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THE PERCEIVED FAIRNESS OF SELECTION SYSTEMS: AN ORGANIZATIONAL JUSTICE PERSPECTIVE

By

Stephen W. Gilliland

A DISSERTATION

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

Department of Psychology

1992

ABSTRACT

THE PERCEIVED FAIRNESS OF SELECTION SYSTEMS:
AN ORGANIZATIONAL JUSTICE PERSPECTIVE

by

Stephen W. Gilliland

A conceptual model of perceived selection system fairness was developed in an effort to address theoretical shortcomings of past research. Organizational justice theory provided the theoretical framework for examining issues of perceived fairness and generated a number of hypotheses. Issues of procedural and distributive justice were both described as important to overall fairness reactions and the interaction between these forms of justice was cited as an issue of both practical and theoretical importance. Links were proposed between perceived fairness and a number of individual and organizational outcomes.

To test a number of the hypotheses proposed in the conceptual model, a study was conducted in which procedural justice was manipulated along dimensions of job relatedness and selection information explanation, and distributive justice was manipulated in terms of a hiring decision. Undergraduates (n = 260) completed one of three employee selection tests that varied in terms of perceived job relatedness after either receiving or not receiving an explanation regarding the suitability of the selection test. Half of the participants (n = 132) were randomly selected to perform a journal coding task in return for monetary compensation. Questionnaire dependent measures were collected from the entire sample with measures

of perceived fairness, application recommendations, test motivation, self-esteem, and self-efficacy. Additionally, work performance and job satisfaction measures were collected from hired participants.

Results demonstrated main effects of job relatedness on perceived fairness and test motivation measures, and interactions between job relatedness and hiring decision on perceived outcome fairness and self-efficacy. Explanation appeared to influence application recommendations and post hire work performance and job satisfaction. Theoretical and practical implications of the findings were discussed, as were some methodological shortcomings. A final methodological advance provided by this research was the development and initial assessment of a measure for assessing perceived selection system fairness.

ACKNOWLEDGEMENTS

As I compose this acknowledgement I reflect on the fact that this page will be read more often than any other page in this dissertation...

I will start by saying that completing this dissertation was interesting, challenging, a useful learning experience, and for the most part, enjoyable. While that is probably not the typical reaction of someone completing a dissertation, most people are not as lucky as I was in having Neal Schmitt as my chair. Throughout this dissertation and graduate school in general, Neal has served as an advisor, a mentor, and a role model. I cannot imagine having a better graduate school experience or a better mentor. Thank you Neal.

I would also like to thank a number of other people for helping me complete this dissertation. When faced with the time pressures imposed by my desires to spend a summer in Europe, you (soon to be y'all) facilitated the rapid completion of the final phases of this project. In particular, I would like to thank Jose Cortina, Rob Anderson, and especially Pat Draves for helping me conduct the study; Neal, Jose, Rob, and Cindi for helping complete the mind numbing task of correcting the journal coding; Dan Ilgen, Steve Kozlowski, and Mike Lindell for their insightful comments and questions during my oral defense meetings; and Wonderlic, Inc. and London House for providing test materials.

Finally, I would like to thank Cindi Kaufman for her support and love, and for helping me maintain a awareness of the fact that there is more to life than dissertations.

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CHAPTER 1

INTRODUCTION

Personnel selection has long been a process that has received considerable attention in industrial psychology. Dominant concerns in the selection literature involve issues of the psychometric soundness of tests (e.g. reliability), the validity of inferences made with tests (Schmitt, Gooding, Noe, & Kirsch, 1984), the utility of selection procedures (Hunter & Hunter, 1984), and the fairness with which selection procedures impact protected subgroups (Schmitt, 1989). Although all of these topics have been studied from a psychometric perspective, rarely has attention been directed at the social side of the selection process (Herriot, 1989). In particular, the study of fairness has focussed on concerns about test bias, differential prediction, and the relative impact of subgroup differences on expected organizational productivity and subgroup hiring rates (Hartigan & Wigdor, 1989; Schmitt, 1989). An alternate, and often overlooked perspective of test fairness focusses on applicants' reactions to testing and selection decisions.

It can be argued that the perceived fairness of selection procedures is equal in importance to issues of psychometric fairness. Just as the establishment of psychometrically fair selection procedures is important from business, ethical, and legal perspectives, applicants'

perceptions of test fairness can also be seen as important to these perspectives. From a business perspective, reactions to selection procedures may influence the ability of the organization to attract highly qualified applicants and the job acceptance decisions of applicants to whom offers have been extended. Both of these outcomes can influence the overall utility of selection procedures (Murphy, 1986; Boudreau & Rynes, 1985). Indirectly, reactions to the selection process may influence applicants' decisions to buy products or services of organizations after they have unsuccessfully sought employment with the organization.

From an ethical perspective, organizations should be concerned with the effects of selection procedures on the psychological well being of applicants. For example, the perceived fairness of selection testing may influence the efficacy and self-esteem of rejected applicants (Robertson & Smith, 1989). The Principles for the Validation and Use of Personnel Selection Procedures (Society for Industrial and Organizational Psychology, 1987) recommends that:

> Researchers should seek to avoid bias and even the appearance of bias [italics added] in choosing, administering, and interpreting selection procedures. At the very least, the use of a selection procedure should create an environment that is responsive to the feelings of all candidates, insuring the dignity of all persons. (p. 33)

Finally, from a legal perspective the perceived fairness of the selection procedure may influence applicants' and lawyers' decisions to pursue discrimination cases. Seymour (1988) indicated that face validity (or face invalidity) of a test can be a factor in deciding

whether to challenge a particular test. With the current national attention given to the 1991 amendments to the Civil Rights Bill and debate over quota hiring, issues of selection procedure fairness are likely to receive even greater public scrutiny. Additionally, the 1991 amendments allow for jury trials in discrimination cases, opening up the possibility that issues of face validity may become a more salient issue with statistically naive jurors.

In addition to these practical outcomes associated with the perceived fairness of selection procedures, research in this domain can be of theoretical importance. While few attempts have been made to empirically assess reactions to selection procedures, even less attention has been given to developing a theoretical model of these perceptual processes. One predominant characteristic of selection research in general is that it is largely atheoretical and emphasizes practical concerns. When one examines the social side of selection, it is possible to extend theories of organizational psychology to selection issues. In particular, organizational justice theories are concerned with the perceived fairness of organizational procedures and outcomes. By applying theories of organizational justice to selection procedures and hiring decisions, it is possible to develop a theory of selection procedure perceived fairness. In addition, it is possible that research in this domain will contribute to and build upon existing literature that is developing and testing organizational justice theories.

Traditional discussions of organizational justice have emphasized the role of <u>distributive justice</u>, or the fairness of organizational outcome distributions (Bierhoff, Cohen, & Greenberg, 1986). One of the original distributive justice theories, equity theory (Adams, 1965),

suggested that perceptions of the fairness of outcome distributions relative to input contributions influence the perceiver's emotional reactions toward that outcome. In turn, emotional reactions influence cognition, attitudes, and behavioral responses. More recently, researchers have also examined perceptions of the fairness of procedures that are used to divide valued organizational outcomes (Folger & Greenberg, 1985). This procedural justice perspective focuses on how decisions affecting employees are made rather than the outcomes of those decisions (Greenberg & Tyler, 1987). Current developments in organization justice theories are aimed at integrating procedural and distributive justice perspectives (e.g. referent cognition theory; Folger, 1986; 1987).

Organizational justice theories have been applied to reward allocation decisions, performance appraisal/evaluation systems, and dispute resolution through negotiation (Folger & Greenberg, 1985). This application has been beneficial to both the theoretical development of organizational justice and in developing theory and knowledge in the areas of application (Greenberg & Tyler, 1987). The current research extends theories and research from the organizational justice literature to the selection domain with the similar goal of advancing both organization justice theory and our understanding of selection fairness.

The research outlined in this proposal has three primary objectives, the first of which is to develop a comprehensive model that describes procedural and distributive factors that influence applicants' reactions to selection systems. The model also links fairness perceptions to a variety of attitudinal and behavioral outcomes. To provide a basis for this model, organizational justice literature is

selectively reviewed, highlighting issues of importance for the extension of justice literature to selection processes. Additionally, selection research that has examined reactions to selection procedures is exhaustively reviewed in an effort to establish what has been investigated and where further research is needed. It is hoped that the model that is developed will launch a program of systematic research on the perceived fairness of selection systems.

The second objective of the current research is to develop a measure of fairness perceptions. This will include global perceptions of system and outcome fairness, as well as perceptions of the extent to which a number of procedural and distributive rules associated with the selection process have been violated.

The final objective of this research is to examine the interaction between procedural features and distributive outcomes of a hiring situation as it relates to various outcomes. This interaction is of importance because some organizational justice research has indicated that procedural justice only influences fairness perceptions when distributive outcomes are negative (Greenberg, 1987a). In the selection situation, this would suggest that procedural aspects of the selection process may have the greatest impact on rejected applicants and may not influence the reactions of accepted applicants. From a corporate perspective, the individuals of primary concern are those applicants that are accepted for employment. If selection procedures do not influence reaction to these applicants, there may be little applied interest in this line of research. From a theoretical perspective, the demonstration of an interaction between procedural and distributive features of the selection process is important to both organizational

justice theory and the theory base that is developing in the selection procedure reactions literature. The primary study will examine this interaction as it relates to fairness perceptions and a number of pre- and post-hire attitudinal and behavioral outcomes.

Organizational Justice

Theories of organizational justice are concerned with perceptions of the fairness of outcome distributions (e.g. rewards or performance evaluations) and the procedures through which these outcomes are distributed (Greenberg, 1990b). These fairness perceptions influence a variety of cognitive, attitudinal, and behavioral outcomes of employees in organizations. While the basic processes of different organizational justice theories are similar, a variety of perspectives have been developed and, as a result, justice research has taken many different directions. Perhaps because of this diversity, there have been a number of recent reviews that have attempted to integrate and organize research and theory (e.g. Cohen, 1987; Greenberg, 1987b, 1990b; Lind & Tyler, 1988)

Theories of organizational justice have been distinguished along two independent dimensions: a reactive-proactive dimension and a process-content dimension (Greenberg, 1987b). Reactive theories of justice involve individuals' reactions to, or attempts to deal with unfair states. Such theories include equity theory (Adams, 1965) and procedural justice theory (Lind & Tyler, 1988). Proactive theories deal with behaviors aimed at promoting justice or creating just situations (Leventhal, 1980). As the current research is concerned with reaction to selection procedures, the focus here will be on reactive theories of

organizational justice.

The second dimension on which justice theories can be distinguished is a process-content dimension (Greenberg, 1987b). Process theories deal with the procedures by which organizational outcomes, such as pay allocation or performance appraisals, are determined. They received their foundation in the legal literature and basic ideas were extended to social psychology (Lind & Tyler, 1988). Content theories are concerned with distributive fairness based on rules of equity, need, or equality. Adams' (1965) equity theory was a dominant motivation theory in the 1960's and early 1970's and research on equity theory constitutes the bulk of investigation into distributive justice (Greenberg, 1987b).

In addition to Greenberg's (1987b) categorization of different justice theories, research has attempted to empirically distinguish procedural and distributive justice. More recently, theories have also been proposed that link components of procedural and distributive justice. Before this research and theory are discussed, the components and conceptualizations of distributive and procedural justice are reviewed. The discussion of organizational justice concludes with an examination of some organizational outcomes that have been associated with justice perceptions.

Distributive Justice

Distributive justice theories are the most thoroughly developed and empirically tested of the different organizational justice theories (Greenberg, 1987b). Indeed, theories of distributive justice extend well beyond organizational behavior and can be found in fields such as social psychology, sociology, economics, political theory, and

philosophy (Cohen, 1987). Within this vast diversity of perspectives, four fundamental components can be found in all theories of distributive justice: receipts, recipients, distributional rules, and evaluation standards (Cohen, 1987).

Receipts may be material goods, opportunities, conditions or roles and refer to outcomes of social exchanges (Cohen, 1987). In distributive justice research found in the organizational literature, the most common receipt is pay (e.g. Vecchio, 1982), however other organizational receipts include performance evaluations (Greenberg, 1986b), job titles (Greenberg & Ornstein, 1983), and workspace status (Greenberg, 1988).

While in some domains it may be difficult to define and draw boundaries to differentiate recipients of outcomes (Cohen, 1987), in the organizational literature recipients typically refer to individual workers or individuals within work groups (e.g. Greenberg, 1982). Individual differences, such as gender differences, have been examined within theories of organizational justice, but research has tended to be inconsistent and many differences have been shown to be a function of the situational context (Major & Deaux, 1982). Recently, Huseman, Hatfield, and Miles (1987) proposed that people differ in their sensitivity to equity, overpayment, and underpayment, hwever this conceptualization is both inconsistent with equity theory and thus far, untested (Greenberg, 1990b).

The third component of distributive justice theories is the distributional rule which describes the relationship between the receipt and some characteristics of the recipient unit. Equity, the original and most thoroughly investigated distributive rule, suggests that the

outcomes people receive should correspond in some way to their inputs into the exchange situation. Other distributive rules include equality, in which equal outcomes are distributed to all individuals, and needs, in which outcomes are distributed on the basis of relative needs. Research has examined individual preferences for different distributional rules and situations that promote the use of a particular rule (Bierhoff et al., 1986). These different distributional rules are discussed in more detail later as they have implications for the distributive justice of selection decisions.

The final component of distributive justice theories is the evaluation standard or moral judgment of the satisfaction of the distributional rule. While justice is the only standard that has received empirical attention, especially in the organizational literature, it is possible that other standards, such as efficiency could also be used as the basis of judgments (Cohen, 1987). Further discussion of alternate evaluation standards is beyond the scope of the current research because justice is the only standard of interest.

With these four basic components of distributive justice, the way in which theories differ is in the specific components and the means by which these components are combined. As equity theory is the most dominant theory of distributive justice, the specifics of this theory and its empirical support are presented. Following this discussion, research that has examined some alternate distributional rules is discussed.

Equity theory. With equity theory (Adams, 1965), the receipt is work outcomes, the recipient is the worker, the distributional rule is equity, and the comparison standard is justice. Equity theory states

that people compare a ratio of their work outcomes to work inputs with a corresponding ratio from a referent other (e.g. coworker). If the ratios are unequal such that an individual is receiving fewer outcomes in relation to inputs than the comparison other (underpayment), the individual will experience anger, and in turn will be motivated to change his/her behavior or distort cognition associated with perceptions of unfairness. Behavior change is most commonly in the form of reducing inputs (e.g. decreasing work productivity) and cognitive distortion can be either in terms of inputs (beliefs of working harder than one actually is), outcomes (increasing perceived status of ones job), or changing the referent comparison group with which judgments of unfair distribution are made. Conditions of overpayment (receiving more outcomes relative to input than a comparison other) lead to experienced guilt, and again motivation to restore the equity. Attitudes are also affected by perceived inequity with dissatisfaction becoming greater as the inequity increases. Equitable relationships are associated with positive emotional states and feelings of satisfaction.

Since Adams (1965) original conceptualization of the equity ratios, a number of alternate models have been proposed involving ratios with person's and referent other's inputs and outcomes (Vecchio, 1982). In addition, much research has examined the under and overpayment predictions of these equity theories, with results summarized in a number of reviews (Campbell & Pritchard, 1976; Greenberg, 1982; Pritchard, 1969). After considering previous research and critiques, Greenberg (1982) concluded that support existed for the major predictions of equity theory in terms of productivity outcomes, and further, these predictions held in both underpayment and overpayment

conditions. This conclusion can be contrasted with an earlier review by Pritchard and Campell (1976) in which they suggest that support has been found for equity theory in the underpayment but not overpayment conditions. An example of equity research that is somewhat unique because it did not rely on monetary outcomes can be found in one recent study. In an extension of equity theory to rewards associated with the status of one's workspace, Greenberg (1988) found that work performance increased in overpayment conditions (i.e. assignment to higher status workspace than was perceived to be just) and decreased with underpayment conditions.

Although research has tended to support the basic predictions of equity theory on performance outcomes, criticism in the 1970s proved problematic and eventually led to a decline of interest in this theory (Greenberg, 1990b). The most serious problem with equity theory is a lack of specificity regarding individual response to inequity. Equity theory does not predict when cognitive as opposed to behavioral responses will occur, and what the nature of the cognitive responses may be. Additionally, ambiguity exists as to what defines domains of inputs and outcomes. For example, in addition to work production, inputs could potentially include tenure, attendance, and organizational citizenship type behaviors. Inputs and outcomes also may not always be distinguishable as an increase in responsibility could be interpreted as an input (increased duties) or an outcome (increased prestige) (Greenberg, 1982). Perhaps as a result, there has been a shift in research interest away from equity theory and toward issues of procedural justice. Additionally, greater attention has begun to be directed toward other distributive rules such as equality and needs.

Alternate distributional rules. Cohen (1987) distinguishes between differentiating and nondifferentiating distributional rules. Differentiating distributional rules, such as equity and needs, specify a characteristic or set of characteristics (e.g. relative contributions and individual needs) upon which outcome distributions can be evaluated for different recipients. Additional differentiating distributional rules include "winner-takes-all" and rules based on individual differences such as sex or race (Cohen, 1987; Deutsch, 1986). Nondifferentiating distributional rules, such as equality are based only on the distribution of outcomes and not on characteristics of recipients. The differences in these perspectives can be seen to extend well beyond the implications for organizational justice as they reflect philosophical or political perspectives.

Research in organizational justice has tended to only examine distributive justice from the equity perspective, while in the social psychology literature there is support for the existence of three distributional rules: equality, equity, and needs (Bierhoff et al., 1986). In a summary of the results of six studies that rewarded individuals under different distributional rules, Deutsch (1986) found that people initially preferred equity distributions over equality, and needs distributions were preferred the least. Some situational and individual factors were found to be related to preferences. After working in interactive groups, individuals increased their preference for equality distributive systems, whereas those working in noninteractive groups demonstrated no change in preferences. Individual differences in performance were also related to preferences in that high performers indicated less preference for equality and needs based

distributive systems. While this research suggests that the three distributional rules are mutually exclusive, this need not be the situation.

Leventhal (1980) suggested a means by which the three distributional rules could potentially be integrated. He suggested that evaluations of distributive justice are based on a weighted evaluation of the satisfaction of each of the three rules (plus any other distributional rules that may exist). Therefore, an individual's perceived deserved outcomes are a function of the deserved outcomes related to each rule. The weighting attached to each rule suggests that in some situations, some rules may contribute more to an overall evaluation of distributive justice than in other situations. While research has not specifically addressed Leventhal's model, some research exists that is consistent with this perspective.

Two separate lines of research suggest that certain distributional rules can be made more salient in some circumstances. Crosby, Burris, Censor, and MacKethan (1986) found that people were more sensitive to discrimination after seeing clear cut examples of discrimination. This suggests that the equality rule may be more salient (or weighted more heavily) after observing situations in which equality had been violated. Similarly, Schwinger (1986) summarized research on the needs distributional rule in which individual needs were made salient to outcome allocators. Allocation distributions were found to deviate from equity in that needier recipients were given a greater proportion of the outcomes. The origin or locus of needs appeared to influence use of the needs distributional rule in that intentionally caused needs were considered less in allocation decisions than were external,

unintentionally caused needs.

Summary. In summarizing distributive justice theory with an orientation toward selection systems, three of the four elements of distributive justice should be emphasized: recipients, receipts, and distribution rules. The recipient of outcomes in a selection situation is clearly the job applicant. Less clear is the receipt, which could either be interpreted as the score received on a given selection test or the receipt of a job offer. Distributive justice research indicates that the dominant distribution rule is equity, however other research suggests that equality and needs distribution rules may become more salient when instances of rule violation are experienced. These issues and others, such as what constitutes the referent comparison group in a selection situation, are discussed in detail when a model of reactions to selection systems is developed. This discussion will also include issues of procedural justice which are presented in the following section.

Procedural Justice

Procedural justice theory is concerned with the perceived fairness of procedures used in making decisions; that is the process of attaining various outcomes (Folger & Greenberg, 1985). Two major perspectives or models can be seen as initiating much of the current research and interest on procedural justice. Thibaut and Walker (1975) approached procedural justice from a legal perspective and emphasized the role of process control in fairness perceptions. Leventhal (1980) addressed the reward-allocation decision process and identified a number of components of allocation procedures and evaluation rules that influence fairness perceptions. While Thibaut and Walker's (1975) model has led to

considerable research and theoretical development, Leventhal's (1980) perspective has gone largely unevaluated. However, research has followed Leventhal's lead in that there have been attempts to empirically describe the procedural aspects of performance appraisals (Greenberg, 1986a), recruitment procedures (Bies & Moag, 1986), and managerial fairness (Sheppard & Lewicki, 1987).

In addition to distributive and procedural justice, some researchers have proposed a third type of justice, interactional justice, which reflects the fairness with which procedures are implemented or enacted (Bies & Moag, 1986). Although it is important to distinguish the formal properties of procedures from the manner in which procedures are implemented, the current discussion will incorporate both aspects under the rubric of procedural justice. Following a discussion of these different procedural justice perspectives, a conceptualization is presented which distinguishes between the following three aspects of procedural justice: a) formal properties of procedures, b) explanation of procedures, and c) interpersonal treatment. This distinction will be used as a framework for examining the procedural fairness of selection systems.

Process control and procedural justice. Thibaut and Walker's (1975) original research compared adversarial and inquisitorial methods of dispute resolution in terms of the perceived fairness of, and satisfaction with litigation decisions. They consistently found greater perceived fairness and satisfaction with adversarial procedures, regardless of the decision outcome. This research established procedural justice as an important influence in reactions to decisions.

In developing a theory to account for procedural justice effects,

Thibaut and Walker (1975) distinguished between process control and decision control. Process control reflects the amount of control or input an individual has in the decision making process, whereas decision control reflects the actual impact an individual has on the decision outcome. Thibaut and Walker believe that the distribution of process and decision control to the individual affected by the decision influenced the individual's perceptions of procedural justice. Adversarial dispute resolution procedures offer the disputants more process control and therefore seem to be fairer. A considerable body of research has found support for Thibaut and Walker's theory that the distribution of control within a procedure influences the procedural fairness (Lind & Tyler, 1988). In particular, subsequent research has replicated the basic findings in a variety of laboratory and applied decision situations (Tyler, 1987).

Research in organizational behavior has extended the basic findings from dispute resolution situations to reward allocation situations. Folger (1977) examined the influence of providing individuals the opportunity to express their "voice" in determining reward allocations. Voice is often used as an analogous term to process control, although it does not necessarily imply "control" over the process, rather just the opportunity to offer input (Folger & Greenberg, 1985). Participants in Folger's study were either paid equitably or inequitably for work on a series of tasks and were either provided (voice condition) or not provided (mute condition) the opportunity to influence the reward allocation decision. Even though those in the voice condition did not actually influence the allocation decision, this condition was seen as fairer, more satisfying, and more acceptable than

the mute condition.

Considerable research has replicated Folger's (1977) basic findings in actual reward allocation situations (Bies & Shapiro, 1988) and performance evaluation situations (Dipboye & de Pontbriand, 1981; Landy, Barnes, & Murphy, 1978). All these studies used a survey methodology and found that the opportunity to offer one's viewpoint in the decision process was correlated with the perceived fairness of the allocation or evaluation procedure. Landy, Barnes-Farrell, and Cleveland (1980) found that voice correlated with procedural fairness of a performance evaluation even after partialling out the outcome of the evaluation.

In addition to demonstrating the importance of process control in perceptions of procedural justice, Thibaut and Walker (1975) suggested that decision control was more important than process control. Specifically, they saw process control as having only an indirect influence on procedural justice perceptions in that it was mediated by effects on decision control. Process control was only thought to influence procedural justice to the extent that it influenced decision control. People want the opportunity to express voice because they want to influence the decision procedure in hopes that it will lead to a better outcomes. This model of process control has been referred to as the self-interest or instrumentality perspective (Lind & Tyler, 1988).

An alternate perspective suggests that process control enhances procedural justice because it satisfies individual needs to have one's views heard (Lind & Tyler, 1988). This value-expressive perspective suggests that process control will have an impact on procedural justice independent of decision control. The value-expressive perspective forms

the basis for the group-value model which suggests that people value long-term relationships with the groups within which they are involved (Lind & Tyler, 1988). Process control is important in procedural justice to the extent that it promotes within-group relationships. While research has not supported Thibaut and Walker's suggestion that decision control is more important than process control, research exists that is consistent with both the self-interest model and the group-value model (Greenberg, 1990b; Tyler, 1989). Lind and Tyler (1988) suggest that it would be premature to create a unified theory of procedural justice and instead argue for the importance of both models. In spite of this warning, Leung and Li (1990) propose a unification in which the self-interest model accounts for process control effects on outcome-related variables and the group-value model accounts for process control effects on process-related variables. To date, no research has addressed the validity of Leung and Li's proposal.

In summary, the initial research by Thibaut and Walker (1975) and considerable subsequent research (Lind & Tyler, 1988) point to the importance of procedural justice in evaluations of decision fairness. Further, process control is one important component of the decision process that influences perceptions of procedural justice. The next section describes a number of other components, aside from process control, that may influence perceptions of procedural justice.

Leventhal's components of allocation procedures. In contrast to the process control model of procedural justice which focusses on underlying processes, Leventhal's (1980) perspective details the structural components that are thought to exist in individuals' cognitive conceptualizations of the allocation process. Leventhal

defined seven components of allocation procedures that are considered when forming evaluations of procedural fairness. They include: (a) the selection of agents who will be making the allocation decisions, (b) the establishment and communication of procedures for making allocations, (c) the gathered information upon which the decisions will be made, (d) definition of the decision structure, (e) the presence of an appeals procedure, (f) safe-guards to ensure objectivity in the decision process, and (g) the existence of mechanisms for changing the allocation procedures. Each of these components may contribute in varying degrees to overall judgments of procedural fairness. Leventhal (1980) does not argue that all components are evaluated in all evaluations of procedural fairness, but rather the decision setting may influence the importance or salience of specific components. Additionally, allocation procedures are defined broadly as any situation where rewards, resources, or other outcomes are distributed.

The evaluation of each component of the allocation procedure is guided by the following six procedural rules (Leventhal, 1980): (a) allocation procedures should be consistent over persons and time, (b) personal biases or self-interests should be prevented from influencing the allocation process, (c) decisions should be based on as much accurate information as possible, (d) decisions should be modifiable, (e) allocation procedures should be representative of the interests of all affected individuals, and (f) procedures must be compatible with ethical values of the individual. As in Leventhal's (1980) conceptualization of distributive justice rules, the six procedural rules are not necessarily weighted equally in that different rules may be emphasized at different times. However, Leventhal failed to offer

specific suggestions as to factors that may influence weighting of the procedural rules.

Researchers have not attempted to validate Leventhal's components of procedural justice and only the consistency procedural rule has received empirical attention (Greenberg, 1990b). However, as a conceptualization of procedural justice, Leventhal's work has highlighted the importance of examining the structural aspects of procedures that influence fairness perceptions. There have been three studies that have used open-ended critical incident techniques to identify procedural aspects or dimensions of organizational decisions that influence fairness perceptions (Bies & Moag, 1986; Greenberg, 1986a; Sheppard & Lewicki, 1987). The following discussion examines the latter two of these studies, while consideration of Bies and Moag's (1986) research is delayed until issues of interactional justice are discussed.

Empirical investigation of procedural dimensions. The basic procedure that has been used to identify procedural dimensions is to have subject matter experts generate examples of fair and unfair aspects of a particular organizational decision. These critical incidents are then sorted into categories using expert judgments. The resulting categories are taken as encompassing the domain of procedural dimensions that influence fairness perceptions.

Greenberg (1986a) identified five dimensions of procedural fairness in performance evaluations through the use of open-ended questions, a q-sort technique, and factor analysis of importance ratings. The following dimensions were developed: (a) soliciting input prior to evaluation and using it, (b) two-way communication during an

interview, (c) ability to challenge/rebut the evaluation, (d) rater familiarity with ratee, and (e) consistent application of standards. In addition, two dimensions related to distributive justice were identified: one related to the relationship between performance ratings and actual performance, and the other to the relationship between salary/promotions and performance ratings. A factor analysis of importance ratings produced a two factor solution with the procedural dimensions loading on one factor and the distributive dimensions loading on the other factor.

Sheppard and Lewicki (1987) used the critical incident approach to examine managerial fairness and also had participants indicate the principles that had been followed or violated in each incident. Seven major areas of managerial duties were used for generating instances of fair and unfair treatment. The 747 incidents that were generated were sorted into 16 categories, and these categories were interpreted as rules of managerial fairness. These rules relate to decision making, providing feedback, assigning work roles, allocating rewards, and general managerial behavior. Table 1 summarizes the 16 categories and also lists the corresponding rules of allocation procedures identified by Leventhal (1980) and dimensions of performance evaluations identified by Greenberg (1986a).

If one compares theoretical work of Leventhal (1980) and the empirical work of Greenberg (1986a) and Sheppard and Lewicki (1987) a number of similarities can be seen in the dimensions that were generated. All three identified procedural rules related to consistency, representativeness of input into the decision process, and correctability or modifiability of the decision. The second of these,

Table 1

Components of Procedural Fairness

Sheppard & Lewicki (1987)	Leventhal (1980)	Greenberg (1986)
1. Consistency	Consistency rule	Consistant standards
2. Reasonableness		
3. Golden Rule		
4. Bias suppression	Personal bias rule	
5. Representativeness	Reflect individual interests rule	Soliciting input
6. Resource utilization	Accurate information rule	
7. Correctability	Modifiability rule	Ability to challenge/rebut
8. Information		
9. Timeliness		
10. Accountability		
11. Communication		Two-way communication
12. Role description		
13. Meaningful assignments		
14. Equity		Distributional dimensions
15. Ethicality	Ethical values rule	
16. Structure Integrity		

representativeness can be seen as conceptually similar to process control or voice. Additionally, both Leventhal and Sheppard and Lewicki have rules related to bias suppression, utilization of accurate information and resources (e.g. expertise and time), and ethical values or standards. Communication was a procedural concern identified by both Sheppard and Lewicki and Greenberg. Finally, while Leventhal's rules were strictly procedural, both Sheppard and Lewicki and Greenberg identified equity concerns as a distributional rule. One of Greenberg's dimensions, rater familiarity with ratee's work, does not appear to have a corresponding rule in either of the other two lists, although it is possible that utilization of accurate information and resources reflects the same dimension.

The overlap that can be observed in the above three lines of research is notable in that these studies reflect three different domains of organizational behavior: resource allocation (Leventhal, 1980), performance evaluation (Greenberg, 1986a), and general managerial fairness (Sheppard & Lewicki, 1987). The reason that Sheppard and Lewicki's list of rules is so much more comprehensive than the other two may in part be because general managerial fairness encompasses a wider variety of behavior than resource allocation or performance evaluation, which tend to be decision making and feedback situations. In addition to formal procedures, some of the rules listed by Sheppard and Lewicki may reflect communication or implementation of procedures. A growing body of research is directed toward this fairness which involves the enactment of procedures or interactional justice.

Interactional justice. Concerns about the fairness of decision makers' behavior during the enactment of procedures has been referred to as interactional justice (Bies & Moag, 1986). It has been argued that people are particularly sensitive to the process of interpersonal communication during decision making (Bies & Shapiro, 1987). Interactional justice refers to both what is said to individuals during the decision process and how it is said. Perceptions of procedural and distributive justice, as well as outcome satisfaction may be influenced by perceptions of interactional justice. Greenberg (1990c) suggested that much of organizational justice may be an impression management process where people are primarily concerned with looking fair, rather than being fair. To this end, interactional justice can be seen as an important outcome in organizational behavior.

Bies and Moag (1986) used open-ended questioning of critical incidents related to corporate recruiting to generate criteria of communication fairness, in much the same way that procedural justice was studied by Greenberg (1986a) and Sheppard and Lewicki (1987). In two separate samples, one prior to recruiting and one after recruiting, MBA job candidates were asked to describe either fair criteria expected of recruiters or fair and unfair experiences during recruiting. A content analysis of both these sets of criteria resulted in the same four dimensions of communication fairness. These dimensions included the following: a) respect or alternately rudeness; b) truthfulness, which included both incidents of deception and candidness; c) propriety of questions, which included both improper questions and prejudicial statements; and d) justification of the decision process or outcome. Of these four dimensions, justification has received the most research

attention.

Bies and Shapiro (1987) examined the impact of providing a causal account of mitigating circumstances on perceptions of interactional justice. Three studies using different organizational contexts and different settings demonstrated that the perceived interactional fairness and approval of the decision maker were greater when participants were given justification for a decision than when no justification was provided. Further, the second and third studies demonstrated that the perceived adequacy of the justification was a critical factor in this relationship, although both studies tested adequacy of justification as a mediator rather than a moderator.

Recent research has also examined the impact of offering justification for decisions on perceptions of procedural justice (Bies & Shapiro, 1988) and behavioral outcomes (Greenberg, 1990a). Bies and Shapiro (1988) examined justification argued through mitigating circumstances using both a laboratory simulation of a recruiting setting and a survey of judgments regarding budget decisions. In both studies, perceived procedural fairness was positively related to justification. Greenberg (1990a) monitored employee theft rate and turnover following plant-wide pay reductions. Both theft and turnover were significantly lower when an adequate explanation was offered for the pay cut than when no explanation was offered. Questionnaire measures of distributive justice (pay equity) were also affected by explanation adequacy with lower perceived equity in the inadequate explanation condition.

It may be interesting to consider some of the social psychology literature on persuasion and attitude change when considering the impact of justification on fairness outcomes. Specifically, one characteristic

of the persuader that has been studied with respect to impact on persuasion is credibility, which is comprised of both expertise and trustworthiness (Petty & Cacioppo, 1981). A persuader is likely to have a greater impact on attitude change if she/he is seen as an expert in the domain of persuasion or trustworthy as an individual. Additionally, persuasion is likely to have a greater impact if the persuasion message is comprehensible (not surprisingly) and if a number of arguments supporting the position are made (Petty & Cacioppo, 1981).

Tyler and Bies (1990) summarize research on interactional justice and propose five norms of proper decision maker conduct in enacting decision making procedures. These norms include the following: a) adequately considering employees' views, b) suppressing personal biases, c) applying decision criteria consistently, d) providing timely feedback, and e) providing an explanation for the decision. The first four of these norms were also discussed in one or more of Greenberg (1986a), Leventhal (1980), and Sheppard and Lewicki (1987) in relation to procedural justice. This demonstrates the potential difficulty that exists in trying to separate procedural from interactional justice. An alternate perspective is to treat both procedural and interactional dimensions as components of procedural justice.

Summary: A trichotomy of procedural antecedents. Procedural justice can be conceptualized as being comprised of three somewhat distinct components: a) characteristics of procedures, b) explanation of procedures and decision making, and c) interpersonal treatment (Greenberg, 1990b). Characteristics of procedures include those rules developed and discussed in Table 1, such as consistency, bias suppression, representativeness, resource utilization, correctability,

and ethicality. While some of these rules may be reflected in the enactment of procedures, it could be argued that the types of procedures implemented will influence the extent to which these rules are violated during enactment. Explanation of procedures and decision making reflects the kinds of concerns addressed in the literature on justification. Finally, interpersonal treatment is reflected in the truthfulness, respect, and ethical treatment shown by the decision maker.

Integrating Procedural and Distributive Justice

Thibaut and Walker (1975) suggested that procedural justice and distributive justice are independent dimensions; although just procedures may often lead to outcomes that are distributively just. That is, while distributive and procedural justice are conceptually independent constructs, there are perceptual similarities such that evaluations of procedural justice may influence evaluations of distributive justice. Folger and Greenberg (1985) contrasted this position with that suggested by Leventhal in which procedural justice is a necessary precondition for distributive justice to exist. In addition, Leventhal (1980) suggested that the relative weighting of different procedural rules may be influenced by the perceived distributive fairness. This suggests that procedural and distributive justice must necessarily be related.

Research has tended to support Thibaut and Walker's (1975) position, in that procedural and distributive justice perceptions have been found to be statistically independent. Both Alexander and Ruderman (1987) and Greenberg (1986a) identified separate distributive and procedural factors using factor analysis techniques. Alexander and

Ruderman (1987) also found that procedural and distributive justice perceptions differentially predicted a number of attitudinal and intentional organizational outcomes. However, it must also be noted that research examining procedural and distributive justice with compensation decisions (Folger & Konovsky (1989) and organizational grievance systems (Fryxell & Gordon, 1989) has demonstrated sizable correlations between perceptions of procedural justice and perceptions of distributive justice. This may support Thibaut and Walker's (1975) suggestion of perceptual overlap in procedural and distributive justice.

A second issue in the relationship between procedural and distributive justice is the relative importance of each in relation to organizational outcomes. Research results have clearly demonstrated that in many situations perceptions of procedural justice accounted for more variance in a variety of dependent measures than did distributive justice (Alexander & Ruderman, 1987; Dipboye & de Pontbriand, 1981; Folger & Konovsky, 1989; Fryxell & Gordon, 1989). However, Folger and Greenberg (1985) caution generalizations based on findings such as these because of the possibility that the relative importance of procedural and distributive justice may depend on both the context and organizational outcomes being examined. Indeed, it would seem that the more valent a particular outcome associated with the decision (e.g. how badly you want a job), the greater the role distributive justice would serve in overall evaluations of fairness. Unfortunately, no research exists that addresses this possibility.

A third way in which the relationship between procedural and distributive justice has been examined is in terms of a statistical interaction between the two. While research has not specifically

examined the interaction between distributive and procedural justice, Greenberg (1987a) examined the influence of outcome favorability (which has tended to be related to distributive fairness) and procedural justice on perceptions of procedural and outcome fairness. Consistent with Thibaut and Walker's (1975) findings, perceptions of procedural fairness were only influenced by procedural justice and not by outcome favorability. However, outcome fairness demonstrated an interaction between outcome favorability and procedural justice such that just procedures led to perceptions of fair outcomes, even when outcome favorability was low. Similar findings were obtained in the research of Leung and Li (1990). In an evaluation of people's reactions to a new subway-fare scheme, increased process-control was found to be related to more favorable reactions with negative outcomes. However, with positive outcomes, process-control had only weak effects on some reactions.

Although outcome favorability is not synonymous with distributive justice, the above research does suggest that perceptions of procedural and distributive justice interact to produce a variety of organizational outcomes. Given the number of studies that have assessed both procedural and distributive justice, it is somewhat surprising that the interaction between the two has not been more commonly assessed. In terms of theoretically linking procedural and distributive justice, referent cognition theory has been proposed to link the two types of justice in an interactive relationship (Folger, 1986, 1987).

Referent cognition theory. Referent cognition theory suggests that negative emotions are maximized in situations when people believe they would have received better outcomes if the allocation decision had been made on the basis of a different procedure that should have been

implemented (Folger, 1986, 1987). That is, given a negative outcome, negative affect is only likely to be experienced if an alternate (more justifiable) procedure can be imagined that would have led to a favorable outcome. If a negative outcome would have resulted regardless of the procedure, this theory suggests that resentment toward the procedure would not be experienced. Research has supported this prediction and has shown that negative emotions were greater when subjects were told they would have received an anticipated reward had a different procedure been used than if told they would not have received the reward, even if a different procedure was used (Cropanzano & Folger, 1989).

In many nonexperimental situations, people may not always know what the outcome of an alternate procedure might have been. In these situations Folger (1987) suggested that people cognitively assess the expected outcome through an imagined scenario (much like Kahneman and Tversky's, 1982, simulation heuristic). Dissatisfaction with an outcome is predicted to be greater if a person can imagine an alternate procedure leading to a favorable outcome. Research on the simulation heuristic would indicate that with situations or procedures that contain surprises or deviations from accepted practice, people are more easily able to imagine a positive outcome by restoring the normal procedure. Therefore, dissatisfaction would likely be greater with unusual or atypical procedures.

It is important to sort out precisely what referent cognition theory is suggesting in terms of the relationship between procedural and distribution justice. First, this theory only deals with situations that involve negative outcomes; it says nothing about procedural justice

in situations with positive outcomes. Second, procedural justice is proposed as a moderator in the relationship between outcomes and perceived outcome fairness (distributive justice). Third, an important aspect of procedural justice is the extent to which alternate procedures may have led to more favorable outcomes. In this way it is somewhat difficult to categorize the procedural and distributive elements of referent cognition theory. With the exception of the third point, it could be argued that referent cognition theory does not offer anything predictive beyond results generated in previous research (e.g. Greenberg, 1987a). However, as research has only begun to address this theory, it is premature to evaluate its merit as a theory of justice.

Summary. When integrating procedural and distributive justice, three issues have arisen from the empirical literature. First, research has clearly demonstrated that the two justices represent independent constructs, although they tend to be correlated. Second, procedural justice has tended to account for more variance in organizational outcomes than distributive justice. Rather than de-emphasizing the importance of distributive justice, this finding should be interpreted in term of the importance of procedural justice (Greenberg, 1990b). Third, a statistical interaction between procedural and distributive features of reward situations has been demonstrated with outcomes related to distributive fairness. Further, referent cognition theory makes specific predictions about the procedural conditions that must exist for this interaction to arise.

In addition to demonstrating an interaction between procedural and distributive influences on perceived fairness, the research of Greenberg (1987a) and Leung and Li (1990) demonstrated the importance of

distinguishing between procedural and distributive perceptual outcomes (i.e. fairness judgments). In Greenberg's research, interactions were found on perceived outcome fairness but not on perceived procedural fairness, whereas in Leung and Li's research interactions were found on both procedural and distributive fairness. In addition to perceived fairness, the following sections summarize a number of other organizational outcomes that have been associated with justice perceptions.

Outcomes Associated with Justice Perceptions

A final issue of importance with regard to the organizational justice literature is the link between justice perceptions and outcomes of organizational relevance. It is through these relationships that the utility and importance of organizational justice is clearly established. It is also through these relationships that the distinction between procedural and distributive justice has been clearly demonstrated.

Alexander and Ruderman (1987) developed questionnaire measures of procedural and distributive justice perceptions related to a variety of organizational activities (e.g. participation, pay, performance appraisal, appeals procedures) and also collected measures of a number of organizational outcomes. With a sample of 2800 federal employees, justice perceptions were shown to be related to job satisfaction, evaluation of supervision, conflict/harmony, trust in management, and intentions to turnover. Further, while procedural justice accounted for more variance in the first four outcomes, distributive justice accounted for more variance in intentions to turnover. The interpretation given to these findings was that procedural justice may be more strongly related to attitudes and feelings, while distributive justice is more

strongly related to intentions and behaviors. Although research has not followed up on this suggestion, other studies have found that procedural and distributive justice tend to be differentially related to organizational outcomes.

Folger and Konovsky (1989) examined justice perceptions related to compensation decisions and found procedural justice accounted for more unique variance in organizational commitment and trust in supervision than distributive justice, while distributive justice accounted for more unique variance in pay satisfaction. Similarly, Gordon and Fryxell (1989) correlated organizational grievance system justice perceptions with union and grievance system satisfaction and found that procedural justice was a better predictor than distributive justice. These results suggest that procedural justice is related to system satisfaction whereas distributive justice is related to outcome satisfaction (Greenberg, 1990b).

Finally, one recent study used structural equation analysis to examine the relationship between three types of justice perceptions (distributive, procedural, and interactional) and organizational citizenship behavior (OCB) (Moorman, in press). OCB is defined as behaviors that promote organizational effectiveness but are not related to formal reward systems, such as altruism, courtesy, sportsmanship, conscientiousness, and civic virtue. This study found only interactional justice to have a significant path to OCB, suggesting that rather than formal procedures or the outcomes of those procedures, the most direct influence on OCB is from the way in which procedures are implemented.

Conclusions

The brief, albeit broad overview of the justice literature highlighted a number of points that are likely of importance in the extension of organizational justice literature to the selection process. First, organizational justice theories clearly distinguish dimensions of procedural and distributive justice and demonstrate the importance of each. Second, in terms of distributive justice, three components of the distribution process warrant consideration: recipients, receipts, and distributional rules. While equity appears to be the primary distribution rule underlying distributive justice perceptions, situational factors may increase the salience of the alternate rules, equality and needs.

Third, procedural justice theories also suggest a number of rules that influence perceptions of procedural justice, the most commonly studied of which is process control. Additional procedural rules include consistency, bias suppression, representativeness, modifiability, and two-way communication. Fourth, in addition to the existence of formal procedures, the enactment of these procedures is important in terms of procedural fairness. These issues have been termed interactional justice and the most commonly studied factor has been the effect of offering justification for a procedure or outcome on fairness perceptions. The review of this literature concluded with the proposal of three groups of procedural components: a) formal characteristics of procedures, b) explanation of procedures and decision making, and c) interpersonal treatment.

Fifth, limited evidence and preliminary theory exist to suggest a statistical interaction between procedural and distributive justice on

some perceptual outcomes. More specifically, procedural justice may have a stronger effect in conditions of unfair distributions than fair distributions, especially with perceptions of outcome fairness. Finally, procedural and distributive justice perceptions have been related to a number of organizational outcomes, including satisfaction, evaluation of supervision, organizational commitment, turnover intentions, and OCB. Different justice perceptions have been more strongly related to different outcomes, with the only consistent finding being that procedural justice is more strongly related to system satisfaction, whereas distributive justice is more strongly related to outcome satisfaction.

