH3(b) is supported: A significant positive relationship (Type III $SS = 75.6981$, $F = 76.20$, $prob > F = 0.0001$) was found between trust in top management and instrumentality beliefs when controlling for the presence of perceived performance appraisal accuracy, merit increase satisfaction, and trust in supervisor (see Table 6). The variance inflation factor for trust in top management was 1.35 which indicates the regressor coefficient for this variable was not adversely affected by the presence of linear dependencies among the regressor variables.

Trust in Supervisor: Operational hypotheses OH4(a) and OH4(b) test the relationship of trust in supervisor to instrumentality beliefs:
OH4(a): There will be a significant \( p < 0.05 \) positive correlation between trust in supervisor and instrumentality beliefs.

OH4(b): There will be a significant \( p < 0.05 \) positive relationship between trust in supervisor and instrumentality beliefs when controlling for the presence of perceived performance appraisal accuracy, merit increase satisfaction, and trust in top management.

Operational Hypothesis OH4(a) is supported: As can be seen in Table 5, a significant positive correlation \( (r = 0.33, p < 0.0001, n = 531) \) was found between trust in supervisor and instrumentality beliefs.

Operational Hypothesis OH4(b) is not supported: No significant positive relationship \( (\text{Type III SS} = 1.6843, F = 1.70, \text{prob} > F = 0.1935) \) was found between trust in supervisor and instrumentality beliefs when controlling for the presence of perceived performance appraisal accuracy, merit increase satisfaction, and trust in top management (see Table 6). The variance inflation factor for trust in supervisor was 1.32 indicating the regressor coefficient for this variable was not adversely affected by the presence of linear dependencies among the regressor variables.

CORRELATES OF PERCEIVED APPRAISAL ACCURACY

Several variables were identified in the research literature which have the potential to influence perceived
performance appraisal accuracy. These variables include performance appraisal scores, deviations between self and supervisor ratings of performance, and level of trust in supervisor. Operational hypotheses were developed to test: (1) the relationship of each of these variables to perceived performance appraisal accuracy and (2) the relationship of each of these variables to perceived performance appraisal accuracy when controlling for the presence of the other variables.

The Pearson product moment correlation was utilized to test operational hypotheses OH5(a), OH6(a), and OH7(a). These hypotheses test the relationship of performance appraisal scores, deviations between self and supervisor ratings of performance, and trust in supervisor to perceived performance appraisal accuracy. A correlation matrix is presented in Table 7 which summarizes results of these hypotheses.

Multiple regression analysis was utilized to test operational hypotheses OH5(b), OH6(b), and OH7(b). These hypotheses test the relationship of performance appraisal scores, deviations between self and supervisor ratings of performance, and trust in supervisor to perceived performance appraisal accuracy when controlling for the presence of the other variables. A GLM regression procedure was run
Table 7
Test of Hypotheses OH5(a), OH6(a), OH7(a)

Pearson Correlation Coefficient/
Number of Observations*

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<tr>
<th>MEASURE</th>
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<th>(2)</th>
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<th>(4)</th>
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</thead>
<tbody>
<tr>
<td></td>
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<td>(1) Perceived Appraisal</td>
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<td>680</td>
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<td>691</td>
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<tr>
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* All Pearson Correlation Coefficients in Table 7 are significant at p < 0.0001
with perceived performance appraisal accuracy as the dependent variable and performance appraisal scores, deviations between self and supervisor ratings of performance, and trust in supervisor as the independent variables. Type III SS obtained for the independent variables as a result of the GLM procedure were utilized to test the research hypotheses listed above. Variance inflation factors, condition numbers, and variance proportions were also obtained through the regression analysis to identify any potential multicollinearity problems. Empirical results for operational hypotheses OH5(b), OH6(b), and OH7(b) are summarized in Table 8. The maximum condition number for the perceived performance appraisal accuracy regression model is 18.29 indicating a very low degree of multicollinearity in this particular model. Results of operational hypotheses investigating variables related to perceived performance appraisal accuracy are presented below.

Performance Appraisal: Operational hypotheses OH5(a) and OH5(b) test the relationship of performance appraisal scores to perceived performance appraisal accuracy:

OH5(a): There will be a significant (p < .05) positive correlation between performance appraisal scores and perceived performance appraisal accuracy.
Table 8

Test of Hypotheses OH5(b), OH6(b), OH7(b)

GLM PROCEDURE

Dependent Variable: Perceived Appraisal Accuracy

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<th>F VALUE</th>
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<td>Appraisal Score</td>
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<td>6.2941</td>
<td>32.71</td>
<td>0.0001</td>
</tr>
<tr>
<td>Trust Supervisor</td>
<td>1</td>
<td>5.0487</td>
<td>26.24</td>
<td>0.0001</td>
</tr>
<tr>
<td>Deviation</td>
<td>1</td>
<td>39.9342</td>
<td>207.56</td>
<td>0.0001</td>
</tr>
</tbody>
</table>

PARAMETER ESTIMATES

| VARIABLE    | PARAM EST STD ERROR | T FOR HO: PARAM = 0 | PROB > |T| INFLATION* |
|-------------|---------------------|---------------------|---------|----------|
| Intercep    | 0.62 0.14           | 4.35                | 0.0001  |          | 0         |
| Appraisal   | 0.20 0.03           | 5.72                | 0.0001  | 1.43     |
| Trust Sup   | 0.07 0.01           | 5.12                | 0.0001  | 1.09     |
| Deviation   | -0.52 0.04          | -14.41              | 0.0001  | 1.35     |

* Variance Inflation Factors were calculated with the SAS PROC REG procedure
OH5(b): There will be a significant ($p < .05$) positive relationship between performance appraisal scores and perceived performance appraisal accuracy when controlling for the presence of deviations between self and supervisor ratings of performance and trust in supervisor.

Operational Hypothesis OH5(a) is supported: A significant positive correlation ($r = 0.51$, $p < 0.0001$, $n = 686$) was found between performance appraisal scores and perceived performance appraisal accuracy (see Table 7).

Operational Hypothesis OH5(b) is supported: As can be seen in Table 8, a significant positive relationship (Type III SS = 6.2941, $F = 32.71$, prob $> F = 0.0001$) was found between performance appraisal scores and perceived performance appraisal accuracy when controlling for the presence of deviation between self and supervisor ratings and trust in supervisor. The variance inflation factor for performance appraisal score was 1.43 indicating the regressor coefficient for this variable was not adversely affected by the presence of linear dependencies among the regressor variables.

Deviation Between Self and Supervisor Ratings: Operational hypotheses OH6(a) and OH6(b) test the relationship between deviation between self and supervisor ratings of performance and perceived performance appraisal accuracy:
OH6(a): There will be a significant (p < .05) negative correlation between deviations between self and supervisor ratings of performance and perceived performance appraisal accuracy.

OH6(b): There will be a significant (p < .05) negative relationship between deviations between self and supervisor ratings of performance and perceived performance appraisal accuracy when controlling for the presence of performance appraisal scores and trust in supervisor.

Operational Hypothesis OH6(a) is supported: A significant negative correlation (r = -0.64, p < 0.0001, n = 680) was found between deviations between self and supervisor ratings of performance and perceived appraisal accuracy (see Table 7).

Operational Hypothesis OH6(b) is supported: A significant negative relationship (Type III SS = 39.9342, F = 207.56, prob > F = 0.0001; parameter estimate = -0.52, t = -14.41, prob > t = 0.0001) was found between deviations between self and supervisor ratings and perceived appraisal accuracy when controlling for the presence of performance appraisal scores and trust in supervisor (see Table 8). The variance inflation factor for deviation between self and supervisor ratings was 1.35 indicating the regressor coefficient for this variable was not adversely affected by the presence of linear dependencies among the regressor variables.
Trust in Supervisor: Operational hypotheses OH7(a) and OH7(b) test the relationship between trust in supervisor and perceived performance appraisal accuracy:

OH7(a): There will be a significant (p < .05) positive correlation between level of trust in supervisor and perceived appraisal accuracy.

OH7(b): There will be a significant (p < .05) positive relationship between level of trust in supervisor and perceived appraisal accuracy when controlling for the presence of performance appraisal score and deviations between self and supervisor ratings.

Operational Hypothesis OH7(a) is supported: A significant positive correlation (r = 0.32, p < 0.0001, n = 524) was found between trust in supervisor and perceived appraisal accuracy (see Table 7).

Operational Hypothesis OH7(b) is supported: A significant positive relationship (Type III SS = 5.0487, F = 26.24, prob > F = 0.0001) was found between trust in supervisor and perceived appraisal accuracy when controlling for the presence of performance appraisal scores and deviations between self and supervisor ratings (see Table 8). The variance inflation factor for trust in supervisor was 1.09 indicating the regressor coefficient for this variable was not adversely affected by the presence of linear dependencies among the regressor variables.
Several variables were identified in the research literature which have the potential to influence merit increase satisfaction. These variables include merit pay increase and the perceived relative size of increase. Operational hypotheses were developed to test: (1) the relationship of each of these variables to merit increase satisfaction and (2) the relationship of each of these variables to merit increase satisfaction when controlling for the presence of the other variable.

The Pearson product moment correlation was utilized to test operational hypotheses OH8(a) and OH9(a). These hypotheses test the relationship of merit pay increases and perceived relative size of increases to merit increase satisfaction. A correlation matrix is presented in Table 9 which summarizes results of these hypotheses.

Multiple regression analysis was utilized to test operational hypotheses OH8(b) and OH9(b). These hypotheses test the relationship of both merit pay increases and perceived relative size of increase to merit increase satisfaction when controlling for the presence of the other variable. A GLM regression procedure was run with perceived merit increase satisfaction as the dependent variable and merit pay increases and perceived relative size of increases as independent variables. Type III SS obtained
TABLE 9
Test of Hypotheses OH8(a), OH9(a)

Pearson Correlation Coefficient/
Number of Observations*

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<th>(2)</th>
<th>(3)</th>
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</thead>
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<tr>
<td>(1) Merit Increase</td>
<td>1.00</td>
<td>0.37</td>
<td>0.51</td>
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<tr>
<td>Satisfaction</td>
<td>643</td>
<td>642</td>
<td>625</td>
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<tr>
<td>(2) Merit Pay Increase</td>
<td>--</td>
<td>1.00</td>
<td>0.48</td>
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<tr>
<td></td>
<td></td>
<td>700</td>
<td>671</td>
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<tr>
<td>(3) Perceived Relative Size of Increase</td>
<td>--</td>
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<td></td>
<td></td>
<td></td>
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* All Pearson Correlation Coefficients in Table 9 are significant at p < 0.0001
for the independent variables as a result of the GLM procedure were utilized to test the research hypotheses listed above. Variance inflation factors, condition numbers, and variance proportions were also obtained through the regression analysis to identify any potential multicollinearity problems. The maximum condition number for the merit increase satisfaction regression model is 8.26 indicating a very low degree of multicollinearity in this particular model. Empirical results for operational hypotheses OH8(b) and OH9(b) are summarized in Table 10. The results of operational hypotheses investigating variables related to merit increase satisfaction are presented below.

**Merit Pay Increase:** Operational hypotheses OH8(a) and OH8(b) test the relationship of merit pay increases to merit increase satisfaction:

**OH8(a):** There will be a significant ($p < .05$) positive correlation between merit pay increases and merit increase satisfaction.

**OH8(b):** There will be a significant ($p < .05$) positive relationship between merit pay increases and merit increase satisfaction when controlling for the presence of perceived relative size of increase.

Operational Hypothesis OH8(a) is supported: As indicated in Table 9, a significant positive correlation ($r = 0.37$, $p < 0.0001$, $n = 625$) was found between merit pay increases
Table 10
Test of Hypotheses OH8(b), OH9(b)

GLM PROCEDURE

Dependent Variable: Merit Increase Satisfaction

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R-SQUARE 0.28

TYPE III SS

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<td>28.8790</td>
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<td>Perceived Relative</td>
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<td>182.1186</td>
<td>115.11</td>
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PARAMETER ESTIMATES

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<td>Intercept</td>
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<td>Merit Inc</td>
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<td>0.04</td>
<td>4.27</td>
<td>1.34</td>
</tr>
<tr>
<td>Relative</td>
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<td>0.06</td>
<td>10.73</td>
<td>1.42</td>
</tr>
</tbody>
</table>

* Variance Inflation Factors were calculated with the SAS PROC REG procedure
Operational Hypothesis OH8(b) is supported: A significant positive relationship (Type III SS = 28.8790, F = 18.25, prob > F = 0.0001) was found between merit pay increase and merit increase satisfaction when controlling for the presence of perceived relative size of increase (see Table 10). The variance inflation factor for merit pay increases was 1.34 indicating the regressor coefficient for this variable was not adversely affected by the presence of linear dependencies among the regressor variables.

**Perceived Relative Size of Increase**: Operational hypotheses OH9(a) and OH9(b) test the relationship between perceived relative size of increase and merit increase satisfaction:

**OH9(a)**: There will be a significant \((p < .05)\) positive correlation between perceived relative size of increase and merit increase satisfaction.

**OH9(b)**: There will be a significant \((p < .05)\) positive relationship between perceived relative size of increase and merit increase satisfaction when controlling for the presence of merit pay increases.

Operational hypothesis OH9(a) is supported: A significant positive correlation \((r = 0.51, p < 0.0001, n = 625)\) was found between perceived relative size of increase and merit
increase satisfaction (see Table 9).

Operational Hypothesis OH9(b) is supported: As indicated in Table 10, a significant positive relationship (Type III $SS = 182.1186$, $F = 115.11$, $\text{prob} > F = 0.0001$) was found between perceived relative size of increase and merit increase satisfaction when controlling for the presence of merit pay increases. The variance inflation factor was 1.42 for perceived relative size of increase indicating the regressor coefficient for this variable was not adversely affected by the presence of linear dependencies among the regressor variables.

**SUMMARY**

The findings presented above are summarized in Table 11. As indicated in Table 11, all operational hypotheses were supported except OH1(b) and OH4(b). While perceived appraisal accuracy and trust in supervisor both exhibited a significant positive correlation with instrumentality beliefs, neither was found to exhibit a significant positive relationship with instrumentality beliefs when controlling for the presence of the other variables in the regression model. Merit increase satisfaction and trust in top management exhibited a significant positive correlation with instrumentality beliefs and a significant positive
Table 11
Summary of Findings

<table>
<thead>
<tr>
<th>VARIABLES</th>
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<th>FINDING</th>
<th>RELATION*</th>
<th>TABLE</th>
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<td>Appraisal Accuracy</td>
<td>OH1(a)</td>
<td>Support</td>
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<td></td>
<td>OH1(b)</td>
<td>No Support</td>
<td>F = 0.56**</td>
<td>6</td>
</tr>
<tr>
<td>Merit Increase</td>
<td>OH2(a)</td>
<td>Support</td>
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<td>OH2(b)</td>
<td>Support</td>
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<td>Support</td>
<td>F = 76.20</td>
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<td></td>
<td>OH4(b)</td>
<td>No Support</td>
<td>F = 1.70***</td>
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<td>Appraisal Accuracy to:</td>
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<td>Performance</td>
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<td>Support</td>
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<td>OH5(b)</td>
<td>Support</td>
<td>F = 32.71</td>
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<td>OH6(a)</td>
<td>Support</td>
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<td></td>
<td>OH6(b)</td>
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<td>8</td>
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<td>Trust in Supervisor</td>
<td>OH7(a)</td>
<td>Support</td>
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<td></td>
<td>OH7(b)</td>
<td>Support</td>
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</tr>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Merit Pay Increase</td>
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<td>9</td>
</tr>
<tr>
<td></td>
<td>OH8(b)</td>
<td>Support</td>
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<td>10</td>
</tr>
<tr>
<td>Perceived Relative Size of Increase</td>
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<td>Support</td>
<td>r = 0.51</td>
<td>9</td>
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<tr>
<td></td>
<td>OH9(b)</td>
<td>Support</td>
<td>F = 115.11</td>
<td>10</td>
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</table>

* All supported hypotheses were significant at the 0.0001 level. The r value is the Pearson product moment correlation and F is the partial F-test when controlling for the presence of the other variables in the regression model.

** prob > F = 0.4563

*** prob > F = 0.1935
relationship with instrumentality beliefs when controlling for the presence of other variables in the regression model.

Perceived appraisal accuracy was found to exhibit a significant positive correlation with performance appraisal score and trust in supervisor and a significant negative correlation with deviations between self and supervisor ratings of performance. Performance appraisal scores, deviations between self and supervisor ratings, and trust in supervisor were all found to exhibit a significant relationship with perceived appraisal accuracy when controlling for the presence of other variables in the regression model.

Finally, merit pay increases and perceived relative size of increase exhibited a significant positive correlation with merit increase satisfaction. Similarly, merit pay increases and perceived relative size of increase exhibited a significant positive relationship with merit increase satisfaction when controlling for the presence of other variables in the regression model. These results as well as study limitations and suggestions for future research are discussed in Chapter 5.
INTRODUCTION

Results of hypotheses investigating variables related to instrumentality beliefs, perceived performance appraisal accuracy, and merit increase satisfaction are further explored in this chapter. Conclusions are drawn and implications for compensation practice are identified. Study limitations are then presented and Chapter V concludes with suggestions for future research.