Perceptions of Employee Selection Systems

Perceptions of employee selection systems have been discussed in terms of the face validity of selection tests and studied by examining reactions to, and fairness perceptions of individual selection procedures. Face validity refers to the extent to which a test appears to measure content relevant to the testing situation; that is, whether it appears valid to the applicant (Anastasi, 1988). While not validity in the technical sense, it has been argued that face validity must be an important consideration in test development (Anastasi, 1988; Huffcutt, 1990). Related but not necessarily equivalent reactions include perceptions of test fairness and test accuracy. It is possible to conceptualize face validity as one factor that contributes to fairness and accuracy perceptions. The current literature review includes these and other reactions to selection procedures.

Reactions to selection procedures have been studied from both the interests of recruiting whereby perceptions and reactions are related to job choice intentions (Liden & Parsons, 1986; Schmitt & Coyle, 1976), and from the interests of demonstrating the favorability of certain selection procedures such as work sample tests (Schmidt, Greenthal, Hunter, Berner, & Seaton, 1977) or assessment centers (Dodd, 1977). The result has been that research is largely fragmented with little effort to share methodology or results. Further, the recruiting literature does not consider the favorability of different types of procedures and the favorability literature does not consider the implications for recruiting. Clearly what is needed is an integration.

Concern with applicants' perceptions of employee selection procedures has a relatively short history and it is readily apparent that much of this research is atheoretical. In the early 1970's, researchers began examining applicant perceptions of interviewer characteristics and reactions to recruiting and selection interviews (Alderfer & McCord, 1970; Schmitt & Coyle, 1976). During the 1970's and early 1980's some researchers began to examine reactions to work sample tests and assessment centers (Dodd, 1977; Schmidt et al., 1977; Teel & Dubois, 1983). Recent research has addressed perceptions of computerized testing (Martin & Nagao, 1989), integrity testing (Stone & Herringshaw, 1991, April), and drug testing (Murphy, Thornton, & Reynolds, 1990).

The current review organizes the literature by six different types of selection procedures: Interviews, work sample tests and assessment centers, paper-and-pencil tests, computerized testing, drug testing, and integrity testing. For each type of selection procedure, literature is

reviewed with an emphasis on procedural issues that influence reactions. The review that follows is concluded with a discussion of recent methodological advances in the assessment of reactions to testing.

Interviews

The largest body of research on applicants' reactions to selection procedures exists with respect to recruiting and selection interviews. For the most part, this research has related interview, and predominantly interviewer characteristics to recruitment relevant variables such as expectations of receiving a job offer, organizational attractiveness, and job acceptance intentions.

The first systematic research to examine reaction to interviews was conducted by Alderfer and McCord (1970). Using recruiting interviews, these researchers found significant correlations between a number of perceptions of interviewer behavior and the perceived likelihood of receiving a job offer and accepting an offer if extended. Schmitt and Coyle (1976) developed a questionnaire that assessed six dimensions of interviewer characteristics and behavior during an interview and found four to be related to impressions of the company and interviewer, expectations of receiving a job offer, and intentions toward further pursuit of the job. Warmth and thoughtfulness of the interviewer was the strongest predictor, with interviewer correctness and presentation style and the extent to which job information was conveyed by the interviewer also accounting for significant variance in a number of the dependent variables. Interviewers' conduct of the interview was a somewhat weaker predictor. Of particular interest with regard to perceived accuracy and fairness of the interview was the observation of a .36 multiple correlation between the six interviewer

dimensions, which are basically procedural factors, and the applicants' perceptions of their performance during the interview, which is more of a distributive reaction.

Subsequent research has replicated and extended the findings of Schmitt and Coyle (1976) by examining moderators (Liden & Parsons, 1986) and by comparing the relative influence of interviewer characteristics and job attributes on job acceptance intentions (e.g. Powell, 1984). With regard to the latter, research has used both simulated decision techniques (Rynes & Miller, 1983) and questionnaire methods with path analysis (Powell, 1984) to demonstrate that interviewer (recruiter) characteristics account for minimal variance in job acceptance intentions when compared to job attribute perceptions. However, Harris and Fink (1987) did find that recruiter characteristics accounted for significant variance beyond job attributes in acceptance intentions. Another interesting result of Harris and Fink's research was that recruiter characteristics predicted changes in perceived job and organization characteristics, which demonstrates the informational value of interviews in terms of shaping applicants' impressions.

While most research has tended to use a percept-percept format in which interviewees rated both interviewer characteristics and reactions to the interview, Taylor and Bergmann (1987) collected interview characteristics (both content of the interview and interviewer characteristics) from the interviewer and related these ratings to interviewee ratings of company attractiveness and acceptance intentions. Little relationship was found between interviewers' and interviewees' perceptions.

In summary, while the research is mixed in terms of the extent to which interviewer characteristics influence interviewee intentions, research suggests that interviewer characteristics do influence some interviewee reactions and impressions of the organization. What is noticeably absent from this literature is any examination of the relationship between interviewer characteristics and satisfaction with, or perceived fairness of the interview. Only one study examined the relationship between perceptions of the interviewer and general affect toward the interview (Liden & Parsons, 1985). The extent to which the interviewer was seen as personable was the strongest predictor of general interview affect.

Other procedural characteristics of the interview would also seem likely to influence perceptions of interview fairness and affective responses toward the interview. While research has not yet examined the possibility, it would seem that the extent of two-way communication or opportunities for the interviewee to exert process control during the interview should be related to perceived fairness. It would also be informative to compare interviewees' reactions to structured (e.g. Campion, Pursell, & Brown, 1988) and unstructured interviews. Procedural justice research would predict structured interviews to be seen as fairer than unstructured interviews because of greater objectivity, relevance, and consistency of administration.

Work Sample Tests and Assessment Centers

Work sample tests, trainability tests, and assessment centers all share the common feature of offering high content validity and probably also high face validity. Research has examined perceptions of face validity (Dodd, 1977), perceived accuracy and fairness (Schmidt et al.,

1977), and behavioral consequences of these reactions (e.g. Cascio & Phillips, 1979). Additionally, issues relevant to both procedural justice and distributive justice have been addressed in this research.

Dodd (1977) reported positive participant reactions to both the face validity and perceived accuracy of assessment centers in a variety of organizations. In a comparative study, Schmidt et al. (1977) compared examinees' attitudes regarding test fairness on a job sample test and a written job knowledge test. The job sample test was perceived to be fairer and a better evaluation of skills than the written test. In a somewhat different study, Cascio and Phillips (1979) indirectly support these findings with research that demonstrated lower incidence of applicant complaints following the introduction of job related performance testing. Farr, O'Leary, and Bartlett (1973) compared individuals who received a work sample test with those who received a general apparatus test (e.g. pinboard). Although not significant, results suggested lower rates of job acceptance in the work sample group, and turnover was found to be significantly lower in the work sample group. While this finding may at first seem inconsistent with the Schmidt et al. (1977) study, it is certainly consistent with the realistic job preview research (Premack & Wanous, 1985).

Some evidence indirectly supports the notion that distributive justice or test performance influences reactions and later behavior. Downs, Farr, & Colbeck (1978) found lower job acceptance rates among low performers on a trainability test than among high performers. More direct evidence of distributive justice effects are found in studies that demonstrated a relation between test performance and perceptions of test accuracy and fairness. Teel and Dubois (1983) interviewed high and

low performers after participation in an assessment center, but before feedback on performance was communicated. Compared to low performers, more high performers felt their performance in the center accurately reflected what they would do on the job and felt the assessors' evaluations were accurate. Similarly, Noe and Steffy (1987) found reactions to an assessment center, which included felt accuracy and satisfaction, to be strongly related to assessment center performance. In a summary of research on the perceived face validity of assessment centers, Dodd (1977) indicated that assessment center performance, feedback of performance, and decisions based on performance can all influence perceptions of face validity. For example, in one study 88% of selected individuals believed the center assessed many of the important qualities required for effective managers, whereas 63% of those not selected made a similar evaluation.

Paper-and-pencil Tests

Paper-and-pencil tests can include ability tests, personality inventories, and biodata forms. While these represent common forms of selection tests, relatively little research has examined reactions toward different forms of paper-and-pencil tests. More common is research comparing paper-and-pencil testing to work sample testing or computerized testing. As discussed above, reactions were less favorable to written job knowledge tests than work sample tests (Schmidt et al., 1977). Similarly, Robertson and Smith (1989) cited unpublished research that demonstrated less favorable reactions, in terms of perceptions of accuracy and fairness, toward biodata than toward situational interviews and assessment centers. Research discussed in more detail below demonstrated less favorable reactions to paper-and-pencil tests than

computer adapted tests (Arvey, Strickland, Drauden, & Martin, 1990; Schmidt, Urry, & Gugel, 1978)

Recently, research has begun to investigate both reactions to different types of paper-and-pencil tests and the reasons for differences in these reactions. Smither and Pearlman (1991, April) had both college recruits and recruiting managers rate the extent to which they perceived different selection procedures to be job-related, both in terms of criterion-related validity and content validity. Participants were given descriptions and sample items for eight types of cognitive ability tests as well as a personality inventory, a biodata inventory, structured and unstructured interviews, and two assessment center tasks. The interviews, assessment center tasks, and cognitive ability tests with relatively concrete items were perceived to be more job related than personality, biodata, and cognitive ability tests with abstract items. This study also manipulated whether or not a description was given of the construct being assessed by the cognitive ability test and the face validity of cognitive test items, which was manipulated by rewriting items within a business context. Neither of these manipulations influenced perceptions of job-relatedness.

Kluger and Rothstein (1991, April) manipulated both test type (cognitive ability vs. biodata) and distributive outcome (success vs. failure) in a computer simulated job application situation. Dependent variables were a plethora (28 actually) of perceptual, attitudinal, and affective questionnaire measures. Among other effects, biodata tests were perceived as fairer than cognitive ability tests, and both test types were seen as fairer in the success than in the failure condition. Additionally, the company image was perceived to be better in the

success than failure conditions. The authors suggested that differences in the cognitive demands of the two test (cognitive ability being more demanding than biodata) led to reactional differences on the part of test takers. Some perceptual data was offered to support this suggestion.

Although, both of these studies make useful contributions in terms of investigating aspects of selection tests that influence applicants' reactions, they both suffer from and highlight a limitation of this type of research. The first study used descriptions of selection procedures while the second used simulated procedures, and as such, the results may be highly dependent on the test descriptions or test samples presented. This may account for the discrepancy in the findings of these two studies. Smither and Pearlman (1991, April) found that cognitive ability tests were perceived as more job-related than biodata inventories, while Kluger and Rothstein (1991, April) found the opposite results for perceived fairness. Future research would likely produce more consistent results if specific procedural characteristics of different tests were manipulated rather than the types of tests themselves. For example, Kluger and Rothstein's hypothesis about cognitive demand influencing test reactions could be assessed by manipulating difficulty within, rather than across test types.

Computerized Testing

Three studies have examined applicants' reactions to computerized testing. Schmidt et al. (1978) assessed reactions of examinees toward computer adaptive testing (CAT) in which the test was customized to individuals on the basis of test performance and item difficulty. Overall reactions were positive, and when compared to paper-and-pencil

tests, 83% of examinees preferred CAT. Specific advantages cited were that CAT was fast, required fewer questions, provided immediate feedback, and allowed for faster notification of qualification for a job. Similarly, Arvey et al. (1990) compared reactions of military personnel after completing a paper-and-pencil and a CAT version of the ASVAB and found both motivation and concentration to be higher with the CAT version. Additionally, belief in the validity of tests was higher for CAT testing than paper-and-pencil testing.

Somewhat different results were found when computerized testing was extended to the interview situation (Martin & Nagao, 1989). Simulated applicants for a "high-status" job expressed more resentment toward both computerized and paper-and-pencil interviewing than traditional face-to-face interviewing. The interpretation given was that these non-traditional interview styles violated expectations generated by a fair interview script. Additional explanation can be found when one compares the findings from the Schmidt et al. (1978) study of CAT. Advantages of CAT over paper-and-pencil testing were cited in terms of speed, test length, and feedback immediacy. None of these factors differentiated the computer interview format from the traditional interview format. Thus, it is likely procedural issues, rather than the test medium that influences individuals' reactions to computerized testing.

Drug Testing

Recently, a considerable volume of research has begun to examine reactions to drug testing. This is likely a result of the dramatic increase in the implementation of organizational drug testing programs, as well as individual concerns over invasion of privacy issues and

concerns over negative outcomes that result from testing positive (Konovsky & Cropanzano, 1991). Research has examined both procedural and distributive factors that influence reactions to drug testing, including who gets tested (what jobs drug tests are used for and how people are selected for testing), how privacy is maintained, and what outcomes result from testing positive. Additionally, some research has linked these perceptions to further organizational outcomes.

Murphy, Thornton, and Reynolds (1990) examined college students' attitudes toward drug testing under various procedural conditions. While the most dominant finding was considerable variability in attitudes, some procedural conditions were clearly related to perceptions of the favorability of a program. The type of job influenced favorability perceptions, with a correlation found between perceived job danger and ratings of acceptability. Additionally, random drug testing was seen as less favorable than testing all individuals or only testing those with a history of drug use. Administrative procedures such as how the test was conducted, the type of test, and to whom the results were made available influenced attitudes toward the program. Finally, the consequences of the program influenced attitudes, in that more negative attitudes were found toward dismissal policies than with less punitive consequences.

Murphy, Thornton, and Prue (1991) further examined the relationship between job characteristics and acceptability of drug testing programs by comparing perceived danger, PAQ, and DOT ratings with acceptability ratings across a number of jobs. A number of job characteristics were related to acceptability, including repetitiveness, degree of monitoring, involvement of psychomotor skills, performance

under stress, and contact with the public. Consistent with Murphy et al. (1990) perceived danger was the best predictor of acceptability, and some evidence suggested that perceived danger mediated the relationship between job characteristics and acceptability.

Stone and Kotch (1989) found more negative attitudes toward drug testing programs that provided no advanced notice of testing or that resulted in dismissal rather than rehabilitation. Similarly, in a survey of human resource managers' perceptions of the effectiveness of their drug testing program, Gomez-Mejia and Balkin (1987) found that effectiveness perceptions were related to administration factors such as use of random testing and extent of program monitoring, as well as outcome factors such as detection for rehabilitation purposes.

Rather than directly assessing reactions to drug testing, Crant and Bateman (1990) examined attitudes toward the company and intentions to apply for a job as a function of the presence of and need for a drug testing program. Need for a testing program was manipulated through descriptions of accident rates, employee theft, and absenteeism, as well as a statement linking these problems to drug testing. Attitudes and intentions were more negative when a drug testing program was present than when it was not present and were more negative when a need for a program was perceived.

Konovsky and Cropanzano (1991) incorporated an organizational justice perspective into an examination of the relationship between perceptions of a drug testing program and attitudinal and behavioral organizational outcomes. Perceptions of procedural fairness and company explanation for testing predicted trust in management, affective commitment, job satisfaction, intentions to quit, and employee

performance. Outcome fairness accounted for no unique variance in any of the organizational outcomes.

Integrity Testing

As with drug testing, both procedural and distributive issues may be a concern for examinees. While overt integrity tests are face valid, the content of the questions may be objectionable to individuals and concerns may arise regarding fakability. Personality-based measures lack face validity and so may also be perceived to be unfair. Given the high false positive rates of many integrity tests (Sackett et al., 1989), perceived accuracy or concerns about distributive justice may also be an issue. In a recent review of integrity testing, Sackett et al. (1989) found only one study that examined test takers' reactions to overt integrity tests. Results indicated that after taking an integrity test, most college students felt the use of this test was appropriate. However, 10% of the students reported they would refuse such a test in a selection testing situation.

In a more recent study, Stone and Herringshaw (1991, April) examined how three procedural factors influenced reactions to honesty testing. Using hypothetical organizational scenarios and an experimental design, these researchers manipulated the purpose of the honesty test (job application vs. incumbent theft detection), the relevance of honesty testing to the job (the degree to which theft could be a problem), and the use of test results (supporting evidence vs. primary evidence). Reactions, which included perceived fairness, invasion of privacy, and resentment, varied as a function of test purpose and use of results and were more negative in the incumbent theft detection conditions and primary evidence conditions than job applicant

and supporting evidence conditions. Reactions were not influenced by the relevance of honesty testing to the job, however manipulation checks indicated that participants did not perceive this manipulation.

Methodological Advances

For the most part, research examining reactions to selection procedures has tended to use single or multi-item scales that are unique to individual studies. Only recently, have researchers attempted to develop scales using psychometrically rigorous procedures. Lounsbury, Bobrow, & Jensen (1989) developed a 17-item unidimensional scale to measure attitudes toward employment testing. Items dealt with the ability of tests to predict job performance, fairness to different people, and perceived use of tests, as well as perceived fairness factors such as invasion of privacy and reduction of favoritism. When related to previous experience with employment testing, attitudes were more favorable among people who had received feedback on their test performance and who were told how the test related to future job performance. A second study compared attitudes of four groups of people who had undergone employment testing. People who had failed the test and did not get a job expressed the most negative reactions, followed by a control group who had taken the test but had not yet received results. Those who passed the test and were waiting for a job or who had been offered a job expressed the most positive reactions. As the test was the same across groups, the differences in attitudes are attributable to test performance and outcome.

Avrey et al. (1990) developed a Test Attitude Survey (TAS) that measured nine dimensions related to expressed effort and motivation on an employment test. Dimensions included motivation, concentration, test

ease, anxiety, attributions, achievement needs, and preparation. Two additional factors, belief in tests and future effects, can be loosely related to perceptions of procedural and distributive justice. Belief in tests assessed attitudes toward the suitability and validity of tests in general (not the specific test completed), and future effects tapped beliefs about the relationship between performance on the given test and future outcomes. As previously mentioned, Arvey et al. (1990) found different attitudes on a number of dimensions toward computer and paper-and-pencil testing. The TAS was also used to compare the motivation of applicants and incumbents, to relate motivation to test performance, and to relate motivation to job performance measures.

While both of these measures of employment testing attitudes represent worthwhile assessment tools and both demonstrated good scale development techniques, neither assessed many of the procedural elements associated with how selection procedures are implemented. That is, neither address issues such as face validity, consistency in administration, explanation of procedures, and interpersonal treatment. These factors and others will be discussed in more detail below in the presentation of a model of applicant reactions to selection systems.

Conclusions

The review of literature on perceptions of employee selection procedures indicates that different procedural concerns have been addressed with different types of selection procedures. Research on perceptions of interviews has tended to emphasize characteristics and behaviors of the interviewer, while issues such as interview dynamics (e.g., two-way communication) and interview structure have not been examined. Perceptions of work sample tests and assessment centers

include perceptions of fairness, accuracy, and job relatedness as well as the influence of test performance on these perceptions. Different types of paper-and-pencil tests have been compared in addition to comparisons with other selection procedures. Some research suggests that the cognitive demands of the selection test may influence the favorability of reactions.

Researchers who have examined a number of alternate types of predictors (computerized tests, drug testing, and integrity tests) have done more in terms of examining procedural aspects of the test or the testing situation that influence examinee reactions. Research indicated that computerized testing was preferred over paper-and-pencil testing because of the immediacy of feedback on test performance and hiring decisions. In research on drug testing the following procedural aspects have all been related to acceptance of testing: job relatedness, privacy of results, procedures for selecting employees to be tested, outcomes of testing positive, and explanation about the need for testing. In addition, recent research has compared procedural and distributive aspects of perceptions of drug testing, and found that procedural aspects demonstrated a stronger relationship to a variety of organizational outcomes. Issues examined with regard to integrity testing include job relatedness and the use of test information.

Finally, research that was oriented toward developing solid measures of reactions to testing also identified procedural and distributive factors that influenced reactions. Feedback on performance and explanation of the job relatedness of the test were both related to positive reactions. Hiring decisions that resulted from test outcomes were also related to reactions to testing.

In addition to highlighting the importance of a number of procedural features of both tests and testing situations, this research may indicate that different procedural issues are more salient for some test types than for others. For example, interpersonal treatment may be the most salient procedural feature that influences reactions to interviews. Alternately, timeliness and informativeness of feedback may be a salient feature of computerized testing. Additionally, distributive concerns may be more salient for integrity and drug testing than for interviews and conventional paper-and-pencil tests. While research must assess the validity of these suggestions, this literature review does offer an initial point from which hypotheses can be generated.

CHAPTER 2

A MODEL OF APPLICANT REACTIONS TO SELECTION SYSTEMS

A review of the organizational justice literature identified a number of theories and issues that have direct applicability when considering how job applicants react to selection systems. Issues of procedural justice, distributive justice, and the interaction between the two have theoretical importance in selection processes. In the review of the literature on applicant reactions to different selection tests, many characteristics of tests that influence reactions were identified. However, missing from this literature is a theoretical framework or model that could be used to both organize research findings and to generate predictions about how applicants will react given a particular selection situation.

Previous attempts to model social issues involved in the selection process can be found in the literature. Herriot (1989b) proposed that an often overlooked perspective in the selection literature is to view selection as a social process. The selection process can be conceptualized as a series of decisions by both the individual applying for a job and by the organization. The individual must decide to apply for a position, to attend each of the selection processes, and finally to accept a job offer. Similarly, the organization must decide whether or not to evaluate the individual with a series of selection procedures and then offer a position. The interplay between these sets of

decisions is what comprises the social process.

Herriot (1989a) presented a model of the influence of performance in selection procedures on applicant self-efficacy and self-esteem. While no mention was made of how procedural aspects of the selection process may influence these outcomes, Herriot did suggest that rejection in one selection process may be attributable to inadequacies of the selection procedure, especially if individuals have an external locus of control. Additionally, Herriot suggested that the selection process can convey information about an organization's expectations during selection and on the job, and about how an organization treats individuals. These, as well as self-efficacy and self-esteem may influence an applicant's decision to persevere in the remainder of the selection process and to accept a job offer.

Schuler (in press) adopted the term social validity to refer to perceptions of the acceptability of selection situations. As a preliminary model of social validity, he suggested that four factors influence the acceptability of selection situations: Relevant information, participation, transparency, and feedback. Relevant information includes task domain and social/organizational context information related to the job for which one is applying. This is information that will aid the applicants in their decisions to accept a job offer. Participation refers to direct and representative (e.g. by union) involvement in the development or choice of the selection procedure, as well as to the ability to exert influence or control over the selection situation. In the latter sense, participation is similar to the procedural justice concept of voice. Transparency refers to the degree to which applicants can ascertain the objectives of the selection

situation and the evaluation process (e.g. decision criteria and standards), see the task relevance of the diagnostic instrument (i.e. face validity), and conduct some self-assessment during the measurement process. Finally, social validity is influenced by the content and form of feedback provided regarding performance in the selection situation.

Schuler (in press) acknowledged that his was a preliminary model, and as such he provided no indication of how the four components of social validity may combine or integrate. Additionally, he does not speculate on outcomes associated with acceptable or unacceptable selection situations. The value of this model is that it attempts to organize and initially define four procedural components of selection systems that may influence applicant reactions.

Addressing a similar issue as Herriot (1989b) and Schuler (in press), Arvey and Sackett (in press) argue for an expansion of the definition of test fairness to include perceptions of fairness. They presented a list of determinants of selection system fairness perceptions that were organized within five categories: selection system content, system development process, system administration process, system context, and selection outcomes. Selection system content included job relatedness, objectivity, invasiveness, fakability, applicant control, and thoroughness of KSA coverage. Selection system development process concerned the adequacy of job analysis and validity evidence, as well as involvement of professional and other representation in development. Procedural issues such as consistency across candidates, opportunity to review scores and be reconsidered, confidentiality, and prior information about process were included under the heading of selection system administration process. Selection

system context involved the firm's history, the selection ratio, and organizational resources, while selection system outcomes included the maximization of performance and utility, optimization of representation, moral outrage, satisfaction and equity, turnover, and recruitment.

The Arvey and Sackett (in press) list of determinants of perceived selection system fairness is the most comprehensive attempt to define the domain of factors that may influence applicants' reactions. What is missing from this paper is a clear model of how the different determinants combine to influence perceptions. The authors suggested that different stakeholders will be sensitive to different variables in forming their perceptions, but offer no elaboration of the nature of these differences. Additionally, no attempt was made to tie the list of determinants to past research on reactions to selection procedures nor to theory from organizational justice.

A final model of social aspects of selection was developed by Robertson and his colleagues (Iles & Robertson, 1989; Robertson & Smith, 1989) as a conceptualization of the psychological impact of personnel selection methods on individual candidates. It was hypothesized that features of the selection method, including intrusiveness, face validity, type/degree of feedback, and sympathetic treatment, would influence applicants' cognitive and affective reactions toward the process. The nature (e.g. accept vs. reject) and kind (e.g. specificity) of decision feedback provided was also proposed to impact reactions. In addition, they suggested that the relationship between method and reactions was moderated by personal characteristics such as life/career stage, self-efficacy, self-esteem, locus of control, and experience with selection procedures. Finally, it was proposed that

cognitive and affective reactions should lead to outcomes such as work commitment, performance, turnover, psychological well-being, and personal agency.

The Robertson model represents the best example in the literature of a model that attempts to define both the content and process factors that influence reactions to selection procedures. In addition, Iles and Robertson (1989) reviewed research on attitudes and reactions to different selection procedures, prior to presenting a model. As with all of the other models, the Robertson model was presented as an initial conceptualization or a preliminary model, and they acknowledge that research is needed to more completely understand the underlying factors and processes.

Clearly what is missing from the previous models of social aspects of the selection process is a solid link to psychological theory. Herriot (1989b) suggested that theory from social psychology can be used to understand the underlying social processes of selection systems, and indeed incorporated theory on self-efficacy and self-esteem in his model. Additionally, Arvey and Sackett (in press) suggested that research from organizational justice theory is consistent with their perspective, although they declined to make the connections explicit. Clearly, a useful model of applicants' reactions to selection processes would include both psychological theory from organizational justice and prior research on reactions to selection procedures. Such a model is developed and presented in the following section.

The Conceptual Model

The conceptual model of applicant reactions to selection systems is developed from both the organizational justice literature and the

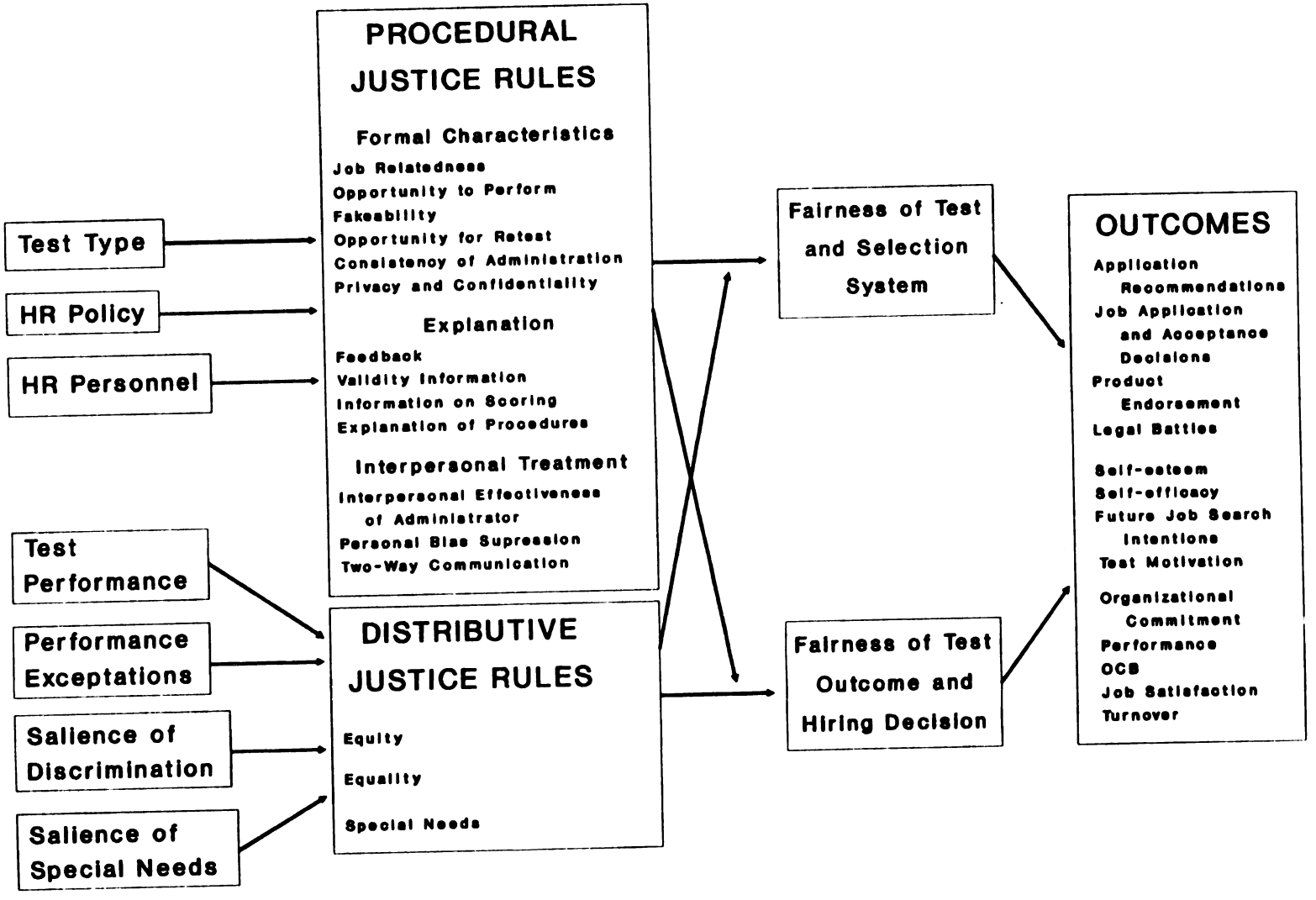
selection test reactions literature. The model is presented in Figure 1 and proposes that situational and personal factors influence the extent to which procedural and distributive rules are perceived as satisfied or violated. That is, factors such as test type, human resource policy, and human resource personnel influence applicants' perceptions of the procedural justice of the selection system. Procedural justice is conceptualized as being comprised of 13 rules that are related to formal characteristics of the selection system, explanations offered during the selection process, and interpersonal treatment. Evaluations of the extent to which each of these rules is satisfied or violated, are combined to form an overall evaluation of the fairness of the test and selection system.

In terms of distributive justice related to test performance and subsequent hiring decisions, performance expectations influence perceptions of equity in either the test outcome or the hiring decision outcome. While equity is predicted to be the primary distributive rule, situations that influence the salience of discrimination and the salience of special needs on the part of certain applicants, can impact the extent to which equality and special needs distributive rules also contribute to evaluations of test outcome and hiring decision fairness. In addition to these main effects, procedural rules are predicted to moderate the distributive justice to outcome fairness relationship, and distributive rules are predicted to moderate the procedural justice to procedural fairness relationship.

A final portion of the model deals with the relationship between fairness perceptions and organizational outcomes. These outcomes include some variables common to both accepted and rejected candidates

Figure 1

Conceptual Model of Perceived Fairness



(job application decisions, test motivation, self-esteem, self-efficacy, endorsement of the company's products), some variables specific to the accepted candidates (job acceptance decisions, organizational commitment, job satisfaction, turnover, performance, and OCB), and a variable specific to rejected applicants (future job search intentions). These relationships, as well as all of the other relationships outlined in this brief overview are discussed in more detail. An effort is made to relate each portion of the model to the previously reviewed literature.

Procedural Justice Rules

Adopting the perspective of procedural justice initiated by Leventhal (1980), overall evaluations of procedural justice are thought to be comprised of the satisfaction or violation of a set of specific procedural rules. Based on organizational justice theory, research on perceptions of selection procedures, and their own judgments, Schmitt and Gilliland (1991) proposed nine factors that may influence perceptions of the fairness of selection procedures. These included the following: a) job relatedness or face validity of procedures, b) opportunity for retesting, c) consistency or standardization of test administration, d) privacy and confidentiality safeguards, e) feedback regarding test performance, f) information regarding validation procedures, g) knowledge of how tests are scored, h) knowledge of how tests are used in decision making, and i) interpersonal effectiveness of the test administrators.

A more thorough review of the organizational justice literature and research and theoretical models dealing with selection procedure fairness suggest five additional factors that may influence procedural

justice perceptions. First, considerable procedural justice research has demonstrated the importance of "voice" or the opportunity to offer input into a decision. In the selection domain, voice can be interpreted as the opportunity to demonstrate one's abilities, or the opportunity to perform. Second, limited research has indicated that fakability may be a concern of applicants, especially with certain types of test such as biodata forms or overt integrity tests. Third, prior information on the selection system process may reduce uncertainty and ambiguity, particularly for novel selection procedures. The last two factors can be found in both the procedural and interactional justice literature, and include administrator personal bias suppression and two-way communication during the selection process.

The nine factors proposed by Schmitt and Gilliland (1991) and the five additional factors can be conceptualized as representing three distinct categories of procedural factors. Consistent with the trichotomy of procedural antecedents proposed in the organizational justice literature, these three categories of factors include formal characteristics of the selection system, explanation offered during the selection process, and interpersonal treatment. The first four factors proposed by Schmitt and Gilliland, as well as the first two additional factors can be seen as formal characteristics of the selection system (see Figure 1). Additionally, the first three rules listed in Figure 1, job relatedness, opportunity to perform, and fakability, are all related to formal characteristics of the test; whereas the latter three, opportunity for retest, consistency of administration, and privacy and confidentiality, are related to formal characteristics of the administration procedure. The next four Schmitt and Gilliland factors

as well as information on the selection system process all relate to the explanation offered during the selection process. One minor point to note is that two of these factors, knowledge of how tests are scored and knowledge of how tests are used in decision making are combined into one factor termed information on scoring in the model depicted in Figure 1. This combination seemed justified as these factors are quite similar conceptually. The final three factors, interpersonal effectiveness of the administrator, personal bias suppression, and two-way communication are all related to interpersonal treatment.

Schmitt and Gilliland provided initial attempts to link each of their nine factors to the literature, but rather than review this discussion, a more comprehensive discussion of each of these factors will follow. This discussion cites both organizational justice literature and test fairness literature as support for the proposed procedural factors.

Job relatedness. Perhaps the greatest procedural influence on fairness perceptions is the job relatedness of the selection device. Job relatedness or face validity refers to the extent to which a test appears to measure content relevant to the testing situation or appears to be valid. The appearance of validity can be captured in both the content validity sense (i.e. test content related to job content) and the criterion-related validity sense (i.e. performance on the test is likely related to performance on the job) (Smither & Pearlman, 1991, April). In the organizational justice literature, both Leventhal (1980) and Sheppard and Lewicki (1987) identified procedural rules that are conceptually similar to job relatedness (recall Table 1). Leventhal proposed the accuracy rule which states that decisions should be based

on as much good information as possible, and that procedural fairness is violated when performance is evaluated on the basis of inappropriate information. Similarly, Sheppard and Lewicki suggested the resource utilization rule in which managers are supposed to utilize available expertise and resources accurately to make good decisions.

Considerable prior research has examined the job relatedness of tests, and the effects of relatedness on fairness perceptions. Positive reactions have been documented with assessment centers (Dodd, 1977) and work sample tests (Schmidt et al., 1977) which are both highly job related. Smither and Pearlman (1991, April) directly assessed perceived job relatedness and found that interviews and assessment center tasks were perceived to be more job related than personality tests, biodata forms, and cognitive ability tests with abstract items. Similarly, research cited by Schuler (in press) had individuals indicate whether or not a given test was restricted to job relevant characteristics. While the majority agreed that spelling and work sample tests were restricted to job relevant characteristics, no one made such judgements about vocational interest inventories or personality inventories. Finally, research from the drug testing literature is somewhat related in that drug testing is seen as more acceptable when the need for drug testing is indicated by characteristics of the job such as perceived danger (Murphy et al., 1991). With drug testing, the procedural rule may be more aptly described as job relevance rather than job relatedness.

Opportunity to perform. Considerable research in the organizational justice literature on voice suggests that procedures are perceived to be more fair if recipients of the decision outcome have the opportunity to express themselves prior to the decision. For example,

Greenberg (1986a) identified solicitation of input as one factor that influences the perceived fairness of performance appraisals, and Tyler and Bies (1990) state that one of the norms of proper decision making conduct is adequately considering an employee's view. In the selection domain, this can be interpreted as having adequate opportunity to demonstrate one's knowledge, skills, and abilities in the testing situation. Bies and Shappiro (1988) presented individuals with recruiting interview scenarios in which the interviewee either did or did not have the opportunity to demonstrate competencies and ask questions of the interviewer. Perceptions of procedural fairness were higher when the interviewee had the opportunity to offer input.

Opportunity to perform can be seen as distinct from job relatedness in that a test may be job related but it may only tap a minor portion of the performance domain of the job. For example, a typing test is certainly job related to most secretarial jobs, but it only assesses a fraction of the skills most secretaries actually use on the job. Similar to the content validation process which requires that the test adequately sample all important aspects of the job domain being assessed, perception of test fairness may also reflect this concern. To my knowledge, no research in the selection domain has examined the impact that opportunity to perform has on perceptions of test fairness.

Fakability. A third characteristic of selection tests is their fakability or the extent to which information can be distorted. Arvey and Sackett (in press) discuss the scenario in which applicants may be torn between wanting to be honest and wanting to tell the company what they want to hear. This would seem to be a particular concern with overt integrity tests where it is often clear what the "correct"

response should be. Similarly, Rynes (in press) provided a considerable discussion involving examples and research that has examined faking in selection situations. It seem that tests that are fakable would likely be perceived as less fair than those in which fakability is not an issue.

Only one study has examined the issue of the perceived fakability of different test types. Kluger and Rothstein (1991, April) found biodata inventories to be perceived as more fakable than cognitive ability tests, trainability tests, and work sample tests. Somewhat surprising was that the correlation between perceptions of fakability and test fairness was almost zero. While this result may question the impact that test fakability has on perceptions of test fairness, a number of methodological and measurement problems with this study may qualify the findings.

The issue of fakability can perhaps best be summarized by a recent discussion I had with an individual who completed an overt integrity test prior to employment.

> It was bogus! I had to answer questions about whether it was right for a man to steal bread for his starving children. I found out my test score (an accident on the part of my boss), and it turns out that I just barely made the cutoff. Perhaps I was too honest; maybe I should have given the answers I knew they were looking for.

Opportunity for retest. An often cited factor that contributes to perceptions of procedural justice is the opportunity to challenge, modify, or receive a second chance at a decision making procedure. Organizational justice research directed at identifying dimensions of

procedural fairness (e.g. Table 1) has consistently demonstrated the dimension of correctability (Sheppard & Lewicki, 1987), modifiability (Leventhal, 1980), or the ability to challenge or rebut an evaluation (Greenberg, 1986a). While test reaction research has not examined this factor as a determinant of fairness perceptions, many organizations provide the opportunity for retesting applicants. Additionally, the SIOP Principles call for the provision of retesting when this is technically feasible (SIOP, 1987).

Consistency of administration. In the organizational justice literature, consistency or applying consistent standards was a procedural factor found in all three lines of research listed in Table 1 (Greenberg, 1986a; Leventhal, 1980; Sheppard & Lewicki, 1987). Similarly, in a summary of research on interactional justice, Tyler and Bies (1990) suggested five norms of proper decision making conduct, one of which was applying decision criteria consistently. Consistency refers to ensuring that decision procedures are consistent across people and over time. When considering consistency across people, Leventhal (1980) pointed out that this rule is similar to the distributive rule of equality, which suggests that all people should have an equal chance of obtaining the decision outcome.

Concern for standardization or consistency of test administration has been shown to be a factor that influences the acceptability of drug testing. Drug programs received greater acceptance or perceived effectiveness if they involved testing all individuals or only those with a history of drug use, rather than random testing (Gomez-Mejia & Balkin, 1987; Murphy et al., 1990). It seems reasonable to expect that concerns for consistency may be influenced by test type and may be more

salient for some test types (e.g. interviews) than for others (e.g. paper-and-pencil tests).

Privacy and confidentiality. Applicants' reactions to the selection process are likely influenced by issues of invasion of privacy and maintenance of confidentiality of testing results. While these issues have not been addressed in much detail in the justice literature, Leventhal (1980) mentioned an ethicality rule. He suggested that procedures must be compatible with the ethical values of the affected individual, and that information gathering methods that involve deception or invasion of privacy will likely be perceived as unfair.

The strongest support for privacy and confidentiality concerns can be found in literature on drug testing. A number of studies have indicated that reactions to drug testing programs are influenced by the existence of safeguards to ensure privacy and confidentiality of results (Gomez-Mejia & Balkin, 1987; Murphy et al., 1990). Issues of privacy have also been studied for other types of selection procedures. Schuler (in press) cited research that had participants in a selection system indicate whether or not they felt different tests respected their privacy. Cognitive ability and work sample tests received the most support in terms of respecting privacy, whereas less than ten percent of the respondents felt that self descriptions and personality inventories respected their privacy. Thus, concerns about invasion of privacy are probably most dominant with drug testing, personality testing, and also, probably, integrity testing.

Feedback. The provision of timely and informative feedback is cited as an important factor in perceptions of interactional justice (Tyler & Bies, 1990). Timeliness was also a rule of managerial fairness

developed by Sheppard and Lewicki (1987). In the testing literature, reactions to testing were more favorable among people who had received feedback on their test performance than among those who had not (Lounsbury et al., 1989). Research has also specifically addressed the issues of timeliness and informativeness. Schmidt et al. (1978) cited the speed with which feedback was provided, both in terms of test performance and qualification for a job, as an advantage of computer adaptive testing over paper-and-pencil tests. With respect to the selection process in general, Arvey, Gordon, Massengill, and Mussio (1975) found that as the time lag between initial application for a job and initiation of the selection process increased, the percentage of applicants withdrawing from the selection process also increased. In terms of the informativeness of feedback, Dodd (1977) indicated that feedback which is developmental and provides information on how to remedy deficiencies is valued regardless of the selection or promotion decision. Perceptions of fairness might also be increased if individuals are provided informative feedback on why they did not receive a job offer (Bies & Shapiro, 1988). The timeliness and informativeness of feedback may represent an important procedural factor because it is one factor that organizations could easily improve without the additional costs associated with selection system development.

Validity information. One of the most commonly examined variables in the interactional justice literature is the provision of justification for a decision. For example, Greenberg (1990a) found the adverse outcomes following pay reductions were lessened when a adequate explanation was offered for the reduction. In a more relevant context to selection issues, Bies and Shapiro (1988) found that perceptions of

the procedural fairness of scenario-based recruiting situations were greater when justification was offered for a negative decision than when no justification was offered.

In terms of justification for a selection procedure, fairness perceptions are likely influenced by information on the extent to which a particular test is related to job performance and by indicating which aspects of performance are related to particular tests. Lounsbury et al. (1989) found that attitudes toward testing were more favorable when people were told how the test related to future job performance. It is possible that validity evidence would be particularly useful for tests with low face validity such as cognitive ability tests. With the current interest in cognitive ability testing, the provision of validity evidence may be one relatively cost-free method of improving the acceptance of such testing.

Arvey and Sackett (in press) suggested that validity evidence may be perceived differently by the public than by the selection specialist. Specifically, whereas selection specialists are concerned with improved overall prediction, the public may be more concerned with the extent to which the selection system makes mistakes. This may be particularly true of integrity and drug testing, where negative outcomes denote deviant behavior in some fashion.

Finally, a factor that may influence the impact of validity information relates to the way in which it is presented. As suggested in the persuasion literature (Petty & Cacioppo, 1981), the expertise of the persuasion source influences the credibility of the source and the impact of the persuasion message. This suggests that if selection specialists are involved in the development of a selection system, the

communication of this fact may increase the credibility of the validity information, providing of course that selection specialists are seen as knowledgeable and trustworthy experts in selection system development. In terms of the content of information provided, it may be possible to include job analysis information, in addition to validity information, as a means of increasing credibility. Clearly, the provision of validity information is one issue in selection that should receive more research attention.

Information on scoring. Just as providing validity evidence may improve the perceived fairness of a selection system, providing information on how tests are scored and how scores are used in decision making may also increase procedural fairness. Leventhal (1980) discusses the importance of communicating allocation criteria to the recipients of rewards. Generally, it would seem that the more information an applicant has on how decisions are made, providing they are made fairly, the more likely the applicant is to perceive the process as fair.

Information on procedures. A final type of information that may influence fairness perceptions is a priori information on the selection process. This includes providing adequate instructions on how to complete specific tests as well as information on what the entire selection process entails. Sheppard and Lewicki (1987) suggested that one of the rules for managerial fairness is providing information necessary to perform tasks. Arvey and Sackett (in press) hypothesized that the reduction in uncertainty that such information would provide, particularly with unfamiliar selection processes, would reduce applicants' beliefs that they performed poorly because they did not know

what to expect. Information on the selection process may also help applicants prepare for the process. Imagine applying for an academic job and receiving an opportunity to visit a university without realizing that you must be prepared to give a job talk. While this is an extremely unlikely scenario, many jobs contain selection processes that one can prepare for or practice in advance without invalidating the procedure.

Interpersonal effectiveness of administrator. The final three procedural factors relate to the interpersonal treatment that applicants receive. The interpersonal effectiveness of the test administrator refers to the degree to which applicants are treated with respect and honesty. Bies and Moag (1986) content analyzed recruitees' descriptions of fair and unfair treatment and found that two of the four dimensions were related to respect, or alternately rudeness, and truthfulness, which included both candidness and deception.

Research on reactions to interviews demonstrated that the warmth and thoughtfulness of an interviewer was the strongest predictor of impressions of the company and expectations regarding job offers and acceptance of those offers (Schmitt & Coyle, 1976). An additional predictor of these outcomes was the interviewers' correctness and presentation style. Similarly, Liden and Parsons (1986) found that the strongest predictor of general affect toward an interview was how personable the interviewer was, which included warmth, sincerity, interest in applicant, and believability.