CONCLUSIONS AND IMPLICATIONS

Results of hypotheses investigating variables related to instrumentality beliefs, perceived performance appraisal accuracy, and merit increase satisfaction are discussed below. Conclusions are drawn and implications for compensation practice are addressed.

Instrumentality Beliefs

Results of operational hypotheses investigating the relationship of perceived appraisal accuracy, merit increase satisfaction, trust in top management, and trust in supervisor to instrumentality beliefs are discussed below.
Appraisal Accuracy: The conceptual literature on merit pay strongly argues that individuals must perceive performance appraisals to be accurate if they are to believe that pay is tied to performance (Brinks, 1980; Hills, 1979; and Lawler, 1987). Despite this importance, no empirical studies were identified which investigated the relationship of perceived appraisal accuracy to instrumentality beliefs. Results indicates that while a significant positive correlation ($r = 0.30, p < 0.0001$) was found between perceived appraisal accuracy and instrumentality beliefs, no significant positive relationship ($F = 0.56, \text{prob} > F = 0.0001$) was found between perceived appraisal accuracy and instrumentality beliefs when controlling for the presence of merit increase satisfaction, trust in top management, and trust in supervisor (see Table 11). Thus, perceived appraisal accuracy provided no significant unique contribution in predicting instrumentality beliefs in the presence of other variables in the regression model.

One possible explanation for the failure of perceived performance appraisal accuracy to exhibit a significant positive relationship with instrumentality beliefs in the GLM procedure may be that perceived performance appraisal accuracy is predictive of instrumentality beliefs only for certain groups of employees. For example, individuals whose expectations are met or exceeded with respect to
performance appraisals may be more likely to believe that pay is tied to performance than individuals who receive a lower than expected performance appraisal. This could result from the fact that individuals whose expectations are met or exceeded receive the expected or possibly a larger than expected merit pay increase while individuals who receive a lower than expected performance appraisal receive a lower than expected merit pay increase. While no studies were identified in the literature which specifically addressed this issue, there is evidence to suggest that individuals tend to rate their performance higher than their supervisors rate it (Smirich and Chesser, 1981; Thornton, 1968). There is also support in the literature for the importance of expectations to employee evaluations of performance appraisals (Taylor, 1981) and pay increases (Heneman and Ellis, 1982).

To further investigate the relationship of perceived performance appraisal accuracy to instrumentality beliefs, respondents were first classified according to whether they received supervisor ratings of performance which were: (1) higher than self-ratings, (2) the same as self-ratings, or (3) lower than self-ratings. Self-ratings of performance were compared to supervisor ratings of performance in order to obtain an indicator of the degree to which a respondents expectations were met. Results indicate that 405 or 58.6%
of the respondents received a lower than expected performance appraisal (supervisor ratings of performance were lower than self-ratings of performance), 261 or 37.8% of the respondents received the expected performance appraisal (supervisor ratings of performance were equal to the self-ratings of performance), and only 25 or 3.6% of the respondents received a higher than expected performance appraisal (supervisor ratings of performance were higher than self-ratings of performance).

A separate GLM procedure as described in Chapter 4 was then run for each of the three groups of respondents with instrumentality beliefs as the dependent variable and perceived performance appraisal accuracy, merit increase satisfaction, trust in top management, and trust in supervisor as the independent variables. For example, a GLM procedure was run including only the 405 respondents who received lower than expected performance appraisals. Another GLM procedure was then run including only the 261 respondents who received the expected performance appraisal, and so on. The purpose of the three separate GLM procedures was to investigate the relationship of perceived performance appraisal accuracy to instrumentality beliefs among respondents in each of the groups while controlling for the presence of merit increase satisfaction, trust in top management, and trust in supervisor. Results of the
GLM procedure for respondents who received a higher than expected performance appraisal are summarized in Table 12. Table 13 summarizes the GLM procedure for respondents who received the expected performance appraisal and results of the GLM procedure for respondents who received a lower than expected performance appraisal are summarized in Table 14.

As can be seen in Table 12, perceived performance appraisal accuracy exhibited no significant relationship ($F = 0.88$, $\text{prob } > F = 0.3618$) with instrumentality beliefs in the GLM procedure for respondents who received a higher than expected performance appraisal. Similarly, no significant relationship ($F = 2.47$, $\text{prob } > F = 0.1175$) was found between perceived performance appraisal accuracy and instrumentality beliefs in the GLM procedure for respondents who received the expected performance appraisal (see Table 13). Results in Table 14 indicate that perceived performance appraisal accuracy did exhibit a significant positive relationship ($F = 7.62$, $\text{prob } > F = 0.0061$) with instrumentality beliefs in the GLM procedure for respondents who received a lower than expected performance appraisal. Condition numbers and variance inflation factors indicate there was not a high degree of multicollinearity for any of the variables in the three GLM procedures.
Table 12  
Perceived Appraisal Accuracy to Instrumentality Beliefs - Higher Than Expected Appraisal*

GLM PROCEDURE

Dependent Variable: Instrumentality Beliefs

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PARAMETER ESTIMATES

| VARIABLE     | PARAM EST | STD ERROR | T FOR H0: PARAM = 0 | PROB > |T| | VIF** |
|--------------|-----------|-----------|---------------------|---------|   |      |
| Intercept    | 0.89      | 1.21      | 0.74                | 0.4693  | 0.00 |
| Accuracy     | 0.43      | 0.46      | 0.94                | 0.3618  | 2.16 |
| Satisfac     | -0.01     | 0.19      | -0.03               | 0.9752  | 2.13 |
| Trust Top    | 0.09      | 0.20      | 0.42                | 0.6776  | 1.20 |
| Trust Sup    | 0.25      | 0.18      | 1.40                | 0.1804  | 1.28 |

* Respondents included in this GLM procedure received supervisor ratings of performance higher than self-ratings of performance

** Variance Inflation Factors (VIF) were calculated with the SAS PROC REG procedure
Table 13
Perceived Appraisal Accuracy to Instrumentality Beliefs - Expected Appraisal*

GLM PROCEDURE
Dependent Variable: Instrumentality Beliefs

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PARAMETER ESTIMATES

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<th>STD</th>
<th>T FOR HO:</th>
<th>PROB &gt;</th>
<th>VIF**</th>
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<td>0.06</td>
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<td>0.1586</td>
<td>1.32</td>
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</table>

* Respondents included in this GLM procedure received supervisor ratings of performance equal to self-ratings of performance.

** Variance Inflation Factors (VIF) were calculated with the SAS PROC REG procedure.
Table 14

Perceived Appraisal Accuracy to Instrumentality Beliefs - Lower Than Expected Appraisal*

GLM PROCEDURE

Dependent Variable: Instrumentality Beliefs

<table>
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<th>SOURCE</th>
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R-SQUARE 0.33

TYPE III SS

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<td>Trust in Supervisor</td>
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<td>0.2237</td>
<td>0.23</td>
<td>0.6299</td>
</tr>
</tbody>
</table>

PARAMETER ESTIMATES

| VARIABLE       | PARAM EST | STD ERROR | T FOR H0: PARAM = 0 | PROB > |T| | VIF** |
|----------------|-----------|-----------|---------------------|--------|---|--------|
| Intercep       | 0.40      | 0.19      | 2.09                | 0.1911 |   | 0.00   |
| Accuracy       | 0.33      | 0.12      | 2.76                | 0.0061 |   | 1.16   |
| Satisfac       | 0.17      | 0.05      | 3.50                | 0.0005 |   | 1.27   |
| Trust Top      | 0.39      | 0.05      | 7.58                | 0.0001 |   | 1.33   |
| Trust Sup      | 0.21      | 0.04      | 0.48                | 0.6299 |   | 1.30   |

* Respondents included in this GLM procedure received supervisor ratings of performance lower than self-ratings of performance

** Variance Inflation Factors (VIF) were calculated with the SAS PROC REG procedure
Thus, perceived performance appraisal accuracy was found to be predictive of instrumentality beliefs when controlling for the presence of merit increase satisfaction, trust in top management, and trust in supervisor only for respondents who received a lower than expected performance appraisal. One possible explanation for these findings is that perceived performance appraisal accuracy becomes a factor in determining instrumentality beliefs only when an individual perceives they have been adversely affected by the performance appraisal, i.e. the individual receives a lower than expected performance appraisal and the resultant lower than expected merit pay increase.

These results suggest the following conclusion:

For the group of individuals who receive a lower than expected performance appraisal, the more accurate an individual perceives their performance appraisal to be, the more likely the individual is to believe that pay is tied to performance.

This finding is particularly significant to compensation practice in that a majority of the respondents in this study (405 or 58.6%) received a lower than expected performance appraisal. To the extent these results are typical of employees in general, they suggest that perceived performance appraisal accuracy may be an important influence on instrumentality beliefs for a majority of employees. As a consequence, organizations contemplating a merit pay
program should assess employee perceptions with respect to performance appraisal accuracy prior to implementing the program. In the event a large number of individuals perceive their performance appraisal to be inaccurate, the organization would be well advised to reconsider implementing the program. For organizations who currently have a merit pay program, perceptions that appraisals are inaccurate may well be a contributing factor to low beliefs among employees that pay is tied to performance.

Both organizations contemplating a merit pay program and organizations with a merit pay program in place should do everything possible to ensure that performance appraisals are accurate and that individuals perceive their appraisals to be accurate. For example, research by Landy, Barnes, and Murphy (1978) found that frequency of performance appraisals, the degree to which supervisors are familiar with the job, the degree to which supervisors identify goals to eliminate performance weaknesses, and the degree to which individuals have the opportunity to express opinions about the performance appraisal were all positively related to employee perceptions that performance appraisals are accurate. Organizations attempting to foster strong perceptions that performance appraisals are accurate should address issues such as these through both supervisor training and personnel practices.
Merit Increase Satisfaction: While no studies were identified in the literature which specifically investigated this relationship, the literature does suggest that merit increase satisfaction will be positively associated with instrumentality beliefs (Reitz, 1971). As expected, merit increase satisfaction was found to exhibit a significant positive correlation ($r = 0.46, p < 0.0001$) with instrumentality beliefs. Merit increase satisfaction was also found to exhibit a significant positive relationship with instrumentality beliefs ($F = 48.80, \text{prob} > F = 0.0001$) when controlling for the presence of perceived performance appraisal accuracy, trust in top management, and trust in supervisor (see Table 11). These findings suggest the following conclusion:

The more satisfied an individual is with their merit pay increase, the more likely the individual is to believe that pay is tied to performance.

These findings are again significant in that 347 or 54% of the respondents expressed some degree of dissatisfaction with their merit pay increase. To the extent these results are typical of employees in general, they suggest that a large number of employees are likely to be dissatisfied with their merit pay increase and that these employees are less likely to believe that pay is tied to performance.
It is important to note that dissatisfaction with merit pay increases is not necessarily bad. As noted by Hills, Scott, Markham, and Vest (1987), if it is the poor performers who are not satisfied with their pay increase and the high performers who are satisfied with their merit pay increase, the merit pay program is working. They further argue that low performers who are dissatisfied with their merit pay increase then have the choice of improving their performance or leaving the organization.

Having said this, it is significant to note that these findings combined with those for the relationship between size of merit pay increase and merit increase satisfaction cast some doubt about the ability of merit pay programs to motivate employees performing at low levels to improve their performance. In explanation, merit pay programs attempt to motivate improved job performance by making pay increases contingent upon level of performance. One essential requirement for successful merit pay programs is a strong belief that pay is tied to performance. Assuming pay is in fact tied to performance, individuals who perform at a low level will get small merit pay increases. Individuals who receive a small merit pay increase are likely to be dissatisfied with their merit pay increase and to question the link between pay and performance. Further, individuals with a weak belief that pay is tied to perfor-
mance are not likely to be motivated by a merit pay program to improve their performance. In the event low performing individuals do not adjust their behavior or leave the organization, management must be prepared to terminate their employment or risk the negative consequences of retaining unproductive and dissatisfied employees.

**Trust in Supervisor:** No studies were identified in the literature which specifically investigated the relationship between trust in supervisor and instrumentality beliefs. The literature does suggest, however, that trust in top management and trust in supervisor will be positively related to instrumentality beliefs (Goodman and Moore, 1976). While a significant positive correlation \( r = 0.33, p < 0.0001 \) was found between trust in supervisor and instrumentality beliefs, no significant positive relationship \( F = 1.70, \text{prob} > F = 0.1935 \) was found between trust in supervisor and instrumentality beliefs when controlling for the presence of perceived appraisal accuracy, merit increase satisfaction, and trust in top management (see Table 11). Thus, trust in supervisor provided no significant unique contribution to predicting instrumentality beliefs in the presence of other variables in the regression model.
One possible explanation for this finding addresses just how situationally specific trust is. The research literature suggests that level of trust may be situationally specific with respect to different individuals or groups of individuals, i.e. immediate supervisors and top management (Scott, 1981). It may be that level of trust is also situationally specific with respect to issues. For example, an individual may trust their supervisor or top management to treat them fairly with respect to one issue but not with respect to another. Level of trust with respect to specific issues such as allocation of pay increases was not addressed in this research. The failure of the trust measures utilized in this research to clearly define the issues in question may also have contributed to this finding. This discussion suggests the following conclusion:

Trust in supervisor provides no unique contribution to predicting instrumentality beliefs when controlling for the presence of trust in top management, perceived appraisal accuracy, and merit increase satisfaction.

**Trust in Top Management:** No studies were identified in the literature which specifically investigated this relationship. Research by Goodman and Moore (1976) does suggest that trust in top management will be positively associated with instrumentality beliefs. Consistent with
what was expected, a significant positive correlation (r = 0.50, p < 0.0001) was found between trust in top management and instrumentality beliefs. A significant positive relationship (F = 76.20, prob > F = 0.0001) was also found between trust in top management and instrumentality beliefs when controlling for the presence of perceived appraisal accuracy, merit increase satisfaction, and trust in supervisor (see Table 11). These findings suggest the following conclusion:

The more an individual trusts top management, the more likely the individual is to believe that pay is tied to performance.

Results indicate that 273 or 50.1% of the 545 individuals responding to this measure expressed some level of distrust in top management. It is interesting to note that the response rate for both the trust in supervisor and trust in top management measures was substantially lower than that for other measures utilized in this research. As indicated above, only 545 usable responses were obtained for the trust in top management measure and only 531 usable responses were obtained for the trust in supervisor measure. In comparison, the number of usable responses was 643 for merit increase satisfaction, 671 for instrumentality beliefs, and 686 for perceived performance appraisal accuracy.
One likely explanation for the lower response rates for trust measures is that individuals who failed to respond were afraid of what their supervisors or top management might do to them in the event their responses became known. This explanation suggests that the actual number of individuals who did not trust their supervisors or top management was probably larger than indicated by those who did respond. In any event, the findings suggest that a large number of individuals are likely to distrust top management and that these individuals are less likely to believe that pay is tied to performance.

Organizations contemplating a merit pay program should assess level of trust in top management prior to implementing the program. In the event trust in top management is low, consideration should be given to not implementing the merit pay program until the level of trust can be raised. For organizations with an unsuccessful merit pay program in place, low levels of trust in top management may well be a contributing factor to low instrumentality beliefs. These arguments are made based on study results which suggest that where trust in top management is low, it is likely to be more difficult to convince employees that pay is tied to performance even if this happens to be the case.
Perceived Performance Appraisal Accuracy

Variables related to perceived performance appraisal accuracy are of interest in this research because of their potential to influence instrumentality beliefs. To the extent perceived appraisal accuracy influences instrumentality beliefs, variables which influence perceived performance appraisal accuracy also influence instrumentality beliefs. Results of this study suggest that among a substantial number of employees (i.e., employees who receive a lower than expected performance appraisal), higher levels of perceived performance appraisal are likely to be associated with higher levels of instrumentality beliefs. Results of hypotheses investigating the relationship of performance appraisals, deviations between self and supervisor ratings of performance, and trust in supervisor to perceived performance appraisal accuracy are discussed below.

Performance Appraisals: Inconsistent results were found in the literature with respect to the relationship of performance appraisals to perceived appraisal accuracy. In the only study which specifically investigated this relationship, Landy, Barnes-Farrell, and Cleveland (1980) found no significant relationship between performance appraisal scores and perceived performance appraisal accuracy.
However, research by Pearce and Porter (1986) and Dipboye and De Pontbriand (1981) suggests that performance appraisal scores will be positively associated with perceived appraisal accuracy.

This research supports a positive relationship between performance appraisals and perceived performance appraisal accuracy. A significant positive correlation ($r = 0.51, p < 0.0001$) was found between performance appraisals and perceived performance appraisal accuracy. A significant positive relationship ($F = 32.71, \text{prob} > F = 0.0001$) was also found between performance appraisals and perceived performance appraisal accuracy when controlling for the presence of deviations between self and supervisor ratings of performance and trust in supervisor (see Table 11). These findings suggest the following conclusion:

The higher the performance appraisal, the more likely an individual is to perceive it to be accurate.