While interpersonal effectiveness is clearly an important factor in applicants' reactions to interviews, it may also be an important factor in other aspects of the selection process. For example, a test

administrator who simply administers a paper-and-pencil, work sample, or drug test may be able to affect the comfort and stress level of applicants and influence applicants' reactions to the testing process in general. Rynes (in press) provided an example of an applicant who felt like a criminal during drug testing because she was escorted by a uniformed guard to a doorless toilet stall.

Personal bias suppression. Personal bias suppression was discussed by both Leventhal (1980) and Sheppard and Lewicki (1987) as a rule of procedural justice. Similarly, Bies and Moag (1986) found that one of the dimensions that influenced recruitees' perceptions of fairness was propriety of questions asked during recruitment. Question propriety included both improper questioning and prejudicial statements. Rynes (in press) provided examples of individuals who received both improper questioning involving personal issues and sexist statements from interviewers during a campus recruiting process.

Research on reactions to selection processes has not examined the issue of the extent to which personal biases influence evaluations of fairness, although it is easy to speculate on the significant impact this treatment has on perceptions and later decision making. Perhaps the reason for this lack of research is because of the illegality of this behavior during the selection process (Arvey & Sackett, in press). Many companies are not likely to admit that such behavior occurs, if it is even recognized (Rynes, in press). A reasonable first step for research on this procedural factor would be to define and document the existence and prevalence of the problem, as this is probably known with less certainty than the impact that these biases have on applicants.

Two-way communication. Two-way communication refers to the opportunity for applicants to offer input into the selection process, but differs from the opportunity to perform in that it relates primarily to interpersonal interaction, which is not limited to just the opportunity to demonstrate one's KSAs. The research by Martin and Nagao (1989) demonstrated the difference between two-way communication and opportunity to perform. Simulated applicants for a high-status jobs expressed more resentment toward computerized and paper-and-pencil interviewing than toward traditional face-to-face interviewing. While all interviewing formats presumably provided adequate opportunity to perform, the non-traditional interview formats did not allow for the two-way communication that applicants appear to expect from interviews.

Two-way communication can also refer to the opportunity to ask questions regarding the job, the organization, or even the selection process. The selection system must provide applicants with adequate opportunity to gain information that is relevant to making acceptance decisions. If such opportunities are not found, favorability and satisfaction with the selection process will likely be lessened. Clearly, procedural justice research on managerial fairness and performance evaluation demonstrate the importance of two-way communication (Greenberg, 1986a; Sheppard & Lewicki, 1987). As applicants are not likely to expect two-way communication during all aspects of the selection process, it would be useful to determine for which selection procedures two-way communication is a salient issue.

Conclusions. The model outlined in Figure 1 suggests that test type, human resources policy, and human resources personnel are all expected to influence the extent to which each of these 13 procedural

rules are violated. In addition, some of these rules may be more salient in some situations than others. I discussed the possibility that two-way communication may not be a salient concern during all aspects of selection, but may be limited to certain selection procedures. It was also suggested that concerns for invasion of privacy would be more salient with drug, personality, and integrity testing. One line of research that could address these issues would be to examine the importance of each of these 13 procedural rules for a variety of selection procedures. This could be done by either asking for incidents of fair and unfair treatment associated with different selection procedures and taking the frequency of incident generation as an indication of importance, or by directly collecting importance ratings of the 13 rules given a particular selection procedure. A final consideration would be the importance of these 13 rules for the selection and recruiting process as a whole. From a predictive perspective, this is the most important concern because it is likely an applicant's overall reaction to the selection process that has the greatest impact on outcomes of individual and organizational relevance.

Distributive Justice Rules

In the most general form, distributive justice theories are concerned with the extent to which recipients receive rewards in an amount that is consistent with a given distribution rule. Three aspects of this conceptualization that require consideration when extending distributive justice theories to the selection situation are the recipients of rewards, the receipts, and the distribution rules. The recipients are clearly defined as applicants that experience the selection system. While it may seem obvious that an individual's

perceptions of distributive justice should be influenced by the outcomes that he/she personally receives, recent research has assessed distributive justice in a more general fashion, reflecting the distributive justice of a selection program rather than an individual's experience in the selection program. Specifically, Konovsky and Cropanzano (1991) assessed outcome fairness with two questions that asked whether drug test results are used fairly and whether people get what they deserve as a result of drug testing. This conceptualization of outcome fairness is almost an instrumentality assessment and is clearly distinct from traditional theories of distributive justice that are concerned with the outcomes an individual receives personally. To emphasize this distinction, consider that Konovsky and Cropanzano could have asked questions about whether an individual's drug test results were used fairly, and whether they personally got what they deserved as a result of drug testing. Future research should likely pay more attention to the recipient when operationalizing distributive justice, and possibly assess whether different operationalizations result in the assessment of different constructs.

Receipts are somewhat less clear as outcomes can refer to either test scores or the final hiring decision. If the justice of a particular selection test is being examined, then the most proximal outcome is the test score. The operational translation of the distributive justice of test scores can be seen as perceptions of test accuracy. If the justice of the entire selection system is of interest, than the hiring decision (accept/reject) is the logical outcome to consider. This distinction between test score as an outcome versus score as one component that leads to a hiring decision is directly

comparable to the performance evaluation situation in which both the performance evaluation and the outcome of the evaluation (e.g. salary raise or promotion) are important receipts (Greenberg, 1986a, 1986b).

When the outcome of primary interest is the test score, it may still be necessary to consider further outcomes of the selection test as these can impact reactions. This point is clearly demonstrated in the drug testing literature where a number of studies have indicated that the outcome associated with testing positive can influence the acceptability of a drug testing program. Drug testing programs with dismissal policies rather than rehabilitation concerns were seen as less acceptable (Murphy et al. 1990), invoked more negative attitudes (Stone & Kotch, 1989), and were perceived as less effective (Gomez-Mejia & Balkin, 1987). Similarly, reactions toward integrity testing were more negative when results of the testing were used as the primary evidence for dismissal than when results were used as the secondary or supporting evidence.

The third aspect of distributive justice theories that merits attention is the distribution rule. Three rules have been identified in the distributive justice literature: equity, equality, and special needs. While equity is clearly the dominant rule that guides perceptions of distributive fairness, under some circumstances the other rules may become more salient. Each of these distribution rules are considered with respect to the selection situation.

Equity. The equity distribution rule suggests that people should receive rewards that are consistent with the inputs they contribute to a distribution situation. Adams (1965) original conceptualization of equity theory suggested that this evaluation is made in comparison to

the ratio of input and rewards of a referent other. When extending equity theory to testing situations, the various components against which individuals compare their rewards are not quite as clear. Inputs in a selection situation can be conceptualized as self-perceptions of ability or capacity to attain/perform the job. The referent comparison other may similarly be conceptualized as individual perceptions of the competition or the quality of the other job applicants. In the performance appraisal domain, Greenberg (1986b) suggested that the comparison of rewards received are in relation to an individual's expectations of rewards. Likewise, self-perceptions of ability and perceptions of competition can be translated into one's expectations of performing well on a selection test or expectations of receiving a job offer. If an applicant has low self-perceived ability, or if the competition is seen as particularly intense, then this should be manifested in lower expectation of receiving a job offer.

Figure 1 has a box labelled performance expectations, which are predicted to influence perceptions of distributive justice. While Greenberg (1986b) discussed expectancies, it may be more accurate to conceptualize performance expectations as self-efficacy. Expectancy refers to general beliefs about the relationship between effort and performance, whereas self-efficacy refers to individual beliefs about the likelihood of attaining a given level of performance (Bandura, 1977). A number of personal and situational factors can be hypothesized to influence performance expectations (c.f. Herriot, 1989a). Personal factors may include self-efficacy toward the job search process in general, self-esteem, and self-perceived ability, although I make no claim about the independence of these three factors. Situational

factors may include information about the organization and job pertaining to the type of people that usually apply and the selection ratio.

Another factor of relevance to perceptions of equity is test performance, which can also include hiring decision outcome. The assessment of equity is then made by comparing one's test performance with one's performance expectations. If performance matches expectations the outcome is perceived as equitable and positive affect results. However, as the discrepancy between performance and expectations increases, perceptions of inequity increase and negative affect is experienced. Translated into concrete terms, this theory suggests that people will perceive a hiring decision as inequitable, and therefore unfair, if they think they have a good chance of getting a job and they are turned down. More importantly, rejection may be perceived as more fair or less inequitable if the individual really did not expect to receive a job offer, but applied "just in case he/she got lucky."

Two features of the selection situation may further differentiate it from the typical distributive justice paradigm. First, equity theory predicts that inequity will be perceived in situations of both overpayment and underpayment, that is, receiving both greater or fewer rewards than expected. Research has shown support for both of these predictions (Greenberg, 1982), however the overpayment prediction was not as consistently supported in early equity research (Campbell & Pritchard, 1976). In the selection situation, I would predict that inequity would only be perceived in the underpayment situation. Rather than feeling guilty when a test overestimates one's abilities or when a job offer is received if it was not realistically expected, applicants

would likely experience positive affect. The reason for this discrepancy between traditional equity theory findings and the predictions about equity in the selection process, may be related to the relative ease with which perceived inputs can be cognitively distorted. It may be easier to believe that one has greater ability than initially expected than to believe that one is contributing a greater amount of work than initially perceived. Self-perceived ability is considerably less concrete than self-assessed work inputs.

The second feature that may differentiate the selection situation from more typical situations to which equity theory has been applied, is the initial level of performance expectations. People generally tend to overestimate their contributions to a situation with what has been termed an egocentricity bias (Ross & Sicoly, 1979). In a job application situation, people may tend to overestimate their qualifications for a job, or alternatively, people usually apply for jobs for which they believe they are qualified. The result is that in many selection situations a restriction of range may be found among individuals' performance expectations. It is possible that attempts to assess equity as an interactive function of test performance and performance expectations may fail because of a dominant test performance main effect in relation to the restricted performance expectations effect. This is a hypothesis that could and indeed should be tested.

The results of perceptions of inequity have been discussed in terms of affect, cognition, and behavior. Inequity results in negative emotions, which in turn results in cognitive and behavioral attempts to restore equity. In the selection situation, negative emotions associated with inequity may be exhibited as anger toward the company

and dissatisfaction with the hiring process. Cognitive and behavioral attempts to restore equity may take the form of devaluing the job ("It was not really a very good position anyway"), devaluing the organization, and warning others away from similar jobs with the organization. These and other outcomes are discussed in more detail in a subsequent section that is concerned with the outcomes portion of the model.

Equality. Most research on distributive justice has found that equity is the dominant distributive rule (Bierhoff et al., 1986), however in some situations concerns for equality also influence distributive justice reactions. For example, after working in groups, people were found to have a greater preference for equality distributional systems in which distributions are not based on characteristics of the recipients, rather everyone received equal rewards (Deutsch, 1986). Another factor found to influence the salience of the equality distribution rule is the salience of discrimination. People have been shown to be more sensitive to discrimination, a violation of equality, after seeing a clear cut example of discrimination (Crosby et al., 1986).

In terms of the distributive justice of selection systems, concerns for equality may become salient when comparisons involve minority subgroups. Equality would suggest that selection decisions should not be based on sex, race, or any other group characteristics. Since distributive justice research suggests that concerns for equality should be greatest when violations of equality are made salient, the observation of bias or discrimination in the hiring process should violate the equality rule which would lead to perceptions of

distributive unfairness. Bias and discrimination can be seen as violating both the distributive justice rule of equality and the procedural justice rules of personal bias suppression and consistency of administration. In addition to the observation of bias or discrimination, the equality rule may be more salient for minority groups that are continually exposed to discrimination in other aspects of their lives.

Equality also suggests that hiring should not be based on ability, which may translate into random hiring. This can be contrasted with equity which translates into top-down hiring on the basis of ability. If indeed justice perceptions are based on a combination of both equity and equality concerns, it is possible that distributive justice perceptions would have the greatest perceived fairness when equity and equality are combined such as with top-down, within-group hiring. While top-down, within-group hiring may lead to the greatest perceived fairness on average, individuals for whom equality is not a salient distributive rule or who lost a potential job because of the imposition of an equality standard may simply see this hiring procedure as violating the equity rule. This may in part explain the current debate over "quota" hiring. One possible solution to this problem is suggested by research on distributive justice in which the salience of the equality rule was increased by exposing people to instances of discrimination or inequality. Perhaps if there were greater education about subgroup differences and about the problems associated with these differences, more people would be accepting of a hiring procedure that attempted to satisfy both equity and equality rules.

Special Needs. The special needs distribution rule suggests that rewards should be distributed on the basis of individual needs. While little research exists on the special needs rule, some research has demonstrated that when individual needs are made salient in a reward allocation situation, reward distributions deviate from equity in the direction of greater rewards to needier individuals. In the selection process, the salience of special needs may similarly influence the salience of the needs rule (see Figure 1).

Special needs in the employment situation may be referred to as preferential treatment for a subgroup of disadvantaged employees. One type of preferential treatment is exhibited by affirmative action programs (Hartigan & Wigdor, 1989), in which the underrepresentation of some member of a protected group is remedied through special recruitment efforts or special treatment during hiring (Kleiman & Faley, 1988; Schmitt, 1989). A second instance during selection in which special needs may become more salient is with disabled or handicapped people. This is an issue of current interest because of the recently enacted Americans with Disabilities Act which prohibits discrimination against qualified individuals with disabilities who could perform a job if given reasonable accommodation (Arvey & Sackett, in press). It is possible for a selection process to be adapted to meet the special needs of disabled individuals, and at the same time maintain the distributive justice of such a selection system, as long as the special needs rule is salient.

A problem arises in that one distributive rule is not always salient, and given the nature of these rules, satisfaction of one distributive rule will always lead to violation of the other

distributive rules. For example, an affirmative action program may satisfy the special needs rule, but violate equity and equality rules, thereby impacting the attitudes and behaviors of those employees receiving preferential treatment and those observing preferential treatment (Kleiman & Faley, 1988). Heilman, Simon, and Repper (1987) highlight this problem in their research on sex-based preferential selection. In a laboratory, females assigned leadership roles on the basis of sex had lower self-perceptions of their leadership ability, performance, and desire to remain a leader than those assigned on the basis of merit. Similarly, Jacobson and Koch (1977) found that female supervisors were viewed more negatively by subordinates if their position had been attained through preferential treatment. These results indicate that violations of the equity and equality rules during the selection and promotion processes have a negative impact on attitudes.

This problem of a treatment satisfying one rule but violating other rules was discussed in terms of trying to satisfy both equity and equality. One suggested solution was to try to increase the salience of the distributive rule that was being satisfied and thereby decrease the impact that the violated rule had on overall perceptions of distributive justice. A second recommendation, from procedural justice research, would be to highlight just aspects of the selection or promotion procedure as a means of reducing overall perceptions of injustice (for a similar argument see Nacoste, 1990).

Conclusion. Distributive justice in this section was discussed in terms of recipients, receipts, and distribution rules. While an attempt was made to extend many of the findings from distributive justice to

this discussion, much research is clearly needed. Issues that are perhaps of greatest interest are the relative influences of test performance and performance expectations on perceptions of equity as well as demonstrating the existence of equality and special needs distributive rules. A number of research issues of considerable practical importance are related to the ability to manipulate the salience of equality and special needs rules, possibly by making salient instances of discrimination and examples of specific individual needs.

One issue that became apparent in the discussion of different distributive justice rules is their inherent relatedness to certain procedural justice rules. For example, violations of the personal bias suppression procedural rule will also impact the equality distributive rule, as long as the violation was perceived to influence decision making. As such, the independence of procedural and distributive justice rules may not always be apparent. The next section expands on this point and discusses the combination of these two sets of rules.

Combining Procedural and Distributive Justice

In both the discussions of procedural justice rules and distributive justice rules, it was suggested that evaluations of the satisfaction or violation of different rules are combined to form overall perceptions of system and outcome fairness. System fairness can be conceptualized as referring to both fairness of separate selection procedures and fairness of the entire selection system. Similarly, outcome fairness can refer to fairness of a given test evaluation and fairness of the hiring decision. In addition to the direct influences of procedural justice rules on system fairness and distributive justice rules on outcome fairness, Figure 1 suggests that distributive rules

moderate the procedural relationship and that procedural rules moderate the distributive relationship.

More specifically, it is predicted that procedural rules will have the greatest impact on system fairness for situations in which distributive rules have been violated. If distributive rules are satisfied, the relationship between procedural rules and system fairness will be weaker. Thus, if you receive a job offer you will not be as concerned about the fairness of the selection process as if you were not to receive a job offer. Similarly, the relationship between distributive justice and outcome fairness will be greatest when procedural rules are violated. That is, you will tend to be most dissatisfied with a hiring decision if the procedure used to select you violates your sense of procedural justice. Some support for these predictions can be found in both the organizational justice literature and the selection reaction literature.

Research that has examined the integration of procedural and distributive justice has found an interaction between procedural and distributive features of reward situations in relation to fairness perceptions. While not actually manipulating distributive justice, Greenberg (1987a) manipulated outcome level and procedural justice and found that outcome fairness varied as a function of outcome level in the procedurally unfair condition but not in the procedurally fair condition. Somewhat surprising was the observation that perceived procedural fairness only varied as a function of procedural justice and was unaffected by outcome level. On the other hand, Leung and Li (1990) found process control (procedural justice) effects for both distributive and procedural fairness only with a negative outcome and not with a

positive outcome. Similarly, much of the research on procedural justice effects has utilized conditions of distributive injustice (Folger & Greenberg, 1985).

In the selection procedures reaction literature, only a few studies have examined the effects of distributive justice or perceptions of outcome fairness. Some research has demonstrated the direct influence of procedural factors on perceived test accuracy, which is essentially an assessment of test outcome fairness (Robertson & Smith, 1989; Schmitt & Coyle, 1976). Additionally, research has demonstrated the direct influence of test performance or selection outcome on selection system fairness (Dodd, 1977; Lounsbury et al., 1989). Only one study examined the impact of different types of selection procedures on both accepted and rejected candidates (Kluger & Rothstein, 1991, April). In a simulated selection situation, hiring decision was found to have a main effect on several attitudinal measures, but out of 28 dependent measures, only two demonstrated significant interactions between hiring decision and test type. The interpretation given by the authors was that these two effects were spurious.

Clearly there is an inconsistency between the organizational justice literature and this one study in the test reactions literature that examined the interactive relationship between procedure and outcome on reactions. A possible reason for Kluger and Rothstein's failure to find interactions between outcome and test type relates to the fidelity of their simulation. Although a cover story was provided, no real job was on the line, such that rejected applicants were no worse off than accepted applicants. Research is needed that provides higher fidelity simulations or else examines real selection processes. It may be

somewhat surprising that more research hasn't examined reactions of accepted and rejected applicants to different selection procedures, but practically, this would be somewhat difficult research to conduct. Rejected applicants are not likely as willing to complete a questionnaire measure as are accepted applicants. However, it would seem that this problem may be partially overcome by offering incentives for completion of the questionnaire.

More than any other research needs addressed thus far, the need to examine reactions of both accepted and rejected candidates is paramount. From a company's perspective, the most important individuals are those that are hired. If procedural factors have a relatively minor influence on accepted applicants, then the impact of this line of research from a corporate perspective would be substantially reduced. Of course, from a scientific perspective, and even from a practical but individually oriented perspective, the impact of selection procedures on rejected applicants is of equal importance to accepted applicants. Finally, although the moderation hypotheses summarized in Figure 1 suggests a lessened impact of procedural factors on accepted applicants, I would predict that procedural factors still influence the reactions of accepted applicants. During informal discussions with incumbents in a recent set of job analysis interviews, I was surprised by how many people complained about the current selection procedures. The primary complaints were that the selection tests were a poor assessment of skills and that the skills being assessed were not the most important or frequently used skills on the job.

Organizational Outcomes

The central features of the proposed model of applicants' reactions to a selection system are fairness perceptions. However, the establishment of these fairness perceptions as an important focus of study can perhaps best be demonstrated by examining the variety of organizational outcomes that are influenced by fairness perceptions. These outcomes may include satisfaction with the selection process, job application and acceptance decisions, test motivation, future job search intentions, self-perceptions, and organizational product endorsement. While less directly related, the following attitudes and behaviors of hired individuals may also be related to selection system fairness perceptions: Job performance, organizational citizenship behavior, job satisfaction, organizational commitment, and turnover.

A number of outcomes from the first set of variables have been studied in relation to different selection procedures, whereas the latter set of variables have been more commonly studied in the organizational justice literature. Research related to each of these outcomes is presented. An important feature of this previous research is that some variables have been more strongly related to procedural justice and some more strongly related to distributive justice. In fact, one of the consistent findings in the organizational justice literature is that procedural justice perceptions tend to account for more variance in attitudes and reactions than distributive justice. However, as suggested earlier, it may be possible that the valence of the distributive outcome has an influence on the importance of distributive justice in comparison to procedural justice. For example, receiving versus not receiving a job offer is likely considerably more

valent than receiving a differential rate of pay for performing a simulated laboratory task. As such, distributive justice may be more important than procedural justice when it comes to selection decisions.

In spite of these potential limitations on the generalizability of findings from previous research to the current selection situation, an effort will be made to make differential predictions about the relative effects of procedural and distributive justice in the selection situation on each of the organizational and individual outcomes. Additionally, the nature of the interaction between distributive and procedural justice factors will also be discussed.

Affect toward the selection process. Affective variables are likely to be highly related to perceptions of fairness. Based on research in the organizational justice literature, perceptions of selection system injustice would likely be associated with both negative emotional reactions (e.g. anger), and negative affect (e.g. dissatisfaction). For example, interviewer characteristics have been shown to be related to general affect toward the interview (Liden & Parsons, 1987). The justice literature distinguishes between outcome satisfaction and system satisfaction (Greenberg, 1990b), and research demonstrates the respective relationships to distributive justice and procedural justice. While affect toward the selection process may be similar to perceptions of fairness in that it has no long term meaning for either the individual or the organization, there are likely a number of indirect results of negative affect.

One such result of negative emotion and affect toward the selection process may be an increased likelihood of filing discrimination charges. While research has not directly examined this

relationship, Cascio and Phillips (1979) demonstrated lower incidence of applicant complaints regarding testing following the introduction of job related performance testing. Additionally, there is some indication that selection system fairness perceptions impact decisions by lawyers to pursue plaintiffs' discrimination cases. Seymour (1988) indicated that face validity or face invalidity of a test is sometimes a determining factor in deciding whether to challenge a particular test. Paper-and-pencil tests that lack face validity are most susceptible to challenge.

Job application and acceptance decisions. The model presented in Figure 1 indicates that both job application and acceptance decisions may be influenced by fairness perceptions. In terms of job application decisions, job seekers may not apply for a job if they know in advance what type of selection process is being used, as a selection procedure that is perceived to be unfair may dissuade an individual from applying for a job. This effect was cited in the discussion of integrity testing where 10% of college students indicated they would refuse an integrity test in an actual employment situation (Sackett et al., 1989). Similarly, Crant & Bateman (1990) found that the presence of a drug testing program reduced individuals' intentions to apply for a job.

Companies can also gain reputations for how they treat applicants during the selection process (Rynes, in press), and these reputations may influence the ability of organizations to recruit high quality applicants (Rynes & Barber, 1990). While this relationship seems likely, it may be difficult to assess because of the inability to identify or examine those applicants that do not apply for jobs. Longitudinal research that examines application rates before and after

new selection procedures are implemented may be one way to examine this relationship, but such research would likely be confounded by economic changes and other factors that more directly influence application rates. Another way to examine the effect of selection system fairness of job application would be to ask applicants that have been through the selection process whether they would recommend application to their friends and others who may be interested in the job. While this is an indirect measure, and is plagued by all the imperfections that exist when trying to infer behavior from intentions (Feldman & Lynch, 1988), it would be an initial step toward examining this relationship.

Selection system fairness may also influence applicants' decisions to remain in the selection process or to accept job offers. For example, one procedural rule relates to timely feedback during selection; Arvey et al. (1975) found that as the time lag between initial application for a job and initiation of the selection process increased, so did the percentage of applicants withdrawing from selection. Similarly, reactions to interview procedures have been shown to influence individuals' intentions to accept job offers (e.g. Linden & Parsons, 1986; Schmitt & Coyle, 1976). Although most research has examined job acceptance in terms of acceptance intentions, it is important to also examine actual job acceptance decisions as the two may not be as closely related as one would expect (Rynes, in press).

There exists at least two means by which procedural justice factors may influence job acceptance decisions. The first and most obvious is that applicants who are not treated well may resent the treatment and refuse to work for the company. The second means is in terms of a realistic job or organization preview (Wanous, 1980). Poor

treatment may be taken as an indication of how a company treats its employees or the stake that a company places in human resources. Additionally, the job relatedness of the selection procedure may serve as a realistic job preview such that individuals are better able to determine if the job matches their needs and interests. Termed self-selection, realistic job previews (RJPs) have been shown to have a small but significant effect on job acceptance rates (Premack & Wanous, 1985). Thus, while a job related selection test should be perceived as fair, which in turn should increase the likelihood of job acceptance, it may also serve an RJP function that a non-job related test would not and subsequently be associated with increased self-selection out of the selection process. Clearly, the complexities of job relatedness, procedural fairness, and job acceptance decisions need to be examined in greater detail by researchers.

Perceptions of distributive justice may also influence decisions to accept a job offer. If individuals perceive their performance on a test as an inaccurate reflection of their true ability, they may withdraw from the selection process and reject a job offer. Downs et al. (1978) found that acceptance of job offers was greater among those individuals who performed well on a trainability test than those who performed poorly, even though the trainability test was not used in the hiring decision. While there are a number of explanations for this finding, it is possible that those who performed more poorly then expected may have perceived a distributive injustice which led to negative emotions and declining employment offers. An implication of this explanation is that those individuals that decline offers may have been better candidates than the test indicated. In addition to future

research examining the influence of perceptions of test accuracy and fairness on recruitment process decisions, research should also pay attention to the quality of applicants that decline offers or withdraw from selection (Rynes, 1991).

A final issue to consider with respect to job application and acceptance decisions is the potential moderating effect of procedural fairness on the outcome to distributive fairness relationship. If the hiring decision outcome has a strong influence on recommendation intentions such that those rejected are less likely to recommend application to others, it would be useful to demonstrate that this relationship is weaker when the selection system is perceived to be fair. Similarly, the negative effects of distributive injustice associated with test performance on job acceptance decisions may be lessened by the maintenance of procedural justice.

Organizational product endorsement. An outcome that is related to the extent to which applicants recommend a job to others, is endorsement of an organization's products or service. If a selection system is perceived as either procedurally or distributively unfair, the affected applicant may refuse to buy the organization's products. While this may seem to be a small and possibly inconsequential effect on overall product demand, a reputation is something that many companies are keenly aware of, and it is possible to cite instances in which a deceptive selection system was associated with a deceptive organizational climate, reputation, and eventual corporate downfall (Rynes, in press). As with assessing the impact of a selection system on application recommendation, it may be difficult to assess the impact on organizational product endorsement in any way other than intentionally.

Test motivation. Individuals' a priori impressions of test fairness may influence their motivation in the testing process. Similarly, system and outcome fairness of one selection process may influence motivation on a subsequent selection process. Organizational justice theories can be conceptualized as motivation theories because negative emotions associated with injustice influence the arousal, direction, and persistence of behavior (Campbell & Pritchard, 1976). If a test violates perceptions of procedural or distributive justice, motivation to complete the test may be low. While research has not directly addressed this possibility, recent research has demonstrated that motivation toward test taking differs for paper-and-pencil versus computer adaptive testing (Arvey, et al., 1990).

Self-perceptions. Self-esteem, self-efficacy toward a job and toward the job search process in general, and self-perceived ability may all be influenced by selection system and outcome fairness. Herriot (1989a) presented a model that suggested that performance in an assessment procedure can influence both self-esteem and self-efficacy. Similarly, Robertson and Smith (1989) presented a model in which both selection method and selection outcome influenced self-esteem. Quite likely the main influence on self-perceptions will be from selection outcomes and outcome fairness. While system fairness is not expected to have a direct effect on self-perceptions, it is expected to moderate the effects of outcomes.

In terms of self-esteem, considerable research in social psychology has examined the impact of success and failure feedback on self-esteem (e.g. Baumgardner, Kaufman, & Levy, 1989; Jones, Rhodewalt, Berglas, & Skelton, 1981; McFarland & Ross, 1982). While failure

feedback has been shown to have a detrimental effect on self-esteem, attributions surrounding the failure feedback provide an important moderator to this effect. McFarland and Ross (1982) presented either success or failure feedback under conditions where performance could be attributed to either the task or one's ability. When performance was attributed to the task, feedback had no effect on resultant self-esteem. However, when the attribution was of ability, success feedback increased self-esteem and failure feedback decreased self-esteem. Baumgardner and colleagues (1989) introduce yet another moderator in this relationship and suggested that individuals low in initial self-esteem are more sensitive to feedback than those high in initial self-esteem. On the other hand, McFarland and Ross (1982) found no interactions with chronic self-esteem. Regardless of the impact of initial self-esteem, the finding of attributions as a moderator may be important from a procedural justice perspective.

Consistent with predictions from attribution theory (Weiner, 1985), if the perceived fairness of the selection system can be questioned, external attributions are more likely and the outcome of a selection decision will not have a great impact on applicant self-esteem. Alternately, if the test is perceived to be fair, internal attributions are more likely and the selection outcome will likely affect self-esteem. The implication of this reasoning is that if an organization strives to attain a procedurally fair selection system they may be raising the self-esteem of the selected individuals but lowering the self-esteem of rejected individuals. From a psychological well-being standpoint, rejected applicants would be better off being rejected with a procedurally unfair selection system than a procedurally fair

system. Clearly this is at odds with the advantages of procedurally fair selection systems hypothesized for the other organizational outcomes.

Similar reasoning can be used to generate hypotheses with regard to self-efficacy and self-perceived ability. Self-efficacy refers to individual beliefs about performing at a certain standard that is required to attain a given outcome (Bandura, 1977). Job seekers likely have efficacy beliefs about attaining a given job or performing well on a particular selection procedure, performing the job once it is attained, and more general efficacy about gaining any job. The type of selection procedure and the information that is provided about that procedure can be thought to combine with self-perceived ability to form one's self-efficacy toward that procedure. As self-efficacy has been shown to be related to motivation and subsequent performance (Bandura, 1986), the information provided prior to selection may have an impact on motivation and performance during the selection process. Subsequent to completing the selection process, the outcome of the process will likely have an impact on self-perceived ability and also self-efficacy for future completion of that type of selection process, for performing the job, and for gaining any job through the search and selection process. As with self-esteem, perceived procedural fairness may moderate these reactions such that effects on self-perceptions are greatest when the selection procedure is seen as fair.

Some research has examined the impact of selection procedures on self-perceived ability. Schmitt, Ford, & Stults (1986) found that self-perceived ability changed as a result of participation in an assessment center. Further, even though no formal feedback on performance was

provided prior to making self-assessments of ability, changes were systematically related to assessors' judgments of performance, suggesting that participants gained a more realistic picture of their strengths and weaknesses. Other than this study, research has not examined the impact of the selection process on self-perceived ability and self-efficacy. Future research should attend to these variables as they have importance on their own and with respect to their impact on other variables, such as future job search intentions.

Future job search intentions. While the accepted candidate who in turn accepts the job offer no longer has to continue a search for employment, rejected candidates must continue to apply for jobs and participate in selection processes. Assessing future job search intentions provides an indication of a job applicant's willingness and motivation to continue the job search process. Future job search intentions are likely highly related to self-esteem and self-efficacy toward attaining employment, and as such they are likely influenced by both outcome and system fairness. Ellis and Taylor (1983) found that self-esteem predicted the sources that individuals used to find jobs, satisfaction with the job search process, number of offers received, job offer acceptance, and length of intended tenure. Further, Schmitt and Coyle (1976) found that interviewer characteristics and the information conveyed during an interview were related to intentions to pursue further job opportunities. Similarly, Kluger and Rothstein (1991, April) found that hiring decision and to some extent test type influenced positive and negative coping with regard to job search.

Job performance. The outcome variables thus far discussed are all related to the selection or job search process. It is possible that experiences during the selection process also impact attitudes and behavior of hired individuals on the job. The primary line of research that would offer support for this prediction is research examining realistic job previews (RJPs). The basic tenet of RJPs is that information provided to job applicants will influence their attitudes and behaviors following hiring. More specifically, providing applicants with realistic information about the nature of the job will increase performance, increase organizational commitment and job satisfaction, and decrease turnover (Wanous, 1980). One explanation of the effects of the RJP may be that it facilitates a better match between individuals and job demands through a process of self-selection. An alternate explanation is in terms of met expectations and the development of coping mechanisms if people know what to expect in advance. Either way, the important point is that information provided during the selection process has an impact on post-hire consequences.

One such post-hire consequence is job performance. In a meta-analysis of the RJP to performance relationship, Premack and Wanous (1985) found that RJPs had a significant influence on job performance providing the RJP was provided in an audiovisual rather than a written format. Work sample tests would likely serve a similar function to RJPs in that they provide realistic job related information, and in fact the meta-analysis presented by Premack and Wanous included some work sample studies as RJP experiments. Thus, one may predict that as the job relatedness of the test increases, post hire performance will also increase.

In addition to RJP research, organizational justice research also makes predictions about the relationship between justice perceptions and job performance. While considerable research exists to support the relationship between distributive justice (more specifically equity) and performance (Greenberg, 1982), it seems that much of the variance in distributive justice would be reduced in a sample of hired individuals. For the most part, those applicants hired would probably perceive the outcome of the selection system to be fair. More variance among hired individuals will likely be observed when one considers the procedural fairness of the selection system. Konovsky and Cropanzano (1991) found that perceptions of procedural justice and explanation for a drug testing program were related to performance, assessed through supervisor ratings. While this study assessed incumbent perceptions of procedural justice, an effect, albeit weaker would also be expected between applicants' reactions to a selection process and later job performance.

Organizational citizenship behavior. A relatively recent addition to variables assessed in the job performance domain is organizational citizenship behavior (OCB), which refers to behaviors that promote organizational effectiveness but are not related to formal reward systems. Moorman (in press) found that interactional justice associated with supervisor treatment was related to supervisors' evaluations of subordinate OCB. This finding makes intuitive sense because OCB relates to behaviors such as altruism, courtesy, and conscientiousness and interactional justice refers to supervisors' consideration, honesty, and respect. Extending this finding to the selection domain would lead to the prediction that perceptions of procedural fairness, particularly fairness associated with explanation and interpersonal treatment, would

predict future OCB. If you receive courteous, honest, informative treatment during the selection process, you are more likely to exhibit these behaviors in the workplace.

Job satisfaction and organizational commitment. RJPs have been shown to have a small but significant effect on job satisfaction and organizational commitment (Premack & Wanous, 1985). One possible mechanism for this effect was discussed previously when considering performance. In addition, considerable research has shown that procedural and distributive justice perceptions are related to satisfaction and commitment. For example in an assessment of general organizational justice, job satisfaction has been found to be related to both procedural justice and distributive justice, although the relationship was stronger for procedural justice (Alexander & Ruderman, 1987). The same pattern of relationships (stronger for procedural than distributive justice) was found with perceptions of incumbents toward drug testing fairness (Konovsky & Cropanzano, 1991).

From an impression formation perspective, we know that initial impressions form early in the information acquisition process, and further these initial impressions are often resistant to change (Nisbett & Ross, 1980). Since the selection process serves as the first information regarding an organization's treatment of employees, it seems reasonable to expect that the initial impressions developed during the selection process would have an impact on later impressions of the organization and of one's job. The first impressions may serve as a realistic organizational preview that is likely strongly related to satisfaction and commitment. Based on this reasoning, plus the research discussed above, I would predict that job satisfaction and

organizational commitment would be influenced by perceptions of selection system fairness.

Turnover. A final variable that has a demonstrated relation to the RJP is turnover (Premack & Wanous, 1985). While the relationship between reaction to the selection process and turnover may be too weak to detect in most empirical investigations, the organizational justice literature suggests that such a relationship may exist. Both Alexander and Ruderman (1987) and Konovsky and Cropanzano (1991) found that justice perceptions were related to intentions to turnover. While the former study found that a stronger relationship existed between distributive justice and intentions to turnover, the latter found a stronger relationship between procedural justice and intentions to turnover. Additionally, a meta-analytic review has shown that intentions to turnover are related to actual turnover behavior (Steel & Ovalle, 1984). Based on this previous research, I would predict a significant relationship between reactions to the selection process and turnover intentions and behavior.

Conclusions

The model of applicant reactions to selection systems, demonstrates the importance of considering reactions to selection procedures as a property of the selection process. This perspective is consistent with Herriot's (1989) assertion that selection research should consider more carefully the social processes surrounding selection. The extension of organizational justice theory provides both the framework for examining procedural and distributive components of test reactions and a basis for generating hypotheses. Although fragmented, prior research on reactions to selection procedures

supported the importance of a number of the proposed components and relationships in the model.

During the presentation of the model, a number of venues for future research were developed. The following is a brief summary of some of the most important research issues:

1. One research need is to examine the validity and importance of the 13 procedural factors that are proposed to represent three general categories of factors. While these rules are indirectly supported by previous research and theory, research should determine whether these 13 capture the entire domain of procedural concerns, whether some of the 13 are not important or salient to job applicants, and whether the 13 could be reduced to a more succinct and parsimonious group of procedural dimensions.
2. Another issue related to the 13 procedural factors is the salience of these factors under different selection situations. Some of the rules may be more salient or important for certain selection situations (e.g. two-way communication with selection interviews).
3. In terms of distributive justice, research should examine the relationship of performance expectations to perceptions of equity and distributive justice. What is the relative influence of hiring decision outcome and initial expectations on distributive justice?
4. Do the alternate rules of distributive justice, equality and special needs, have an influence on perceptions of distributive fairness, and can the salience of these rules be manipulated by presenting instances of rule violation or by other means?

5. Building on, and perhaps prior to some of the concerns suggested in the research issues listed above, a measure should be developed that can be used to assess applicants' perceptions of procedural and distributive justice.
6. What is the relationship between procedural and distributive justice? Does procedural justice moderate the relationship between distributive features and distributive fairness, and does distributive justice moderate the relationship between procedural features and procedural fairness? Examination of these relationships have both theoretical and practical importance.
7. Finally, research is needed that links perceptions of procedural and distributive fairness to pre-employment and post-employment outcomes. Do fairness perceptions influence application and job acceptance decisions and the tendency to recommend the organization to others? Do fairness perceptions have an indirect influence on job performance, organizational citizenship behavior, and job satisfaction? One issue of particular interest is that in contrast to the many possible benefits associated with selection procedures that are perceived to be fair, these procedures may intensify the negative consequences that rejection has on applicants' self-esteem and self-efficacy. Demonstrating the links to these and other organizational outcomes will help establish the importance of the study of selection system fairness perceptions.

Given these venues for future research, perhaps the most important need is for research is to examine some of the proposed relationships between procedural rules, fairness perceptions, and organizational

outcomes. Research of this nature could proceed in two fashions, either by developing survey measures that are collected at various points in the hiring process and assessing the relationships correlationally, or by developing experimental simulations or field experiments that have greater internal validity and permit causal inferences. The second approach was adopted in the research that is subsequently described. In addition, an attempt was made to address the fifth research need by developing a measure of perceived selection system fairness based on interviews with individuals who had recently experienced the job search process. It is hoped that this measure will be adopted by subsequent researchers, such that greater consistency will exist across empirical investigations.

CHAPTER 3

PRIMARY STUDY AND HYPOTHESES

The proposed model of applicant reactions to selection systems suggests a number of interesting and testable hypotheses with regard to procedural factors, distributive factors, the interaction between the two, and the relationship of organizational justice concepts to a variety of organizational outcomes. While it is not feasible to test this model in its entirety, support can be offered from well-designed studies that test specific hypotheses related to portions of the model. Specifically, the following issues of considerable importance were suggested in the final two research issues discussed in the preceding chapter: a) the nature of the relationship between procedural and distributive justice and b) the links of procedural and distributive justice to pre- and post-employment outcomes. The model suggested a number of procedural rules that may influence justice perceptions. Two procedural rules that have considerable importance from an applied perspective and support from a theoretical perspective are the job relatedness of the selection procedure and the explanation that is offered as justification for the procedures.

The degree of perceived job relatedness is similar to the concept of face validity, and has been offered as an argument for the use of work sample tests (e.g. Schmidt et al., 1977) and assessment centers

(Dodd, 1977). Additionally, with the current attention given to cognitive ability tests, the impact of job relatedness on reactions to testing is an important consideration in adopting such tests (Huffcutt, 1990). While prior research clearly suggests that job relatedness is an important factor influencing applicant reactions, the interaction with hiring decision outcome on fairness perceptions and the relationship to organizational outcomes has not been investigated.

Organizational justice research has demonstrated the effects of offering justification for a procedure on perceptions of interactional and procedural fairness, as well as on behavioral outcomes (Bies & Shapiro, 1987, 1988; Greenberg, 1990a). In the selection domain, explanations that offer justification for a set of selection procedures may similarly be an important factor in fairness perceptions. From an applied perspective, justification is one procedural factor that an organization can offer with relatively minimal costs. Although no data are available to suggest the extent to which companies do offer this information on a regular basis, informal discussions with people from organizations indicated that none do.

In addition to these two procedural factors, the current study examined the influence of acceptance/rejection decisions on fairness perceptions. This issue is both theoretically interesting and practically important. The issue of outcome favorability has been addressed in both the organizational justice literature (Greenberg, 1987a; Leung & Li, 1990) and to a lesser extent in the test reactions literature (Kluger & Rothstein, 1991, April), but the findings have not been consistent. Greenberg found an interaction between outcome favorability and procedural justice on perceptions of distributive

fairness, such that procedural justice only influenced distributive fairness perceptions when the outcome was unfavorable. On the other hand, Kluger and Rothstein failed to find a similar interaction when examining the relationship between test type and hiring decision on a variety of attitudinal measures. Additionally, while Greenberg (1987a) only found an interaction on perceptions of distributive fairness, Leung and Li (1990) found procedural justice effects only for negative outcomes, with perceptions of both distributive and procedural fairness. While methodological problems with the Kluger and Rothstein paper may account for the failure to find an interaction between procedural and distributive factors, there may also be a problem in transferring results from organizational justice theory to selection situations. Further research is clearly needed to resolve these inconsistencies and to test propositions of organizational justice theory.

Issues involving the extent to which interactions between selection procedural factors and hiring decision outcomes are observed on fairness perceptions is also important from an applied perspective. The implication of the findings of Greenberg (1987a) and Leung and Li (1990) is that features of the selection process will only influence reactions of rejected applicants and will not influence accepted applicants. Accepted applicants may perceive the process as fair, regardless of the types of selection procedures. From an organization's perspective, the effects of the selection process on accepted applicants is probably a greater concern than the effects on rejected applicants. Another issue of practical importance regarding this interaction, is the potentially detrimental effect that the rejection may have on the psychological well-being of individuals exposed to just selection

procedures. This effect is discussed in greater detail when hypotheses about the effects of procedural and distributive justice on self-esteem and self-efficacy are presented.

Finally, the links between fairness perceptions and a number of organizational outcomes were discussed when the model was presented. With the exception of Konovsky and Cropanzano (1991), research has not attempted to link test fairness perceptions to organizational outcomes. The current study examined the influence of procedural and distributive factors on test motivation, application/recommendation intentions, self-esteem, self-efficacy toward the job, job satisfaction, and performance.

In the current study, the job relatedness of selection procedures, the explanation or justification offered for the use of those procedures, and the outcome of the selection process were manipulated in a hiring and work situation. Dependent variables included fairness perceptions, as well as attitudinal and behavioral outcomes. In the following section, hypotheses are developed, and for each, a brief justification is provided based on the discussion of the model presented above.

Hypotheses

Fairness perceptions. The effects of two types of justice (procedural and outcome) on procedural and outcome fairness perceptions were assessed. However, as prior research and theory does not offer a basis for making differential predictions regarding these two perceptual constructs, a single set of hypotheses was generated for both constructs. Consistent with the findings of Kluger and Rothstein (1991, April), the selection decision outcome was expected to have a main effect on both procedural fairness and outcome fairness.

Hypothesis 1a: Perceived procedural and outcome fairness will be greater among selected individuals than among rejected individuals.

Similarly, the two procedural manipulations were also expected to have main effects on both types of fairness perceptions. More specifically, prior research has demonstrated that fairness perceptions are greater with selection tests that are job related, such as work sample tests, than with paper-and-pencil tests that are not as job related (Schmidt et al., 1977). The following hypothesis summarizes the predicted effects of test type on perceived fairness.

Hypothesis 1b: Perceived procedural and outcome fairness will be directly related to the job relatedness of the test.

The other procedural manipulation was the presence or absence of an explanation of the relationship between the type of test and job requirements, as well as explanations of how the tests were scored and how a hiring decision was made with the test. Research in both organizational justice literature (Bies & Shapiro, 1988) and test attitudes literature (Lounsbury et al., 1989) has shown that attitudes are more favorable when justification is offered than when justification is not offered. Therefore, the following was predicted:

Hypothesis 1c: Perceived procedural and outcome fairness will be greater when explanation for the selection system is offered than when no explanation is offered.

As discussed previously, procedural justice is expected to moderate the relationship between selection decision outcome and outcome fairness, and distributive justice is expected to moderate the procedural justice rules to procedural fairness relationship. When it

comes to actually testing these relationships, evidence of moderation would be exhibited by interactions between each procedural manipulation and the selection decision outcome. With both procedural manipulations, their effects on fairness perceptions were expected to be greater among rejected individuals than among accepted individuals. Additionally, the differences in fairness perceptions between accepted and rejected individuals was expected to be greater when procedures were not fair than when procedures were fair. More specifically, the following hypotheses were generated:

> Hypotheses 1d: Selection decision outcome and the job relatedness of the test will interact to produce an effect on procedural and outcome fairness perceptions. These perceptions will be more strongly affected by test job relatedness among rejected than accepted individuals. The effect for selection decision outcome will also increase as the job relatedness of the test increases (see Figure 2 for a summary).
>
> Hypothesis 1e: An interaction will also be observed between selection decision outcome and explanation on perceived procedural and outcome fairness. Fairness perceptions will be more strongly affected by an explanation among rejected than accepted individuals. The effect for selection decision outcome should also be greater with no explanation than when an explanation is offered (see Figure 3 for a summary).

Some prior research has shown interactions between procedural justice and outcome on distributive fairness perceptions but not procedural fairness perceptions (Greenberg, 1987a), while others have found interactions on both types of fairness perceptions (Leung & Li, 1990),

Figure 2

Hypothesized Job Relatedness by Selection Decision Interaction on Perceived Fairness

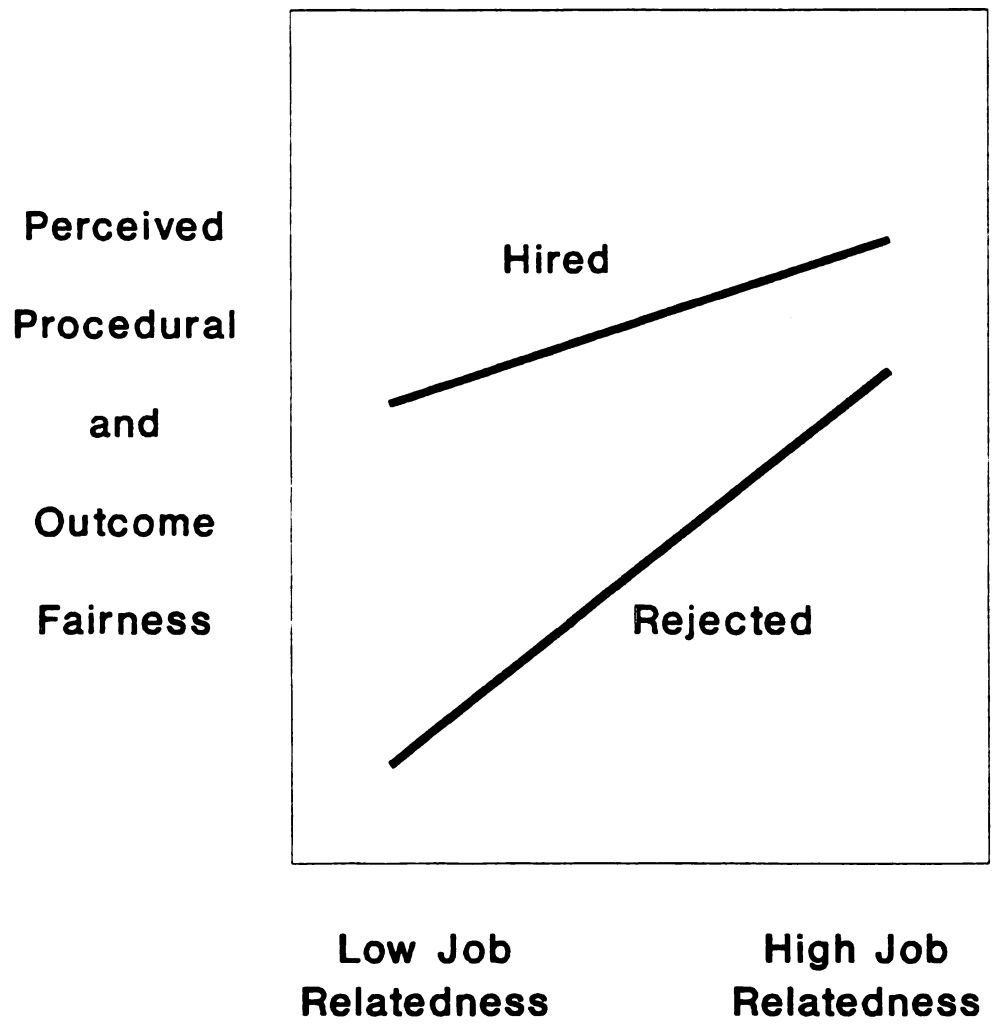
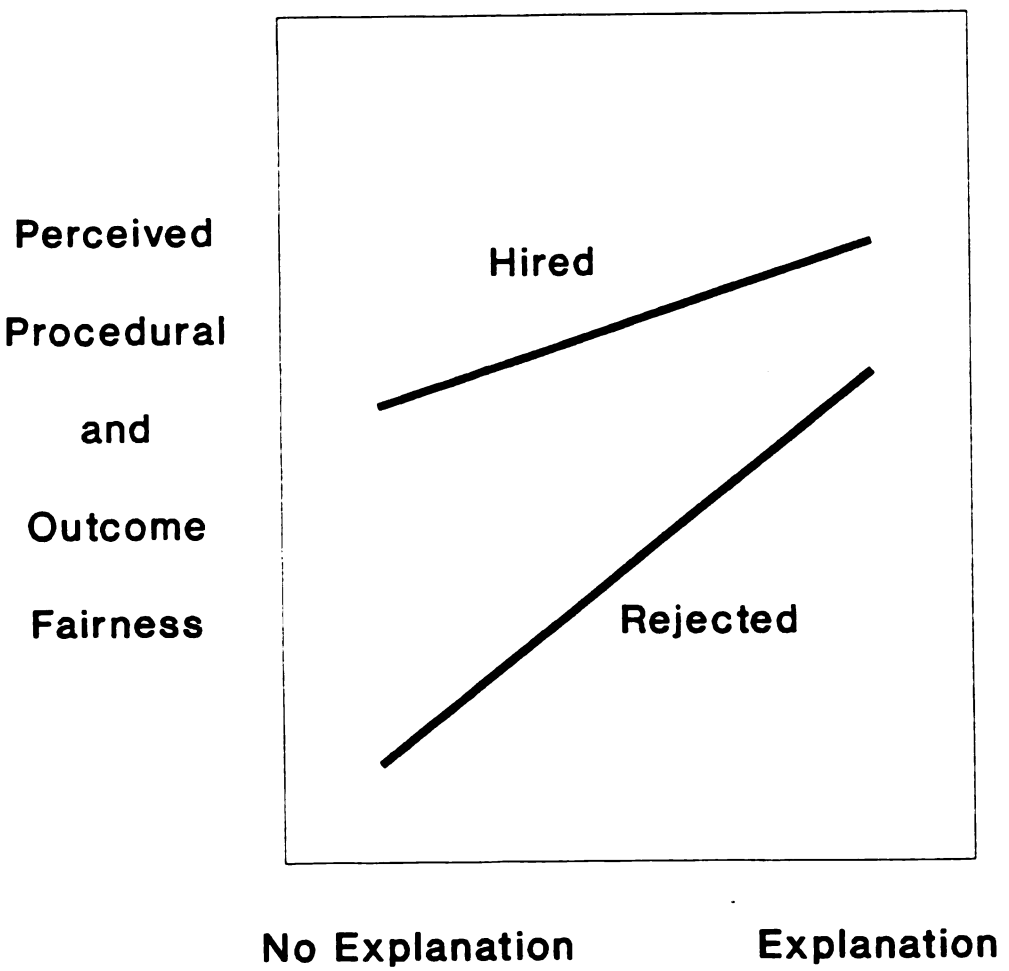


Figure 3

Hypothesized Explanation by Selection Decision Interaction on Perceived Fairness



and still others have failed to find any interaction between procedural and distributive factors (Kluger & Rothstein, 1991, April). As the final study had the most methodological shortcomings, the results of the first two studies are offered as justification for hypotheses 1d and 1e.

Application/recommendation intentions. One outcome related to fairness perceptions that is likely a concern for most organizations is the likelihood that applicants will recommend the organization to others or endorse the organization's products. This construct was referred to as application/recommendation intentions and is somewhat different than the job search intentions discussed in the outcomes portion of the model, in that the previous discussion of job search intentions referred to the willingness or motivation to apply for different jobs in future situations. Willingness to apply for future jobs is likely highly related to self-esteem and self-efficacy. The current use of the term application/recommendation intentions relates to issues of application/recruiting and organizational endorsement. It was expected that application/recommendation intentions would be highly related to perceived procedural and outcome fairness, and as such, the hypotheses generated were the same as for fairness perceptions.

Hypothesis 2a: Application/recommendation intentions will be greater among selected individuals than among rejected individuals.

Hypothesis 2b: Application/recommendation intentions will be directly related to the job relatedness of the test.

Hypothesis 2c: Application/recommendation intentions will be greater when explanation for the selection system is offered than when no explanation is offered.

Hypothesis 2d: An interaction will be observed between selection decision outcome and the job relatedness of the test on application/recommendation intentions such that intentions will demonstrate a stronger effect of test job relatedness among rejected than accepted individuals. Again, the effect of selection decision outcome should also increase as the job relatedness of the test increases.

Hypothesis 2e: An interaction will be observed between selection decision outcome and explanation on application/recommendation intentions such that fairness perceptions will demonstrate a stronger effect of explanation among rejected than accepted individuals. As for Hypothesis 2d, the effect of selection decision outcome should also be greater with no explanation than when an explanation is offered.

Test motivation. Test motivation is a multidimensional construct that includes a number of factors related to test takers' motivation, lack of concentration, beliefs in tests, anxiety, ease, external attribution, and need achievement (Arvey et al., 1990). Many dimensions of test motivation were shown to differentiate applicants tested with paper-and-pencil test administration from those applicants evaluated by computer adaptive test administration. The primary reason for being interested in test motivation is that applicants' prior impressions or experience with a particular test may influence their motivation when taking that test, or alternately, reactions to one phase of testing may influence motivation during a second phase of testing. In either case, it is likely more theoretically interesting to examine test motivation following the administration of the test but prior to presentation of

feedback on selection decision outcome. As such, only procedural factors were expected to influence test motivation; selection decision outcome would influence test motivation, since this feedback was not presented until after the test motivation measure was collected.

Hypothesis 3a: Test motivation will be directly related to the job relatedness of the test.

Hypothesis 3b: Test motivation will be higher when an explanation is offered for the selection process than when no explanation is offered.

Self-esteem and self-efficacy. Previous theoretical papers have discussed the likely impact that the selection process has on self-esteem and self-efficacy (Herriot, 1989a, 1989b; Robertson & Smith, 1989). Although no research has explored this possibility in a selection situation, it would seem that test outcome and outcome fairness would have the greatest impact on self-esteem and self-efficacy toward the job.

Hypothesis 4a: Self-esteem will be higher among accepted individuals than among rejected individuals.

Hypothesis 5a: Self-efficacy about performing the job task will be higher among accepted individuals than among rejected individuals.

Additionally, McFarland and Ross (1982) found that success feedback increased self-esteem and failure feedback decreased self-esteem, only when performance was attributed to ability and not when attributed to task characteristics. Attribution theory (Weiner, 1985) would suggest that if the procedural fairness of a selection system can be questioned, then external attributions are more likely and the outcome should have

less of an impact on self-esteem and self-efficacy. On the other hand, if the test is perceived to be procedurally fair, internal attributions of ability are more likely and the selection outcome should have a considerable impact on self-esteem and self-efficacy. This interaction is summarized in the following hypotheses:

Hypotheses 4b and 5b: An interaction between selection decision outcome and test job relatedness will be observed on measures of self-esteem (4b) and self-efficacy about performing the job task (5b), such that no effect of decision outcome will be observed with a job unrelated test and the largest effect will be observed with a highly job related test. Compared to those that completed an unrelated test, accepted individuals who completed a job related test will have higher self-esteem and self-efficacy, and rejected individuals who completed a job related test will have lower self-esteem and self-efficacy (see Figure 4).

Hypotheses 4c and 5c: An interaction between selection decision outcome and explanation will be observed on measures of self-esteem (4c) and self-efficacy about performing the job task (5c). The decision outcome will have no effect among the no explanation individuals, while an effect will be observed among those offered an explanation. Compared to those that were not offered an explanation, accepted individuals who were offered an explanation will have higher self-esteem and self-efficacy, and rejected individuals who were offered an explanation will have lower self-esteem and self-efficacy (see Figure 5).

Figure 4

Hypothesized Job Relatedness by Selection Decision Interaction on Self-esteem and Self-efficacy

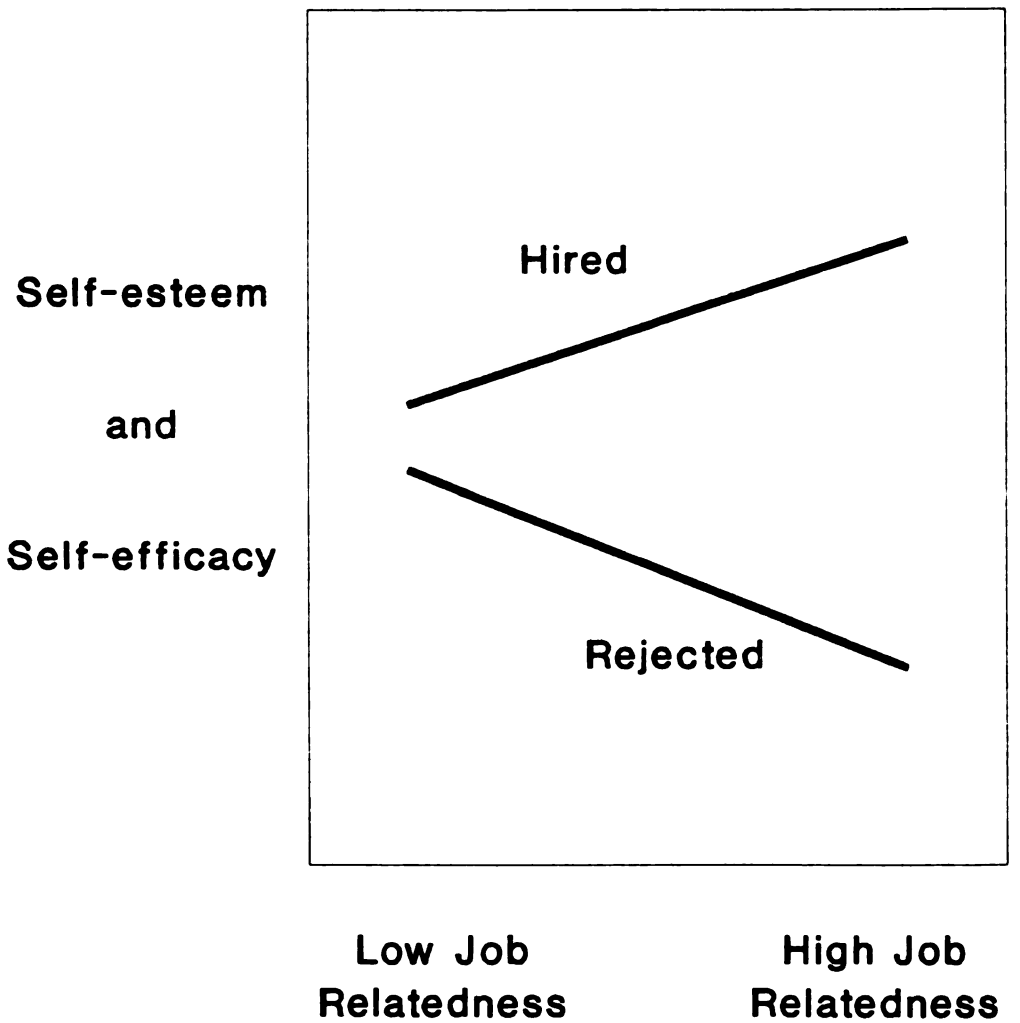
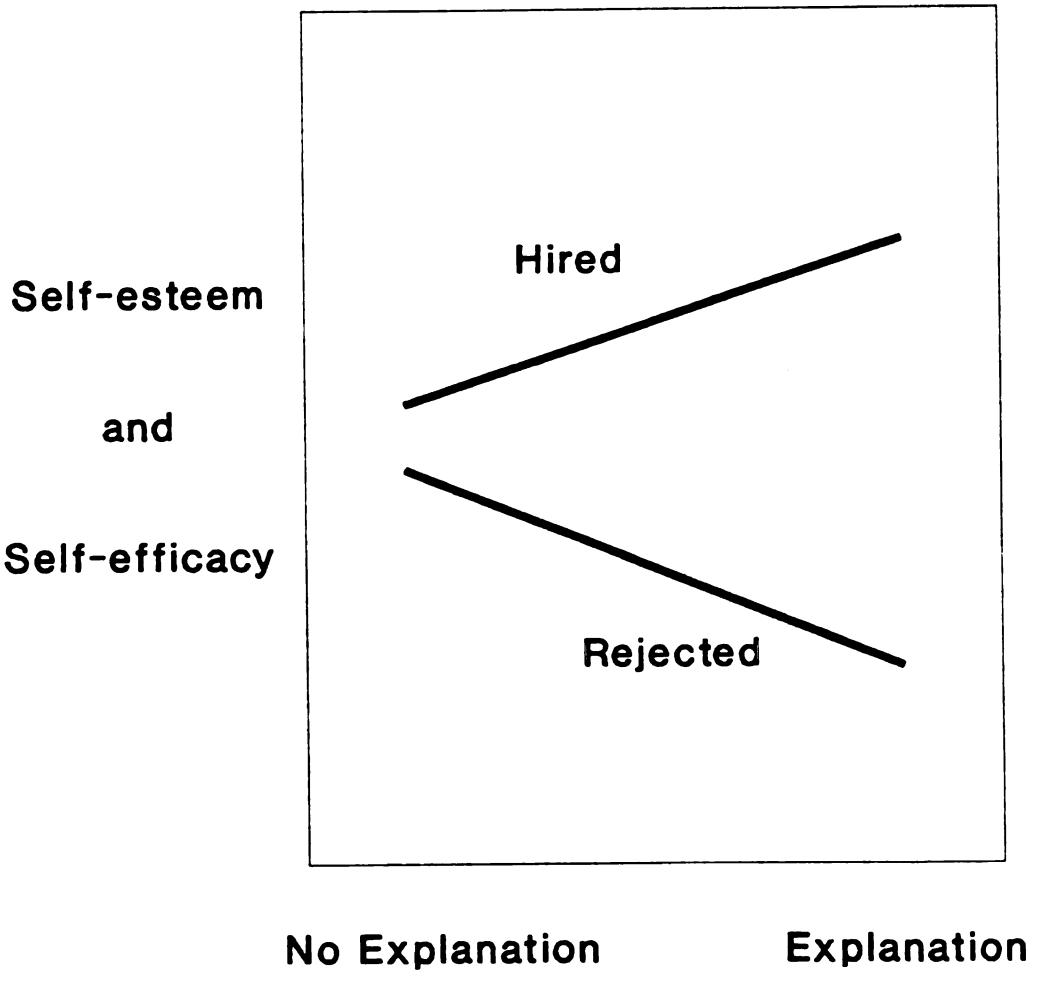


Figure 5

Hypothesized Explanation by Selection Decision

Interaction of Self-esteem and Self-efficacy



Performance. Performance was assessed along dimensions of quality and quantity, although prior research did not offer any basis on which to make differential predictions regarding these two aspects of performance. Both performance and job satisfaction were assessed among the selected individuals only, and as such, hypotheses were only generated for the procedural factors. Research on the realistic job preview has demonstrated that job performance is higher when applicants are given a realistic preview compared to a more typical job preview (Premack & Wanous, 1985). Job performance has also been related to incumbents' perceptions of procedural justice and explanation offered for a drug testing program (Konovsky & Folger, 1991). Finally, performance has been related to both self-efficacy (Bandura, 1982; Wood & Bandura, 1989) and self-esteem (Dipboye, 1977). Therefore, both procedural manipulations were expected to have a main effect on job performance.

Hypothesis 6a: Both quality and quantity of job performance will be directly related to the job relatedness of the test.

Hypothesis 6b: Both quality and quantity of job performance will be higher when an explanation is offered for the selection process than when no explanation is offered.

Job Satisfaction. The rationale for predictions regarding job satisfaction was similar to that presented for job performance. Specifically, realistic job previews have been weakly associated with higher job satisfaction (Premack & Wanous, 1985), and procedural justice and explanations for a drug testing program were correlated with job satisfaction (Konovsky & Cropanzano, 1991).

Hypothesis 7a: Job satisfaction will be directly related to the job relatedness of the test.

Hypothesis 7b: Job satisfaction will be higher when an explanation is offered for the selection process than when no explanation is offered.

CHAPTER 4

METHOD

Overview

Students were hired to perform a clerical task which involved coding information from journal manuscripts. Prior to hiring, a selection test was administered to supposedly select only those individuals most suited to perform the task. In actuality, hiring decisions were made on a random basis and comprised one of the independent variables of the study. Test type and explanation offered for use of the test provided the other independent variables. Questionnaire dependent measures were collected from the entire sample, whereas work performance and job satisfaction measures were only collected from hired participants.

Participants

Participants in this study included 270 undergraduates (102 males and 166 females) who participated in exchange for a monetary payment and course credit. Participants were recruited from undergraduate psychology classes. Ages ranged from 18 to 50 years with a median age of 21 years. Ten participants were deleted from the sample due to refusal to participate in the coding task (n = 6), failure to return for the second coding session (n = 3), or failure to complete the dependent measures in a systematic and meaningful manner (n = 1). Some of the individuals that declined to participate in the coding task indicated

that they had only volunteered for the project in order to obtain course credit and some indicated that they had purposely attempted to not be selected. As this sort of behavior can only be detected among accepted individuals and only if they refused to complete the coding task (some may have attempted to not be selected but completed the coding task anyway), the extent of this behavior can not be assessed. The implications of this potential problem with the sample are considered in the discussion.

Those who were hired to perform the clerical task (n = 132) were paid $25 for approximately four hours of training and work and also received course credit for participating in the selection process (but no additional credit for the subsequent work phase of the project). Those who were not hired (n = 128) received course credit for participating in the selection process and completing a series of questionnaire measures. A power analysis suggested this sample size would provide statistical power at the .80 level to detect medium effects on those variables that were only assessed in the hired group (Cohen, 1988). Power to detect medium effects on the remaining variables that were assessed with the entire sample exceeded .95.

Design

This experiment utilized a 3 job relatedness (work sample vs. cognitive ability vs. overt integrity) x 2 explanation (explanation of validity and decision making vs. no explanation) x 2 selection decision (hired vs. not hired) factorial design. Participants were randomly assigned to the resulting twelve experimental conditions, with the limitation that individuals sharing a common experiment time were assigned to the same procedural group (i.e. same test type and explanation).

Task

The task used in this study involved coding journal manuscripts for information on the reviewers, the reviews, the authors, their affiliation, and characteristics of the study. For each manuscript, participants had to locate the appropriate information and code it on a work sheet. See Appendix A for the coding work sheet and the instructions that accompanied this sheet. Performance on this task was free to vary on both quality and quantity dimensions as the accuracy of coding and the number of manuscripts coded were both assessed. Given informal reactions of the participants, this task appeared to be a reasonable activity to hire undergraduates to perform. Additionally, it was readily amenable to developing selection tests of varying job relatedness and to developing explanations that offered justification for each of the tests.

Independent Variables

The three independent variables manipulated in this study included the job relatedness of the selection test, the explanation offered for the selection test, and the outcome of the selection decision. The job relatedness of the selection test was operationalized with high (work sample), medium (cognitive ability), and low (overt integrity) job related tests. The explanation manipulation consisted of providing or not providing participants with a written description of why the particular selection test was administered and how scores would be used to make a hiring decision. This written manipulation was summarized and reinforced verbally following completion of the selection test. The selection decision outcome manipulation was designed to impact perceptions of equity and consisted of randomly assigning participants

into a hired group or a rejected group. Both groups completed questionnaire dependent measures, but only the hired group worked on the journal coding task in return for monetary payments. A full decription of these manipulations as well as their development and pilot testing is provided in the Procedures section below.

Procedures

This experiment involved a hiring and work situation in which participants were recruited, tested with a selection battery, and then hired or not hired. The hired participants completed a clerical task in exchange for monetary compensation. Participants were recruited from undergraduate psychology classes with announcements regarding the nature of and compensation for the project. The experiment was comprised of two phases conducted over two sessions. The first phase involved group testing using one of the three selection tests, receiving feedback in terms of hire/reject, and then completing a series of questions that included manipulation checks and dependent measures. The second phase involved only those participants that "passed" the selection battery and required that participants work on a clerical task that demanded attention to both performance quality and performance quantity. The second phase was conducted over two sessions, the first of which immediately followed the testing phase, while the second occurred on a different day.

Phase 1: Assessment. Upon arrival at the experimental session, the experimenter explained the nature of the task, the purpose of the task, compensation for performing the task, and the fact that selection for the work phase of the project would be made on the basis of performance on a selection test. An adequate explanation of the nature

of the task prior to selection testing was important so that participants could form impressions about the job relatedness of the selection test. See Appendix B for a complete script of the recruiting announcement, the initial instructions, and instructions that followed test administration. Participants completed an "application" form that further outlined the nature of the selection process and served as an informed consent agreement (see Appendix C). Participants were then tested in groups of 4 to 26 with a work sample test (WS), a cognitive ability test (CA), or an overt integrity test (OI). The work sample test was developed from the coding sheet and one or two example manuscripts. The Wonderlic Personnel Test (Wonderlic, 1988) was selected as a cognitive ability test and the Personnel Selection Inventory (London House, 1984) was selected as an overt integrity test. Both of these tests are standardized, commercially available selection instruments and both have been cited frequently in the testing literature (Hunter, 1989; Sackett et al., 1989). See Appendix D for sample items from each of the three tests.

Pilot testing was conducted to match the tests on perceived difficulty, as Kluger and Rothstein (1991, April) suggested that this is one factor that may influence perceptions of fairness. Additionally, all tests were matched on length of time to complete through the imposition of a 12 minute time limit. Individuals from a pilot sample of 40 undergraduate psychology students completed one of the three selection tests after receiving instructions on the nature of the task and the explanation manipulation. Perceived job relatedness and perceived difficulty were collected with seven and four item questionnaire measures respectively (5-point agreement format), and

corresponding internal consistency estimates were adequate (as of .94 and .88). Job relatedness perceptions confirmed the manipulation of high, medium and low job relatedness for the three tests (M_{WS} = 3.67, M_{CA} = 3.03, M_{OI} = 2.45, $F(2,37)$ = 10.63, $p < .05$) and mean differences approached a standard deviation. Perceptions of difficulty were found to vary across tests ($F(2,37)$ = 4.38, $p < .05$), primarily because the cognitive ability test was perceived to be more difficult (M_{CA} = 2.95) than the other two tests (M_{WS} = 2.18, M_{OI} = 2.00). To reduce the perceived difficulty of this test, participants in the main experiment were instructed to complete only the first 40 of the 50 response items.

The explanation manipulation involved a written summary, with verbal reinforcement, of the extent to which the test battery was a useful means of selecting individuals for the coding task. The need for high performance in terms of accuracy was described in terms of the "importance" of the outcomes of the task. The nature of the explanation varied across the three test types as the different tests had to be justified on different bases. For example, the explanation for the integrity test involved the need for confidentiality in handling manuscripts that were rejected for publication. It was also suggested that both prior research with tests of this nature and pilot testing had demonstrated that individuals who perform better on the test tend to be better suited to perform the task. Explanations were offered in terms of how the test scores were used to make a hiring decision and the job relatedness of the cut score. The written explanation manipulation preceded administration of the test and a verbal reinforcement followed the test. See Appendix E for the written and verbal justification offered for each of the tests. In the no explanation condition, no

mention was made of the relationship between test performance and job performance. In many respects, this latter condition was like a typical job hiring situation.

After completion of the test battery, participants completed a questionnaire that assessed motivation toward the test, with the explanation that the administrator needed time to score the tests and that the researcher was also interested in collecting data on people's reactions to employment testing. While the participants were completing this measure, the experimenter and an assistant "scored" the tests in view of the study participants. Actually, random assignment was used to determine who was hired versus not hired, but the appearance to the participants was that the test scores were the determining factor in this decision. This was accomplished by sorting the tests into two piles and then reading names from one of the piles to indicate the selected individuals. Those participants who were selected were led into another room while the rejected individuals remained. The rejected individuals were then informed that they did not meet the criteria for hiring to perform the task, but that the experimenters wanted them to answer some questions related to the hiring process in return for their course credit. The hired individuals were informed that they successfully met the criteria and therefore would be performing the manuscript coding task. They were then asked to complete the same set of questionnaire measures as those in the rejected condition.

The questionnaire measures included assessments of self-esteem, self-efficacy toward the task, application/recommendation intentions, and measures of their perceived fairness of the selection process and the hiring decision outcome. Finally, a manipulation check included

questions of the perceived job relatedness of the test (face validity) and the adequacy of the explanation offered for the test, and the equity of the hiring decision.

Following the completion of the questionnaires, participants in the rejected condition were thanked for their participation and dismissed. Participants in the hired condition began the first of the two work phases. Given this study's reliance on deception, it was important that future participants did not realize the hiring decision was made on a random basis. As such, debriefing was postponed until completion of data collection from a given class and was provided orally in the classes from which the participants had been drawn. See Appendix F for the debriefing script.

Phase 2: Work performance. Those individuals who were hired completed two work sessions during which performance and job satisfaction were assessed. The first work session began with training on how to perform the journal coding task, and then participants completed the task for 75 minutes. Payment was postponed until the end of the second session to minimize the number of participants that did not return for the second session. This procedure proved successful as only 3 participants did not return.

The second session was similar to the first, except that individuals did not receive initial training, performed the coding task for 105 minutes, and completed a job satisfaction questionnaire at the end of the session. I also reassessed test fairness perceptions and application/recommendation intentions at that point in order to note any changes that resulted from completing the task, although no formal hypotheses were generated in this regard. The second session ended with

participants receiving compensation and being thanked for their participation in the study. As the second session lasted two hours, individuals participated for a total of five hours and received $25 in compensation.

Dependent Measures

Dependent measures included both attitudinal and behavioral measures, some of which were only collected from the hired participants. Specifically, fairness perceptions, application/recommendation intentions, test motivation, self-esteem, and self-efficacy about performing the job task were collected from all participants. From the hired participants only, work performance measures were collected during both the first and second work sessions, and job satisfaction measures were collected at the end of the second work session. All dependent measures are presented in Appendix G.

Fairness perceptions. Overall procedural fairness and overall outcome fairness perceptions were each collected with four item measures. For each measure, participants indicated agreement using a five point scale that was anchored with 1 "strongly disagree" and 5 "strongly agree." In an attempt to maximize the discrimination between procedural and outcome fairness perceptions, instructions preceded the block of four procedural fairness questions that clearly designated the focus on the selection process. Similarly, instructions preceded the outcome fairness questions to focus attention on the hiring decision rather than the selection process.

In addition to these overall measures of procedural and outcome fairness, 67 items were developed to assess the underlying dimensions or rules of procedural and distributive justice that were proposed in the

model. Prior to generating these items, critical incident interviews were conducted with 31 individuals who had recently experienced the job search process. Individuals were ask to generate incidents of fair and unfair treatment that they had experience during different selection procedures. The 290 incidents that were collected were sorted into procedural and distributive categories by four judges. Consensus discussions were used to resolve discrepancies in categorization and agreement indices between individual judges and the final categories were adequate (kappas ranged from .82 to .94). Of the thirteen procedural rules proposed in the model, the following 10 dimensions emerged from the critical incidents and consensus discussions: job relatedness, opportunity to perform, fakability, consistency, feedback, selection information, honesty, interpersonal treatment, two-way communication, and bias suppression. Honesty was the only category that was not initially proposed in the model but emerged from the incidents. This procedural rule relates to the candidness or deception of company representatives.

Fairness measure items were drawn from procedural justice literature, selection fairness literature, and the critical incidents to represent each of the ten procedural rules and the two relevant distributive rules (equity and special needs). In addition items were selected to capture perceptions of selection system difficulty, as prior research suggests a relationship between difficulty and fairness perceptions (Kluger & Rothstein, 1991, April). Items were assigned by four judges to each of the thirteen categories and a criterion of three judge agreement was used to select an item for a scale. The resulting measure contained 67 items with between four and eight items for each

justice rule and four additional items assessing selection procedure difficulty. While the selection system fairness measure was not used to collect primary dependent measures for the current study, data were collected in order to examine psychometric properties and possibly refine the measure.

Application/recommendation intentions. Application/recommendation intentions were assessed in terms of attitudes toward application for the project and intentions to recommend the project to others. Participants responded to the following items using a five point scale ranging from "strongly disagree" (1) to "strongly agree" (5): a) If I hear about other projects like this, I would be interested in applying for them; b) If I knew in advance what this project would entail, I would not have applied for it; c) I would recommend this project to my friends; d) I think my friends would be interested in applying for this project.

Test motivation. Test motivation was assessed with the Test Attitude Survey (TAS) which measures nine factors related to test takers motivation, lack of concentration, belief in tests, comparative anxiety, test ease, external attribution, general need achievement, future effects, and preparation (Arvey et al., 1990). Previous research by Arvey and colleagues demonstrated reasonable psychometric properties for the TAS, although the internal consistency reliability coefficients for four of the factors were somewhat low (.56 to .58). Questions that comprise the last two factors, future effects and preparation, were not included because of their lack of relevance in the current context.

Self-esteem. Research has distinguished between chronic self-esteem, which is a relatively stable personality trait (Tharenou, 1979), and temporary self-esteem, which is a measure of affective reactions (McFarland & Ross, 1982). Both self-esteem constructs were assessed in this study. Although chronic self-esteem is considered to be relatively stable, many studies have indicated that it can be altered by success and failure evaluations (Tharenou, 1979). Chronic self-esteem was measured with Rosenberg's (1965) 10 item Self-Esteem Inventory. Respondents used a 5-point scale to indicate their agreement with items addressing self-liking and self-approval. Prior research with Rosenberg's inventory has demonstrated adequate internal consistency reliability coefficients in the range of .78 to .86 (Ellis & Taylor, 1983).

Affective self-esteem has been shown to be influenced by both outcome feedback and attributions of task versus ability (McFarland & Ross, 1982). A measure of affective self-esteem was developed by McFarland & Ross (1982) and used by subsequent self-esteem researchers (Baumgardner et al., 1989). The total measure includes 77 mood adjectives and assesses negativity, positivity, and self-esteem. All adjectives are rated on a scale representing how an individual feels "right now", with responses ranging from 1 "not at all" to 5 "extremely." I was only interested in the self-esteem subscale so only used the subset of 16 adjectives that comprised that dimension. While principal-components analysis was originally used to develop the three factors of this measure, no internal consistency reliabilities were presented. Additionally, subsequent research that has used this measure has also failed to provide internal consistency estimates (Baumgardner

et al., 1989).

Self-efficacy. Self-efficacy toward job performance was assessed with questions developed in the format suggested by Bandura's (1977) research on self-efficacy (e.g. Gist, 1989). This measure basically asked whether or not an individual could perform at a given level and their confidence in this assessment. Two measures of self-efficacy were calculated by summing the number of performance levels at which a person believes they can perform and by summing the confidence judgments. In prior research, these two measures have been highly correlated so they have been combined (Gist, 1989). Self-efficacy was assessed for both quality and quantity dimensions of performance.

Performance. Performance was assessed along the dimensions of both quantity and quality. Quantity was assessed as the total number of manuscripts coded, whereas quality was assessed as the number of incorrectly coded items per manuscript. Performance quality assessment required that all the manuscripts be checked by an expert. Four judges, each of whom was involved in the development of the coding task, checked the accuracy of all the coding. One participant's performance data was deleted because of unreasonably high error rates that appeared to represent random completion of the coding form.

Job Satisfaction. Job satisfaction was measured with the eighteen item job in general scale (JIG) that was developed from the JDI (Ironson, Smith, Brannick, Gibson, & Paul, 1989). This scale has consistently demonstrated internal consistency reliabilities above .91.

Analyses

The analyses followed the two basic steps common to many analyses in applied psychology research. The first step was to assess the

quality of the operationalization of the independent and dependent variables. The measurement adequacy of the dependent variables was assessed through internal consistency estimates and examination of measure intercorrelations. Independent variable quality was assessed with manipulation check items for job relatedness, explanation of procedures, and outcome equity. Separate 3 (job relatedness: overt integrity test, cognitive ability test, work sample test) x 2 (explanation of validity v. no explanation) x 2 (hired v. not hired) ANOVAs were used to examine main effects for each of the independent variables on the manipulation check scales.

The second step in the analyses involved testing the hypotheses with 3 (job relatedness: overt integrity test, cognitive ability test, work sample test) x 2 (explanation of validity v. no explanation) x 2 (hired v. not hired) MANOVAs and ANOVAs. MANOVAs were used for each of the multi-scale dependent measures and for dependent measures that fail to demonstrate reasonable independence upon examination of the intercorrelations. Significant effects with the MANOVAs were examined further with separate ANOVAs for specific variables. Significant interactions were examined more closely with post hoc simple effects tests and significant test effects, which involved three levels, were examined with Tukey's honestly significant difference (HSD).

Because of the relatively low power associated with testing interactions that involve simple effect slopes of the same sign, I have adopted a liberal $p < .10$ criterion when testing hypothesized interaction effects. To support this decision, a power analysis was conducted on one of the hypothesized interactions between job relatedness and the selection decision. As is presented in the results

section, this interaction on the perceived outcome fairness measure was significant at the $p < .10$ level. The effect size for this interaction was $eta^2 = .019$, which translates into a standard deviation effect size of $f = .137$ (Cohen, 1988). The power to detect this effect size with the current sample was .61 at $p < .10$ level and .48 at the $p < .05$ level. Thus, even with the adoption of a $p < .10$ criterion the power to assess the hypothesized interactions will still fall short of the desired power level of .80.

CHAPTER 5

RESULTS

Measurement Adequacy and Descriptive Statistics

Descriptive information including number of items, number of usable cases, internal consistency estimates, means, and standard deviations for each dependent measure is summarized in Table 2. Measure intercorrelations are summarized in Table 3. The four item measure of procedural fairness demonstrated good internal consistency (α = .85), with all corrected item-total correlations exceeding .54. The outcome fairness measure demonstrated comparable internal consistency (α = .86, all corrected item-total rs > .58). The means for each measure, based on the average of the four items, were approximately one standard deviation above the mid-point of each scale. The measures of procedural and outcome fairness were highly correlated (r = .72, corrected for unreliability r = .84), which suggests either a lack of discriminant validity or high conceptual similarity in these constructs.

Application/recommendation intentions were assessed with four items. This scale was similar to the fairness perceptions measures in terms of internal consistency (α = .83, all corrected item-total rs > .52) and average participant response (M = 3.46). However, given the low correlations between application/recommendation intentions and the two fairness perceptions (see Table 3), it appears that a distinct

Table 2

Dependent Measure Internal Consistencies, Means, and Standard Deviations

Variable	No. of Items	n	α	Mean	S.D.
Procedural Fairness[a]	4	258	.85	3.62	.78
Outcome Fairness[a]	4	258	.86	3.61	.77
Recommendations[a]	4	258	.83	3.46	.75
Test motivation[a]	10	260	.94	2.43	.74
Concentration[a]	4	260	.87	2.12	.72
Belief in tests[a]	4	260	.72	2.85	.70
Comparative anxiety[a]	10	256	.83	2.51	.57
Test ease[a]	4	256	.68	3.05	.56
External attribution[a]	5	256	.73	2.20	.64
Need achievement[a]	3	255	.75	2.20	.69
Global Self-esteem[a]	10	260	.85	4.10	.57
Affective Self-esteem[a]	16	260	.87	3.26	.52
Self-efficacy quantity[b]	2	257	.91	0	.96
Self-efficacy quality[b]	2	257	.91	0.02	.94
Performance quantity 1st	1	130	n.a.	6.08	1.59
Performance quantity 2nd	1	130	n.a.	10.12	2.41
Performance quality 1st	1	130	n.a.	2.07	.98
Performance quality 2nd	1	130	n.a.	2.26	.84
Job Satisfaction[a]	18	131	.91	3.41	.61

[a] All items based on 5-point scales.

[b] Items were standardized such that values represent z-scores.

Table 3

Intercorrelations of Independent and Dependent Measures

Variable	Correlations									
	1	2	3	4	5	6	7	8	9	10
1. Procedural fairness										
2. Outcome fairness	.72*									
3. Recommendations	.30*	.23*								
4. Test motivation	-.13*	-.10	-.43*							
5. Concentration	-.17*	-.10	-.29*	.67*						
6. Belief in tests	-.33*	-.10	-.24*	.44*	.43*					
7. Comparative anxiety	-.13*	-.09	-.11	.40*	.54*	.40*				
8. Test ease	-.18*	-.05	-.06	.17*	.11	.20*	-.17*			
9. External attribution	-.19*	-.20*	-.18*	.20*	.42*	.20*	.59*	-.33*		
10. Need achievement	-.10	-.11	-.26*	.41*	.34*	.14*	.31*	.03	.22*	
11. Global Self-esteem	.14*	.11	.15*	-.18*	-.21*	-.06	-.40*	.06	-.32*	-.30*
12. Affect Self-esteem	.13*	.18*	.23*	-.13*	-.20*	0	-.27*	.05	-.26*	-.23*
13. Self-efficacy qnt.	.05	.03	.21*	-.18*	-.24*	-.14*	-.41*	.20*	-.32*	-.31*
14. Self-efficacy qual.	-.02	0	.23*	-.29*	-.24*	-.12	-.32*	.10	-.16*	-.37*
15. Perf. qnt. 1st	.08	.09	-.09	-.04	-.02	-.11	-.22*	-.02	-.14	.04
16. Perf. qnt. 2nd	.14	.06	0	-.16	-.02	-.13	-.14	-.01	-.09	-.14
17. Perf. qual. 1st	-.08	0	.06	-.07	-.05	-.01	-.02	-.05	-.02	.02
18. Perf. qual. 2nd	-.01	.04	.05	-.04	-.09	.12	-.08	-.02	-.04	-.07
19. Job Satisfaction	.37*	.35*	.36*	-.47*	-.24*	-.34*	-.24*	-.04	-.29*	-.23*
Test type	.25*	.17*	.09	-.17*	-.05	-.15*	.06	-.17*	.15*	-.07
Explanation	-.06	-.08	.04	-.02	-.08	-.03	-.06	.05	-.02	-.02
Outcome	.23*	.32*	.04	-.08	-.10	-.10	-.13*	-.07	-.05	-.05

Table 3 (cont'd)

	Correlations								
Variable	11	12	13	14	15	16	17	18	19
11. Global Self-esteem									
12. Affect Self-esteem	.43*								
13. Self-efficacy Qnt.	.33*	.35*							
14. Self-efficacy Qual.	.28*	.33*	.65*						
15. Perf. Qnt. 1st	.04	.17	.10	0					
16. Perf. Qnt. 2nd	.21*	.01	.10	0	.63*				
17. Perf. Qual. 1st	.07	.06	0	-.05	.04	-.03			
18. Perf. Qual. 2nd	.17	.05	.01	-.04	.10	-.03	.52*		
19. Job Satis.	.18*	.11	.06	.15	-.14	.10	.03	-.04	
Test type	.02	-.12	-.08	-.02	-.04	.15	.07	-.05	.04
Explanation	.02	.02	.01	.01	.13	-.05	.15	.18*	-.17*
Outcome	-.08	.12	.04	.08	-	-	-	-	-

* $p < .05$

construct was assessed. These low intercorrelations are particularly noteworthy given that application/recommendations intentions were assessed in the same questionnaire using the same format as the fairness perceptions.

In an effort to futher document the convergence and discriminability of the the two perceived fairness measures and the application/recommendation intentions measure, a principal factors analysis was conducted on the twelve items used to assess these constructs. A three factor solution that accounted for 61.6 percent of the variance was rotated with a varimax rotation. In confirmation of the other psychometric evidence, the three a priori factors emerged with item loadings exceeding .48. The prerotation eigenvalues and rotated factor loading matrix is presented in Appendix H.

The seven scales of the TAS were assessed with between three and ten items each and internal consistency estimates ranged from $\alpha = .68$ to $\alpha = .94$. These values exceed those reported by Arvey et al. (1990) but the difference is likely because items were randomly ordered in previous research and were grouped by scale in my questionnaire. It should be noted that all scales are negatively coded such that lower values indicate more positive attitudes. Negative coding is consistent with Arvey et al.'s (1990) presentation of the scales, except for test motivation which these authors had positively scored. In this study the test motivation dimension was negatively scored so that test motivation would be positively correlated with the other six dimensions. Scale intercorrelations ranged from $\underline{r} = -.33$ to $\underline{r} = .67$ (see Table 3), and the pattern of intercorrelations is similar to that reported by Arvey et al. (1990). Test motivation was essentially uncorrelated with outcome

fairness and only weakly correlated with procedural fairness and application/recommendation intentions. The greatest observed correlation was between application/recommendation intentions and test motivation (r = -.43) indicating that those who expressed greater test taking motivation were more likely to recommend the project to others.