**Deviations Between Self and Supervisor Ratings:** The literature suggests that deviations between self and supervisor ratings of performance will be negatively associated with perceived appraisal accuracy (Taylor, 1981). Consistent with the literature, deviations between self and supervisor ratings of performance were found to exhibit a significant negative correlation ($r = -0.64, p < 0.0001$) with perceived
appraisal accuracy. Deviations between self and supervisor ratings of performance also exhibited a strong relationship ($F = 207.56$, prob $> F = 0.0001$) with perceived performance appraisal accuracy when controlling for the presence of performance appraisals and trust in supervisor (see Table 11). These findings suggest the following conclusion:

The more consistent a supervisor's rating of performance is with an individual's self-rating of performance, the more likely the individual is to perceive the supervisor rating to be accurate.

These findings combined with those for the relationship between perceived performance appraisal accuracy and instrumentality beliefs suggest that a large number of individuals (in this case, 405 or 58.6%) are likely to receive a lower than expected performance appraisal and that these individuals are less likely to believe that pay is tied to performance.

Study results provide strong support for the assertion that supervisors should continually keep subordinates appraised of their level of performance (Bernardin and Beatty, 1984). It is not in the best interest of either the individual or the organization for an individual to be surprised by their performance appraisal. Organizations with merit pay programs should do everything possible to minimize the tendency of individuals to rate their performance higher than their supervisors rate it. For example,
clearly defined and communicated performance standards as well as frequent supervisor counselling of employees with respect to their level of performance might help to minimize this tendency.

Organizations contemplating a merit pay program should assess this tendency prior to implementing a merit pay program. In the event a large number of employees rate their performance higher than their supervisors rate it, organizations may want to reconsider implementing the program as study results suggest that these employees are less likely to believe that pay is tied to performance. For organizations with a merit pay program in place, deviations between self and supervisor ratings of performance may well be a contributing factor to low beliefs among employees that pay is tied to performance.

**Trust in Supervisor:** The conceptual literature provides strong support for the importance of trust in supervisors to the performance appraisal process (Bernardin and Beatty, 1984; Hamner, 1975; and Lawler, 1971). However, only one empirical study was identified which addressed this issue. O'Reilly and Anderson (1980) found a significant positive relationship between trust in supervisor and perceived performance appraisal accuracy. Consistent with the literature, a significant positive correlation ($r = 0.32$, $p <$
was found between trust in supervisor and perceived performance appraisal accuracy. Trust in supervisor was also found to exhibit a significant positive relationship (F = 26.24, prob > F = 0.0001) with perceived performance appraisal accuracy when controlling for the presence of performance appraisals and deviations between self and supervisor ratings of performance (see Table 11). These findings suggest the following conclusion:

The more an individual trusts their supervisor, the more likely the individual is to perceive their performance appraisal to be accurate.

These results suggest that while trust in supervisor may not directly influence instrumentality beliefs, it is potentially important to instrumentality beliefs through its ability to influence perceived performance appraisal accuracy. As with trust in top management, organizations contemplating a merit pay program should assess level of trust in supervisors prior to implementing the program. In the event trust in supervisors is low, consideration should be given to not implementing the merit pay program until the level of trust can be raised. For organizations with an unsuccessful merit pay program in place, low levels of trust in supervisors may well be a contributing factor to lower levels of perceived performance appraisal accuracy which in turn contribute to lower beliefs among employees.
that pay is tied to performance.

These findings also have implications for supervisory training. While this issue was not addressed in this research, there is likely to be a large variance across supervisors with respect to the level of trust by their subordinates. In other words, some supervisors are trusted more than others. Assuming this is the case, it may be possible to train supervisors to use techniques which will foster higher levels of trust in supervisors. Organizations wishing to use either performance appraisals or merit pay programs would do well to give added training to supervisors in ways to foster higher levels of trust.

Merit Increase Satisfaction

Variables related to merit increase satisfaction are of interest in this research because of their potential to influence instrumentality beliefs. To the extent merit increase satisfaction influences instrumentality beliefs, variables which influence merit increase satisfaction also influence instrumentality beliefs. Results of this study suggest that lower levels of merit increase satisfaction are likely to be associated with weaker beliefs that pay is tied to performance. Results of operational hypotheses investigating the relationship of merit pay increases and perceived relative size of increase to merit increase
satisfaction are discussed below.

**Merit Pay Increase:** The research literature suggests that size of pay increases will be positively associated with satisfaction with pay increases (Giles and Barrett, 1971; Schuster, Colletti, and Knowles, 1973). Consistent with the literature, a significant positive correlation ($r = 0.46$, $p < 0.0001$) was found between merit pay increases and merit increase satisfaction. A significant positive relationship ($F = 48.80$, $\text{prob} > F = 0.0001$) was also found between merit pay increases and merit increase satisfaction when controlling for the presence of perceived relative size of increase (see Table 11). These results suggest the following conclusion:

The larger the merit pay increase, the more likely an individual is to be satisfied with it.

These findings, combined with those for the relationship between merit increase satisfaction and instrumentality beliefs suggest the following: the larger the merit pay increase, the more likely an individual is to believe that pay is tied to performance. Organizations would do well to take this into account when developing merit pay increase budgets and merit pay increase guidelines. Study findings suggest that small merit increase budgets and small merit pay increases are not likely to elicit strong
beliefs among employees that pay is tied to performance. As a consequence, merit pay programs are not likely to be successful where an organization cannot or will not budget adequate funds.

**Perceived Relative Size of Increase:** No studies were identified in the research literature which investigated the relationship between perceived relative size of increase and merit increase satisfaction. The research literature does suggest that individuals who consider themselves to be above average are not likely to be satisfied with what they perceive to be a below average merit pay increase (Motowidlo, 1982; Porter and Lawler, 1968). As expected, perceived relative size of pay increase was found to exhibit a significant positive correlation (r = 0.51, p < 0.0001) with merit increase satisfaction. A significant positive relationship (F = 115.11, prob > F = 0.0001) was also found between perceived relative size of increase and merit increase satisfaction when controlling for the presence of size of merit increase (see Table 11). These findings suggest the following conclusion:

The larger an individual perceives their merit pay increase to be relative to the typical (average) merit pay increase, the more likely the individual is to be satisfied with the merit pay increase.
One point with respect to these findings deserves mention. The average merit pay increase was 5.21% for respondents in this study. Examination of the data reveals that 203 or 30.2% of the respondents perceived their merit pay increase to be below average. In fact, the actual number of respondents receiving a below average pay increase was 412 or 61.3%. These figures suggest that organizations may well be better off keeping individuals in the dark about what a typical (average) pay increase is. If the respondents had known what a typical pay increase was, these findings suggest that twice as many employees would have been less satisfied with their merit pay increase. In any event, study findings suggest that a substantial number of individuals are likely to perceive their merit pay increase to be below average and that these individuals are less likely to be satisfied with the increase. By definition, everyone cannot get an above average merit pay increase.

Summary

Study findings suggest that individuals are more likely to believe that pay is tied to performance if they are satisfied with their merit pay increase and they trust top management. For the group of individuals who receive a lower than expected performance appraisal, higher levels of perceived performance appraisal accuracy are likely to be
associated with stronger beliefs that pay is tied to performance. Findings further suggest that individuals are more likely to perceive their performance appraisal to be accurate if the supervisor rating of performance is consistent with their self-rating of performance and they trust their supervisor. Also, the higher the performance appraisal, the more likely an individual is to perceive it to be accurate. Finally, individuals are more likely to be satisfied with their merit pay increase if they perceive it to be large relative to the average pay increase. In addition, the larger the merit pay increase, the more likely an individual is to be satisfied with it.

Implications for organizations concerned with the design and administration of merit pay programs are summarized below. Organizations contemplating a merit pay program should assess employee perceptions with respect to performance appraisal accuracy, the tendency of individuals to rate their performance higher than their supervisors rate it, level of trust in supervisor, and level of trust in top management prior to implementing the program. In the event a large number of employees perceive their appraisals to be inaccurate or a large number of individuals rate their performance higher than their supervisors rate it, management should reconsider implementing the program until these issues can be addressed.
Similarly, where either trust in top management or trust in supervisor is low, management should reconsider implementing a merit pay program until level of trust can be raised. Organizations should also assess whether they have the resources and the will to pay for performance prior to implementing a merit pay program. Study results suggest that small merit increase budgets or small merit pay increases are not likely to elicit strong beliefs among employees that pay is tied to performance. Indeed, study results suggest that merit pay may not be an appropriate means to motivate low performing employees to improve their performance.