Global self-esteem demonstrated internal consistency that fell within the range found in prior research (α = .85) and participants tended to express high self-esteem (M = 4.10). Affective self-esteem also demonstrated good internal consistency (α = .87), but mean ratings were not as high as with global esteem (M = 3.26). The correlation between the two esteem measures was only moderate (r = .43) suggesting that two separate constructs were assessed.

Self-efficacy was assessed along dimensions of performance quality and quantity, and each was assessed in two ways. Participants were asked to indicate whether or not they could perform the coding task at or above each of four levels and then indicate the confidence in this judgment (given that the judgment was affirmative). Generally, participants had problems understanding that they were suppose to indicate all levels at which they could meet or exceed the performance standard. Many participants checked only one level. Rather than treat these responses as uninterpretable (and therefore missing data), I inserted the missing judgments. That is, if a participant indicated that they could perform the coding task at or above the level of an above average performer with a confidence judgment of 4 but did not indicate any judgments for lower levels of performance, I assumed they could meet or exceed lower performance levels with confidence judgments of 5. While this may inflate some of the levels of the confidence

judgments, I do not believe that this inflation would be systematically related to any manipulated variables and as such should only increase the unreliability of this measure.

The number of levels at which a person expected to meet or exceed the performance standard were counted and the confidence judgments were summed. As the standard deviations of these self-efficacy estimates differed greatly, the two estimates were standardized and then averaged such that the resulting means were approximately zero and the standard deviations were approximately one (see Table 2). The correlation between the number of levels and the sum of confidence judgments was high for both self-efficacy constructs ($r_{quantity}$ = .83 and $r_{quality}$ = .84) as were the standardized coefficient alphas ($\alpha_{quantity}$ = .91 and $\alpha_{quality}$ = .91). The correlation between quantity self-efficacy and quality self-efficacy was high (r = .65), although not perfect even when corrected for unreliability (r = .71) suggesting that participants may have discriminated quantity and quality dimensions of performance efficacy. Additionally, the correlations between self-efficacy measures and the self-esteem measures suggest that these constructs are differentiable (rs ranged from .28 to .35).

Performance was assessed along dimensions of quantity and quality. Additionally, because of the possibility that effects on work performance would be shortlived and the fact that the work sessions were separated by a week, performance was assessed separately for the first and second work sessions. Performance quantity was operationalized as the number of manuscripts coded in each session, and on average individuals coded 16.20 manuscripts across both sessions. In the first, 75 minute session, individuals coded 6.08 manuscripts on average, while

they coded 10.12 in the second, 105 minute session. The correlation between first and second session performance quantity was r = .63. Performance quality was defined as the number of coding errors per manuscript and was also calculated for each session. Individuals averaged 2.07 errors per manuscript in the first session and were somewhat less accurate in the second session in which they averaged 2.26 errors. The correlation between first and second session performance quality was r = .52. As can be seen in Table 3, performance quantity and quality were uncorrelated as intercorrelations ranged from r = -.03 to r = .10. Additionally, almost all of the correlations between the performance measures and the perceptual measures were nonsignificant.

The 18 item job satisfaction measure demonstrated high internal consistency (α = .91) and reasonable differentiation from the other perceptual constructs (absolute values of rs ranged from .04 to .47). Mean job satisfaction was more than half a standard deviation above the scale midpoint (M = 3.41) indicating that the journal coding task was far from intolerable.

Manipulation Checks

The adequacy of the job relatedness manipulation was assessed by asking participants to indicate their level of agreement with seven statements regarding the perceived job relatedness of the selection procedure (α = .93). On a five-point scale that ranged from 1 "strongly disagree" to 5 "strongly agree", participants indicated an average agreement level of 3.05 (SD = .73). A 3 (job relatedness: overt integrity test, cognitive ability test, work sample test) x 2 (explanation of validity v. no explanation) x 2 (hired v. not hired) ANOVA on job relatedness perceptions demonstrated a strong effect of

test type ($F(2,248) = 90.60$, $p < .05$) as well as a selection decision effect ($F(1,248) = 8.83$, $p < .05$). In confirmation of the job relatedness manipulation the three tests represented high ($M_{WS} = 3.76$), medium ($M_{CA} = 2.88$), and low ($M_{OI} = 2.64$) job relatedness. Comparisons of these means with Tukey's HSD indicated that all means were significantly different ($p < .05$). Job relatedness was also perceived to be higher among accepted participants ($M = 3.17$) than among rejected participants ($M = 2.92$).

As discussed in the method section, an attempt was made to equate the three tests on perceived difficulty. Four items that assessed perceived difficulty were aggregated ($\alpha = .71$) and had a mean rating of 3.75 ($SD = .58$), with lower numbers indicating greater perceived difficulty. Unfortunately this measure demonstrated a significant test type effect ($F(2,248) = 8.43$, $p < .05$), with means of $M_{WS} = 3.76$, $M_{CA} = 3.57$, and $M_{OI} = 3.90$. Although the means differences were not large, comparisons with Tukey's HSD indicated that the cognitive ability test was perceived to be more difficult than the overt integrity test. This could potentially limit the magnitude of observed differences between these two tests as more difficult selection procedures may be perceived to be less fair (Kluger & Rothstein, 1991, April). A selection decision effect was also found on the difficulty measure ($F(1,248) = 15.41$, $p < .05$), with the selection process perceived to be more difficult among rejected participants ($M = 3.61$) than among accepted participants ($M = 3.88$).

A manipulation check for the explanation manipulation consisted of five items regarding perceived explanation of the selection process and hiring decision ($\alpha = .84$, $M = 3.21$, $SD = .80$). Participants in the

explanation conditions indicated higher levels of perceived explanation (M = 3.50) than those in the no explanation condition (M = 2.91, $F(1,248) = 51.17$, $p < .05$). Significant effects were also found for test type ($F(2,248) = 27.04$, $p < .05$) and selection decision ($F(1,248) = 5.31$, $p < .05$). Less explanation was perceived with the overt integrity test (M_{OI} = 2.81) than with the other two tests (M_{WS} = 3.48, M_{CA} = 3.43), and less explanation was perceived among rejected participants (M = 3.11) than among accepted participants (M = 3.31).

Although, the selection decision was perceptually obvious in terms of whether one was accepted or rejected, the underlying construct that was manipulated was hiring outcome equity. The adequacy of this manipulation was assessed with the scale of the selection system fairness measure that assessed perceived equity. This scale was comprised of seven items regarding whether or not one received outcomes consistent with what one expected or felt they deserved (α = .85, M = 3.14, SD = .73). In confirmation of the equity manipulation, those in the accepted group perceived the hiring decision to be more equitable (M = 3.63) than those in the rejected group (M = 2.63). No other main effects nor interactions were demonstrated (all ps > .05).

Dependent Variables

Perceived fairness. Perceived procedural fairness and perceived outcome fairness were highly correlated (r = .72) so they were initially analyzed together with a 3 (job relatedness: overt integrity test, cognitive ability test, work sample test) x 2 (explanation of validity v. no explanation) x 2 (hired v. not hired) MANOVA. Significant effects were found for job relatedness ($F(4,492) = 4.49$, $p < .05$), selection decision ($F(2,245) = 12.27$, $p < .05$), and the interaction between

explanation and selection decision ($F(2,245) = 2.95$, $p < .10$), but not for explanation ($F(2,245) = .68$, n.s.) nor any of the other interactions ($p > .10$). In order to further examine these effects, procedural fairness and outcome fairness were separately examined with 3 (job relatedness) x 2 (explanation) x 2 (selection decision) ANOVAs (see Table 4).

Hypothesis 1a suggested a main effect of selection decision on procedural and outcome fairness. This hypothesis was confirmed as both fairness measures demonstrated outcome effects ($p < .05$ - see Table 4). Perceived procedural fairness was greater among selected individuals ($M_{selected} = 3.79$, $SD = .73$) than among rejected individuals ($M_{rejected} = 3.44$, $SD = .78$), as was perceived outcome fairness ($M_{selected} = 3.85$, $SD = .59$ vs. $M_{rejected} = 3.37$, $SD = .82$). It is interesting to compare the magnitude of the effects of selection decision, an outcome manipulation, on procedural and outcome fairness. As would be expected, the mean difference between the hired and rejected groups was greater for outcome fairness ($M_{diff} = .48$) than for procedural fairness (Mdiff = .35), while the standard deviations are comparable. Similarly, the effect size was greater for outcome fairness ($eta^2 = .091$) than for procedural fairness ($eta^2 = .046$).

The next hypothesis, that the job relatedness of the selection test would have a main effect on both fairness measures (Hypothesis 1b), was also confirmed ($p < .05$ - see Table 4). The means for the procedural fairness measure were in the predicted direction for the high (WS), medium (CA), and low (OI) job relatedness conditions ($M_{ws} = 3.93$, $SD = .65$; v. $M_{ca} = 3.55$, $SD = .76$; v. $M_{oi} = 3.44$, $SD = .82$). Post hoc

Table 4

Analysis of Variance Summary for Fairness Perceptions and Application/Recommendation Intentions

Source	df	F Values for Dependent Variables		
		Procedural	Outcome	Recommend
Test Type	2	9.08**	4.21**	.97
Explanation	1	.37	1.30	.49
Outcome	1	11.83**	24.64**	.29
Test Type x Explanation	2	2.01	.14	1.46
Test Type x Outcome	2	.92	2.42*	.34
Explanation x Outcome	1	.91	.93	3.00*
Test Type x Explanation x Outcome	2	1.16	2.03	1.05
Within cells	246	(.55)	(.51)	(.57)

Note: Values in parentheses represent mean square terms.

*$p < .10$, **$p < .05$

examination of the means with Tukey's HSD (HSD = .28, $p < .05$) indicated that perceived procedural fairness was greater with the work sample test than with either the cognitive ability test or the overt integrity test, which did not differ. Similarly, the means for the outcome fairness measure were in the predicted direction (M_{ws} = 3.81, SD = .60; v. M_{ca} = 3.59, SD = .72; v. M_{oi} = 3.47, SD = .86). Comparisons of the means for perceived outcome fairness (HSD = .27, $p < .05$) indicated a significant difference between the work sample and overt integrity test conditions. Outcome fairness for the cognitive ability test condition fell between these two means, but did not differ significantly from either. As with selection decision, it is possible to compare the magnitude of the effects and effect sizes for procedural and outcome fairness. Consistent with the fact that test type was a procedural manipulation, the mean difference between the work sample and overt integrity tests was greater for procedural fairness (M_{diff} = .49) than for outcome fairness (M_{diff} = .34). Likewise, the effect size was greater for procedural fairness (eta^2 = .069) than for outcome fairness (eta^2 = .033).

Hypothesis 1c stated that perceived procedural and outcome fairness would be greater when explanation was offered for the selection system than when no explanation was offered. This hypothesis was not supported, as explanation did not have an effect on procedural fairness ($F(1,246) = .75$, n.s.) or outcome fairness ($F(1,246) = 1.44$, n.s.).

The final two hypotheses regarding perceived fairness suggested interactions between the selection decision and the job relatedness of the selection system (Hypothesis 1d) and the explanation offered for the selection system (Hypothesis 1e). While the Hypotheses 1d was not

supported for the perceived procedural fairness measure, a significant interaction was found with the outcome fairness measure ($p < .10$ - see Table 4). The means for this interaction are presented numerically in Table 5 and graphically in Figure 6. A comparison of Figure 2 with Figure 6 indicates that the means are in the same pattern as suggested by Hypothesis 1d. Simple effect tests demonstrated a job relatedness main effect among rejected applicants ($F(2,124) = 4.43$, $p < .05$) with participants who completed the work sample test expressing greater outcome fairness than those completing the overt integrity test ($p < .05$). Means for the cognitive ability test fell between the two and did not differ significantly from either. The simple job relatedness effect for hired applicants was not significant ($F(2,128) = .91$, n.s.). Simple selection decision effects were significant at all levels of job relatedness (all ts > 2, $p < .05$). Thus, as predicted, job relatedness influenced perceptions of outcome fairness for rejected applicants but not for hired applicants. Hypothesis 1e was not support as the explanation by selection decision effect was not significant for either procedural or outcome fairness (see Table 4).

Application/recommendation intentions. Application/recommendation intentions refer to how likely a job applicant would be to apply for, or recommend to their friends similar projects. It was expected that this measure would be related to perceived fairness, however as indicated earlier, the application/ recommendation intentions measure was only weakly correlated with procedural fairness ($r = .30$) and outcome fairness ($r = .23$). Hypotheses 2a through 2e were essentially the same as hypotheses 1a through 1e, except that they referred to application/recommendation intentions rather than perceived fairness.

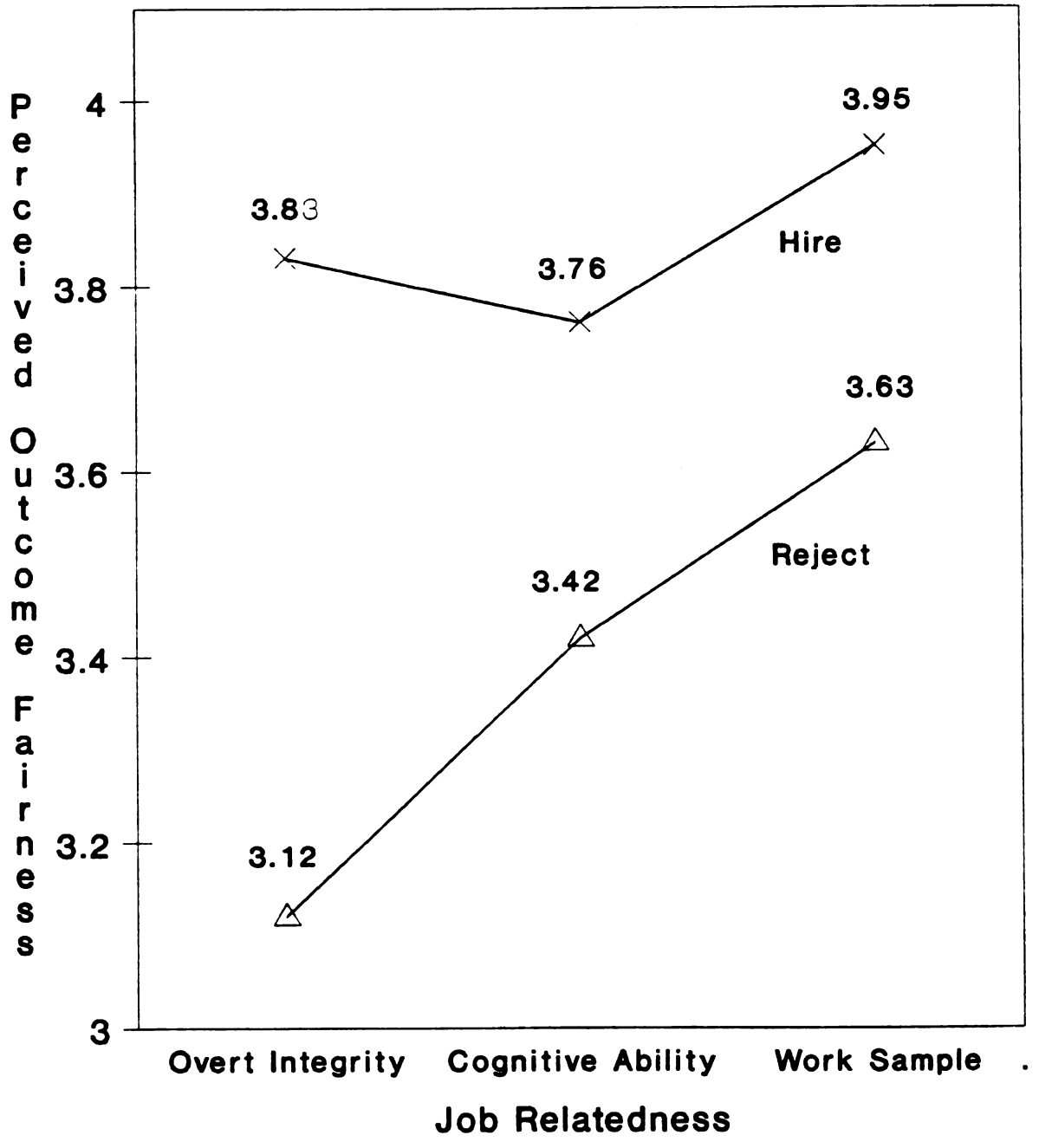
Table 5

Means and Standard Deviation for Test Type by Selection Decision Interaction on Perceived Outcome Fairness

Selection Decision	Selection Test Type (Job Relatedness)		
	Overt Integrity (Low)	Cognitive Ability (Medium)	Work Sample (High)
Hire	3.83[a]	3.76[a]	3.95[a]
	(.59)	(.64)	(.54)
Reject	3.12[b]	3.42[cb]	3.65[c]
	(.94)	(.75)	(.64)

Note. Numbers in parentheses represent standard deviations. In comparisons within columns and rows, means sharing a common letter are not significantly different ($p < .05$).

Figure 6
Job Realatedness by Selection Decision Interaction on Outcome Fairness



These hypotheses were tested with a 3 (job relatedness) x 2 (explanation) x 2 (selection decision) ANOVA and the results are summarized Table 4.

Support was not gained for Hypotheses 2a, 2b, or 2c as no main effects were demonstrated on the application/recommendations measure (*F*s < 1). Hypotheses 2d and 2e suggested interactions between each of the procedural manipulations and the selection decision outcome. Although the interaction between job relatedness and selection decision was not supported (*F* < 1), evidence was found for the interaction between explanation and selection decision ($F(1,246) = 3.00$, $p < .10$). The pattern of means for this interaction are summarized numerically in Table 6 and graphically in Figure 7. Simple explanation effect tests indicated that the explanation manipulation had a positive effect for rejected individuals ($t(125) = 1.70$, $p < .10$) but no effect for hired individuals ($t(129) = .71$, n.s.). Similarly, simple selection decision effects demonstrated an effect for the no explanation condition ($t(125) = 1.68$, $p < .10$) but not the explanation condition ($t(129) = .77$, n.s.). This pattern of results is consistent with the effect proposed in Hypothesis 2e and summarized pictorially in Figure 3.

Test motivation. Test motivation was assessed along seven dimensions, some of which referred to the selection test and some of which referred to tests in general. The hypotheses generated with regard to test motivation were not specific in terms of differentiating different dimensions, rather they were global for all motivation dimensions. Hypothesis 3a stated a main effect of selection system job relatedness on test motivation and Hypothesis 3b stated an explanation main effect. The test motivation measure was administered prior to

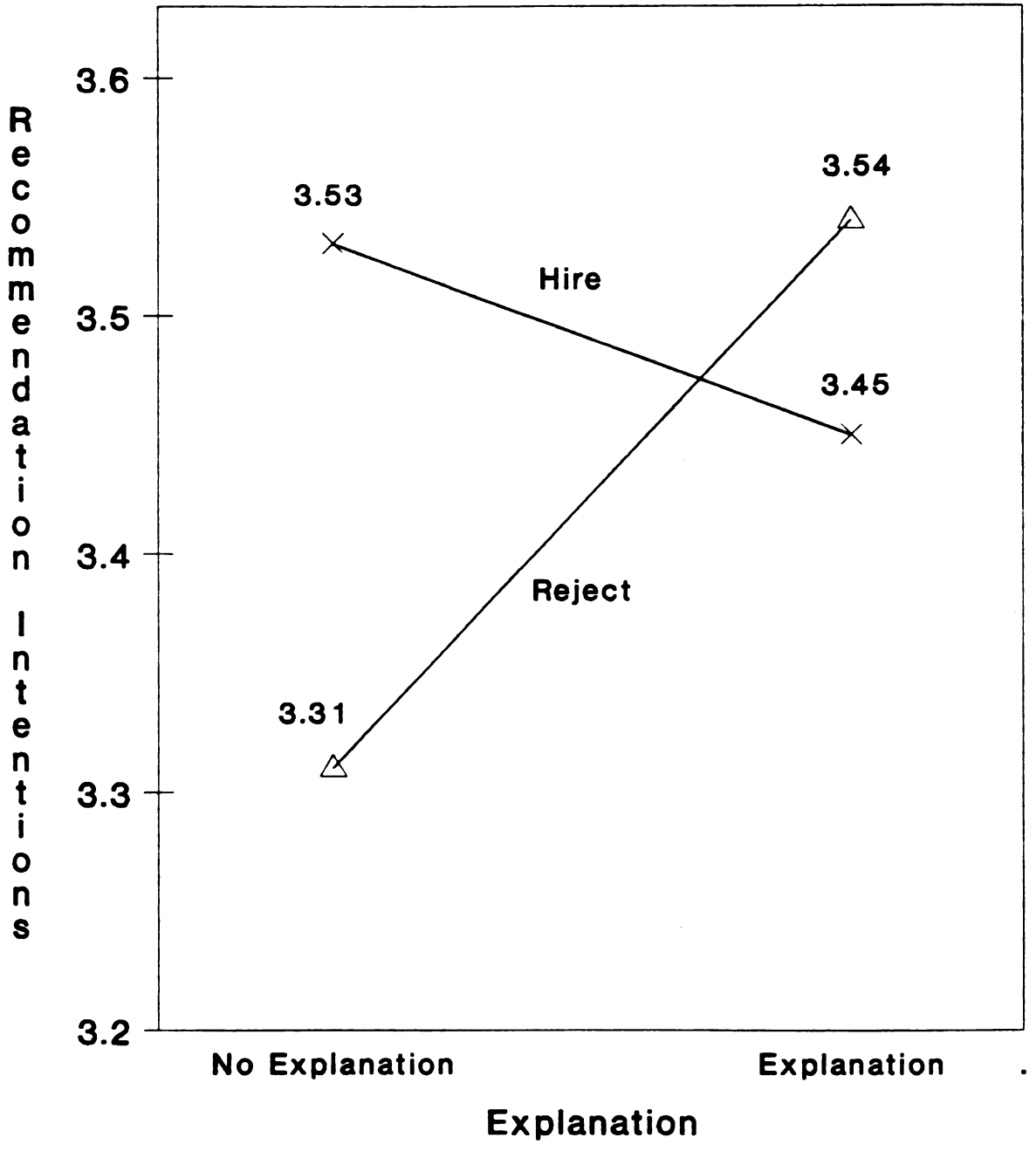
Table 6

Means and Standard Deviation for Explanation by Selection Decision Interaction on Application/Recommendation Intentions

	Explanation for the Selection System	
Selection Decision	No Explanation	Explanation
Hire	3.53[a]	3.45[a]
	(.74)	(.75)
Reject	3.31[b]	3.54[a]
	(.73)	(.79)

Note. Numbers in parentheses represent standard deviations. In comparisons within columns and rows, means sharing a common letter are not significantly different ($p < .10$).

Figure 7
Explanation by Selection Decision Interaction on Recommendation Intentions



determination of the selection decision so no decision outcome effects were tested. Given that the test motivation dimensions were moderately correlated (see Table 3), hypotheses were initially examined with a 3 (job relatedness) x 2 (explanation) MANOVA. A main effect was found for job relatedness ($F(14,488) = 4.54$, $p < .05$), but the explanation effect was not significant ($F(7,243) = .72$, n.s.), nor was the job relatedness by explanation interaction significant ($F(14,488) = .88$, n.s.). To examine the job relatedness effects more closely, univariate 3 (job relatedness) x 2 (explanation) ANOVAs were conducted on each of the seven dimension scales (see Table 7).

Test type main effects were found for the test motivation, belief in tests, comparative anxiety, test ease, and external attribution dimensions ($ps < .05$ - see Table 7). The means for these effects, as well as post hoc comparisons using Tukey's HSD are summarized in Table 8. Test motivation was directly related to test type, such that as the job relatedness of the selection procedure increased, test motivation increased (indicated by lower scale values). Post hoc comparisons of the means indicated that while test motivation toward the overt integrity test was lower than toward the work sample test, the cognitive ability test fell between the two and did not differ significantly from either. The second scale, lack of concentration, did not vary with test type ($F < 1$, see Table 7). The belief in tests dimensions contained specific and general items regarding whether the test (or tests in general) are valid and useful. Lower numbers reflect greater belief in tests and a significant test type effect ($p < .05$) indicated greater belief for the work sample test than for the overt integrity or cognitive ability tests, which did not differ (see Table 8).

Table 7

Analysis of Variance Summary for Test Motivation Scales

Source	df	F Values for Dependent Variables						
		Test Motiv.	Concen-tration	Test Belief	Compar. Anxiety	Test Ease	Extern. Attrib.	Need Ach
Test Type	2	3.89*	.51	8.01*	8.18*	12.14*	8.05*	.64
Explanation	1	.24	2.15	.43	1.36	1.12	.20	.10
Test Type x Explanation	2	.83	.07	1.62	.09	.04	1.26	.76
Within cells	245	(.53)	(.51)	(.46)	(.31)	(.29)	(.39)	(.48)

Note: Values in parentheses represent mean square terms.

*$p < .05$

Table 8

Means and Standard Deviation for Test Type Effects on Test Motivation Scales

Motivation Scale	Selection Test Type (Job Relatedness)		
	Overt Integrity (Low)	Cognitive Ability (Medium)	Work Sample (High)
Test Motivation	2.55[a] (.77)	2.44[ab] (.74)	2.24[b] (.61)
Test Belief	2.89[a] (.69)	3.02[a] (.72)	2.60[b] (.62)
Comparative Anxiety	2.39[a] (.51)	2.70[b] (.57)	2.45[a] (.60)
Test Ease	3.24[a] (.52)	2.84[b] (.59)	3.03[b] (.50)
External Attributions	2.02[a] (.71)	2.39[b] (.60)	2.22[ab] (.52)

Note. Numbers in parentheses represent standard deviations. Row means sharing common letters are not significantly different ($p < .05$).

The fourth scale, comparative anxiety, reflected how well an individual felt they performed on the test, how anxious they felt, and whether test performance was seen to reflect true abilities. Higher comparative anxiety reflected poorer perceived performance and greater experienced nervousness. Comparative anxiety was found to vary as a function of test type ($p < .05$), however the means were not a reflection of job relatedness (see Table 8). Greater comparative anxiety was experienced with the cognitive ability test than with the other two tests. This pattern of means is consistent with the test difficulty manipulation check that was described earlier in which the cognitive ability test was seen as more difficult than the overt integrity test. This interpretation is also consistent with the findings from the next scale, test ease, which were very similar to the manipulation check for test difficulty in that lower numbers reflect greater perceived test difficulty. Test ease demonstrated a significant test type effect ($p < .05$), with the overt integrity test being perceived as less difficult than the cognitive ability or work sample test (see Table 8). One observation that would argue against the interpretation that comparative anxiety and test ease both reflected test difficulty effects was that the correlation between these two scales was low ($r = -.17$).

The external attribution scale reflected perceived external influences on test performance such as fatigue, preoccupation, test ambiguity, and time pressure. External attributions varied with test type and again it was the overt integrity and cognitive ability tests that differed (see Table 8). Means for the work sample test fell between the other two and did not differ significantly from either. The final scale was general need achievement which did not refer to the

selection test in particular or test taking in general, but rather referred to general motivation. General need achievement was not systematically related to test type ($F < 1$).

In summary, job relatedness effects were found for five of the seven scales of the test attitude survey. However, examination of the means indicated that only two of these five effects truly varied in a manner that was consistent with the job relatedness manipulation and Hypothesis 3a. Effects for two of the other scales appeared to reflect the test difficulty confound that accompanied the job relatedness manipulation.

Self-esteem and self-efficacy. Self-esteem and self-efficacy were both expected to be influenced by the selection decision outcome (Hypotheses 4a and 5a). In addition, interactions were predicted between selection system job relatedness and selection decision outcome (Hypotheses 4b and 5b), and between explanation and selection decision outcome (Hypotheses 4c and 5c). To test these predictions, self-esteem was assessed both globally and affectively, and self-efficacy was assessed along both quantity and quality work performance dimensions. Given a reasonable independence between the two self-esteem measures ($r = .43$), separate 3 (job relatedness) x 2 (explanation) x 2 (selection decision) ANOVAs were used to assess the predicted effects. The results of these analyses are summarized in Table 9.

The global self-esteem measure failed to demonstrate any significant main effects or interactions. In particular the hypothesized outcome effect and the two hypothesized interactions did not even approach significance, indicating that global self-esteem was not influenced by the manipulations of this study. Affective self-

Table 9

Analysis of Variance Summary for Self-Esteem and Self-Efficacy

		F Values for Dependent Variables			
		Global	Affective	Self-Efficacy	
Source	df	Self-Esteem	Self-Esteem	Quantity	Quality
Test Type	2	.13	2.40*	1.84	.70
Explanation	1	.03	.06	.03	.10
Outcome	1	1.58	4.06**	.43	1.64
Test Type x Explanation	2	.05	.64	2.20	.80
Test Type x Outcome	2	.06	1.87	7.35**	6.14**
Explanation x Outcome	1	.11	1.37	.13	.13
Test Type x Explanation x Outcome	2	1.92	1.10	.66	1.48
Within cells	245	(.34)	(.27)	(.87)	(.86)

Note: Values in parentheses represent mean square terms.

*$p < .10$, **$p < .05$

esteem demonstrated the hypothesized main effect of selection decision outcome ($F(1,245) = 4.06$, $p < .05$), with rejected individuals experiencing lower affective self-esteem ($M = 3.19$, $SD = .59$) than hired individuals ($M = 3.32$, $SD = .44$). Neither of the hypothesized interactions were significant ($ps > .05$), however a job relatedness main effect was marginally significant ($F(2,245) = 2.40$, $p < .10$). The means for the different selection test conditions are in the direction of the hypothesis for low self-esteem individuals. That is, self-esteem decreased as job relatedness increased ($M_{oj} = 3.33$, $SD = .51$; v. $M_{ca} = 3.26$, $SD = .58$; v. $M_{ws} = 3.16$, $SD = .47$).

The two self-efficacy measures were strongly correlated ($r = .65$) so a 3 (job relatedness) x 2 (explanation) x 2 (selection decision) MANOVA was used to initially assess the hypothesized effects. Contrary to hypothesis 5a the MANOVA failed to demonstrate a main effect of selection decision outcome ($F(2,244) = 1.34$, $p > .10$). Hypothesis 5b suggested a job relatedness by selection decision interaction, and this hypothesis received support ($F(4,490) = 4.45$, $p < .05$). The final hypothesis, which stated an interaction between explanation and selection decision (Hypothesis 5c), was not supported by the results of the MANOVA ($F(2,244) = .50$, n.s.). The only other observed significant effect was an interaction between job relatedness and explanation ($F(4,490) = 2.52$, $p < .05$).

The significant interactions were examined more closely with separate 3 (job relatedness) x 2 (explanation) x 2 (selection decision) ANOVAs (see Table 9). Consistent with the results of the MANOVA, a job relatedness by outcome interaction was observed on both the quantity self-efficacy and quality self-efficacy measures ($p < .05$). The means

for these interactions are summarized in Table 10 and displayed visually in Figure 8 and Figure 9.

If one compares the quantity self-efficacy mean in Figure 8 with the hypothesized effect depicted in Figure 4, the pattern of results can be seen to be similar to the hypothesis. Tests of simple effects on the quantity self-efficacy measure demonstrated a significant job relatedness effect for rejected applicants ($F(2,122) = 5.85$, $p < .05$) with the work sample test leading to lower self-efficacy than the overt integrity test ($p < .05$). Means for the cognitive ability test fell between these two extremes and did not differ significantly from either. Among accepted applicants the trend was toward higher self-efficacy for those given the work sample test than those given the other tests ($F(2,128) = 2.89$, $p < .10$). Tests for simple selection decision effects demonstrated that the hired and rejected groups differed with the work sample test ($t(73) = 3.07$, $p < .05$), but not the cognitive ability test ($t(82) = .18$, n.s.). Although the difference between the hired and rejected groups approached significance with the overt integrity test ($t(95) = -1.96$, $p < .10$), this effect is in the opposite direction to the prediction. It appears that applicants rejected with the overt integrity test may have demonstrated higher self-efficacy for performance quantity than those accepted with the overt integrity test.

The pattern of means for the quality self-efficacy measure is also very similar to Hypothesis 5c (c.f. Figure 9 with Figure 4). Among hired applicants, a significant job relatedness simple effect ($F(2,128) = 4.23$, $p < .05$) was primarily a result of a higher self-efficacy for quality with the work sample test group than the cognitive ability test group. The overt integrity test group did not differ from either of the

Table 10

Means and Standard Deviation for Test Type by Selection Decision Interaction on Self-Efficacy Measures

Selection Decision		Selection Test Type (Job Relatedness)		
		Overt Integrity (Low)	Cognitive Ability (Medium)	Work Sample (High)
Self-Efficacy Quantity	Hire	$-.04^{a}$	$-.15^{ab}$	$.29^{b}$
		(.81)	(.85)	(.95)
	Reject	$.30^{c}$	$-.11^{acd}$	$-.45^{d}$
		(.91)	(.97)	(1.13)
Self-Efficacy Quality	Hire	$.04^{ab}$	$-.15^{a}$	$.39^{b}$
		(.82)	(.96)	(.80)
	Reject	$.13^{a}$	$-.01^{ac}$	$-.40^{c}$
		(.93)	(1.02)	(1.05)

Note. Numbers in parentheses represent standard deviations. In comparisons within columns and rows, means sharing a common letter are not significantly different ($p < .10$).

Figure 8
Job Relatedness by Selection Decision Interaction on Quantity Self-Efficacy

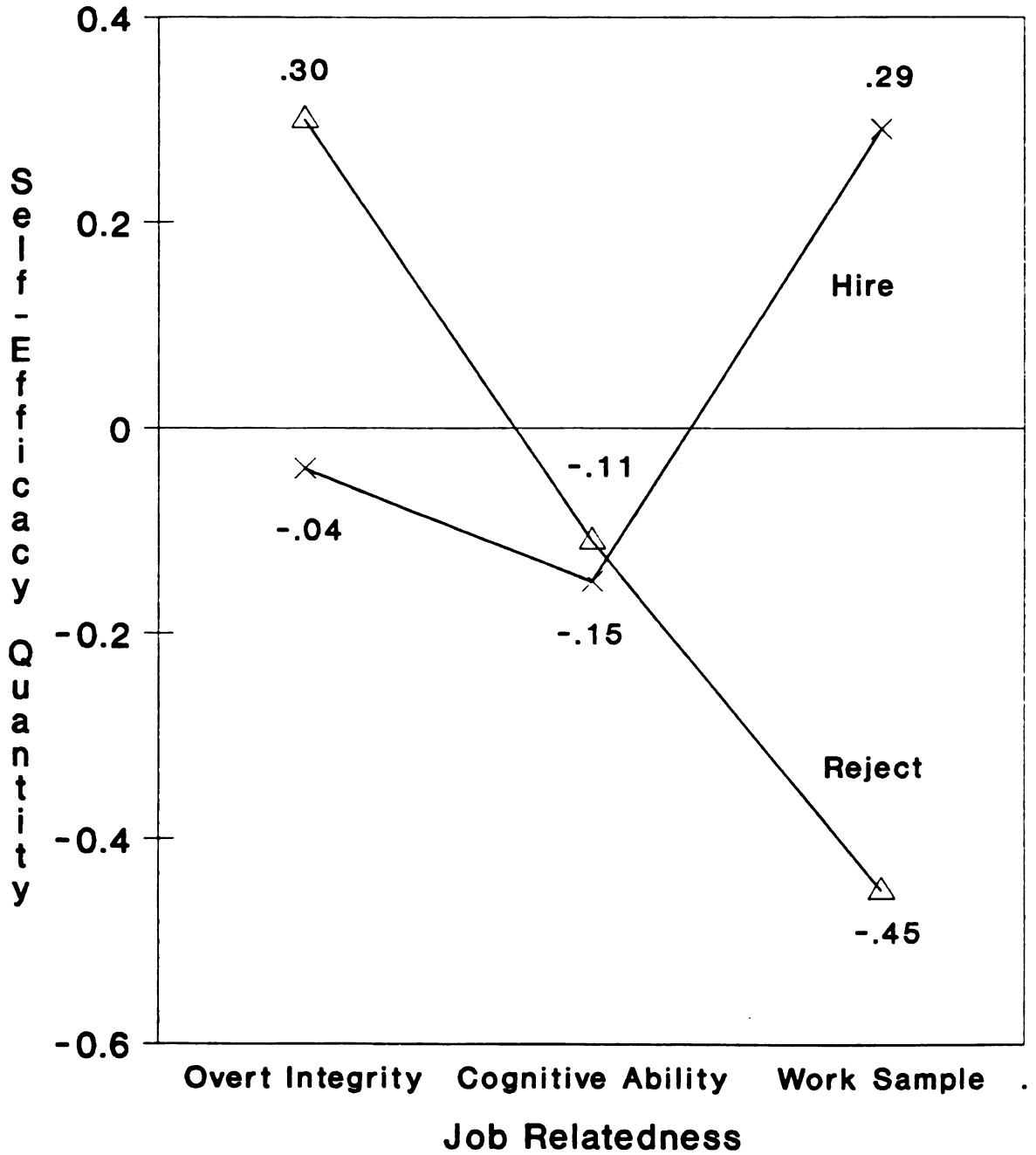
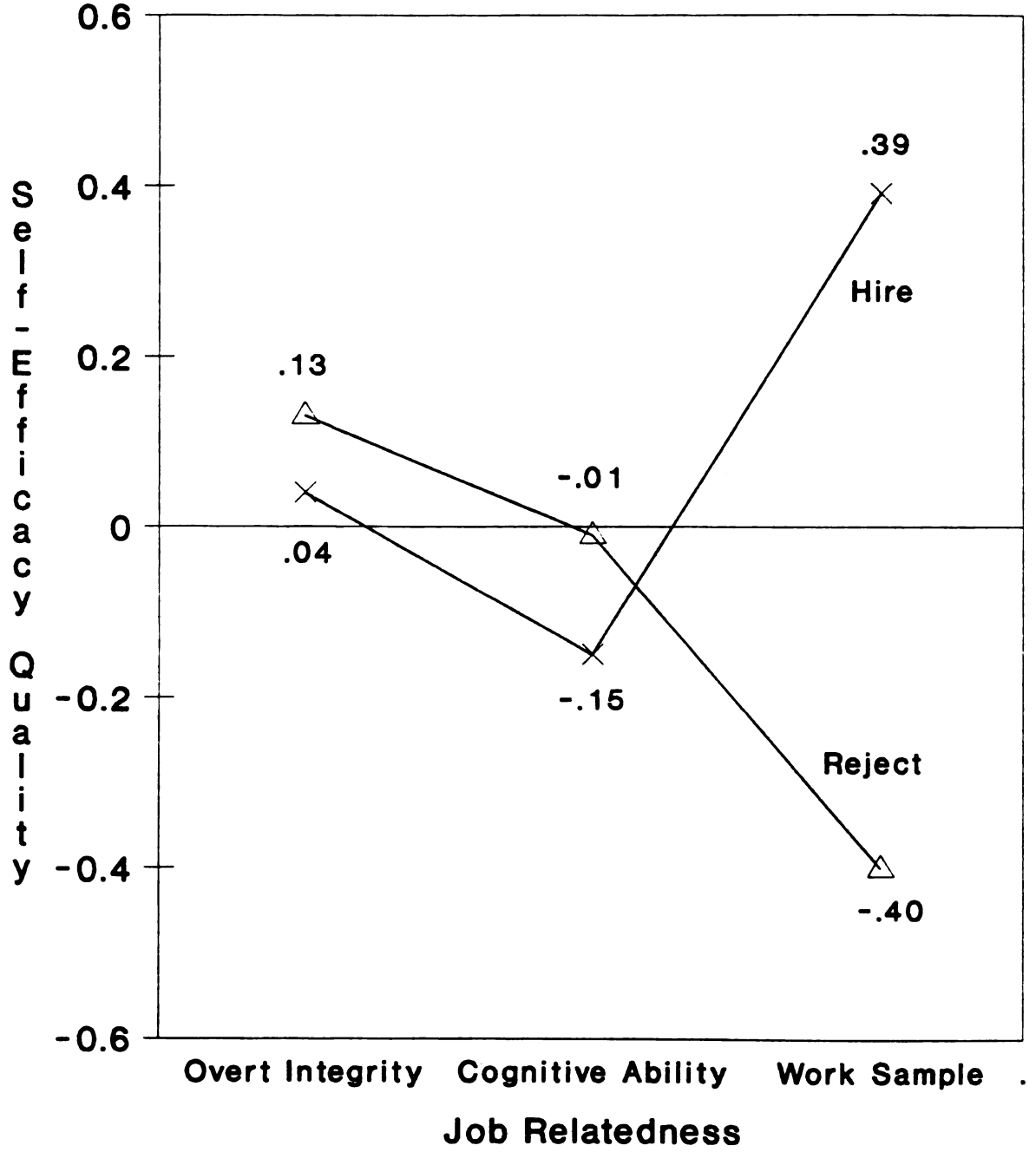


Figure 9
Job Relatedness by Selection Decision Interaction on Quality Self-Efficacy



other hired groups. The negative trend of quality self-efficacy among rejected applicants indicated that self-efficacy decreased as job relatedness increased ($F(2,122) = 2.81$, $p < .10$). In terms of the simple selection decision effects, the difference between hired and rejected applicants was significant with the work sample test ($t(73) = 3.6$, $p < .05$) but not the cognitive ability ($t(82) = .65$, n.s.) nor overt integrity tests ($t(95) = .51$, n.s.).

Performance. Work performance quantity and quality were hypothesized to be influenced by the job relatedness of the selection system (Hypothesis 6a) and the explanation offered for the system (Hypothesis 6b). Both measures of work performance were assessed independently for the first and second session. Since performance quantity and performance quality measures were uncorrelated (rs ranged from -.03 to .10), these two dimensions of performance were separately analyzed using 3 (job relatedness) x 2 (explanation) x 2 (work session) mixed model ANOVAs, with work sessions as a within-subjects facet. Table 11 summarizes these analyses.

Consistent with Hypothesis 6a, a main effect was found for job relatedness ($F(2,124) = 3.08$, $p < .05$). The means for this effect are depicted in Table 12 and post hoc comparisons indicated that performance quantity was higher among participants in the cognitive ability test condition than in the overt integrity test condition ($p < .05$). Means for the work sample test condition fell between the other two conditions and did not differ significantly from either. Before commenting on this effect, it is important to note that the job relatedness main effect was qualified by a job relatedness by work session interaction. The means for the interaction are also depicted in Table 12 and simple effects

Table 11

Analysis of Variance Summary for Work Performance

Source	df	F Values for Dependent Variables: Performance Quantity	Performance Quality
Test Type (T)	2	3.08*	.90
Explanation (E)	1	.05	4.34*
Test Type x Explanation	2	.04	.28
Within (S/TE)	124	(6.53)	(1.24)
Work Session (W)	1	635.88*	5.43*
Test Type x Work Session	2	3.57*	1.14
Explanation x Work Session	1	4.25*	.01
Test Type x Explanation x Work Session	2	.89	.54
Within (WS/TE)	124	(1.65)	(.41)

Note: Values in parentheses represent mean square terms.

*$p < .05$

Table 12

Means and Standard Deviation for Test Type by Sesssion Interaction on Performance Quantity

Work Session	Selection Test Type (Job Relatedness)		
	Overt Integrity (Low)	Cognitive Ability (Medium)	Work Sample (High)
Session 1	5.88[a]	6.73[b]	5.68[a]
	(1.45)	(1.80)	(1.35)
Session 2	9.52[c]	10.56[c]	10.37[c]
	(2.46)	(2.54)	(2.13)
Both Sessions	15.40[d]	17.29[e]	16.05[de]
	(3.57)	(3.92)	(3.20)

Note. Numbers in parentheses represent standard deviations. In comparisons within columns and rows, means sharing a common letter are not significantly different ($p < .05$).

tests indicated a job relatedness effect in the first work session ($F(2,127) = 5.44$, $p < .05$) but not the second work session ($F(2,127) = 2.43$, $p > .05$). In the first work session, participants who completed the cognitive ability test coded more manuscripts than those who completed either the overt integrity or work sample tests. Therefore, contrary to Hypothesis 6a, the test type effect on performance quantity did not appear to be a function of job relatedness, and instead is more similar in form to the test difficulty effect discussed with regard to the manipulation check and the test motivation measures. That is, the cognitive ability test was perceived to be the most difficult test but was associated with the highest work performance quantity.

In addition to the test type effects, an explanation by work session interaction was observed ($F(1,124) = 4.25$, $p < .05$). The means for this effect are summarized in Table 13 and appear to indicate that performance quantity was higher in the first work session among those provided an explanation than those provided no explanation. However, in the second work session, performance quantity appeared to be slightly lower among those in the explanation condition. Tests of simple effects failed to demonstrate significant effects for either the first ($t(128) = 1.50$, $p > .05$) or second work session ($t(128) = .61$, n.s.). As such, the mean differences in the first work session cannot be taken as support for Hypothesis 6b.

The final significant effect on performance quantity was a strong work session effect (see Table 11). On average, participants coded 6.08 ($SD = 1.59$) manuscripts in the first session and 10.12 ($SD = 2.41$) manuscripts in the second session. However, when considering these mean differences it is important to recall that the second session lasted 105

Table 13

Means and Standard Deviation for Explanation by Session Interaction on Performance Quantity

Work Session	Explanation for the Selection System	
	No Explanation	Explanation
Session 1	5.88	6.30
	(1.51)	(1.66)
Session 2	10.24	9.98
	(2.57)	(2.26)

Note. Numbers in parentheses represent standard deviations.

minute while the first session lasted only 75 minutes. If the second session mean is corrected for the length of the session, the mean number of manuscripts coded in the second session per 75 minute is 7.23. It appears then that participants may have been coding more quickly in the second session than in the first session. This is likely a practice effect and is of little theoretical interst.