For organizations with a merit pay program in place, low levels of trust in either supervisor or top management, perceptions that performance appraisals are inaccurate, deviations between self and supervisor ratings of performance, an inadequate merit increase budget, or poorly designed merit pay increase guidelines may be contributing factors to low beliefs among employees that pay is tied to performance. Organizations should attempt to foster high levels of trust in both supervisors and top management in all aspects of dealing with employees. For example, management should follow through with what they say they are going to do and supervisors should be trained in techniques to foster higher levels of trust.
Management should also attempt to minimize the tendency of individuals to rate their performance higher than their supervisors rate it. Clearly defined and communicated performance standards as well as frequent feedback from supervisors on level of performance and ways to improve it are recommended. In addition, organizations should do everything possible to ensure that performance appraisals are accurate and perceived to be accurate. The degree to which supervisors are familiar with jobs, the degree to which supervisors identify ways to improve performance, and the degree to which employees are allowed to state their case/opinion concerning their performance evaluation are identified as issues to be addressed by organizations through supervisor training and personnel practices.

In conclusion, study findings suggest that a large number of employees are likely to believe that pay is not tied to performance. This is particularly true given the number of respondents (347 or 54%) who expressed dissatisfaction with their merit pay increase, the number of respondents (273 or 50.1%) who expressed distrust in top management, and the number of respondents (405 or 58.6%) who received a lower than expected performance appraisal. In fact, the data indicate that 116 or 17.3% of the respondents strongly disagreed that pay is tied to performance,
178 or 26.5% of the respondents moderately disagreed that pay is tied to performance, and 164 or 24.4% of the respondents somewhat disagreed that pay is tied to performance. In total, 458 or 68.3% of the respondents in this study expressed some level of disagreement that pay is tied to performance.

These numbers are all the more significant given the nature of the organization. This organization has a knowledgeable personnel department, sound personnel practices (including the performance appraisal system), and a merit pay system which systematically relates merit pay increases to performance appraisals. As noted in Chapter 3, the correlation between performance appraisals and merit pay increases during 1985 was $r = 0.81$ ($p < 0.0001$) for Quintile 1 and 2, $r = 0.84$ ($p < 0.0001$) for Quintile 3, $r = 0.90$ ($p < 0.0001$) for Quintile 4, and $r = 0.87$ ($p < 0.0001$) for Quintile 5. In addition, top management is committed to making the merit pay program work.

Even under these favorable conditions, only 213 or 31.8% of the respondents expressed some level of belief that pay is tied to performance. This suggests just how difficult it may be for organizations to foster strong beliefs among employees that pay is tied to performance. To the extent individuals must believe that pay is tied to performance before merit pay programs can be successful,
study results cast doubt about the ability of merit pay to elicit improved job performance.

STUDY LIMITATIONS

This discussion of study limitations addresses the external validity of results, causality, the length of time between the performance appraisal/merit pay increase outcomes and survey instrument administration, and the scope of variables investigated in this research. The purpose of this discussion is to provide a context in which to interpret study findings. Study limitations are discussed below.

External Validity: The research site is a large transit authority on the West Coast and the sample consists of nonunion public sector managerial, professional, and clerical employees who are mostly male and for the most part, highly educated. While the research site was a public sector transit authority, two arguments are made for the generalizability of study results to private sector organizations with similar workgroups. First, the transit authority investigated in this research was selected in large part because it has a performance appraisal and merit pay system which are typical of that found in the private sector. Second, the nature of work conducted in manager-
ial, supervisory, and clerical jobs is similar across the public and private sectors. However, the generalizability of study findings to other workgroups is unknown. In the final analysis, the external validity of study results is an empirical question which will be resolved only by future research.

Causality: Another limitation of this study is the lack of longitudinal data needed to establish causality. As a result, no definitive statements with respect to causality can be made. The cross-sectional data collected for this research are suitable for use with correlation and regression analysis to establish relationships among the variables. Once relationships among variables are established, the next step should be to investigate the direction of the relationships.

Timing of Survey Instrument Administration: Performance evaluations at this transit authority are conducted during the month of June with merit pay increases effective on 1 July. The survey instrument was then administered to transit authority employees early in April the following year. As a consequence, approximately nine months elapsed between the time employees learned the size of their merit pay increase and administration of the survey instrument.
Employees had approximately nine months in which they could rationalize their treatment and possibly even temper their views. Ideally, administration of the survey instrument would have occurred soon after employees received their merit pay increase. Unfortunately, time requirements imposed by the grant and needs of the research site dictated when the survey instrument had to be administered.

**Scope of Variables:** Not all variables identified in the literature as being related to instrumentality beliefs, perceived appraisal accuracy, or merit increase satisfaction were investigated in this study. One obvious reason for this was the need to limit the scope of the study. It was simply not possible to investigate everything. Another reason for this was lack of data. Data utilized in this research was obtained from an Urban Mass Transit Authority grant to study merit pay. As a result, the current research could only investigate relationships for which data was available.

**SUGGESTIONS FOR FUTURE RESEARCH**

Study findings also have implications for academics conducting research in the areas of performance appraisal and merit pay. To begin with, the literature review indicates that empirical research on all aspects of the merit
pay process is needed. As several of the relationships explored in this study have not previously been investigated, replication of this study in other organizations in both the public and private sectors would also provide a valuable contribution to the literature. It would be most beneficial to obtain longitudinal data which could then be used to establish the direction of the relationships in question. Study findings do suggest that research in several specific areas would add to our understanding of factors which may influence instrumentality beliefs, perceived performance appraisal accuracy, and merit increase satisfaction. Suggestions for future research are identified below.

**Instrumentality Beliefs:** No studies were identified in the research literature which empirically investigated any model of the determinants of instrumentality beliefs (instrumentality beliefs as the dependent variable) and this study investigated only a few of the variables identified in the literature argued to influence instrumentality beliefs. For example, Lawler (1973) argued that instrumentality beliefs are influenced by variables such as past experience in similar situations, belief in internal versus external control, communication from others, and the actual pay-to-performance relationship. A better understanding of
factors influencing instrumentality beliefs will require researchers to investigate more comprehensive models of the determinants of instrumentality beliefs.

**Perceived Appraisal Accuracy:** Study results suggest that supervisor ratings of performance which differ from self ratings of performance are likely to be perceived as inaccurate and further suggest that deviations between self and supervisor ratings are likely to occur. In addition to investigating the importance of employee expectations with respect to performance appraisals to perceived performance appraisal accuracy, future research should investigate whether certain conditions are conducive to deviations between self and supervisor ratings of performance. Research of this type would be useful in identifying situations where merit pay programs might not be successful. For example, it may be that the more difficult it is to objectively measure performance, the more likely subordinates and supervisors are to disagree on level of performance. Related to this, future research should also attempt to identify ways to minimize the tendency of individuals to rate their performance higher than their supervisors rate it. This would be useful in developing methods to minimize the potential negative consequences of deviations between self and supervisor ratings of performance.
Merit Increase Satisfaction: Several interesting questions were raised concerning factors which influence merit increase satisfaction. First, factor analysis results provided no support for two distinct constructs for merit increase satisfaction and perceptions that a pay increase is large enough to be meaningful. Future research should investigate the relationship between these two variables. For example, are they two distinct constructs or is the perception that a pay increase is meaningful part of the domain of content of merit increase satisfaction? More research is needed to answer this question.

Second, the data indicates that only half of the individuals who actually received a below average pay increase perceived their pay increase to be below average. Study findings suggest that had respondents known what a typical pay increase was, twice as many would have been less satisfied with their merit pay increase. As a result, study findings also suggest that organizations might be better off keeping individuals in the dark about what a typical pay increase is. More research is needed on the benefits and costs of giving employees information on pay raises so they can make accurate assessments about whether pay is tied to performance.
Trust: Of the variables studied, level of trust in top management was found to exhibit the strongest relationship with instrumentality beliefs. Findings also suggest that level of trust in supervisor may influence instrumentality beliefs through its ability to influence perceived performance appraisal accuracy. Future research should investigate factors which influence level of trust in both top management and supervisors in a merit pay environment. For example, past treatment with respect to merit pay increases may influence level of trust in top management or past treatment with respect to performance appraisals may influence level of trust in supervisors.

Two other issues with respect to trust should be addressed in future research. Study findings suggest that trust is situationally specific with respect to individuals. It may be that trust is also situationally specific with respect to issues. For example, an individual may trust top management or supervisors to treat them fairly with respect some issues such as discipline or discharge but not with respect to others such as allocation of pay increases. Future research should investigate just how situationally specific trust is.

Also of interest is the role of trust as a moderator variable. Stone (1978, p. 26) defines a moderator variable as: "...any variable which when systematically varied
causes the relationship between two other variables to change." For example, it may be that where trust in top management is low, individuals are unlikely to believe that pay is tied to performance no matter how high the actual pay-to-performance relationship is. On the other hand, where trust in top management is high, the actual pay-to-performance relationship exhibits a significant positive relationship with instrumentality beliefs. More research is needed to address the role of trust as a moderator variable.

Research in these areas should provide insight into how organizations can promote stronger beliefs among employees that pay is tied to performance and ultimately how organizations can improve the likelihood that merit pay programs will be successful. Study findings suggest that organizations will need all the help they can get.
LITERATURE CITED


APPENDIX A
EMPLOYEE ATTITUDE SURVEY
TO:  EMPLOYEES

FROM:  Virginia Polytechnic Institute and State University

SUBJECT:  Employee Attitude Survey

The purpose of this study is to survey the attitudes and opinions of employees who are eligible to participate in the merit pay program. Through this survey we hope to learn more about your feelings concerning policies and procedures as well as other work-related issues. Results of this study will be utilized for academic research and to satisfy requirements of a funded university research grant. This study is being conducted by researchers from Virginia Polytechnic Institute and State University.

To insure that the study results are kept confidential, Dr. Steve Markham, a professor from Virginia Tech, and Mike Vest, a Ph.D candidate, are conducting the survey. A summary of our findings will be provided to management. However, your individual responses will be kept strictly confidential. Management, your supervisor, or any other employee WILL NEVER see your completed questionnaire or have access to the answers that you, as an individual, give.

This survey is not a test - there are no right or wrong answers! Your answers will be combined for various employee groups so that employee responses will be completely anonymous. The results of this study will give management a better picture of the attitudes of employees subject to the merit pay system only if your answers reflect the way you really feel.

Thank you for assisting us in our research project on merit pay.
**CIRCLE THE APPROPRIATE RESPONSE**

Read each statement below and show how you feel about the statement by circling the appropriate letters in the column on the right.

"SA" = STRONGLY AGREE  
"MA" = MODERATELY AGREE  
"A" = SOMEWHAT AGREE  
"SD" = STRONGLY DISAGREE  
"D" = SOMewhat DISAGREE  
"MD" = MODERATELY DISAGREE  

An "na" means that the statement is NOT APPLICABLE TO YOU

1. I earn most of the money in my household. ........................................... SA MA ?A ?D MD SD na
2. I (or my family) relies mostly on my income to meet my/our needs. .............. SA MA ?A ?D MD SD na
3. I (or my family) must have my income to survive. ..................................... SA MA ?A ?D MD SD na
4. My income is not absolutely necessary, but it does contribute to the quality of life in our household. ................................................................. SA MA ?A ?D MD SD na
5. The size of my last pay increase was meaningful to me. .............................. SA MA ?A ?D MD SD na
6. If my last pay increase had been one-half of what it was, it would still have been meaningful to me. .......................................................... SA MA ?A ?D MD SD na
7. If my last pay increase had been one and one-half times what it was, it would have been meaningful to me. .............................. SA MA ?A ?D MD SD na
8. If my last pay increase had been two times what it was, it would have been meaningful to me. .......................................................... SA MA ?A ?D MD SD na
9. I am fairly paid compared to other employees who do similar jobs in this organization ........................................ SA MA ?A ?D MD SD na
10. I am fairly paid compared to what other employers are paying for my kind of work. .......................................................... SA MA ?A ?D MD SD na
11. I am fairly paid compared to the bus drivers ........................................... SA MA ?A ?D MD SD na
12. I am fairly paid compared to what other people at my job level in other organizations are paid. ........................................ SA MA ?A ?D MD SD na
13. I am fairly paid compared to other employees in my work unit .................. SA MA ?A ?D MD SD na
14. Considering the skills I use in my work, I am very satisfied with my pay. ......... SA MA ?A ?D MD SD na
15. I am satisfied with the wages/salary I am paid for the work I do. .................. SA MA ?A ?D MD SD na
16. I am very satisfied with the last merit increase I received. ......................... SA MA ?A ?D MD SD na
17. My last pay increase was consistent with my job performance. .................. SA MA ?A ?D MD SD na
18. I was satisfied with the size of my last pay increase when I think about what other employees received. ............................... SA MA ?A ?D MD SD na
19. I was very disappointed with the size of my last pay increase when I think about what my coworkers got. ............................... SA MA ?A ?D MD SD na
20. Merit increases accurately reflect an individual's job performance. ............... SA MA ?A ?D MD SD na
21. This organization gives pay increases on the basis of job performance. .......... SA MA ?A ?D MD SD na
22. Poor performers at ______ are not likely to get pay increases. ................ SA MA ?A ?D MD SD na
23. At ______, the highest performers get the highest percentage pay increases. ... SA MA ?A ?D MD SD na
24. At ______, the highest performers get the highest dollar pay increases. ........... SA MA ?A ?D MD SD na
25. In my job, all employees should get the same percentage pay increase. ........... SA MA ?A ?D MD SD na
"SA" = STRONGLY AGREE
"MA" = MODERATELY AGREE
"A" = SOMewhat AGREE
"D" = SOMEWHAT DISAGREE
"MD" = MODERATELY DISAGREE
"SD" = STRONGLY DISAGREE
An "na" means that the statement is NOT APPLICABLE TO YOU

26. Pay increases should be based primarily on length of service.
   SA MA ?A ?D MD SD na

27. In my job, the largest pay increases should go to the most senior employees.
   SA MA ?A ?D MD SD na

28. To be fair, everyone in my job should get the same pay increase.
   SA MA ?A ?D MD SD na

29. I know the pay rates of the other people in my division.
   SA MA ?A ?D MD SD na

30. Individuals in my work group feel threatened when I perform well on my job.
   SA MA ?A ?D MD SD na

31. The reward for good performance in this organization is simply more work.
   SA MA ?A ?D MD SD na

32. My supervisor feels threatened when I do an outstanding job.
   SA MA ?A ?D MD SD na

33. I would try to be a high performer but I would be viewed as "rocking the boat".
   SA MA ?A ?D MD SD na

34. I have the ability necessary to perform my job successfully.
   SA MA ?A ?D MD SD na

35. I have the knowledge necessary to perform my job successfully.
   SA MA ?A ?D MD SD na

36. I have the training necessary to do my job.
   SA MA ?A ?D MD SD na

37. I am unsure of what my supervisor wants me to do on my job.
   SA MA ?A ?D MD SD na

38. I receive enough feedback concerning the quantity of my output on the job.
   SA MA ?A ?D MD SD na

39. I am provided with sufficient feedback on the quality of my work.
   SA MA ?A ?D MD SD na

40. I do not receive enough feedback about my job performance.
   SA MA ?A ?D MD SD na

41. If I work as hard as possible, I can complete my work on time.
   SA MA ?A ?D MD SD na

42. If I work as hard as possible, I can perform at a high level.
   SA MA ?A ?D MD SD na

43. If I work as hard as possible, I can produce high quality work.
   SA MA ?A ?D MD SD na

44. If I work as hard as possible, I can produce a large quantity of work.
   SA MA ?A ?D MD SD na

45. Compared to others in the organization, I am an above average performer.
   SA MA ?A ?D MD SD na

46. Compared to others in my work group, I am an above average performer.
   SA MA ?A ?D MD SD na

47. Compared to others in similar jobs, I am an above average performer.
   SA MA ?A ?D MD SD na

48. I trust my supervisor to treat me fairly.
   SA MA ?A ?D MD SD na

49. If I share job problems with my supervisor, it is likely to be held against me later.
   SA MA ?A ?D MD SD na

50. If I make a mistake on my job, my supervisor usually holds it against me.
    SA MA ?A ?D MD SD na

51. Generally speaking, my supervisor can be trusted.
    SA MA ?A ?D MD SD na

52. I trust top management to treat me fairly.
    SA MA ?A ?D MD SD na

53. Top management attempts to resolve employee complaints fairly.
    SA MA ?A ?D MD SD na
"SA" = STRONGLY AGREE
"MA" = MODERATELY AGREE
"SA" = SOMEWHAT AGREE
"D" = SOMEWHAT DISAGREE
"MD" = MODERATELY DISAGREE
"SD" = STRONGLY DISAGREE