In terms of performance quality, Hypothesis 6a did not receive support as the ANOVA on performance quality failed to demonstrate a test type effect (see Table 13). A main effect was observed for the explanation manipulation ($F(1,124) = 4.34$, $p < .05$), however contrary to Hypothesis 6b, the means are in the direction of less accurate performance in the explanation condition. Participants who were not offered an explanation had fewer errors per manuscript ($M_{no.explan} = 2.01$, $SD = .74$) than those offered an explanation ($M_{explan} = 2.31$, $SD = .83$). Thus, the procedural manipulation of explanation that had no effect on perceived fairness, had a negative effect on performance quality.

The only other significant finding with regard to performance quality was a work session effect. Participants made more coding errors per manuscript in the second work session ($M = 2.26$, $SD = .84$) than in the first work session ($M = 2.07$, $SD = .98$). Rather than getting more accurate with practice, participants appeared to get less accurate. While this may seem indicative of a quantity/quality tradeoff in which performance quantity increased and performance quality decreased in the second session, there was no correlation between performance quantity and quality measures to support a tradeoff hypothesis.

Job satisfaction. The final dependent measure in this study was a perceptual measure of job satisfaction collected at the end of the second work session. Satisfaction was hypothesized to be directly related to the job relatedness of the selection system (Hypothesis 7a). It was also hypothesized that satisfaction would be higher among those offered an explanation than those offered no explanation (Hypothesis 7b). A 3 (job relatedness) x 2 (explanation) ANOVA was used to test these hypotheses and the results are summarized in Table 14.

The hypothesized test type effect was marginally significant ($F(2,125) = 2.68$, $p < .10$), but the means were in the direction of higher satisfaction in the work sample ($M_{WS} = 3.53$, $SD = .57$) and overt integrity test conditions ($M_{OI} = 3.46$, $SD = .62$) than in the cognitive ability test condition ($M_{CA} = 3.24$, $SD = .60$). While not significant, it is difficult to determine whether the trend among these means was a function of the job relatedness manipulation or the test difficulty confounding. The hypothesized explanation effect was significant ($F(1,125) = 3.89$, $p < .05$), however the means are in the opposite direction to the hypothesis. Participants expressed greater satisfaction when they received no explanation ($M = 3.52$, $SD = .59$) than when they received an explanation ($M = 3.31$, $SD = .60$). While contrary to Hypothesis 7b, this negative effect is consistent with the finding for performance quality.

Supplementary Analyses of the Selection System Fairness Measure

Although the selection system fairness measure did not provide any of the dependent measures in this study, participants were asked to complete this measure in order to conduct an initial examination of its psychometric properties. The 67 items were developed to represent 13

Table 14

Analysis of Variance Summary for Job Satisfaction

Source	df	F Values for Satisfaction
Test Type	2	2.68
Explanation	1	3.89*
Test Type x Explanation	2	1.03
Within cells	125	(.35)

Note: Values in parentheses represent mean square terms.

*$p < .05$

procedural and distributive scales. Measure properties were examined with exploratory factor analyses and varimax rotations, as well as examination of a priori scales via internal consistencies, corrected item-scale correlations, and scale intercorrelations.

A principal factors analysis was conducted on the correlation matrix of the 67 items of the selection system fairness measure. Examination of the unrotated eigenvalues suggested an 18 factor solution using an eigenvalue greater than one criterion and an 8 factor solution using a scree criterion. As such three solutions were rotated, the a priori 13 factor solution, an 18 factor solution, and an 8 factor solution. The varimax rotation failed to converge for the 18 factor solution, but solutions were obtained for 13 and 8 factors. The 13 factor solution accounted for 47 percent of the variance. The rotated factor matrix for the 13 factor solution is presented in Table 15. For ease of interpretation, items were clustered by highest loading on the factors. As can be seen, the first factor was primarily comprised of the seven equity items. Two opportunity to perform items also loaded on this factor. The second factor appeared to be mainly an information or explanation factor as six selection information items and two feedback items loaded most heavily on it. Additionally, two opportunity to perform items were also found loading on this factor. The third factor did not appear to represent a clear content domain as items from procedural domains of honesty, selection information, two-way communication, bias suppression, and consistency as well as the distributive domain of special needs all loaded on this factor. The fourth factor was clearly a job relatedness factor while the fifth factor was a fakability factor. The sixth factor was again basically an

Table 15

Rotated Factor Matrix For 13 Factor Solution

Item	Content	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5	FACTOR 6	FACTOR 7
F52	Equity	.756	.080	.084	.205	.052	.029	.035
F51	Equity	.721	.104	.091	.164	.018	.103	.094
F30	Equity	.643	.121	.161	.179	.015	.125	.041
F65	Equity	.625	.130	.059	.032	-.230	.030	.206
F9	Opp. Perf	.601	.104	.003	.080	.086	-.085	.105
F25	Equity	.533	.142	.169	.276	.012	.122	-.014
F37	Opp. Perf.	.515	.156	.123	.140	.138	-.015	.192
F21	Equity	.512	.275	.172	.062	.131	.042	.283
F44	Equity	.492	.176	.176	.134	.039	.123	.132
F40	Sel. Info.	.095	.752	.107	.072	.118	-.073	-.024
F39	Sel. Info.	.076	.726	.142	.039	.019	.012	-.031
F54	Sel. Info.	.049	.607	-.027	.138	-.002	.073	-.044
F22	Sel. Info.	.139	.590	.184	.308	.041	.032	-.091
F41	Feedback	.133	.539	.074	.098	.049	-.098	.001
F63	Opp. Perf.	.235	.463	.006	.340	.149	.023	-.029
F64	Sel. Info	.232	.447	.149	.174	.021	-.047	.066
F3	Feedback	.233	.434	.327	.139	-.000	-.016	.136
F23	Opp. Perf.	.154	.324	.163	.024	.068	.049	.049
F33	Sel. Info.	.064	.284	.251	.079	.070	.078	-.043
F7	Honesty	.144	.229	.557	.096	.115	-.003	.113
F2	Honesty	.121	.203	.531	.108	.166	.012	-.004
F10	Sel. Info.	.033	.116	.528	-.130	.080	.184	.094
F15	Special Needs	-.081	-.054	.526	.063	.117	.275	-.004
F34	Honesty	.100	.183	.500	.259	.061	.043	.107
F11	Communication	.184	.359	.465	.021	.058	.047	.115
F6	Bias Suppres.	.099	.015	.462	-.063	.139	.368	-.048
F4	Interpersonal	.161	.015	.427	.151	-.042	.187	.177
F5	Consistency	.068	.011	.416	.117	.037	.186	.042
F12	Communication	.142	.282	.409	.184	-.157	.122	.097
F13	Consistency	.139	.141	.391	.344	.000	.093	.123
F19	Job Relate.	.139	.128	.022	.762	.157	.031	.018
F53	Job Relate.	.125	.133	.110	.715	.200	-.094	-.034
F18	Job Relate.	.177	.061	.118	.611	.069	.022	.083
F8	Job Relate.	.116	.277	.131	.593	.017	.053	.075
F55	Job Relate.	.323	.170	.065	.464	.289	.006	-.017
F17	Opp. Perf.	.267	.219	-.107	.341	.177	-.000	-.116

Table 15 (cont'd)

Item	Content	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5	FACTOR 6	FACTOR 7
F45	Fakability	.032	.177	.131	.120	.680	-.039	-.069
F32	Fakability	.086	.013	-.054	.110	.615	.071	-.204
F58	Fakability	-.076	-.044	.014	.069	.592	.114	-.057
F16	Fakability	.124	.130	.166	.096	.590	-.204	.018
F60	Fakability	-.044	-.044	.110	.117	.474	.198	-.002
F20	Bias Suppres.	-.082	.268	.302	.142	.390	.057	.183
F1	Job Relate.	.198	.051	.070	.253	.262	.060	.070
F67	Special Needs	-.036	-.030	.139	-.010	.033	.626	.174
F48	Special Needs	.114	-.033	.138	-.021	.041	.576	.198
F61	Consistency	.000	-.154	.172	.045	-.000	.408	.095
F29	Feedback	.254	.255	.198	.059	.058	.342	.168
F28	Feedback	.229	.028	.163	.023	.199	.301	.039
F46	Consistency	.218	.090	.203	.003	.065	.295	.187
F35	Special Needs	.148	.121	.065	.000	.198	.251	.177
F50	Difficulty	.114	.019	.064	.110	.027	.208	.654
F49	Difficulty	.131	-.016	-.041	.079	-.170	.242	.611
F36	Difficulty	.194	-.079	.143	-.182	-.184	.006	.587
F38	Difficulty	.086	-.056	.077	.023	-.028	.028	.515
F42	Honesty	.107	.279	.235	.032	.087	.149	.046
F66	Honesty	.069	.167	.100	.130	.084	.092	.027
F43	Communication	.167	.020	.240	.015	-.009	.076	.041
F59	Interpersonal	.046	.113	.135	.061	-.102	-.009	-.030
F47	Interpersonal	.074	.150	.084	-.071	.065	-.079	.054
F27	Consistency	.091	.126	.211	.248	.076	.324	-.057
F26	Special Needs	.122	.214	.012	.129	-.042	-.137	-.051
F14	Bias Suppres.	-.041	.078	.066	.171	-.041	.307	-.085
F24	Interpersonal	.268	.118	.109	.084	.125	-.010	.113
F31	Bias Suppres.	.108	.172	.206	.281	.305	.161	.213
F56	Communication	.088	.255	.009	.064	-.053	-.161	-.056
F62	Sel. Info.	.060	.249	.046	.038	-.001	-.133	.017
F57	Bias Suppres.	.000	-.013	.096	.044	.308	.284	.029

Table 15 (cont'd)

Item	FACTOR 8	FACTOR 9	FACTOR 10	FACTOR 11	FACTOR 12	FACTOR 13
F52	-.007	.042	.076	.082	-.187	-.026
F51	-.033	-.044	-.054	-.112	-.028	-.097
F30	.100	.044	.212	.280	.141	.117
F65	.063	-.020	.121	.035	-.089	.064
F9	.178	-.011	-.065	-.030	.217	.010
F25	-.013	.149	.302	-.136	.179	-.026
F37	.101	.157	.044	.125	.291	.204
F21	.002	.200	-.080	.191	-.037	.209
F44	.182	.098	.065	.407	.033	.137
F40	.126	.129	.004	-.074	.054	.103
F39	.019	.035	.061	.073	.036	-.034
F54	.000	.016	-.021	.021	-.011	.119
F22	.063	.039	.074	.055	-.010	.039
F41	-.009	.096	.253	.193	.081	-.097
F63	-.019	.126	-.029	.001	.277	-.001
F64	.288	.126	-.119	-.127	.028	.264
F3	.117	-.037	.275	.133	.012	-.038
F23	.047	.057	.011	-.068	.153	.251
F33	.237	.037	-.036	.009	-.198	-.176
F7	.128	-.027	-.048	-.020	.022	.008
F2	.085	.135	.062	-.104	-.079	.012
F10	.271	.072	.256	-.059	.005	.115
F15	-.141	.328	-.058	.055	.055	.094
F34	.401	.071	-.034	.121	.279	-.092
F11	.166	.106	.174	.196	.051	.148
F6	-.044	.009	.022	.051	.158	.090
F4	.038	.063	-.030	.293	-.082	-.053
F5	.172	.013	-.062	.120	-.154	-.046
F12	.015	.114	.194	.246	.143	.197
F13	.065	.076	-.166	.130	.069	.273
F19	-.047	.030	.013	.093	-.065	.017
F53	.070	.110	-.052	-.072	.113	-.022
F18	.158	-.129	-.030	.187	-.060	.150
F8	.098	-.031	.125	-.061	.069	-.054
F55	-.010	.042	.146	.065	.011	.014
F17	.031	.112	.041	-.090	.242	.057
F45	.057	.017	-.118	.149	-.042	.051
F32	.114	-.008	.074	-.051	.048	-.043
F58	-.045	.115	.021	-.049	.028	.022
F16	-.029	-.074	-.115	-.041	.038	.112
F60	.007	-.123	.160	.039	-.170	-.050
F20	.107	-.001	-.164	.213	.215	-.166
F1	.135	-.064	.145	.089	-.018	.011

Table 15 (cont'd)

Item	FACTOR 8	FACTOR 9	FACTOR 10	FACTOR 11	FACTOR 12	FACTOR 13
F67	.122	-.042	-.088	-.043	-.047	.073
F48	-.000	-.073	-.092	.063	-.103	-.133
F61	.400	.149	-.122	.010	-.158	.042
F29	.129	-.023	.084	.143	.218	-.018
F28	.191	-.009	-.120	.214	.006	-.133
F46	.046	.211	.075	.056	-.206	-.076
F35	.098	.033	.060	.202	.134	-.025
F50	-.002	-.007	.014	.134	.026	-.081
F49	.049	.018	.052	-.222	-.026	.067
F36	-.023	.088	-.057	.053	-.143	.132
F38	.068	-.040	.022	.050	.043	.008
F42	.453	.114	.090	.198	.224	.170
F66	.451	.022	.136	-.021	.022	.060
F43	.403	.154	-.000	.267	.024	.145
F59	.086	.632	.030	.030	.022	.050
F47	.068	.607	.145	.018	.104	-.154
F27	.142	.348	.085	.329	-.033	-.013
F26	.049	.135	.608	-.033	.089	-.037
F14	.003	-.025	-.366	-.004	.201	-.004
F24	.176	.190	.359	.223	.039	.175
F31	.224	.054	-.071	.337	.064	-.077
F56	.070	.180	.051	.049	.398	.094
F62	.105	-.112	-.012	-.002	.026	.413
F57	.175	-.039	.073	.096	.063	.330

uninterpretable mixture of special needs, feedback, and consistency items. The last clearly interpretable factor was the seventh which was heavily loaded upon by the four difficulty items. The remaining factors contained few items and were not readily interpretable.

In summary, what emerged from the 13 factor solution were five fairly clear factors that represented the following scales: equity, selection information, job relatedness, fakability, and difficulty. Quite interesting is the fact that these five scales were also the only procedural and distributive domains manipulated in this study. The test type manipulation likely influenced perceptions of job relatedness, fakability, and difficulty. The explanation manipulation was designed to influence perceptions of selection information conveyance, and the outcome manipulation influenced equity. Other procedural rules, especially those related to interpersonal treatment, were not manipulated nor was the special needs rule. As such, variance in these scales likely represented random variance, or that due to individual differences and not characteristics of the selection system.

Rotation of the eight factor solution produced very similar results and accounted for 39.5 percent of the variance. In this solution, the first factor was a mixture of 22 items from interpersonal domains as well as consistency, honesty, and special needs. The second through sixth factors were comprised of equity, selection information, job relatedness, fakability, and difficulty items with loading patterns similar to those of the 13 factor solution. That is, the five clear and interpretable factors related to the manipulations of the study emerged in the 8 factor solution as they had in the 13 factor solution. Of the remaining two factors, the second from last was somewhat interpretable

as it was loaded with three special needs items and a bias suppression item. The final factor had only two items loading on it, a communication item and a selection information item.

In addition to the use of exploratory factor analysis to examine the properties of the selection system fairness measure, I examined internal consistency estimates, item-scale correlations, and scale intercorrelations for the 13 a priori factors. Table 16 summarizes the number of items for each scale as well as the means, standard deviations, coefficient alphas, and intercorrelations. The five subscales that consistently emerged from the factor analyses also demonstrated the best internal consistencies; alphas ranged from .71 to .85. The remaining scales demonstrated poor to barely reasonable internal consistencies with alphas ranging from .49 to .70. Intercorrelations of the scales ranged from $\underline{r}$ = -.16 to $\underline{r}$ = .61 (smallest absolute $\underline{r}$ = .01), with the majority of the intercorrelations in the .20 to .50 range.

Clearly what the results of both the factor analyses and the a priori scale statistics demonstrated is that the current sample and the hiring situation they experienced do not produce sufficient systematic variance on all scales to clearly examine the fairness measure properties. Subsequent research will have to be conducted in which this measure is administered to a sample that has experienced a variety of selection procedures and situations. In this way meaningful variance may be obtained for all the scales of the fairness measure and it should be possible to more thoroughly examine the factor structure and psychometric properties of the fairness scales. However, the current sample can be used to refine those five scales on which systematic

Table 16

Internal Consistencies, Means, and Standard Deviations

For the Selection System Fairness Measure

Variable	No. Items	Mean	S.D.	Correlations												
				1	2	3	4	5	6	7	8	9	10	11	12	13
1. Job Related	6	3.11	.67	(.81)												
2. Opp. Perf.	5	2.90	.65	.50	(.69)											
3. Fakability	5	3.08	.78	.35	.24	(.76)										
4. Consistency	5	3.94	.44	.36	.27	.18	(.60)									
5. Feedback	4	3.27	.57	.40	.46	.19	.43	(.59)								
6. Sel. Info.	8	3.12	.64	.40	.51	.18	.33	.56	(.78)							
7. Honesty	5	3.69	.58	.42	.42	.24	.52	.55	.56	(.70)						
8 Interpersonal	4	3.49	.49	.36	.30	.08	.43	.42	.33	.43	(.56)					
9. Communication	4	3.27	.55	.40	.46	.06	.46	.55	.52	.57	.48	(.62)				
10. Bias Suppres.	5	3.86	.52	.35	.33	.39	.48	.39	.34	.52	.25	.35	(.57)			
11. Difficulty	4	3.75	.58	.06	.11	-.16	.25	.16	.01	.13	.17	.14	.12	(.71)		
12. Equity	7	3.14	.73	.46	.61	.09	.40	.52	.39	.40	.44	.45	.26	.30	(.85)	
13. Special Needs	5	3.87	.45	.03	.01	.14	.42	.18	.02	.23	.11	.11	.45	.27	.10	(.49)

Note: $r > .12$ significant at $p < .05$. Numbers in parentheses are internal consistency estimates.

variance was observed. Suggestions for such refinement follow.

With regard to the job relatedness scale, the factor analysis displayed in Table 4 suggests that item F1 does not load as heavily on the job relatedness factor, and in fact does not load higher than .26 on any factor. This item also demonstrated the lowest item-scale correlation with a corrected $\underline{r}$ = .39, while the remaining items ranged from $\underline{r}$ = .55 to $\underline{r}$ = .68. The alpha for the job relatedness scale with this item deleted increases slightly to α = .82. Given this evidence, item F1 could be dropped from the measure.

All of the fakability items loaded heavily on the same factor and all demonstrated high item-scale correlations, so this scale can be left intact. In the selection information scale, items F10 and F62 both loaded more heavily on different factors than the rest of the selection information items in the factor analysis and both had corrected item-scale correlations below $\underline{r}$ = .30, so these two items could likely be dropped. The resulting alpha (.80) is slightly higher. All difficulty scale items loaded on the same factor and demonstrated high item-scale correlations, so this scale need not be modified. Finally, all the equity items loaded heavily on the same factor and all corrected item-scale correlations were above $\underline{r}$ = .55, so this scale could also be left intact. The equity scale could probably be shortened by one or two items to reduce the length of the selection system fairness measure without reducing the internal consistency of the scale by more than a couple of points. This may be a desirable step as a number of participants complained about the length of the questionnaire and the redundancy of the items. This problem will partially be addressed when the manipulation check items are not included with the other 67 items,

but any action toward reducing the length of the measure would likely be advantageous.

In summary, 5 of the 13 scales of the selection system fairness measure demonstrated fairly clear convergent and discriminant properties. The evidence for these scales was encouraging. The remaining scales did not emerge from factor analyses and demonstrated somewhat poor internal consistencies. The problem is likely a function of the lack of systematic variance in objective selection system characteristics for the remaining 8 scales. Further investigation will have to include a sample with more diverse experiences.

CHAPTER 6

DISCUSSION

The main purpose of this study was to examine the influence of procedural and distributive justice factors in a selection situation, in terms of effects on perceived fairness and a number of other individually and organizationally relevant outcomes. Predictions were clearly outlined in 22 formal hypotheses and the results were similarly organized as tests of those hypotheses. In order to clarify what was learned in this study, the discussion begins with a summary of the results. Issues associated with job relatedness, explanation of the selection process, and the interactions between procedural and distributive justice are then discussed. This dissertation concludes with a discussion of limitations and future research directions.

Summary of Results

The main variables in this study can be grouped into four sets of outcomes: Perceived fairness, test motivation, self-concepts, and post hire attitudes and behaviors. Although application/recommendation intentions can be seen as a distinct outcome that represents the ability to recruit applicants to an organization, discussion of this measure is included with fairness perceptions because of the similarity in hypotheses. For each of the sets of outcomes, results are summarized in terms of support, or lack thereof, of the hypotheses. As a means of

facilitating this summary, the hypotheses and the relative support for each are summarized in Table 17.

Perceived fairness. Five hypotheses were generated for each of the perceived fairness measures (see Table 17). Main effects were predicted for hiring decision, selection test job relatedness, and explanation for the selection system. Interactions were also predicted between job relatedness and hiring decision and between explanation and hiring decision. These hypotheses were tested for both perceived procedural fairness and perceived outcome fairness. The first and second hypotheses were supported for both fairness measures. Perceived procedural and outcome fairness was greater among hired applicants than among rejected applicants and increased as the job relatedness of the selection procedure increased. Additionally, hiring decision had a greater impact on outcome fairness than procedural fairness and job relatedness had a greater impact on procedural fairness than outcome fairness. This finding offers support for the perceptual discriminability of procedural and outcome fairness.

Although participants perceived the explanation manipulation, the third hypothesis was not supported, as explanation had no effect on either procedural or outcome fairness perceptions. Additionally, the hypothesized interaction between outcome and explanation was not supported for either fairness perception. The interaction between job relatedness and hiring decision was significant at a $p < .10$ level for perceived outcome fairness and the means were in the predicted pattern. The possibility of the need for greater power when testing this interaction hypotheses at the $p < .05$ level will be discussed later.

Table 17

Summary of Hypotheses and Results

Dependent Variable	Hypothesized effect				
	Outcome	Job Related	Explan.	Outcome x Job Related	Outcome x Explan.
Procedural Fairness	Sup.	Sup.	N.S.	N.S.	N.S.
Outcome Fairness	Sup.	Sup.	N.S.	Sup.	N.S.
Recommendations	N.S.	N.S.	N.S.	N.S.	Sup.
Test Motivation		Sup.	N.S.		
Concentration		N.S.	N.S.		
Belief in Tests		Sup.	N.S.		
Compar. Anxiety		??	N.S.		
Test ease		??	N.S.		
External Attrib.		??	N.S.		
Need Achievement		N.S.	N.S.		
Global Self-esteem	N.S.			N.S.	N.S.
Affect Self-esteem	Sup.			N.S.	N.S.
Self-efficacy Qnt.	N.S.			Sup.	N.S.
Self-efficacy Qual.	N.S.			Sup.	N.S.
Perform. Qnt.		??	??		
Perform. Qual.		N.S.	??		
Job Satisfaction		??	??		

Note. Sup. = Hypothesis was supported, ?? = Significant effects but different than hypothesized, N.S. = Hypothesis not supported. Blank = no hypothesis generated.

The application/recommendation intentions measure was intended to capture the extent to which the selection system might dissuade individuals from applying for similar positions in the future, or recommend application to their friends. The measure should relate to an organization's ability to recruit applicants. Somewhat surprising was the finding that application/recommendation intentions was only weakly correlated with fairness perceptions. Additionally, the first four hypotheses for this measure, which mirrored the hypotheses for fairness perceptions, were not supported. However, the fifth hypothesis, which had the greatest importance from an applied perspective, was supported through a significant interaction between explanation and selection decision. The pattern of the means was consistent with the hypothesis in that explanation led to higher application/recommendation intentions than no explanation among rejected applicants, but had no effect on hired applicants.

Test motivation. Hypotheses for test motivation included main effects for job relatedness and explanation (see Table 17). The job relatedness hypothesis received some support, while the explanation hypothesis was not supported. Although test type effects were found on five of the seven dimensions of test motivation, only the dimensions that were related to test taking motivation and belief in tests demonstrated clear job relatedness effects. The external attributions dimension demonstrated an effect that may be attributable to job relatedness, while the effects for the comparative anxiety and test ease dimensions were clearly more consistent with differences in the perceived difficulty of the three different tests. That is, on these final two dimensions the moderately job related, cognitive ability test

was perceived to be more difficult than the overt integrity test and led to higher comparative anxiety than the other two tests.

Self-concepts. Self-concept was assessed in terms of self-esteem and self-efficacy and three hypotheses were generated for each construct (see Table 17). Main effects were predicted for selection decision, with higher self-concepts found among individuals than among rejected individuals. Interactions were also predicted between job relatedness and selection decision as well as explanation and selection decision. The selection decision main effect hypothesis was supported for the affective self-esteem measure, but not for the global esteem or self-efficacy measures. The hypothesized interaction between job relatedness and selection decision did not receive support with the self-esteem measures but was supported with both the quality and quantity self-efficacy measures. The results demonstrated that, as the job relatedness of the selection test increases, the self-efficacy of hired applicants increases, while the self-efficacy of rejected applicants decreases. The implications of this "mixed blessing" pattern of results will be discussed in detail later. No interactions were found between explanation and the selection decision.

Post hire attitudes and behaviors. The final hypotheses were main effects of the two procedural manipulations on work performance and job satisfaction (see Table 17). Work performance was assessed along quality and quantity dimensions and was tabulated separately for the first and second sessions. Performance quantity was found to vary as a function of test type in the first work session but not the second work session. However contrary to predictions, work performance did not increase with job relatedness but instead was highest in the medium job

relatedness condition, which also happened to be the selection test with the highest perceived comparative anxiety and test difficulty. Performance quantity also demonstrated an interaction between explanation and work sessions. The means appeared to indicate that performance quantity was higher in the first session among those applicants offered an explanation than those offered no explanation, with no difference or a slight negative effect in the second session, however simple effects tests failed to demonstrate any significant explanation effects.

Performance quality demonstrated an explanation effect, although the effect was in the opposite direction to that predicted. Applicants who were given an explanation prior to hiring made more performance errors than those offered no explanation. Similarly, the only significant effect for job satisfaction was an explanation effect in the direction opposite to that hypothesized. Participants offered an explanation expressed lower job satisfaction than those offered no explanation. Given that these effects and an interaction on application/recommendation intentions were the only explanation effects found in this study, and all the post-hire explanation effects were in the opposite direction, the adequacy of the explanation offered is discussed following the discussion of job relatedness effects.

Job Relatedness

Job relatedness and the related concept of face validity have long been considered desirable features of selection procedures. Although prior research has examined participant reactions to highly job related tests (Dodd, 1977, Schmidt et al., 1977) and has examined the perceived job relatedness of different types of selection procedures (Smither &

Pearlman, 1991, April), the current study represents the first attempt to manipulate systematically job relatedness in a selection context. In terms of perceived fairness, the results are consistent with the hypotheses: the greater the job relatedness of a selection procedure, the greater the perceived fairness. This effect is strongest in terms of perceived procedural fairness, but is also prevalent in perceptions of outcome fairness. Perhaps of even greater interest is the fact that job relatedness influences a number of other individual and organizational outcomes.

Test taking motivation can have a direct impact on test performance (Arvey et al., 1990), as well as an indirect impact on the validity of the selection test (Schmit & Ryan, 1992, April). The current study demonstrates that test taking motivation is influenced by the job relatedness of the selection procedure, such that motivation is highest with a highly job related test. With the current interest in paper-and-pencil cognitive ability tests, these results are clearly important. Test developers may find it advantageous to search for alternate selection tests that appear more job related than the typical cognitive ability test. Alternately, it may be possible to modify test items of current cognitive ability tests to make them appear more job related (Smither & Pearlman, 1991 April), while not changing the constructs being measured (Hattrup, Schmitt, & Landis, 1992). Overt integrity tests appear, at least in the current context, to be most problematic in terms of test motivation. This may be true of overt integrity tests in general, or it may be a function of the context in which the test is used. An overt integrity test may appear highly related in some selection contexts. Additionally, the overt integrity

test is somewhat different than the other two tests that were used in this study because it tends to assess typical rather than maximal performance. One could argue that test motivation should be lower with a typical as opposed to maximal performance test.

A second dimension of Arvey et al.'s (1990) test attitudes survey that was influenced by job relatedness was belief in tests. Applicants have stronger beliefs that the specific selection test, as well as tests in general, are valid and useful if they are more highly job related. This has practical implications for litigation of selection discrimination cases which will likely soon be decided by jury trials, as required by the 1991 Civil Rights Act. Statistically naive jurors may be swayed more strongly by the perceived job relatedness, validity, and usefulness of a test than by its actual statistical properties.

Self-efficacy was also influenced by the job relatedness of the selection test, with effects that were quite different for rejected versus hired applicants. Implications of this finding are discussed later. Finally, job relatedness, or at least differences in selection test types, can influence post-hiring work behavior and possibly job satisfaction. Unfortunately, a potential confounding of the job relatedness manipulation with test difficulty variation across the different test types limits some of the conclusions that can be drawn with regard to job relatedness in the current study.

The perceived difficulty of the cognitive ability test exceeded that of the overt integrity test, and although not significant, the perceived difficulty of the work sample test was more similar to that of the overt integrity test than to the cognitive ability test. While the mean differences were much smaller for the perceived difficulty measure

than the perceived job relatedness measure, differences between the overt integrity and cognitive ability tests may be partly attributable to test difficulty as well as job relatedness. Kluger and Rothstein (1991, April) argued that the cognitive demands of a test are one of the main influences on applicants' reactions, with more negative reactions resulting from more demanding tests. An effort was made during pilot testing to equate all three tests on perceived difficulty by reducing the length of the cognitive ability test from 50 to 40 items, while keeping the time limit the same. This was not enough of a concession as differences in perceived difficulty were found, however it is important to remember that these differences were small, albiet significant. As such, differences in perceived difficulty may have accounted for some of the variance on some of the measures, but certainly cannot completely account for the job relatedness effects.

It may be interesting to examine some of the observed effects of test type on organizational outcomes with an interpretation of test difficulty. Such a venture is speculative and should be interpreted as an effort to generate hypotheses rather than any attempt to test hypotheses with current data, because many other possible explanations exist. That is, there may be other dimensions on which the three tests varied besides job relatedness and test difficulty. Results for two test attitude scales (Arvey et al., 1990), test taking motivation and belief in tests, were consistent with the job relatedness hypotheses. However, greater comparative anxiety was found with the cognitive ability test than with the overt integrity and work sample tests. As stated earlier this scale represents a somewhat heterogeneous combination of how anxious the applicant felt, how well they felt they

performed, and whether performance was seen as a reflection of ability. It would appear that with more difficult tests, applicants feel more anxious, feel they performed less well, and feel that their performance is not a good reflection of their ability. A final issue to consider with regard to the findings with the test attitude scale, is that some of the unusual results may be due to inadequacies in that measure. A number of the scales of the TAS did not demonstrate reasonable internal consistencies in Arvey et al.'s (1990) research, and the theoretical content of some of the scales is difficult to interpret.

Post-hire attitudes and behaviors also appeared to be influenced by test type in a way that may be indicative of differences in test difficulty. Participants completed a greater quantity of work in the first session when they were selected with a cognitive ability test than with an overt integrity or work sample test. Before ascribing too much importance to this finding, it should be remembered that the effects of test type on work quantity were short lived and did not persist beyond the first work session. In any event, it may be possible that the difficulty of the selection process influences how hard an individual will work after being hired. The more an applicant is asked to do in the selection process, the more they may actually do once hired. Additionally, job satisfaction demonstrated means in the same direction as this test difficulty effect, although the results were only marginally significant. It may be possible that a demanding selection process established an atmosphere of high quantity work that is not particularly satisfying. Of course these final extensions are purely speculative and would require extensive theoretical development as well as empirical testing.

In future research that uses an experimental paradigm to manipulate job relatedness, it may be worthwhile to manipulate test difficulty as an independent dimension and thereby allow for a cleaner assessment of job relatedness and test difficulty effects. It would also be possible to examine these issues using a survey methodology and the selection system fairness measure developed in this study, as long as a sample and situation were selected in which the dimensions of job relatedness and selection process difficulty were reasonably independent.

Explanation

Offering an explanation or justification for a decision has been shown to be related to procedural fairness perceptions in a variety of situations, including scenario-based recruiting situations (Bies & Shapiro, 1988). A logical extension of this research to the selection domain is in terms of offering information about the selection procedures and their validity, as well as information on scoring and decision making. In the current study participants were offered an explanation for the particular selection test administered and information on how a hiring decision would be made. This explanation was in the form of a one page written description and a three sentence verbal reinforcement. A manipulation check demonstrated that greater information was conveyed in the explanation condition than in the no explanation condition. However, explanation had no effect on perceived fairness, test motivation, and self-concepts; a predicted effect on application/recommendation intentions; and a negative effect on performance quality and job satisfaction. The predicted explanation manipulation by selection decision interaction on application/

recommendation intentions, indicates that explanation may be one means of "appeasing" rejected applicants. Those that were rejected but offered an explanation were more likely to recommend the project or apply for similar projects than those rejected and offered no explanation. This finding is consistent with prior organizational justice research on justification (e.g. Greenberg, 1990a) and is important from an applied perspective.

Given that explanation did work as predicted for application/ recommendation intentions, two questions arise: a) Why did explanation not have an effect on many of the variables that were influenced by the job relatedness of the selection test, and b) Why was the effect of explanation negative for post-hire work behaviors and attitudes? In terms of addressing both of these issues, attention should be directed toward the total amount of information provided to applicants, the way in which the explanation was conveyed, and the type of applicants that served as participants in this experiment.

The procedure for this study included providing substantial information on the work task to applicants prior to testing such that applicants would be able to form reasonable impressions regarding the job relatedness of the selection tests. As such, all applicants received considerable information prior to completing the selection test. While only those in the explanation condition were provided any information on the selection test, all applicants may have felt they received reasonable information and subsequently their perceptions of fairness were not influenced by the explanation manipulation.

In terms of the way in which the explanation was conveyed, presenting information on a single sheet of paper may have minimized the

impact of this information in comparison to the other information conveyed about the nature of the work task. During telephone interviews I conducted with recent job applicants, the types of issues they described in terms of selection information were either extremely negative incidents when not enough information was provided to successfully complete the selection process or extreme positive incidents in which much information was provided on the company, the selection process, and in some cases even the questions that would be asked during a selection interview. The explanation manipulation in the current study may have been too minimal to influence fairness perceptions.

A second problem with the manipulation of explanation may have been that it was not believable. In particular, the explanation for the overt integrity test and even the cognitive ability test may have been seen as inaccurate or blatantly false. This may have been especially problematic in the current study, given that the participants were undergraduate students who likely had previous experience with deception in different psychology experiments. To these participants, a single written sheet of information may signify a manipulation and thus may have been discredited. Informal discussions with participants during debriefing did not indicate that suspicion was a problem, but debriefings were conducted in a large group format in which individual participation or expression may have been inhibited. If participants who received the explanation manipulation felt they were deceived, this might have led to the negative effects of explanation on performance quality and job satisfaction.

A question arises as to why this negative effect was only detected in hired participants, and only among post-hire measures. The explanation may have only been thought of as a deception after individuals had a chance to experience the coding task first hand. It may have seemed plausible that an overt integrity test was being used to select "responsible" individuals up until the point when hired participants actually began the coding task. At this point the explanation may have been reinterpreted as a deception and negative consequences resulted. All of these possible interpretations of the peculiar results with regard to the explanation manipulation are highly speculative.

A final interpretation is that in the selection domain, explanation or justification for a selection decision does not influence perceptions of fairness. As such, the findings for post-hire measures are spurious and not likely to be replicated in subsequent research. As this is a harsh and dismal interpretation, I would be inclined to suggest that further research be conducted on explanation using a more substantial manipulation. As in other procedural justice research on justification (e.g. Greenberg, 1990a), the explanation manipulation could involve an interactive discussion of why a selection test is being used and how it will be scored. Alternately, justification could be offered after the selection decision, with a written or verbal description of how each individual performed in the selection process and why they did not receive a job offer. In this way, the explanation provides justification for the <u>decision</u> rather than the <u>procedure</u> that led to the decision. This form of justification may be more consistent with prior justice research on justification (Bies & Shapiro, 1988;

Greenberg, 1990a).

Interactions Between Procedural and Distributive Justice

Two of the most interesting sets of hypotheses in this study involved the interactions between procedural manipulations and the selection decision on perceived fairness and on self-concepts. The observed interaction on perceived outcome fairness is considered first and then the discussion addresses the interactions on self-efficacy.

Perceived outcome fairness. In terms of perceived fairness, prior research has been inconsistent. Organizational justice research by Greenberg (1987a) and Leung and Li (1990) has demonstrated an interaction between procedural justice and outcome favorability on measures of perceived fairness. However, research by Kluger and Rothstein (1991, April) failed to find a similar interaction in a simulated hiring situation, drawing into question the applicability of the justice findings to the selection domain. In the current study an interaction was found between the job relatedness of the selection procedure and the selection decision on perceived outcome fairness, such that job relatedness had a significant positive effect on outcome fairness perceptions of rejected applicants but no effect for accepted applicants.

This finding replicates the results of Greenberg (1987a) in two important ways. First, the form of the interaction is the same, indicating that contrary to Kluger and Rothstein's (1991, April) results procedural justice findings are applicable to the selection domain. Second, the interaction was found on the outcome fairness measure and not the procedural fairness measure, which is also consistent with Greenberg's findings. Both of these issues highlight the utility of

adopting an organizational justice perspective as a means of generating hypotheses with regard to selection system perceived fairness. In addition, at least three aspects of this interaction warrant further discussion: a) the magnitude of the interaction and power to detect significance, b) resolving the discrepancy with Kluger and Rothstein's findings, and c) practical implications of studying perceived fairness.

A liberal $p < .10$ level of significance was adopted when examining interactions in this study because of the low power associated with testing hypotheses. In particular, analysis of variance is most powerful when testing cross-over interactions and is far less powerful for interactions involving slopes of the same sign. That is, the interaction hypothesis was not that job relatedness would have a positive effect for rejected individuals and a negative effect for hired individuals. Rather, it was predicted that job relatedness would have less of an effect (albeit still positive) for hired as compared to rejected individuals. In the analysis section the power to detect the interaction between job relatedness and selection decision on perceived outcome fairness was presented. It may also be useful to examine the sample size that would be required to detect a similar effect with .80 power and a $p < .05$ significance level.

The effect size of the interaction between job relatedness and selection decision on outcome fairness was $eta^2 = .019$ or $f = .137$. Cohen (1988) describes $f = .10$ as a small effect and $f = .25$ as a medium effect, so it can be seen that the interaction represented a fairly small effect. As indicated previously, the power to detect this effect size at a $p < .10$ level was .61, while the power at a $p < .05$ level was .48. If the typical $p < .05$ level is adopted and the desired power is

.80, then it would take 528 participants to detect the effect size obtained in the current study. This calculation suggests that future research directed toward examining the interaction between procedural features of the selection system and the selection hiring decision, must involve fairly large samples. Alternatively, it may be possible to develop realistic situations in which the effect size associated with this interaction is larger. Finally, given the effect size in this study, one might be concerned about its practical significance; this issue is addressed below.

When examining the issue of the discrepancy between the findings of the current study and those of Kluger and Rothstein (1991, April), it may be worthwhile to consider again the issue of power. The effect size of an interaction between procedural factors and hiring decision is going to depend largely on the magnitude of the procedural effect. If the procedural effect is small, the effect size of the interaction will be substantially reduced. In the Kluger and Rothstein study, the procedural manipulation was cognitive ability versus biodata selection tests. Although differences were found between these two tests on a number of perceptual measures, it is likely that magnitude of the procedural effect was insufficient to produce a significant interaction. In addition, the study involved a simulated selection environment in which no real job was on the line, and as such, the outcome effect may have also been reduced. Given the sample size of Kluger and Rothstein's study (n = 151) and my best estimate of the size of this effect, it is likely that they had insufficient power to detect an interaction between test type and hiring decision.

In addition to the theoretical importance of the interaction between job relatedness and hiring decision on outcome fairness, this finding raises some practical concerns. As was mentioned in the introduction to the present study and hypotheses section, organizations are likely primarily concerned with the reactions that hired applicants have to the selection process. The findings with regard to outcome fairness would suggest that for hired applicants, the job relatedness of the selection system does not really matter. However, before we conclude that the study of perceived fairness is purely academic or only important from an individual rather than organizational perspective, it is important to recall that no interaction was found between job relatedness and hiring decision on the procedural fairness measure. That is, job relatedness influenced perceptions of procedural fairness just as strongly for the rejected applicants as for the accepted applicants. As considerable prior research has demonstrated a relationship between procedural fairness and a variety of organizational outcomes (e.g. Konovsky & Cropanzano, 1991), procedural fairness effects can certainly be seen as important.

Self-efficacy. The second set of interaction hypotheses that were of considerable interest were those predicting interactions between procedural manipulations and the selection decision on the self-esteem and self-efficacy measures. Procedural justice was predicted to have an adverse effect on the self-concepts of those that were rejected. The significant interactions between job relatedness and selection decision on the two self-efficacy measures supported this hypothesis. If you combine the findings of the two interactions, essentially what was demonstrated was that as the job relatedness of the selection process

increases, the self-efficacy of hired applicants also increases, but the self-efficacy of rejected applicants decreases. In terms of the hired applicants, the selection process may almost serve the function of an organizational development intervention. The more job related or procedurally fair the selection system is, the higher the self-efficacy of those applicants that are hired. Prior research has consistently demonstrated a link between self-efficacy and work performance (Gist & Mitchell, 1992), such that by increasing the perceived fairness of the selection process, an organization may be increasing productivity.

While the results of the current study demonstrated the effects of the selection system on self-efficacy, a link was not observed between self-efficacy and performance. The correlations between self-efficacy and performance were consistently nonsignificant for both dimensions of quantity (r_{Perf1} = .10, r_{Perf2} = .10) and quality (r_{Perf1} = -.05, r_{Perf2} = -.04). These results suggest that participants may not have had an accurate understanding of what the job entailed at the time of completing the self-efficacy measures. Future research examining this issue would likely demonstrate a stronger relationship between post selection self-efficacy and actual work performance if applicants were applying for jobs in which they had a stronger a priori understanding of the job content. It is also possible that the motivational enhancement demonstrated through the self-efficacy measures by individuals in the work sample test condition did not transfer past the training session to reflect performance on the job. It would have been interesting to reassess self-efficacy either following the first work session or preceding the second work session to see if the job relatedness effect on efficacy was maintained following performance of the task.

To the same extent that higher job relatedness increases self-efficacy among hired workers, job relatedness is also associated with a decrease in self-efficacy among rejected applicants. This is sort of a Catch 22 of developing selection systems that appear to be procedurally fair. While attitudes of rejected applicants toward the selection process and hiring decision are positively influenced by job relatedness, self-efficacy is reduced. This is an interesting finding and deserves subsequent research on both the underlying processes of the effect and the relationship of this effect to other outcomes relevant to rejected applicants, such as continued motivation to search for a job.

Social psychology research on self-concept (McFarland & Ross, 1982) and attribution theory (Weiner, 1985) was used to generate the hypothesized interaction between procedural factors and hiring decision on self-concept measures. In particular, it was suggested that as the selection process became more job related or more procedurally just, applicants would be less able to make external attributions regarding their performance in the selection process and the feedback inherent in the hiring decision would become internalized. While the results for self-efficacy suggest that this process took place, it would be useful to actually assess attributions associated with the selection process and see if they are more internal with a job related selection process than one that is less job related. Subsequent research could also examine whether this interaction is moderated by locus of control or initial self-esteem as would be predicted from some of the self-concept (Baumgardner et al., 1989) and attribution literature (Weiner, 1985), as well as prior theories of applicants' responses to selection (Iles & Robertson, 1989).

Another need for subsequent research is to examine the impact of negative self-efficacy on future job search behavior. If individuals believe they could not have performed the job very well (i.e. low self-efficacy) they may be dissuaded from applying for future jobs of that nature. In additional, if the negative impact on self-concept is less specific than self-efficacy toward that particular job, motivation to continue the job search process in general may be reduced. Although a similar interaction was not found with general or affective self-esteem, future research could examine the impact of rejection on self-esteem toward the job search process (Ellis & Taylor, 1983). In addition, research tracing the job search process of a single individual may be able to document the effects of repeated rejection on applicants' motivation. At this point, it is not known how detrimental one job rejection may be, although we can probably all recall instances when we, or people we know, were really deflated after a single job rejection.

A final issue to consider regarding the negative impact of job relatedness on rejected applicants' self-concept is whether or not this effect can be minimized by a post rejection explanation that highlights external factors that lead to the rejection. During a recent job search, I was told by one potential employer that if I did not get the job, it would not be because I was not qualified, rather it would be a lack of match between my interests and their needs. As was discussed previously regarding the effects of explanation, it would likely be worthwhile for research to examine the utility of providing applicants with informative and constructive feedback regarding a hiring decision. This means of increasing the procedural fairness of the hiring process may also serve to decrease the negative effects of rejection on self-

concept.

Limitations

As with any research project, it is worthwhile to take some of the wind out of the sail and discuss the limitation of the study. Three problematic issues warrant discussion at this point: a) the confounding of a test difficulty effect with the job relatedness manipulation, b) the problems with the explanation manipulation, and c) a problem with participants' motivation. While the first two issues produced problems when interpreting results, the final issue may have decreased the magnitude of a number of the effects and may have diminished the external validity of the study.

In the discussion of the job relatedness effects, I discussed the confounding of test difficulty with the job relatedness manipulation. The test difficulty effect was considerably smaller than the job relatedness effect and had a different form, such that any differences between the work sample test and the other two tests could be interpreted as a job relatedness effect. However, difficulties in interpretation arise with effects that were not linearly related to the ordering of test job relatedness such as with some of the test attitude survey measures or with the performance quantity measure. Effects on these measures appear to be a function of test difficulty because they are similar in form to the test difficulty effect, however there may be other differences in the tests to which effects can be attributed. In addition, some of the other job relatedness effects, such as the interactions between job relatedness and selection decision on self-efficacy, may have been affected by factors other than job relatedness, such that the means are not a perfect match to the hypotheses. One

means of examining the possibility that other differences in the test were manipulated in addition to job relatedness is by examining test type effects on the ten procedural dimensions of the selection system fairness measure. As not all of the dimensions demonstrated adequate internal consistencies or discriminant validity, these analyses should be interpreted cautiously.

A 3 (test type: work sample v. cognitive ability v. overt integrity) x 2 (explanation v. no explanation) x 2 (hired v. rejected) MANOVA on the 10 procedural dimensions demonstrated significant test type ($F(20,480) = 10.11$, $p < .05$), explanation ($F(10,239) = 3.58$, $p < .05$), and hiring decision effects ($F(10,239) = 5.07$, $p < .05$). Of greatest interest here are the univariate results with regard to test type, for which significant results ($p < .05$) were found on job relatedness, opportunity to perform, fakability, feedback, selection information, honesty, and bias suppression. The means for the job relatedness effect are comparable to those for the job relatedness manipulation check in that the work sample test was seen as considerably more job related than the other two tests. For all the other procedural dimensions on which significant test type effects were found, the means indicate that the cognitive ability and work sample tests did not differ substantially, but the overt integrity test was much lower. Given the intercorrelations of these dimensions, it is difficult to determine where the basis for these effects lies. However, these results do indicate that it is difficult to manipulate a single procedural dimension, without also manipulating unintended procedural aspects. This is particularly the case when realistic and commonly utilized tests are adopted. A "cleaner" approach to manipulating job relatedness could

involve a single test format with test items of varying job relatedness. Of course, this approach would maximize internal validity at the expense of generalizability.

A second limitation of the current study is the inability to draw conclusions with regard to the explanation manipulation. A number of possible reasons why this manipulation did not influence dependent measures in the predicted manner have been proposed, but these are suggestions which are largely speculative. At best, I can conclude that my particular manipulation of explanation did not influence perceived fairness, but it did demonstrate an interesting interaction on recommendation intentions; at worst I could suggest that explanation in the selection context backfires and leads to lower satisfaction and work quality. It would have been useful to conduct individual debriefing sessions with participants to see whether they perceived something wrong with the explanation.

A final limitation of this study is a problem with some participants' motivation. After running a number of sessions, it became obvious that some participants were only completing the selection process in order to obtain course credit. As mentioned in the method section, six individuals refused to participate in the coding task after being selected, and three individuals did not return for the second coding session after completing the first session. Although three of the six individuals refused to participate in the coding task because of schedule conflicts, the other three refused because they did not want the money and only participated in the selection process in order to obtain course credit. Two of these people even told me that they had actively attempted to "fail" the selection test so that they would not

be selected. The other informal feedback I received regarding a motivation problem was that a number of participants audibly groaned when I announced that they were in the selected group. This is not likely something that happens in typical selection situations.

As it is not possible to determine the extent of this motivation problem, a question to be addressed is how this problem may have influenced the results of the study. It seems that lack of motivation would tend to minimize or limit the magnitude of my findings. If a person was not interesting in being selected, but in fact was hired they would likely rate the outcome fairness as low. Similarly, if the low motivation participants were not selected, they would likely interpret the outcome fairness favorably. These trends are in the opposite direction to the hypotheses and observed results, which indicates that, at least for outcome fairness, the results may have tended to underestimate true effects. Similarly, with regard to the other effects, it seems that the motivation problem may have limited the magnitude of the findings rather than confound any of them.

The solution to this problem is obvious. Subsequent research using a temporary hiring and work situation, such as used in this study, should employ other means of recruiting participants. The reason that course credit was offered in this study was so that there would be some incentive to have rejected applicants stay and complete the dependent measures after they had been rejected. Subsequent research could more closely simulate an actual hiring situation by recruiting participants with posted notices or advertisements in a campus newspaper, and then pay the rejected participants to complete the final dependent measures. In this way, only those participants that were actually interested in

being hired would apply for the job and motivation problems would be minimized.

Future Research Directions

Throughout the discussion, suggestions for future research have been made. Rather than reiterate all of these suggestions, only the most salient or important issues are reconsidered, and additional research directions are suggested. In addition, alternate possible research methodologies are discussed.

One research need that was mentioned earlier was an investigation of offering different forms of selection information. In the current study, selection information was presented primarily in writing and the content mainly focused on the validity and suitability of the selection test for the journal coding task. Other forms of information could include greater detail on how tests are scored and how test scores are used to make selection decisions, as well as information on how individual participants performed and why they were, or were not selected. This final type of information, which may be more aptly described as a manipulation of feedback informativeness, is similar to information provided in some procedural justice studies of offering justification for a decision (Bies & Shapiro, 1988). In addition to presenting selection information in a written format, different information presentation formats could be explored, such as individually oriented verbal presentation or verbal group presentation with discussion.

As well as continued investigation into the effects of offering selection information, future research should consider some of the other procedural rules presented in the conceptual model of perceived

fairness. For instance, the importance of two-way communication and consistency or standardization of administration could both be manipulated in a study of structured versus unstructured interviews. During telephone interviews with recent job applicants, I became aware of the diversity in reactions to standardized interviews. One individual described an interview as "Very structured, on a prepared form so each person was asked the same questions. My answers were rated on a standardize form. In all, it was a very standardized process." Another person described what would appear to be a similar interview in the following manner: "It was like talking to a wall. He would read a question and then wait for an answer, giving no feedback or building on any of the questions." Research on procedural issues surrounding a structured interview would help to theoretically advance our understanding of perceived fairness, while at the same time it would offer practical advice to those designing selection interviews.

In addition to studying procedural justice in the selection process, future research should consider the alternate distributive justice rules. An interesting study might attempt to manipulate factors associated with different distributive rules and see if under some circumstances, people will rely on an alternate distributive rule, such as special needs, when making evaluations of distributive fairness. This research would be particularly timely given the changes to the Civil Rights Bill and the recent Americans with Disabilities Act.

In terms of other outcomes associated with perceptions of procedural and distributive fairness, it would be useful to study the impact these perceptions have on job application and acceptance decisions. While it may be difficult to study application decisions,

job acceptance decisions could be studied in an organizational setting by assessing individuals perceptions of procedural justice immediately following the selection process and then examining whether or not individuals that meet the selection criteria accept a job offer. It would also be interesting to study the impact of the selection process on other post-hire behaviors such as organizational citizenship behavior (OCB). OCB would be particular interesting to study as it is likely more directly under an individual's motivational control than other forms of work performance.

Future research could adopt any of a number of methodologies for investigating perceived fairness in selection. The current study demonstrates the utility of developing a highly controlled hiring and work situation. This approach is seen as more desirable than presenting participants with written descriptions of hiring practices (Stone & Herringshaw, 1991, April) or using computer simulated hiring procedures in which no job is actually being offered (Kluger & Rothstein, 1991, April). Given that work was actually performed and compensation was offered for performance, the current paradigm offers many of the features of a typical hiring situation. If more conventional recruiting procedures were used with the current study, the external generalizability would be even greater.

Research could also be conducted in organizational settings by collecting selection system fairness data from groups of applicants, both prior to and following the implementation of a new selection procedure. While random assignment would be sacrificed in this situation, the increment in external validity may make this approach a useful complement to the procedure used in the current study. A final

methodology for studying these issues would be to trace a group of job seekers through the job search process, and have them complete survey questionnaires following participation in selection procedures. This approach would likely be useful for obtaining diversity in hiring systems on many of the procedural dimensions assessed by the selection system fairness measure. As such, this procedure would likely be a useful next step in assessing the psychometric properties of the selection system fairness measure and refining the scales.

The selection system fairness measure developed in this dissertation will likely provide a useful methodological contribution to future research. Although future research is needed to further assess and refine this measure, the current results are encouraging in that good internal consistencies and factor structures were found for those scales on which systematic variance existed. If one compares the current fairness measure with the test attitude survey (TAS) developed by Arvey et al. (1990), several advantages can be found with the current measure. The selection system fairness measure has a strong theoretical basis in the organizational justice literature. Scale domains were developed theoretically and refined empirically, and an attempt was made to use prior scale items when they were available. The TAS has general ties with some motivation research, but scales were primarily empirically derived. An example of the empirical rather than theoretical nature of the TAS scales can be seen in the comparative anxiety dimension. Items in this dimension cover impressions of comparative performance, general performance, anxiety, and dislike for the test. As such, it is not readily apparent what higher scores on this dimension represent. Additionally, initial research indicates that

the selection system fairness measure will likely have reasonable psychometric properties. Factor analytic results presented for the TAS were far from convincing, and internal consistency estimates were quite low for a number of scales (e.g. α = .56 and .58 - Arvey et al., 1990). Although the purposes of the selection system fairness measure and the TAS may be different, it is clear that the selection system fairness measure has a number of advantages over the TAS.

General Conclusions

In this dissertation, perceived fairness was described as an important domain of study for both practical and theoretical reasons. It was demonstrated that past research has been both atheoretical and fragmented, and in an attempt to address these shortcomings a conceptual model of perceived selection system fairness was developed. Organizational justice theory was used to provide a theoretical framework for examining issues of perceived fairness and to generate a number of hypotheses. Issues of procedural and distributive justice were both described as important to overall fairness reactions and the interaction between these forms of justice was cited as an issue of both practical and theoretical importance. Links were proposed between perceived fairness and a number of individual and organizational outcomes.

In an attempt to examine a number of issues proposed in the conceptual model, a study was conducted in which procedural justice was manipulated along dimensions of job relatedness and selection information explanation, and distributive justice was manipulated in terms of a hiring decision. Main effects of the job relatedness of the selection procedure were found for perceived procedural and outcome

fairness, as well as for test motivation. Explanation had no effect on perceived fairness, and contrary to expectations had a negative effect of job satisfaction and work performance quality. The hiring decision had a main effect on perceived fairness and self-esteem. Theoretically interesting interactions were observed between job relatedness and the hiring decision of measures of outcome fairness and self-efficacy. Finally, an unexpected pattern of results with a number of test attitude survey dimensions and with work performance quantity may have been the result of a difference in the perceived difficult of the three tests used to manipulate job relatedness.

A final methodological advance provided by this research was the development and initial assessment of a measure for assessing perceived selection system fairness. This measure was initially based on the conceptual model presented in the introduction and was later developed with the results of a number of critical incident generating interviews with recent job applicants. Initial examination of the psychometric properties of this measure was encouraging, although more research is needed before all the scales can be refined. An additional outcome of the critical incident interviews is a possible refinement of the conceptual model. As mentioned in the method section, 10 procedural rules emerged from the interviews rather than the 13 initially proposed. Refinements to the coneptual model could incorporate these changes.

Discussion of the results highlighted the practical and theoretical importance of the results of this study. In additional to the substantive findings, this research demonstrated the applicability of organizational justice theories as a framework for generating testable hypotheses. In addition, a research paradigm was developed in

which a useful balance between internal validity and external generalizability was struck. Future research issues that were discussed included extensions of the current findings and additional issues suggested by the model of perceived fairness. I believe what this dissertation has done is to chart a path for future research and then take the initial steps along that path.

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APPENDICES

APPENDIX A

Journal Coding Materials

REVIEW INFORMATION

Student Number: _____

Manuscript Number _____

Blind Review (0=no; 1=yes) _____

Action Editor (1=Howell; 2=Lord; 3=Schmitt; 4=Murphy) _____

Editor's Decision (1=reject; 2=reject & resubmit; 3=accept-PR) _____

Editorial Board Reviewer:

Editorial Board Reviewer (use numeric code) _____

01 = Anderson	08 = DeNisi	15 = Guzzo	22 = Levine	29 = Saari
02 = Arvey	09 = Dipboye	16 = Heilman	23 = London	30 = Schmidt
03 = Billings	10 = Drasgow	17 = Jackson	24 = Millsap	31 = Schneider
04 = Bobko	11 = Fisher	18 = Jago	25 = Montague	32 = Stone
05 = Boudreau	12 = Freedman	19 = Jeanneret	26 = Murphy	33 = Taylor
06 = Campion	13 = Gordon	20 = Klimoski	27 = Pulakos	34 = Widaman
07 = Dalton	14 = Greenberg	21 = Larson	28 = Rynes	35 = Yukl

Time for review in days _____

Reviewer Ratings (nine numbers) 1: _____ 2: _____ 3: _____

4: _____ 5: _____ 6: _____ 7: _____ 8: _____ 9: _____

Length of review (to the nearest half page) _____

Ad Hoc Reviewer Number 1:

Time for review in days _____

Reviewer Ratings (nine numbers) 1: _____ 2: _____ 3: _____

4: _____ 5: _____ 6: _____ 7: _____ 8: _____ 9: _____

Length of review (to the nearest half page) _____

Ad hoc Reviewer Number 2 (if present):

Time for review in days _____

Reviewer Ratings (nine numbers) 1: _____ 2: _____ 3: _____

4: _____ 5: _____ 6: _____ 7: _____ 8: _____ 9: _____

Length of review (to the nearest half page) _____

AUTHOR AND PAPER INFORMATION

First Author's Name _____

Author's Gender (0=male; 1=female; 9=unknown) _____

Institutional Affiliation (1=academic; 2=other) _____

Length of Paper (including title page, figures, and tables) _____ (pages)

Length of Introduction (to nearest half page) _____

Number of References _____

Multiple Studies (0=no; 1=yes) _____

Code the Following Information For the Primary Study:

Research Setting (1=laboratory; 2=field; 3=method; 4=review) _____

Research Design (1=experimental; 2=survey; 3=correlational; 4=other) _____

Hypotheses Presented (0=no; 1=yes) _____

Number of Subjects? _____

Type of Subjects (0=college students; 1=other) _____

Content of the Paper (use numeric code) _____

1 = Leadership
2 = Motivation
3 = Job attitudes/satisfaction
4 = Training or learning
5 = Polygraph or eyewitness accuracy
6 = Job performance or performance ratings
7 = Stress
8 = Statistics
9 = Personnel selection
10 = Utility
11 = Turnover or absenteeism
12 = Negotiation, labor, union research
13 = Organizational psychology (groups, climate, commitment, justice, power)
14 = Gender/family issues, life satisfaction
15 = Organizational entry, recruiting
16 = Job evaluation, compensation
17 = Job Analysis
18 = Other

DO NOT COMPLETE:

Final acceptance decision (1=reject; 2=accept) _____

Years since Ph.D. _____

Primary Type(s) of Data Analysis:

Correlations and/or regressions (0=no; 1=yes) _____

Analysis of Variance (0=no; 1=yes) _____

Factor Analysis (0=no; 1=yes) _____

Lisrel, CFA, Path Analysis (0=no; 1=yes) _____

Other (0=no; 1=yes) _____

CODING INSTRUCTIONS

Blind review:	Indicated on either the front of the folder or the first page of the manuscript by the word BLIND.
Action editor:	Look at who wrote the decision letter to the author on Journal of Applied Psychology letterhead.
Editor's decision:	Can be coded from front of folder, but should be verified by examining the decision letter. R = reject; RRR = reject and resubmit; APR or A = accept pending revision.
Ed. Brd. Reviewer:	Look at front of folder and find first name that matches one of 35 names listed, usually identified as Reviewer A.
Time for review:	Look at front of folder and count the number of days between when the manuscript was sent to the reviewer and when the review was received. Assume each month has 30 days.
Reviewer ratings:	Code from the rating sheets for each reviewer.
Length of review:	The review is titled "Comments to the author". Page length to the nearest half page, but assume a 1/2 page minimum.
Ad hoc reviewer 1:	Code time for review, reviewer ratings, and length of review as was described for the Ed. Brd. reviewer.
Ad hoc reviewer 2:	There may only be 2 reviewers listed on the front of the folder, but if there is a third, complete the same information as for Ad hoc reviewer 1.

All of the following information can be coded from the actual manuscript.

First authors name:	Indicate first name and last of the primary author.
Authors gender:	From the first name, if you can determine gender.
Institutional affil.:	Academic refers to universities, colleges, and technical institutes.
Length of intro.:	Count the number of pages up to, but not including the method section (do not include the title or abstract). Indicate N/A (not applicable) if there is not a method section. Method section is usually labelled, but is sometimes not. It contains information on the number of subjects, the measures used, etc.
Number of references:	Count references listed at the end of the article.
Multiple studies:	Will be listed as study or experiment 1, 2, etc.

For the following questions, code information from the primary study. Undergrads should code information from the first study:

Research setting:	Look in the method section: 1 = laboratory or classroom setting in which data is collected 2 = field (e.g. organization) setting 3 = method indicates a statistical paper that did not involve data collection, so there is no setting 4 = review indicates a review article or meta-analysis

Research design: Again, look in the method section:
1 = experimental, which involves the manipulation (i.e. the researcher actually changes the organization or influences the subjects in some way, such as providing different training for different groups of people) of one or more variables. Can be a laboratory or field setting. For example, an experimental study of the effects of caffiene dosage on driving performance would give people varying doses of caffiene and look at differences in driving performance.
2 = survey or self-report format used to collect all of the data, and no manipulations occurred. A survey study of the caffiene-driving phenomena might ask people with a questionnaire how much coffee they drink and how many accidents or tickets they have received.
3 = correlational, similar to survey in that no manipulation occured, but some of the data was not collected with surveys. May have been collected from company records, from personnel tests, etc. A correlational study of caffiene and driving may correlate performance on a driving test with caffiene level in the blood.
4 = other is indicated with statistical or review papers.

Hypotheses presented: Hypotheses will be in the introduction and will often appear immediately prior to the method section. They may be formally seperated from the other text or may be imbedded within a paragraph.

Number of subjects: Should be a subjects section in the method. Be sure to code the final number of subjects, as sometimes more than one number is listed (e.g. if subjects were dropped due to missing data). Add up the total number of subjects if more than one group is involved. Can also be jobs or other units being analyzed.

Type of subjects: Simply determine whether or not subjects were college students or MBAs.

Content of the paper: By reading the title and abstract of the manuscript, identify which one of the 17 categories best describes the article. If it is a methodological paper, try to determine the content of the methodological advances (e.g. turnover or utility). What follows is a brief description of each content domain:

1 = Leadership: includes path-goal theory, least prefered coworker, vertical dyadic linkage theory, Vroom-Yetton theory, and any studies on leader characteristics.

2 = Motivation: includes expectancy theory, goal-setting, self-efficacy theory, intrinsic motivation, equity theory.

3 = Job attitudes/satisfaction: in addition to various types of job satisfaction, look for job diagnostic survey or job characteristics model. Should not indicate this category if satisfaction is only one variable, but the main purpose of the study is something else (e.g. leadership).

4 = Training or learning: effects of training interventions, transfer of training, managerial development, training needs assessment.

5 = Polygraph or eyewitness accuracy: lie detection, eyewitness accuracy, lineup identification, jury decision making.

6 = Job performance or performance ratings: performance domain, performance appraisal, performance evaluation, rater or ratee characteristics.

7 = Stress: job stress, coping, burnout, health issues, physiological reactions to aspects of work or life.

8 = Statistics: purely statistical articles that that are not related to another domain such as turnover, personnel selection, or utility.

9 = Personnel selection: includes different types of predictors, such as interviews, cognitive ability test, biodata/biographical data, personality tests, assessment centers, and specific ability tests.

10 = Utility: includes articles that try to assess the practical or economic benefits of selection, training, or some other organizational intervention. Are often methodological papers.

11 = Turnover or absenteeism: any articles that are primarily focussed on turnover or absenteeism. Should not indicate this category if absenteeism/turnover is only a dependent variable, but the main purpose of the study is something else (e.g. motivation or recruitment).

12 = Negotiation, labor, union research: research related to negotiation processes, labor relations, and union commitment and satisfaction.

13 = Organizational psychology: this is a broad category but look for articles with a primary focus on one of the following topics: groups, climate, culture, organizational commitment, organizational justice, power, organizational influence, role ambiguity, role conflict.

14 = Gender/family issues, life satisfaction: articles often deal with the roles men and women assume in organizations or the perceptions that subjects have about the "proper" role of men and women.

15 = Organizational entry, recruiting: includes, job search, recruiting interviews, recruiting sources, realistic job previews, socialization, and person-organization fit.

16 = Job evaluation, compensation: also includes pay satisfaction, comparable worth, and incentive programs.

17 = Job analysis: also includes task analysis, task inventory, task ratings or judgments, job tasks, position analysis questionnaire (PAQ), and dictionary of occupational titles (DOT).

18 = Other: anything that does not fit into one of the above 17 categories.

APPENDIX B

Recruiting Script

I would like to tell you about a project I am doing that I would like to recruit your help with. I am doing a study on how manuscripts are selected to appear as articles in a major psychology journal. I need you help compiling information for this study. I have a work task that involves coding journal manuscripts on a variety of characteristics. You should find this task interesting. It will require about 5 hours of your time and you will be paid $25 for your help. Your help on this project will be required over two sessions so you will have to come on two days. The first session will be approximately 3 hours and the second will be 2 hours and will take place about two or three days after the first.

Finally, I need people that will be able to perform the task well. To determine those who can best complete this task, I will give a short selection test in the first session. In this way it will be much like applying for a job. That is, taking the selection test does not guarantee you will be selected to perform the task.

Your instructor has graciously consented to offer you course credit for taking the selection test. Let me explain how this works. If you sign-up and take the selection test, as well as answer a few additional questions, you will receive course research credit. You will receive this credit regardless of whether or not you are selected. Your instructor will explain how much the credit can impact your grade. Those that are selected will be asked to perform the journal coding task for 4 hours and will receive $25 for doing so. Are there any questions?

Initial Experiment Script

Welcome to the Journal Coding Project!

Before we begin, let me tell you a little bit about this project. Some of my colleagues and I are interested in studying the process by which journal articles are reviewed and how decisions are made to accept or reject these articles. Practically, research of this nature is of interest to academic people who spend a sizable portion of their time conducting research and publishing the results in journals. In addition, we hope that this research will tell us something about judgment and decision processes in general. When you people go out and apply for jobs after college, organizations will be making judgments about your potential as an employee and making a decision of whether or not to hire you. General research on judgment and decision making can help us understand this process, and may eventually lead to better decisions.

Your part in this study is to help us code information from different manuscripts and from reviewers and editors decisions. Let me start by offering a little explanation of the manuscript review process. The journal that we are concerned with in this project is the Journal of Applied Psychology. When someone wants to publish an article in this journal, they send copies of the manuscript to the journal editor. The editor then sends the manuscript out to 2 or 3 reviewers who read it, evaluate it, and make comments on it. When the reviews are sent back to the editor he or she makes a decision on whether to accept or reject the paper, or whether to give the author a chance to revise the paper and

resubmit it another time. Very few papers are accepted the first time, most are either rejected outright or rejected with the chance to revise and resubmit the paper.

Your coding task will involve looking through a file that contains a copy of the paper, a copy of the reviewers evaluations and comments on the manuscript, a letter from the editor to the author explaining the decision, and possibly a number of other letters or papers, which are not of relevance to your task. You will have a coding sheet and instructions, and you will have to record information on the coding sheet that is contained in the file. For example, you will have to code who the editor was, who long the reviewers took to complete their reviews, what ratings the reviewers gave the manuscripts, and what the editor's decision was. You will also have to code the name of the author and a number of characteristics of the manuscript, such as length, number of references, type of study, and study content. Instructions and training will be provided on how to code each of these information items. You will probably find that it takes you between 10 and 15 minutes to code a single manuscript, although you should get faster with practice. This task will require attention to details and an ability to find information and code it.

It is very important that you are accurate when you do the coding. In total, we are going to have over 1000 manuscripts coded by students like yourselves. We can not go through and check the accuracy of all the coding you do, because there are just too many manuscripts. Therefore, I would like to emphasize again that you should try to be as accurate as possible when doing this coding. Another aspect of this task that I would like to highlight is the fact that all these

manuscripts contain important and confidential information. You must make sure that you do not misplace any of the materials contained in the files, as they are the confidential property of the Journal of Applied Psychology.

Although we need many people for this task, we do want to make sure we have people who can perform the task well. Therefore, just as would be the case if you were applying for a job, we are going to use an employment test to select people. We will be selecting about half of you to perform the task and our decision will be based on your performance on a test. Those who are selected to perform the task will code manuscripts today after the selection test, and then again in a couple of days. Those that perform the coding task will be paid $25 for their work. Payment will come at the end of the second session.

Before I give you this test, I would like to ask you to fill out a brief application form. This form summarizes the task you will be performing and the nature of the selection process. We ask that you print your name and student number on the form, and then sign the bottom indicating your willingness to complete the selection test. On the back of the form, there are a few questions asking how well you think you would be able to perform the task and how well you think you will do on the selection test. Your responses to these questions will not be used to make the selection decision and will only be looked at following your completion of the coding task. We are only interested in whether people can make a reasonable prediction of how well they may do based on the brief description we have given you about the task.

Script That Follows Testing

Thank you for completing the employment test. We will now score these tests and make our decisions of who will be selected. While we do the scoring we would like you to complete a short questionnaire that assesses some of your reactions to taking the test. This questionnaire is unrelated to our decisions of who will be hired and is unrelated to the coding task. It is of interest to another researcher who is interested in finding out how people react to paper and pencil employment tests. I would appreciate you taking the time to complete this questionnaire honestly. In addition to helping my fellow researcher out, it will give you something to do while we score the employment tests.

APPENDIX C

Application Form

You are applying for the task of coding journal manuscripts and editorial information. The task will require that you read a number of different information items contained in a file, determine where the information that needs coding can be found, and then code that information. All of this will have to be done at a high level of accuracy, with much attention to detail. Instructions and training will be provided prior to performing the coding. In return for completing approximately five (5) hours of coding, you will receive $25.00 compensation, which will be provided at the end of the second coding session.

As a means of selecting appropriate people to perform this task, we are asking you to complete a brief employment test. Depending on your performance on the test, we will be selecting approximately one half of the people that take the test to perform the coding task. Your responses and performance on this test will be kept strictly confidential and will only be examined by the individuals running this project. Just as with any job, your participation in the selection process and in the coding project is voluntary and you may choose not to participate or to quit participating at any time.

If you have any questions at this time, please ask the project coordinator.

I have read and understand the above description. I am willing to participate in the selection process by completing the employment test. I understand that completion of the employment test does not guarantee that I will be selected to perform the task. I also understand that I can discontinue my participation at any time, without penalty.

Name: _____
(please print)

Student Number: _____

Signature: _____ Date: _____

PLEASE TURN OVER AND ANSWER QUESTIONS

How Well Do You Expect to Do?

Please indicate the extent to which you agree with each of the statements listed below. Use the following five-point scale and the fill in the number corresponding to your answer in the space to the left of the statement.

1 = Strongly Disagree
2 = Disagree
3 = Neither Agree no Disagree
4 = Agree
5 = Strongly Agree

Please provide a rating of agreement for each of the statements. Your responses to these questions will in no way influence the decision to hire you to perform the coding task, and will not be examined until after you have completed the coding task.

_____ 1. I expect to perform well on the employment test.

_____ 2. I expect that I will be selected.

_____ 3. I don't expect to do well on the employment test.

_____ 4. I expect that I will do well enough on the employment test to be selected.

_____ 5. I don't like my chances of being selected.

_____ 6. I think that I would be able to perform the coding task about as accurately as the average person doing the task.

_____ 7. I would expect to be among the top performers in terms of the speed at which I could perform the coding task.

_____ 8. I do not think that I could perform the coding task accurately.

_____ 9. I think that I could perform the coding task at least as fast as average.

_____ 10. I expect that I would be one of the most accurate coders.

_____ 11. I do not think that I would be very fast at performing the coding task.

APPENDIX D

Selection Tests

Includes:

1. The entire work sample test.
2. Example items from the Wonderlic cognitive ability test
3. Example items from the Personnel Selection Inventory

WORK SAMPLE TEST

JOURNAL CODING TEST

Instruction and Question Booklet

DO NOT TURN THE PAGE UNTIL INSTRUCTED TO DO SO BY THE TEST ADMINISTRATOR

INSTRUCTIONS: This test assesses your ability to locate information from an assortment of documents and a manuscript, and to code this information quickly and accurately. The packet of materials contained in this coding test booklet includes the following:

1. Two pages of instructions titled "Coding Instructions", which tells you what to code and where to find the needed information.

2. A Manuscript Information Sheet which contains information needed to code Items 1 - 6.

3. A set of pages labelled "Reviews" which contains information you will need to code Items 7 - 10.

4. A "Manuscript" itself which will be the source of info for Items 11 - 20.

You will have 12 minutes to complete this test. Please work quickly and accurately as you will be scored on the number of **correct** information items that you are able to code. Do not worry if you are unable to finish coding the manuscript because this test is designed in such a way that few people should finish.

Finally, do not make any marks in this instruction and question booklet. Answer all of the questions in the answer booklet. If you have any questions at this time, signal the test administrator. Please wait until the test administrator instructs you to begin before you turn this page.

DO NOT WRITE IN THIS BOOKLET. MAKE ALL RESPONSES ON THE ANSWER SHEETS.

(2)

14. Length of Paper:	Count the number of pages including title page, abstract, figures, and tables (to the nearest page).
15. Length of Introduction:	Count the number of pages up to the section of the paper titles "Method". Do not include the title page or abstract. Count to the nearest half page.
16. Number of references:	Count the number of references listed at the end of the article. "References" will be clearly indentified at the top of the page at which the list of references begins.
17. Hypotheses Presented:	Hypotheses will be in the introduction of the paper and will often appear immediately prior to the METHOD section. They may be formally separated from the other text or may be imbedded within a paragraph. Key words to look for that indicate hypotheses are "Hypothesize" and "Predict".
18. Number of subjects:	There should be a subjects section in the method. Be sure to code the final number of subjects, as sometimes more than one number is listed (e.g. if subjects were dropped due to missing data). Add up the total number of subjects if more than one group is involved.
19. Type of subjects:	Simply determine whether subjects were college students (including MBAs).
20. Content of the paper:	By reading the title and abstract of the manuscript, identify which one of the 6 categories described below best describes the content of the article.

1 = Motivation: includes expectancy theory, goal-setting, self-efficacy theory, intrinsic motivation, equity theory.

2 = Job performance or performance ratings: performance domain, performance appraisal, performance evaluation, rater or ratee characteristics.

3 = Personnel selection: includes different types of predictors, such as interviews, cognitive ability test, biodata/biographical data, personality tests, assessment centers, and specific ability tests.

4 = Organizational psychology: this is a broad category but look for articles with a primary focus on one of the following topics: groups, climate, culture, organizational commitment, organizational justice, power, organizational influence, role ambiguity, role conflict.

5 = Job analysis: also includes task analysis, task inventory, task ratings or judgments, job tasks, position analysis questionnaire (PAQ), and dictionary of occupational titles (DOT).

6 = Other: anything that does not fit into one of the above 5 categories.

CODING INSTRUCTIONS

For Recording Data About The Manuscript on the Answer Sheet

Answer Sheet Number and Information Item	Instructions for Coding Information
Manuscript Information Sheet:	
1. Manuscript Number:	Code manuscript number (indicated by Ms #) from the upper left corner of the Manuscript Information Sheet.
2. Action editor:	Code from upper right corner of the Manuscript Information Sheet.
3. Ed. Brd. Reviewer:	Look at Manuscript Information Sheet for reviewer A and match the name with one of the 20 names listed on the Answer Sheet.
4. Blind Review:	Look at Manuscript Information Sheet for the word "BLIND". If the word BLIND does not appear anywhere on the page, code it "No"; if it appears, code it "Yes".
5. Time for review A:	Look at Manuscript Information sheet and count the number of days between when the manuscript was sent to Reviewer A and when the review was received. These dates are located next to Sent and Recd on the lower right of the Manuscript Information Sheet. Assume each month has 30 days.
6. Time for review B:	Look at manuscript information sheet and count the number of days between when the manuscript was sent to Reviewer B and when the review was received. Assume each month has 30 days.
Reviews:	
7. Length of review A:	Look at the review from Reviewer A and determine the length of the written review to the nearest half page.
8. Reviewer A ratings:	Code from the rating sheets the ratings Reviewer A gave the paper on each of the nine rating scales.
9. Length of review B:	Look at the review from Reviewer B and determine the length of the written review to the nearest half page.
10. Reviewer B ratings:	Code from the rating sheets the ratings Reviewer B gave the paper on each of the nine rating scales.
Manuscript Information:	
11. First authors name:	Indicate first and last name of the first author listed.
12. Authors gender:	Code from the authors first name, if you can determine gender.
13. Institutional affiliation:	Academic refers to universities, colleges, and technical institutes.

MANUSCRIPT INFORMATION SHEET

MANUSCRIPT INFORMATION SHEET

Editor: Howell

Ms # 90-415

Title: Quality and quantity goals in a complex decision task: Strategies and outcomes.

Authors: Stephen W. Gilliland and Ron S. Landis

Recd. 12/2/91
Ack. 12/6/91

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Sent: 12/6/90
Recd.: 1/3/91

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Sent: 12/6/90
Recd.: 1/18/91

REVIEWS

COMMENTS TO THE AUTHORS

Date: 12-6-90 Manuscript: #90-415 "Quality and quantity goals in a complex decision task: ... by Gilliland & Landis

Reviewer: A

1. I very much like the central idea behind the research reported here. I think that the process-oriented techniques in the decision making literature hold great promise for understanding motivated task behavior. Furthermore, there is a need for more research on two of the issues addressed here: strategy selection in goal setting, and the relation between decision process and outcomes. (These positive comments about the central ideas of this study outweigh my feelings against yet another lab study on goal setting -- but just barely.)

2. The section on the definition of task complexity needs work. Are you accepting Wood's definition of task complexity? In order to be categorized as "complex", must a task be high on all three dimensions, or can it be complex if it is high on only one dimension? Further, how do the next two task dimensions you discuss (the requirement of strategy selection and multiple task performance dimensions) fit with the definition of task complexity? Are these additional dimensions of complexity, do these characteristics follow from Wood's definition or what? These issues are more complex than your brief discussion suggests. If a task is complex in that it requires acts which are difficult for most people to perform (e.g., brain surgery), it does not follow that strategy selection is necessary for task performance, nor does it follow that there are multiple dimensions of performance. I think you can make life easier for yourself by not trying to define task complexity, in the abstract. Rather, you should set the parameters of the type of task you want to study, and then relate it to existing discussions of complexity. You will have no trouble arguing that many real world tasks share key characteristics with your laboratory task (e.g., strategy selection affects task performance, task information is complex, both quality and quantity are important, etc.).

3. I suppose I accept your conclusion that research is needed which examines the effects of quality and quantity goals, manipulated separately. However, I have trouble imagining any results which would not be highly dependent on the task being studied, as the ways in which quality and quantity relate must be quite complex and specific to the task. In addition, as I got to this point in the manuscript, I became concerned that you had too many things going on in this study, and that it would be hard to pull it all together.

4. The first paragraph under "Strategies and Complexity" (p.6) is really confusing. First, do you accept the assertion in the first sentence, that the only way goals affect performance is through the activation of strategies? I am not familiar with the Wood and Locke (1990) paper, but this seems like a somewhat controversial assertion, and is also at odds with much of Locke's earlier writing on the processes through which goals affect performance. The next sentence may help to explain this assertion, as it seems to elevate "strategies" to be all-encompassing, in that increasing effort is an example of a strategy. Does this mean that all task behaviors are strategies? The rest of the paragraph further confuses

me. Are "new plans" the same as "task specific plans", and are both of these the same as "stored and developed task specific strategies"? Overall, this is a very confusing paragraph, mostly because you are trying to do too much here, and are not very clear on your arguments.

5. Given that you have seemed to define "strategy" to include almost all task-related behavior, the next few paragraphs reviewing approaches to strategy selection could cover almost anything. If one strategy is to increase effort, any approach which measures effort is a strategy assessment approach. You need to tell the reader more about what you mean by "task specific strategies", so that we can make sense of the techniques you mention. If the task is an information processing task, does strategy mean the ways in which task-relevant information is acquired and combined? Or is this too narrow a definition of strategy?

6. The "recent advance" you briefly describe in the middle of page 7 sounds a lot like one which has only been around for thirty years. Most readers of JAP will know this technique by its usual name (policy capturing), so if you mean something different, you need to say so.

7. Your contrast of policy capturing and processing tracing is basically correct, but you miss a key point. Information search techniques (you use the term process tracing, but that includes protocol analysis) focus on the acquisition of information, while policy capturing tells us something about how information is combined to make judgments. The choice of techniques should be driven by the type of information required to answer one's research questions. This point is made in the Ford et al. paper, and studies are referenced which expand on the differences between these two ways to measure somewhat different aspects of the decision process. Overall, I get the feeling that you have not examined enough of the literature on policy capturing and process tracing.

8. The first paragraph under "The Current Study" is the first place where you have mentioned all of the elements of your study, and it introduces the variable of task difficulty. My earlier concern that you are trying to do to much in this study are now confirmed. You have too many research questions and too many independent variables.

9. Perhaps as a result of having too much going on, the development of the hypotheses (pp. 9-10) is inadequate. The first prediction concerns the effects of quantity and quality goals. The nature of the expected interaction is not clear, because your description of expected effects is incomplete and confusing. You need to describe the predicted effects on quality and quantity separately. For example, the third sentence of the last paragraph on page 9 should addressed what effects on quantity are expected under difficulty quantity goals and easy and difficult quality goals. The assertion the "either performance quantity or quality or both would be hindered" under difficult quantity and difficult quality goals is impossible to translate into testable predictions. What specific pattern of findings is being predicted? Either draw the predicted interaction, or describe it so clearly that the reader could draw it.

10. After describing the form of the interaction predicted, you need to give a clearer rationale for the predictions. "Based on previous research"

is not enough. Earlier, you asserted that previous quality/quantity research is inadequate, because quality and quantity goals have not be manipulated separately. You need to explain how these predictions are based on this research.

11. The role of task difficulty needs much more explanation. Given that your description of the expected interaction for quality and quantity goals is not complete, it is hard to say that the further interaction with task difficulty is clear. More importantly, there is no rationale for the effects of task difficulty. Why would effects be stronger under easier goals? Further, as I mentioned earlier, it is not clear why this variable is in this study in the first place. You have attempted to set up the rest of the study, by arguing that quality and quantity goals have not been manipulated separately, and that strategy can be measured through process tracing. But why stick task difficulty into the study? (If this were a proposal to do the research, I would strongly advise against adding this variable, but now that you have, you need to give some rationale for its inclusions, and provide a better rationale for the predictions.

12. The paragraph which gives the predictions for information search strategies (top of page 10) is totally inadequate. To begin with, why <u>these</u> aspects of search behavior? Why are amount of information, search latency, and search pattern relevant strategies for this decision task? These indices of decision process (and others) have been used in decision research because they are markers for decision strategies, such as compensatory versus noncompensatory strategies. Are they indicators of effort in this study? I can buy the argument that a goal of high quality might get translated to more information search and more time taken, but why would the pattern of search be affected? Overall, you have not made a persuasive case that the strategies affected by goal difficulty are the strategies measured by this technique.

13. The task would seem to be one which is totally novel to the subjects (at least for the psychology students). Were subjects prescreened on knowledge of stocks and investments? Why this task with this population of subjects?

14. The amount of information available seems to be too small. Previous information search research would suggest that a four by five matrix is not large enough to allow for variation in the amount and pattern of search. While you did find some effects, there was probably a ceiling effect which reduced the size of the effects and may have made it more difficult to find the interactions you predicted. Research on information search generally tries to put subjects into a situation of moderate information overload, so that the effects of a manipulation have a better chance of being seen. I think that this would be particularly important when examining a quality/quantity trade-off.

15. The way in which you have operationalized task difficulty makes it similar to the concept of "similarity of alternatives". While you are correct that the process tracing literature has focused on a different operationalization of task difficulty, similarity of alternatives does have a long history in the decision making literature. See Payne (1982, <u>Psychological Bulletin</u>) for a brief summary. One prediction coming from

this literature would be that similar alternatives (your difficult condition) would lead to more intradimensional search, at least in later trials.

16. On page 15 you report that quality and quantity are uncorrelated, suggesting that there was not a trade-off between quality and quantity. I presume that the correlation you report is across all subjects in all conditions. I'm not sure that this is a good index of a trade-off, because the 2X2 design (assuming that quality and quantity are affected by the manipulation) produces a lack of relationship across all subjects. Don't you need to examine the correlation within each cell, and for the easy versus difficult task? Furthermore, there might only be a negative correlation between quality and quantity within the high/high condition for the difficult task, because a trade-off between these two aspects of performance may only be induced when there is pressure to try to do both and when the task makes it hard to do both. Later (page 21) you come back to the trade-off issue and report there that there is a negative correlation in the difficult task (which is consistent with my arguments), but you still don't separate the quality and quantity goal conditions.

17. It was a good decision to report strategy results for early, middle and late trials, as previous research has generally found trial effects, particularly for novel tasks.

18. The findings for the pattern of search is rather strange. Specifically, it is not clear why quality goals do not affect pattern in the middle and last trials, even though the interaction is significant (page 19, Table 2 and Figure 4). Are you sure that you conducted the post-hoc tests correctly?

19. Much more should be said with regard to the relationship between search behavior and outcomes. In Table 1 and on page 24 you report that amount of search and performance quantity are strongly correlated. This is important information; if these measures of strategy and performance were not related, then the study could be criticized for not measuring the right dimensions of strategy. Likewise, Table 1 indicates that latency of search is related to performance quality and quantity. However, pattern of search is not related to either measure of performance. What relationships were expected between strategies and performance, and what do these results mean?

20. Given that there are some relationships between strategies and performance, I think you should do more to examine the moderating effects of search strategies on the goal-outcome relationship. I'm not sure how to get around the higher-order interactions, but couldn't you put the search variables into the ANOVA as a covariate and examine the effects of goals on performance? Alternatively, could you examine the correlations (as you do at the top of page 24) within some of the cells?

21. In summary, there are some interesting ideas and results here. You have demonstrated links between goals and search strategies, and search strategies and performance. I still think you tried to do too much in one study (something you can't change now), and you haven't developed your arguments well enough (something you can change).

1	2	3	4	5
Definitely Unsuitable	Probably Unsuitable	Borderline	Probably Suitable	Definitely Suitable

1	2	3	4	5
Totally Inadequate	Poor	Borderline	Adequate	Outstanding

1	2	3	4	5
Unimaginative and/or Confused	Inadequate, conceptualization lacking or inaccurate	Conceptually Weak, but Repairable	Conceptually Satisfactory; Well-informed	Brilliant Ideas; Theoretically Well-organized

1	2	3	4	5
Inconsistent: Measures do not correspond with constructs the author describes	Inadequate; Validity of some measures is lacking	Questionable: Better measures exist or should have been developed	Adequate: Measures seem to be appropriate & valid given existing literature & conceptual discussion	Excellent: Measures are Clearly Conceptual, adequate and free of "bias"

1	2	3	4	5
Design Totally Inadequate to Address Study Objectives	Design Inadequate but Study Might be Salvageable	Design is Limited, but Study Still Makes Contribution if Limitations are Clearly Stated	Design is Reasonable but Possible Alternative Questions and Designs Should be Mentioned	Design is Adequate to Answer Research Questions

1	2	3	4	5
Analysis and Interpretation are Wrong	Additional or Alternative Analysis is Needed to Provide Appropriate Interpretation	Analyses/Interpretation OK, but Alternative Analyses Might be Better	Major Analyses OK, but Some Additional Detail or Explanation Might be Provided	Analyses and Interpretation are Correct and Clear

1	2	3	4	5
Very Unclear (needs extensive rewriting)	Unclear; several passages require rewriting	Borderline (needs improvement)	Satisfactory; Understandable	Excellent; Communicates Very Clearly

1	2	3	4	5
No Contribution at all	Trivial	Moderate Contribution	Substantial Contribution	Significant; Will be Cited Widely

1	2	3	4	5
None; not worth rewriting	Can't Tell; Revision may help	Probably Worth Revising	Contributes Now But Can Be Improved	Makes Moderate Contribution (Or More) As Is

COMMENTS TO THE AUTHORS

Date: 12-6-90 Manuscript:#90-415 "Quality and Quantity Goals in a Complex Decision Task: Strategies and Outcomes"
Reviewer: B by Gilliland & Landis

Page 3, last sentence - You state here that "...the multi-dimensional nature of complex tasks commonly requires individuals to attend to both quantity and quality of performance". This is not necessarily the case only with complex task, as this statement implies. Simple arithmetic or simple assembly tasks require both quality (answer or assemble it correctly) and quantity.

Page 11 - Did you examine feedback effects on time spent on search strategies (e.g., did subjects spend more search-strategy time after receiving negative feedback then after receiving positive feedback?).

Page 12, first full sentence - Was the pilot sample of 40, which was used to establish the difficulty level of the goals for the subjects in your experiment, similar to your subjects? In other words, was the pilot group composed of the same proportion of psychology and business students as in your experiment? The business students in your study may have had an easier time with the task, given its business emphasis -- did you assess this?