An "na" means that the statement is NOT APPLICABLE TO YOU

54. Top management has little regard for the average employee. ................. SA MA ?A ?D MD SD na
55. Top management always follows through with what they say they are going to do. ......................................................... SA MA ?A ?D MD SD na
56. My immediate supervisor assures me that he/she has confidence in my integrity. ......................................................... SA MA ?A ?D MD SD na
57. My immediate supervisor pays attention to my needs and feelings. .......... SA MA ?A ?D MD SD na
58. My immediate supervisor supports my actions and ideas. .................. SA MA ?A ?D MD SD na
59. My immediate supervisor encourages me to solve problems and generate new ideas. .................................................. SA MA ?A ?D MD SD na
60. My immediate supervisor explains the reasons behind programs and practices. ................................................................. SA MA ?A ?D MD SD na
61. I feel a sense of personal satisfaction when I do my job well. ................. SA MA ?A ?D MD SD na
62. I take pride in doing my job as well as I can. .................................. SA MA ?A ?D MD SD na
63. I feel unhappy when my work is not up to my standards. ................... SA MA ?A ?D MD SD na
64. It is important to me to look back on the day's work with the sense of a job well done. ......................................................... SA MA ?A ?D MD SD na
65. I feel that I have a number of good qualities. .................................... SA MA ?A ?D MD SD na
66. I take a positive attitude toward myself. ........................................ SA MA ?A ?D MD SD na
67. I wish I could have more respect for myself. .................................... SA MA ?A ?D MD SD na
68. I certainly feel useless at times. .................................................. SA MA ?A ?D MD SD na
69. I am very satisfied with the last performance evaluation I received. ....... SA MA ?A ?D MD SD na
70. My last performance evaluation was consistent with my job performance. SA MA ?A ?D MD SD na
71. I was very disappointed with my last performance evaluation. .............. SA MA ?A ?D MD SD na
72. I was very pleased with the results of my last performance evaluation. .... SA MA ?A ?D MD SD na

*** ANSWER THE FOLLOWING QUESTIONS ***

1. **WHAT DO YOU VALUE?** We want to find out how important each of these job characteristics is to you. Consider the job characteristics listed on the right in a situation where you are thinking about a new job. It is not likely that all job characteristics would be of equal importance to you in making your decision. Rank the job characteristics listed to the right according to how important they would be to you in your decision to take the new job. Place a 1 by the job characteristic you would consider the most important, a 2 by the characteristic you would consider second most important, and so on.

   friendly coworkers
   job security
   opportunity for promotion
   pay/wages
   recognition for good work
   type of work
   working conditions

2. What is your highest level of education? (Circle one.)
   - some high school
   - some college (or trade school)
   - some graduate work
   - high school graduate
   - college degree
   - masters degree or higher
3. The purpose of this question is to find out what you think were the most important factors determining your last pay increase. Please rank the five items listed below according to how important you think they were to your supervisor in determining your last individual pay increase. Place a 1 by the item you feel was most important, a 2 by the item you consider the second most important, and so on.

   ______ my friendship with the supervisor
   ______ my length of time with the supervisor
   ______ my length of time with the organization
   ______ my performance
   ______ my economic need

   Is there another factor which should be listed? If so, specify: ____________________________

4. This question attempts to find out what you think were the most important factors determining the last pay increases in your work group. Please rank the five items listed below according to how important you think they were to your supervisor in determining the last pay increases in your work group. Place a 1 by the item you feel was most important, a 2 by the item you consider the second most important, and so on.

   ______ our friendship with the supervisor
   ______ our length of time with the supervisor
   ______ our length of time with the organization
   ______ our performance levels
   ______ our economic needs

   Is there another factor which should be listed? If so, specify: ____________________________

5. Read each of the statements below and circle the best response from each pair.

   Pay increases should be based on: cost of living . . . OR . . . seniority.
   Pay increases should be based on: economic need . . OR . . . performance.
   Pay increases should be based on: seniority . . . . . . OR . . . economic need.
   Pay increases should be based on: performance . . . OR . . . cost of living.
   Pay increases should be based on: cost of living . . . OR . . . economic need.
   Pay increases should be based on: seniority . . . . . . OR . . . performance.

6. How many hours overtime per week, on average, did you work during 1985? _______

7. How many subordinates report directly to you? _______

8. How many other people depend directly on you for financial support? _______ people

9. Assume that you must allocate a total of $1,200 in pay increases to a high performer, an average performer, and a low performer. How much money would you allocate to each of these employees?

   $ _________ to the high performer
   $ _________ to the average performer
   $ _________ to the low performer
   $ 1,200 TOTAL

10. I know what ______ % of my coworkers received for their last pay increase (for example, write 50 if you know what one-half of your coworkers received).

11. What do you think was the average pay increase this past year? _______________________

** ** CHECK THE APPROPRIATE RESPONSE ** **

Read each of the following statements carefully and place a check by the answer which comes closest to telling how you actually feel or act.

1. Does following a schedule
   ______ appeal to you, or
   ______ cramp you?

2. Are you more careful about
   ______ people's feelings, or
   ______ their rights?
3. Are you inclined to
   _____ value sentiment more than logic, or
   _____ value logic more than sentiment?

5. Are you usually
   _____ a "good mixer", or
   _____ rather quiet and reserved?

7. Do you prefer to
   _____ arrange dates, parties, etc. well in
     advance, or
   _____ be free to do whatever looks like fun
     when the time comes?

9. When you are with a group of people,
   would you rather
   _____ join in the talk of the group, or
   _____ talk individually to people you know
     well?

11. When something starts to be the fashion,
    are you usually
   _____ one of the first to try it, or
   _____ not much interested?

13. In a large group, do you more often
   _____ introduce others, or
   _____ get introduced?

15. When you go somewhere for the day, would
    you rather
   _____ plan what you will do and when, or
   _____ just go?

17. Do you more often let
   _____ your heart rule your head, or
   _____ your head rule your heart?

19. How satisfied is your supervisor
    with your job performance?
   _____ very dissatisfied
   _____ dissatisfied
   _____ moderately dissatisfied
   _____ moderately satisfied
   _____ satisfied
   _____ very satisfied
   _____ I don't know

4. Are you
   _____ easy to get to know, or
   _____ hard to get to know?

6. Do you get more annoyed at
   _____ fancy theories, or
   _____ people who don't like theories?

8. Can you
   _____ talk easily to almost anyone for
     as long as you have to, or
   _____ find a lot to say to certain people
     or under certain conditions?

10. When you start a big project that is due
    in a week, do you
   _____ take time to list the separate
     things to be done and the order
     of doing them, or
   _____ plunge in?

12. Would you rather be considered
    _____ a practical person, or
    _____ an ingenious person?

14. Would you rather have as a friend
    someone who
   _____ is always coming up with new
     ideas, or
   _____ has both feet on the ground?

16. Would you rather
   _____ support the established methods
     of doing good, or
   _____ analyze what is still wrong and
     attack unsolved problems?

18. Are you
   _____ male, or
   _____ female?

20. How often is your job performance consistent
    with your supervisor's preferences?
   _____ never occurs
   _____ rarely occurs
   _____ sometimes occurs
   _____ often occurs
   _____ occurs a great deal
   _____ I don't know
21. How would you evaluate your job performance?

___ outstanding
___ superior
___ competent
___ needs improvement
___ unsatisfactory

22. Compared to your actual level of performance, do you believe your performance rating was:

___ much too high
___ too high
___ about right
___ too low
___ much too low

23. If you had rated your performance at the last review, the evaluation would have been:

___ much higher
___ higher
___ about the same
___ lower
___ much lower

24. Consider the average pay increase this past year. Where did you fall with respect to the average increase?

___ well above average
___ above average
___ about the same as average
___ below average
___ well below average

* * * CIRCLE THE APPROPRIATE RESPONSE * * *

Look at EACH pair of words listed below and circle the word in each pair which appeals to you more.

Which word appeals to you more?  systematic ... OR ... spontaneous
Which word appeals to you more?  build ........ OR ... invent
Which word appeals to you more?  convincing ... OR ... touching
Which word appeals to you more?  reserved .... OR ... talkative
Which word appeals to you more?  statement ... OR ... concept
Which word appeals to you more?  soft ........ OR ... hard
Which word appeals to you more?  forgive ..... OR ... tolerate
Which word appeals to you more?  hearty ...... OR ... quiet
Which word appeals to you more?  impulse ..... OR ... decision
Which word appeals to you more?  sensible .... OR ... fascinating
Which word appeals to you more?  facts ........ OR ... ideas
Which word appeals to you more?  compassion ... OR ... foresight
Which word appeals to you more?  orderly ...... OR ... easy-going
Which word appeals to you more?  systematic ... OR ... casual
Which word appeals to you more?  thinking ..... OR ... feeling

* * * FILL IN THE BLANK (PLEASE PRINT CLEARLY) * * *

Your badge number: ___________ Your division number: ___________

To whom do you report? Last name _____________________________
First name _____________________________

MANY THANKS FOR YOUR HELP!
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