Page 9, The Current Study, first sentence - Since you depict your study here and elsewhere (e.g., page 25, Conclusions, first paragraph, last sentence) as specifically involving a complex task, you need more explanation/evidence to support this statement. Some additional words incorporated here and possibly on page 8 would help.

Page 14, Manipulation Checks - How was the 4 (midpoint) of your goal difficulty manipulation check scale defined?

Page 26, first paragraph, last sentence - You state here that "...we believe our operationalization of task difficulty warrants further consideration in the decision making literature." Explain your reasons for this statement, particulaly given the fact that it appears your operationalization of the two task difficulty conditions was not clearly perceived as all that different between the easy and difficult task conditions. Specifically, on page 14, you report that on a 7-point scale, the easy goal condition subjects rated goal difficulty on average 3.19 and the difficult goal condition average was 4.37, both around the midpoint of the scale.

Page 26, two sentences from the end - Your findings of quality goals being sacrificed for quantity goals is an interetsting one and one that anecdotal information suggest is an issue in organizations today. Further research in this area would be interesting.

1	2	3	4	5
Definitely Unsuitable	Probably Unsuitable	Borderline	Probably Suitable	Definitely Suitable

1	2	3	4	5
Totally Inadequate	Poor	Borderline	Adequate	Outstanding

1	2	3	4	5
Unimaginative and/or Confused	Inadequate, conceptualization lacking or inaccurate	Conceptually Weak, but Repairable	Conceptually Satisfactory; Well-informed	Brilliant Ideas; Theoretically Well-organized

1	2	3	4	5
Inconsistent: Measures do not correspond with constructs the author describes	Inadequate; Validity of some measures is lacking	Questionable: Better measures exist or should have been developed	Adequate: Measures seem to be appropriate & valid given existing literature & conceptual discussion	Excellent: Measures are Clearly Conceptual, adequate and free of "bias"

1	2	3	4	5
Design Totally Inadequate to Address Study Objectives	Design Inadequate but Study Might be Salvageable	Design is Limited, but Study Still Makes Contribution if Limitations are Clearly Stated	Design is Reasonable but Possible Alternative Questions and Designs Should be Mentioned	Design is Adequate to Answer Research Questions

1	2	3	4	5
Analysis and Interpretation are Wrong	Additional or Alternative Analysis is Needed to Provide Appropriate Interpretation	Analysis/Interpretation OK, but Alternative Analyses Might be Better	Major Analyses OK, but Some Additional Detail or Explanation Might be Provided	Analyses and Interpretation are Correct and Clear

1	2	3	4	5
Very Unclear (needs extensive rewriting)	Unclear; several passages require rewriting	Borderline (needs improvement)	Satisfactory; Understandable	Excellent; Communicates Very Clearly

1	2	3	4	5
No Contribution at all	Trivial	Moderate Contribution	Substantial Contribution	Significant; Will be Cited Widely

1	2	3	4	5
None; not worth rewriting	Can't Tell; Revision may help	Probably Worth Revising	Contributes Now But Can Be Improved	Makes Moderate Contribution (Or More) As Is

MANUSCRIPT

Quality and Quantity Goals in a Complex Decision Task: Strategies and Outcomes

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Paper presented at the Sixth Annual Conference of the Society for Industrial and Organizational Psychology, St. Louis, MO, April, 1991.

Abstract

Issues of quality and quantity goals were examined in a complex decision task that enabled monitoring of information search behavior. A sample of 160 undergraduates was presented with the task of selecting stocks for investments. Manipulated variables included task dificulty, quantity goal difficulty, and quality goal difficulty. The use of a computer program for stock selection allowed for capturing differences among participants on the strategies used to search for information about the stocks. The results showed goal effects on both performance and search strategies. Specifically, a quantity goal effect on performance quantity, a three-way interaction on performance quality, and a number of effects for search strategy variables were found. Results and future research implications were discussed.

Quality and Quantity Goals in a Complex Decision Task:

Strategies and Outcomes

Since the theory of goal setting was introduced, much research has examined the effects of goals on performance (Locke, Shaw, Saari, & Latham, 1981). The most consistent result of these studies has been that specific, difficult goals lead to better task performance than easy or "do your best" goals. While the majority of these studies have found goal effects using relatively simple tasks (Wood, Mento, & Locke, 1987), recent research has suggested that effects of goals on performance are not as consistent with complex tasks (Campbell, 1986) and, in some instances, specific, difficult goals were found to hinder performance (e.g. Earley, Connolly, & Ekegren, 1989; Huber, 1985).

When the focus shifts to complex tasks, an issue that arises is what defines a complex task. Adopting the view of Wood (1986), task complexity can be viewed on a continuum ranging from simple tasks such as perceptual speed and simple arithmetic to complex tasks such as technical work and decision problems. This distinction is based on task outputs (products), required acts, and information used on the task. Adopting this view of complexity in terms of goal setting, two characteristics may distinguish complex tasks from simple tasks. First, complex tasks require the development or application of specific strategies for successful task completion (Locke, et al, 1981). Second, complex tasks often require an individual to attend to multiple dimensions of task performance simultaneously. For example, a complex task may require an individual to attend to both quantity and quality of performance.

This study addressed the impact of quantity and quality goals on performance of a decision task which according to Wood's (1986) perspective, is complex. In addition, since strategies are thought to play an integral role in performance of complex tasks, process related decision strategies were assessed.

Strategies and Complexity

Wood and Locke (1990) propose that the only means by which goals affect performance is through the activation of strategies or plans. These plans range from very general, highly automatized plans (e.g. direct attention or exert effort) to task specific strategies that are developed solely for completion of the current task. New plans are often only developed if existing general plans stored in the individual's repetoire of learned responses are unsatisfactory. The current study is mainly concerned with stored and developed task specific strategies, and, as such, two relevant issues need to be addressed. The first is to review strategy assessment techniques that have been used in previous research. The second issue is to discuss the strategy assessment approach adopted in the current study, and highlight the relative advantage of this approach.

A variety of techniques have been adopted to study the role of strategy activation in the relationship between goal setting and task performance (Wood & Locke, 1990). Huber (1985) had subjects complete a hidden maze task and defined strategy as the number of times subjects "peeked" at the actual maze layout. Although post hoc self-reports were used to highlight some specific strategies, such global strategy measures may have failed to capture the specific strategies that were developed to determine how and when to use the peek option effectively. Other studies have adopted self-report techniques for assessing strategies (e.g. Earley & Perry, 1987). Unfortunately, post hoc self-report assessments of strategy may be limited to the extent that individuals have limited self-insight into their cognitive strategies (Nisbett & Wilson, 1977). A recent advance in strategy assessment is the use of multiple cue probability learning (MCPL) tasks, whereby strategy can be inferred from regression statistics associated with decision outcomes and information cues (Earley et al., 1989). Both decision strategies and the consistency with which strategies are used can be assessed using regression techniques and MCPL tasks.

The current study extended goal setting to a decision task in which process tracing techniques were used to monitor information search (strategies) during decision making (Ford,

traditional, regression-based decision paradigms. In multiple cue decision tasks, decision makers are presented a constant number of decision alternatives and a constant number of dimensions (cues). Each alternative is presented one at a time for a fixed interval of time. In the process tracing task utilized in the current study, decision makers individually determined how many alternatives they would process, how much information they would consider for each alternative, and how long they would spend examining information. Additionally, information could be examined either across dimensions, within an alternative; or across alternatives, within a dimension. Thus, process tracing allows decision makers a greater variety of information search strategies.

Goal setting has only recently been applied to process tracing, decision tasks (Creyer, Bettman, & Payne, 1989). Subjects completed computerized decision tasks under general goals to either "minimize effort" or "maximize accuracy". Compared to the minimize effort goal, subjects told to maximize accuracy were more accurate, examined more information, spent longer looking at each information cue, demonstrated less variability of search (indicating more compensatory processing), and tended to search more within alternatives (rather than across alternatives within dimensions). While this study is an initial attempt to examine goal setting with a process tracing decision task and does document the ease with which search strategies can be assessed using process tracing techniques, considerable room was left for improvement. The goals in this study were nonspecific and, as such, difficulty could not be quantified. Further there was no control condition; thus it was not possible to assess whether maximize accuracy goals increased performance, or whether minimize effort goals decreased performance, or both.

Quality vs. Quantity Goals

Goal setting research has predominantly focused on individual performance given a single, quantity goal. However, most jobs require an individual to pursue goals on more than one task or multiple goals within one task (e.g. quantity and quality goals). Although Locke and Latham (1990) assert that quality and quantity goals may be pursued sequentially, it is the position of the

authors that performance on most tasks requires the individual to focus on both quality and quantity of performance simultaneously.

Some research has been conducted iwhen both quality and quantity goals were present (Bavelas & Lee, 1978; Terborg & Miller, 1978). However, these studies have not set goals which combine both quantity and quality simultaneously. For example, Bavelas and Lee (1978) assigned goals on two separate tasks and then measured both quality and quantity. In the study conducted by Terborg and Miller (1978), goals for quantity and quality were set independently, but no goal was assigned which incorporated elements of both quality and quantity together. Despite the shortcomings of these studies, their data clearly indicate that there is a trade-off between performance quality and performance quantity, in which performance quality significantly decreases as the level of quantity goal difficulty increases.

Erez (1990) examined this issue further by including goals which combined both quality and quantity. Subjects completed a task involving arithmetic problems and were assigned goals in terms of the number of correct responses. Her results indicate that in the presence of quality and quantity goals there is a significant inverse relationship between performance quality and quantity. Further, this relationship is moderated by goal difficulty, such that the strength of the relationship increases as goal difficulty increases. Although performance was measured in terms of quantity and quality, Erez (1990) did not set quantity and quality goals independent of one another.

Given the above discussion, the purpose of this study was to assess the effect of quality and quantity goals on performance of a complex decision task that demanded attention to both quality and quantity of performance. In addition, the effect of varying the degree of task difficulty within the context of a complex task was examined by manipulating the ease with which research participants made correct decisions. As such, many cue weighting strategies could have been used to lead to a correct decision in the easy task, whereas in the difficult task, fewer effective strategies were available. While decision making research suggests that there may be performance differences with respect to task difficulty, previous research has not examined this particular

operationalization of difficulty. Also, through the decision making paradigm, strategy development and performance outcomes were assessed.

Based on previous research, an interaction was predicted between quality and quantity goals. It was expected that in the difficult quality, difficult quantity goal condition, either performance quantity, or accuracy (or both) would be hindered as a result of competing goals. Additionally, task difficulty was expected to moderate the above interaction, with a stronger goal effect evident in the easy task than in the difficult task. Finally, it was expected that process strategy variables would demonstrate effects similar to those expected for the outcome variables.

Method

Participants and Design

Participants were 160 undergraduate students recruited from management and psychology courses in a large midwestern university. The design of this study was a 2 (easy vs. difficult task) x 2 (easy vs. challenging, quality goal) x 2 (easy vs. challenging, quantity goal) factorial design. Participants were randomly assigned in equal numbers to the resulting eight cells.

Decision Task

The decision task involved a computer simulation of the activities of a stock investor/broker, who processed stock portfolios for hypothetical clients. Each portfolio was presented on the computer and included four stocks described along five dimensions. The stocks were labelled 1 to 4 and the dimensions included the following: (1) the preferred stock rating (range AAA to D), (2) the previous annual dividend (as a % of investment), (3) the change in company profit over the past year (% change), (4) the long term stock trend (% change), and (5) the short term stock trend (% change). For each portfolio, the decision maker chose the "best" of the four stocks under the assumption that this stock was to be recommended to the client for purchase. After the stock had been chosen, the participant received feedback through the computer as to whether or not the choice was correct, what the correct stock was, and the number and percent of correct choices that he or she had made up to that point. Following the accuracy

feedback, a second portfolio (decision task) was presented. This process continued for 45 minutes.

Independent Variables

Task difficulty. The difficulty of the decision tasks was manipulated through the salience (distinctiveness) of the one "best" stock. The easy decision task had one stock that was superior to the other stocks in a given portfolio on many (3 or 4) of the relevant dimensions. The difficult decision task did not have a clearly defined best stock, rather the subject had to determine the optimal weight for each dimension, much like a multiple cue probability learning study. The correct weighting scheme was simply five times the standardized value of the most important dimension, four times the second, and so on down to unit weighting for the least important dimension. A pilot sample of 40 (20 participants in each of the difficulty conditions) who completed the task under "do your best" goals demonstrated a mean accuracy of 72% in the easy task and 42% in the difficult task.

Quality and quantity goals. The performance of the pilot sample served as a standard by which both quality and quantity goals were set for both levels of task difficulty. Easy quality goals were set by selecting the accuracy level achieved by 80% of the pilot participants, while difficult quality goals were set at the 20% level. Easy and difficult quantity goals were similarly set using number of portfolios processed.

The wording of goals emphasized both quality and quantity. For example, a difficult quality and easy quantity goal under the easy task condition was as follows: "As a stock broker, you receive a commission based on both the number of stock portfolios you process and the accuracy with which you recommend good stocks. Specifically, we would like you to process 10 client portfolios and at an accuracy rate of 85% during the 45 minute period."

Dependent Variables

There were two categories of dependent variables in this study: outcome and strategy. The two outcome measures, the accuracy and number of stock portfolios recommended, were taken to

calculated by dividing the number of correct recommendations by the total number of recommendations. This operation is statistically equivalent to partialling out the variance associated with total recommendations from the variance of the number of correct recommendations, such that an observed correlation between quality and quantity reflects theoretical interdependence.

The process variables assessed the amount, latency, and pattern of information accessed to developo indices of strategy. Amount of information accessed was calculated by summing the total number of information cues an individual examined on a given decision task, while latency of search reflected the average amount of time spent examining each of these cues. Pattern of search indicated the extent to which decision makers searched for information primarily across dimensions, within an alternative(interdimensional) or across alternatives, within a dimension(intradimensional). An index of inter- vs. intradimensional search was computed by subtracting the number of intradimensional search instances from the number of interdimensional search instances and dividing by the sum of inter- and intradimensional search instances. This resulted in an index which could range from -1 (intradimensional) to +1 (interdimensional). These indices have been used to describe search behavior in previous research utilizing a process tracing framework (Ford et al., 1989).

Procedure

Participants received detailed instructions on the nature of decision tasks and on the operation of the computer simulation. Following a practice decision task, goals were presented to participants on the computer monitor, as well as on a printed sheet, and participants worked on the experimental tasks for an interval of 45 minutes. After each portfolio was processed, participants received feedback indicating decision accuracy and cumulative performance. Participants filled out a brief manipulation check questionnaire upon completion of the computer simulation task.

Results

Manipulation Checks

The manipulation check questionnaire contained items that assessed recollection of assigned

(95%) correctly recalled their assigned goal level in terms of both quality and quantity. A three item, seven-point (1 "very easy to 7 "very difficult) scale was used to probe perceived task difficulty (α = .75). Participants' responses indicated that those persons in the easy task condition perceived the task to be easier (M = 3.19) than those in the difficult task condition (M = 4.37) ($F(1,151) = 64.83$, $p < .05$, $\eta^2 = .29$). These results indicate that participants were sensitive to both the manipulations of goal level and task difficulty.

A seven item goal commitment measure was used which ranged from 1 "noncommitment" to 5 "commitment" (α = .76). Results from this measure indicated that overall, participants tended to be committed to their assigned goals (M = 3.94, SD = .60). A 2(task difficulty) x 2 (quality goals) x 2 (quantity goals) ANOVA demonstrated main effects for task difficulty ($F(1,151) = 5.88$, $p < .05$, $\eta^2 = .04$) and quality goals ($F(1,151) = 5.69$, $p < .05$, $\eta^2 = .03$). Participants indicated slightly higher commitment in the easy task (M = 4.05) than in the difficult task (M =3.83) and higher commitment with easy (M = 4.04) than with difficult quality goals (M = 3.83). While these differences are significant, the mean differences are small and commitment is fairly high in all conditions implying that differing levels of commitment was not a serious issue.

Task Outcomes

On average, participants completed 16.76 (SD = 6.00) recommendations with an accuracy rate of 56.05% (SD = 20.83). Contrary to expectations, a quality/quantity tradeoff was not exhibited as the two outcome measures were uncorrelated (r = .05, n.s.). Given the independence of these measures, analyses were done with separate 2 x 2 x 2 (task difficulty, quality goals, quantity goals) ANOVAs.

As hypothesized, a main effect was found for quantity goals on the total recommendations measure ($F(1,152) = 17.68$, $p < .05$, $\eta^2 = .10$). Participants with difficult quantity goals completed more stock portfolios (M = 18.65) than those with easy quantity goals (M = 14.86). No other main effects or interactions were found for the total recommendations variable ($ps > .05$).

In confirmation of the task difficulty manipulation, a large task difficulty effect was found

easy task (M = 71.77) than in the difficult task (M = 40.33). No main effects for quality or quantity goals were found on the accuracy measure (*p*s > .05), however, a task difficulty by quality goals by quantity goals interaction was observed ($F(1,152) = 6.09$, $p < .05$, $\eta^2 = .02$). While an interaction of this sort was hypothesized, the actual nature of the means in this interaction were somewhat different than expected (See Figure 1). Tests of simple effects indicate that neither quantity nor quality goals, nor their interaction, affected accuracy in the easy task (*p*s > .05). However, in the difficult task, quality and quantity goals interacted ($F(1,76) = 6.99$, $p < .05$) such that accuracy was greatest in the difficult quality goal, easy quantity goal condition, as evidenced by comparisons both across quality, within easy quantity ($t(38) = 2.81$, $p < .05$) and across quantity, within difficult quality ($t(38) = 2.33$, $p < .05$).

Task Strategy

The three strategy variables, elements accessed, latency of search, and pattern of search, were assessed for the first, middle, and last decision task completed. When averaged across decision tasks, subjects examined 17.56 (SD = 6.17) out of 20 elements from stock portfolios, and spent 4.80 (SD = 1.81) seconds examining each element of information. Pattern of search tended to be neither interdimensional nor intradimensional (M = 0, SD = .74), which indicates participants tended to search just as frequently across dimensions, within a single stock as they did across stocks, within a single dimension. The intercorrelations of the three strategy variables (averaged across decision tasks) ranged from r = .08 between latency and pattern of search, and r = -.14 between latency of search and number of elements accessed, to r = .20 between pattern of search and number of elements accessed. Given these low intercorrelations, the strategy variables were analyzed with 2 x 2 x 2 x 3 mixed model ANOVAs with task difficulty, quality, and quantity goals as between-subject factors and decision task repetitions as a within-subject factor (see Table 1).

A main effect of quantity goals on the number of elements accessed demonstrated that subjects in the easy quantity goal condition examined more information (M = 18.86) than subjects in the difficult quantity goal condition (M = 16.25). Further, a quantity goals by task repetitions

quantity goal effects suggested that easy and difficult quantity goal conditions differed in the middle ($t(158) = 3.18$, $p < .05$) and last tasks ($t(158) = 2.23$, $p < .05$), but not in the first task ($p > .05$). It must be noted that the quantity goal by repetitions interaction was also embedded within a significant 3-way, and a significant 4-way interaction. Unfortunately, the higher order interactions are basically uninterpretable, and, as such, caution must be exercised when drawing conclusions with regard to the main quantity goal effect and the interaction between quantity goals and repetitions.

On the latency of search variable, a main effect was found for task repetitions and an interaction was observed between quality goals and task repetitions. Quite predictably, search latencies decreased across task repetitions (M_{first} = 6.49, M_{middle} = 4.15, M_{last} = 3.75). The quality goals by repetitions interaction is presented in Figure 2 with simple effects tests demonstrating that the repetitions effect held for both easy ($F(2,152) = 35.28$, $p < .05$) and difficult ($F(2,152) = 69.30$, $p < .05$) quality goals. More interesting, however, is that simple quality goal effects were found for the first task ($t(158) = 2.08$, $p < .05$), but not the middle or last tasks (*p*s > .05).

Demonstrating similar effects to search latency, a repetitions effect and a repetitions by quality goal interaction were found on the pattern of search measure. While the main effect of repetitions demonstrated that participants tended to search in a more intradimensional pattern as they proceeded through the stock tasks (M_{first} = .110. M_{middle} = -.034, M_{last} = -.080), this effect was qualified by the interaction with quality goals. As the interaction demonstrates (see Figure 2), a repetitions effect was found for the difficult quality goal condition ($F(2,152) = 9.60$, $p < .05$) but not for the easy quality goal condition ($F < 1$). Simple effects tests failed to indicate significant quality goal effects for any of the stock tasks (all *t*s, n.s.).

Discussion

This study examined two issues associated with goal setting and complex tasks. First, the interdependence of quality and quantity goals was examined with respect to effects on the quality

and quantity of performance. Second, the effects of goal setting on strategy development was examined by monitoring decision process in an iterative decision task.

Quality and Quantity Goals

As expected quantity goals had a direct effect on performance quantity. Specific, difficult quantity goals led to completion of more stock portfolios than specific, easy quantity goals. No interaction was found between quality and quantity goals, indicating that competing quality goals do not serve to undermine the effect of quantity goals on performance quantity. The tradeoff between quality and quantity was, however, exhibited on the performance quality measure. A three-way interaction on accuracy between quality goals, quantity goals, and task difficulty was a result of a quality/quantity goal interaction in the difficult task and no goal effects in the easy task. Two aspects of this three-way interaction warrant discussion: the differences between the easy and difficult task, and the quality/quantity tradeoff.

A three-way interaction was predicted for the accuracy measure, however, goal setting was expected to have a larger effect on the easy task than the difficult task. Contrary to these expectations, goal setting had no effect on accuracy in the easy task. Average accuracy performance on the easy stock task was quite high (approximately 72%), such that on three out of every four trials, participants received feedback that indicated their strategy was effective in predicting the best stock. Given this high level of performance and the limited number of portfolios processed, it may not have been possible to "learn" a better strategy than that initially developed. Those working on the difficult stock task averaged only 40% accuracy, so they received far more feedback indicating their strategy was ineffective. As such, goal setting may have enabled participants in the difficult task to develop better strategies as they proceeded through the portfolios.

Independent of the causes of the differences between easy and difficult tasks, the interaction between quality and quantity goals on performance accuracy in the the difficult task is similar to that predicted. With easy quality goals, quantity goals did not affect accuracy, indicating

quality. With easy quantity goals, difficult quality goals led to greater accuracy than easy quality goals. However, with difficult quantity and quality goals, participants were not able to increase both performance quality and quantity, and as a result, performance quality was neglected for increased quantity. This quality/quantity tradeoff is supported by the fact that performance quality and quantity were negatively correlated in the difficult task ($r = -.23$, $p < .05$), but uncorrelated in the easy task ($r = .03$, n.s.). The reasons for this tradeoff may be either that the strategies needed to attain both difficult goals are incompatible, or that the combined goal was just too difficult to sustain commitment to both quality and quantity. Future research may be well directed at examining commitment to competing quality and quantity goals separately, as the current study only examined commitment to the combined quality/quantity goal.

Strategy Development

The second area in which the current study extends the literature is in terms of strategy assessment. To increase performance and attain quantity goals, there appear to be two strategies that decision makers could adopt. Given that the overall task time remained constant (45 minutes), decision makers could process more stock portfolios by either looking at less information, or by looking at information for shorter durations. Results from the strategy variables suggest that difficult (compared to easy) quantity goals led to the examination of less information across trials, while the amount of time spent examining information did not change as a result of quantity goals.

In an effort to attain quality goals, it appears that decision makers altered both the amount of time spent examining information and the pattern by which information was examined. Latency of search results suggest that those with difficult quality goals initially spent longer looking at information than those with easy quality goals, however this difference disappeared in later decision trials, perhaps because this strategy proved ineffective. In terms of pattern of information search, the current study found a switch toward intradimensional search for difficult, but not easy, quality goals. One strategy that decision makers appeared to adopt to facilitate attainment of quality goals was to search more comparatively, that is, they looked at stock alternatives on one dimension

Limitations and Future Research

One aspect of the current study that has not yet been addressed is the discrepancy between the current findings and those of Earley, et al. (1989). Earley and his colleagues had subjects complete a stock prediction task and found that difficult accuracy goals decreased performance over easy goals. The current study also used a stock prediction task, but found that in the difficult task, easy quantity goal condition, difficult quality goals increased accuracy over easy quality goals. Findings from the search strategy measures may help explain these differences in results. The observed methods by which decision makers may have increased accuracy was by altering their search latencies and search pattern. In the Earley, et al. study, both search latencies and search patten were held constant. By allowing decision makers to vary in terms of these behaviors, quality goal setting may be productive, rather than counterproductive. Future research would be well directed toward further examining how and why methodological differences between the two studies led to dramatically different results.

In conclusion, this study demonstrated a number of interesting results associated with extending goal setting principles to a complex decision task. Future research should extend the current quality/quantity findings to different tasks to determine whether quality goals are always sacrificed to achieve quantity goals. Further, this research should likely monitor commitment to both quality and quantity goals. Finally, the operationalization and effects of task difficulty represent an extension to the decision making literature and should be pursued in future research.

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Table 1

Analysis of Variance Summary for Number of Elements Accessed, Latency of Search, and Pattern of Search

	Number of Elements Accessed		Latency of Search		Pattern of Search	
Independent Variable	df	F	df	F	df	F
Task Difficulty (T)	1	2.93	1	3.78	1	.13
Quality Goals (Ql)	1	.69	1	2.06	1	.58
Quantity Goals (Qn)	1	7.43*	1	1.01	1	.04
T x Ql	1	.03	1	.25	1	1.73
T x Qn	1	1.03	1	.09	1	.05
Ql x Qn	1	2.23	1	.28	1	.04
T x Ql x Qn	1	.17	1	2.07	1	.36
Within (S/T,Ql,Qn)	152	(109.12)	152	(9.72)	146	(1.69)
Repetitions (R)	2	.04	2	102.99*	2	7.23*
T x R	2	.77	2	2.83	2	.66
Ql x R	2	.21	2	3.07*	2	3.54*
Qn x R	2	4.04*	2	2.30	2	1.49
T x Ql x R	2	1.63	2	.17	2	.22
T x Qn x R	2	2.49	2	.14	2	.32
Ql x Qn x R	2	3.09*	2	2.41	2	.12
T x Ql x Qn x R	2	6.33*	2	.71	2	.10
Within (RS/T,Ql,Qn)	304	(33.61)	304	(3.39)	292	(.20)

Figure 1

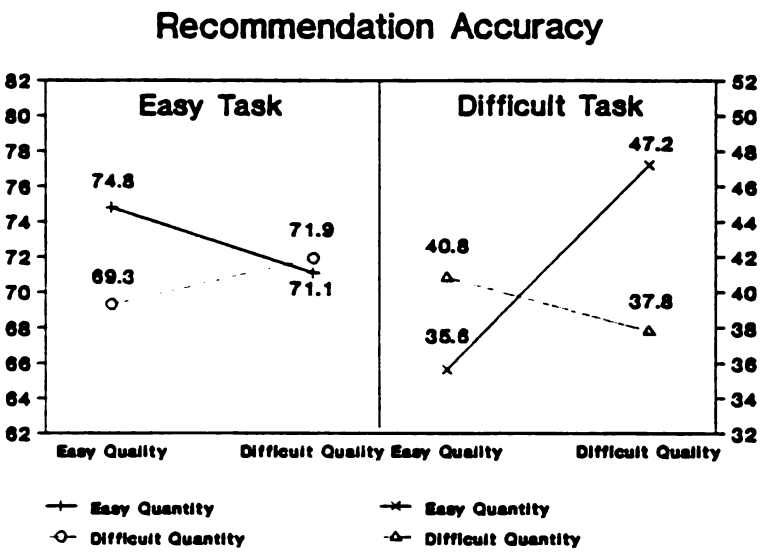
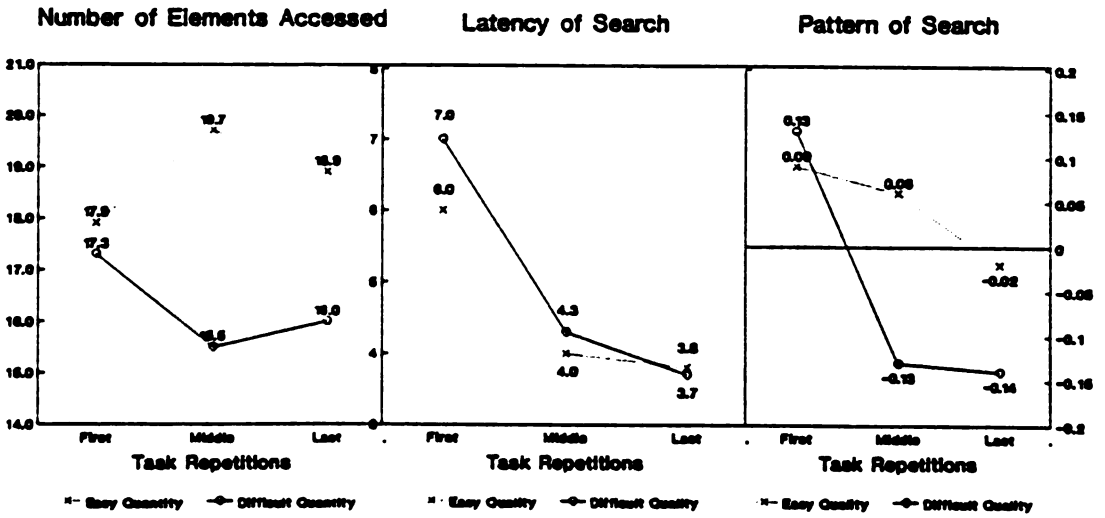


Figure 2



COGNITIVE ABILITY TEST

NAME ..... Date .....
(Please Print)

READ THIS PAGE CAREFULLY. DO EXACTLY AS YOU ARE TOLD
DO NOT TURN OVER THIS PAGE UNTIL YOU ARE
INSTRUCTED TO DO SO.

PROBLEMS MUST BE WORKED WITHOUT THE AID OF A CALCULATOR
OR OTHER PROBLEM-SOLVING DEVICE.

This is a test of problem solving ability. It contains various types of questions. Below is a sample question correctly filled in:

PLACE ANSWERS HERE

REAP is the opposite of
1 obtain, 2 cheer, 3 continue, 4 exist, 5 sow .....

The correct answer is "sow". (It is helpful to underline the correct word.) The correct word is numbered 5. Then write the figure 5 in the brackets at the end of the line.

Answer the next sample question yourself.

Paper sells for 23 cents per pad. What will 4 pads cost? .....

The correct answer is 92¢. There is nothing to underline so just place "92¢" in the brackets.

Here is another example:

MINER MINOR — Do these words
1 have similar meanings, 2 have contradictory meanings. 3 mean neither the same nor opposite?

The correct answer is "mean neither same nor opposite" which is number 3 so all you have to do is place a figure "3" in the brackets at the end of the line.

When the answer to a question is a letter or a number, put the letter or number in the brackets. All letters should be printed.

This test contains 50 questions. It is unlikely that you will finish all of them, but do your best. After the examiner tells you to begin, you will be given exactly 12 minutes to work as many as you can. Do not go so fast that you make mistakes since you must try to get as many right as possible. The questions become increasingly difficult, so do not skip about. Do not spend too much time on any one problem. The examiner will not answer any questions after the test begins.

Now, lay down your pencil and wait for the examiner to tell you to begin!

Answer all questions.
(Check the appropriate box.)

For each question check the one answer which best reflects your own opinion.	(1) Definitely Yes	(2) Probably Yes	(3) Uncertain (?)	(4) Probably No	(5) Definitely No
1. Do you always tell the truth regardless of the circumstances?	☐	☐	☐	☐	☐
2. Do you believe that an employee who has taken company merchandise just a few times without permission can be trusted in a responsible position having access to money?	☐	☐	☐	☐	☐
3. Do you think that once a thief always a thief?	☐	☐	☐	☐	☐
4. Have you occasionally had ideas and thoughts that you would not like other people to know about?	☐	☐	☐	☐	☐
5. Does everyone steal a little?	☐	☐	☐	☐	☐
6. Have you ever taken any money (even if only $1.00) from a present or past employer?	☐	☐	☐	☐	☐

APPENDIX E

Explanation Manipulations

Work Sample Test

The employment test we are asking you to complete as part of the selection process has been chosen for at least three reasons. First, we need people that can perform the journal coding task quickly and accurately. Given that we will be coding so many manuscripts and that we are unable to check the accuracy of all your coding, it is particularly important that we select people who can perform the task accurately. The Journal Coding Test that you will complete has been developed solely for selecting people to perform this task. The types of questions that you will be asked to complete in the Journal Coding Test are the same types of information that you will be coding if you are selected to perform the coding task. Essentially, what we have done is to select a sample of coding items from the coding task and incorporated them into a test format. Second, prior testing with the Journal Coding Test has indicated that people who do well on this test also tend to perform better in the actual coding task. That is, the Journal Coding Test is a good predictor of how well a person can perform the coding task. Finally, prior research with work related tests similar to this has consistently demonstrated that work related tests are good predictors of job performance.

We will be using your performance on the Journal Coding Test to decide whether or not to hire you to perform the task. More specifically, we have a particular score on the test which you must pass to be selected. This score has been developed based on prior testing

and is related to an established minimally acceptable level of coding performance. We have found the people who reach this cutoff perform the task significantly better than those who do not. Therefore, it is in our best interests to use this test and this cutoff to select people to perform the coding task.

Verbal explanation. As was explained in the information sheet provided prior to the test, the Journal Coding Test has been developed specifically for selecting people to perform the coding task. The questions in the test were taken directly from the coding task, and further, the test has been demonstrated to be a good predictor of performance in the coding task. Regardless of how you did on the test, we hope that you can at least understand why we used this selection test to decide who to hire.

Cognitive Ability Test

The employment test we are asking you to complete as part of the selection process has been chosen for at least three reasons. First, we need people who can perform the journal coding task quickly and accurately. Given that we will be coding so many manuscripts and that we are unable to check the accuracy of all your coding, it is particularly important that we select people who can perform the task accurately. The General Personnel Test that you will complete has been chosen to select people to perform this task. The General Personnel Test assesses your ability to recognize information and problem solve, which are similar to the abilities needed to perform the coding and categorizing you will do on the job. Second, prior testing with the General Personnel Test has indicated that people who do well on this

test also tend to perform better in the actual coding task. That is, the General Personnel Test is a good predictor of how well a person can perform the coding task. Finally, the General Personnel Test is a nationally recognized test that is used to select people for a variety of jobs. Considerable prior research with this test has consistently demonstrated that it is a good predictor of job performance in jobs requiring clerical skills. The type of coding that you will do if you are selected, requires the problem solving abilities that are assessed by the General Personnel Test.

We will be using your performance on the General Personnel Test to decide whether or not to hire you to perform the task. More specifically, we have a particular score on the test which you must pass to be selected. This score has been developed based on prior testing and is related to an established minimally acceptable level of coding performance. We have found the people who reach this cutoff perform the task significantly better than those who do not. Therefore, it is in our best interests to use this test and this cutoff to select people to perform the coding task.

Verbal explanation. As was explained in the information sheet provided prior to the test, the General Personnel Test is a nationally recognized test that is useful for selecting people to perform clerical tasks. The abilities assessed by the test are similar to those needed to perform the actual coding task, and further, this test has been demonstrated to be a good predictor of performance in the coding task. Regardless of how you do on the test, we hope that you can at least understand why we used this selection test to decide who to hire.

Honesty Test

The employment test we are asking you complete as part of the selection process has been chosen for at least three reasons. First, we need people that can perform the journal coding task quickly and accurately. However, given the confidential and sensitive nature of the materials that you will be handling, we also need people that we can trust to maintain this confidentiality and handle the materials in a responsible manner. These manuscripts and editorial materials are the property of the Journal of Applied Psychology. Many of the editorial materials are not shared with the authors and are sensitive given that a sizable portion the manuscript are rejected for publication. The only way that we have access to these materials is by ensuring the Journal staff of the confidentiality with which these materials will be handled. The Personnel Selection Inventory that you will complete has been chosen to select people to perform this task. The types of questions that you will be asked to complete in the Personnel Selection Inventory are designed to assess your ability to work responsibly and maintain confidentiality. Second, prior testing with the Personnel Selection Inventory has indicated that people who do well on this test tend to be better suited to perform the actual coding task. That is, the Personnel Selection Inventory is a good predictor of whether or not a person can perform the coding task responsibly. Finally, the Personnel Selection Inventory is a nationally recognized test that is used to select people for a variety of jobs. Considerable prior research with this test has consistently demonstrated that it is a good predictor of responsibility on the job.

We will be using your performance on the Personnel Selection Inventory to decide whether or not to hire you to perform the task. More specifically, we have a particular score on the test which you must pass to be selected. This score has been developed based on prior testing and is related to an established minimally acceptable level of job responsibility. We have found the people who reach this cutoff are more suited to perform this task than those who do not. Therefore, it is in our best interests to use this test and this cutoff to select people to perform the coding task.

Verbal explanation. As was explained in the information sheet provided prior to the test, the Personnel Selection Inventory is a nationally recognized test for selecting people to that can handle a job with responsibility. In pilot testing this test was demonstrated to be a good predictor, and further, this test has been used to select people for a variety of jobs that require varying degrees of responsibility. Regardless of how you did on the test, we hope that you can at least understand why we used this selection test to decide who to hire.

APPENDIX F

Feedback and Debriefing

I would like to take a little time to talk to you about a study in which many of you participated. If those of you that participated recall, I had you complete an employment selection test to determine whether or not you would be hired to participate in a journal coding project. Approximately half of you were selected to perform the task and the other half were not. Those that performed the task coded journal manuscripts and editorial comments. It was explained that the results of this coding would be used for a study of the journal review process. Well indeed this was the purpose of coding the manuscripts. We are currently working organizing the data and performing the analysis for this study. However, I must apologize and tell you that the means by which you were selected were not as I originally explained. You were given one of three different selection tests: A journal coding test, which represented an actual sample of the work you would do as a coder; a clerical aptitude test, which contained a number of coding and number checking subsections; or an integrity test, which assessed how likely you were to be responsible or honest on the task. These tests were chosen to represent different degree of job relatedness with regard to the coding task. That is, the journal coding test was highly job related and the integrity test was low in terms of job relatedness.

Another aspect of the study that was not as it seemed was the way in which we made the hiring decision. We did not make the hiring decision based on your test scores, but instead we made the decision on a random basis with half of you randomly being chosen to perform the

coding task. In fact, we never scored your employment test and have no idea about how well you may have performed on such a test. Let me emphasize again, the hiring decision was made on a random basis and did not reflect your ability in any way.

You may be wondering now why we were not honest with you to begin with. Well let me tell you about what I was studying in this research and then it should become clear why I could not tell you right from the start how you were being hired. One issue in industrial psychology that has not received much attention is the impact that selection procedures have on job applicants. I emphasize in my line of research that we need to know more about how applicants' reaction to different selection procedures. In order to study this in a systematic way, I decided to develop a hiring simulation in which people take different selection tests for a job and then either get hired or not hired. I then had you fill out a number of questionnaire items regarding your reactions to the selection process. I am interested in how both the type of test you received and the nature of the hiring decision (either hire or reject) affected your reactions. I wanted to make the hiring decision on a random basis because I did not want any individual differences to provide an alternate explanation for my findings. I think you can see why I could not tell you any of this earlier, because your reactions would likely have been quite different if you did not think the test was being used to select you or if you knew that different people were receiving different tests.

I believe research of this nature is necessary if we really want to understand how applicants react to hiring procedures. Later research that I conduct will likely use a survey method to find out peoples'

reactions in an actual hiring situation. I hope you can see the benefits of this type of research in that these issues may one day help shape the types of selection procedures you experience when applying for jobs.

Does anyone have any questions about why I did what I did and why I did not explain this to you earlier? Does anyone have any concerns or comments about this research? If anyone would like to discuss any of this privately with me, my office is 22 Baker and phone is 355-2171. I thank you again for your participation and apologize for not being honest with you initially.

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APPENDIX G

Dependent Measures

Test Motivation

Please indicate the extent to which you agree with each of the statements listed below. Use the following five-point scale and the fill in the number corresponding to your answer on the computer scanning sheet. For example, if you "*Strongly Agree*" with a statement, then fill in the "*5*" on scanning sheet in the answer space that corresponds to the statement number. Or, if you "*Neither Agree nor Disagree*," write a "*3*" on the scanning sheet.

1 = Strongly Disagree
2 = Disagree
3 = Neither Agree no Disagree
4 = Agree
5 = Strongly Agree

Please begin by writing your student ID number on the scanning sheet and fill in the corresponding circles. Please provide a rating of agreement for each of the statements.

1. Doing well on this test was important to me.

2. I wanted to do well on this test.

3. I tried my best on this test.

4. I tried to do the very best I could on this test.

5. While taking this test, I concentrated and tried to do well.

6. I want to be among the top scorers on this test.

7. I pushed myself to work hard on this test.

8. I was extremely motivated to do well on this test.

9. I just didn't care how I did on this test.

10. I didn't put much effort into this test.

11. It was hard to keep my mind on this test.

12. I found myself losing interest and not paying attention to the test.

13. During the test session, I was bored.

14. I get distracted when taking tests of this type.

15. This test was a good reflection of how a person could do on the job task.

16. Tests are a good way of selecting people into jobs.

17. This king of test or tests should be eliminated.

18. I don't believe that tests are valid.

19. I probably didn't do as well as most of the other people who took this test.

20. I am not good at taking tests.

21. During the testing, I often thought about how poorly I was doing.

22. I usually get very anxious about taking tests.

23. I usually do pretty well on tests.

24. I expect to be among the people who score really well on this test.

25. My test scores don't usually reflect my true abilities.

26. I very much dislike taking tests of this type.

27. During the test, I found myself thinking about the consequences of failing.

28. During the test, I got so nervous I couldn't do as well as I should have.

29. This test was too easy for me.

30. I found this test too simple.

31. I found this test interesting and challenging.

32. I felt frustrated because many of the test questions were too difficult.

33. I became fatigued and tired during the testing.

34. The questions on this test were ambiguous and unclear.

35. I have not been feeling well lately and this affected my performance on the test.

36. While taking the test, I was preoccupied with how much time I had left.

37. I felt a lot of time pressure when taking this test.

38. Once I undertake a task, I usually push myself to my limits.

39. I try to do well in everything I undertake.

40. I general, I like to work just hard enough to get by.

BACKGROUND INFORMATION

The following questions are purely for research purposes. Additionally, your name will never be associated with any responses you make. Your student number is only being collected so that we can match up your responses on different questionnaire forms and answers sheets. Please complete the following questions.

Student ID number: _____

Age: _____

Sex: _____

Major: _____

PLEASE TURN THE PAGE AND ANSWER ALL THE QUESTIONS IN THE SPACES PROVIDED.

HOW DO I FEEL RIGHT NOW? 2

Please read each of the following descriptive terms and evaluate the extent to which it represents how you feel right now. Use the following five-point scale to indicate the response that best represents your personal reaction in the space to the left of the item. Work quickly and do not dwell on any single item.

1 = Not at all
2 = A little bit
3 = Somewhat
4 = Quite a bit
5 = Extremely

_____ 1. boastful	_____ 9. self-centered
_____ 2. inadequate	_____ 10. worthless
_____ 3. effective	_____ 11. resourceful
_____ 4. shame	_____ 12. conceited
_____ 5. egotistic	_____ 13. stupid
_____ 6. incompetent	_____ 14. efficient
_____ 7. pride	_____ 15. competent
_____ 8. smart	_____ 16. confident

WHAT KIND OF PERSON AM I? 3

Please complete indicate your level of agreement with the following items. Use the following five-point scale and fill in the number to the left of the statement that most clearly represents your personal reaction. Please be frank and honest.

1 = Strongly Disagree
2 = Disagree
3 = Neither Agree no Disagree
4 = Agree
5 = Strongly Agree

_____ 1. I feel that I'm a person of worth, at least on an equal basis with others.

_____ 2. I feel that I have a number of good qualities.

_____ 3. All in all, I am inclined to feel that I am a failure.

_____ 4. I am able to do things as well as most other people.

_____ 5. I feel I do not have much to be proud of.

_____ 6. I take a positive attitude toward myself.

_____ 7. On the whole, I am satisfied with myself.

_____ 8. I wish I could have more respect for myself.

_____ 9. I certainly feel useless at times.

_____ 10. At times I think I am no good at all.

HOW WELL COULD I PERFORM THE JOURNAL CODING TASK? 4

Based on what you know about the coding task you applied to do, how well do you think you could performed the task. Specifically consider the following statements and indicate your responses using a two part answer. First indicate (yes or no) whether you think you are capable of performing at an indicated level. Second, if you think you are capable of performing at an indicated level, what is your confidence in that judgement. When making the confidence ratings, please use the following scale and mark your responses on this sheet:

1 = Not at all confident
2 = A little bit confident
3 = Somewhat confident
4 = A good bit confident
5 = Extremely confident

1. "In term of the speed at which I could perform the coding task, I believe I am capable of performing at or above the level of...

	Yes/No	If yes, then confidence (1 - 5)
...a below average performer	_____	_____
...an average performer	_____	_____
...an above average performer	_____	_____
...the very fastest performer	_____	_____

2. "In term of the accuracy with which I could perform the coding task, I believe I am capable of performing at or above the level of...

	Yes/No	If yes, then confidence (1 - 5)
...a below average performer	_____	_____
...an average performer	_____	_____
...an above average performer	_____	_____
...the most accurate performer	_____	_____

Fairness Perceptions

Please indicate the extent to which you agree with each of the statements listed below. Use the following five-point scale and the fill in the number corresponding to your answer on the computer scanning sheet.

1 = Strongly Disagree
2 = Disagree
3 = Neither Agree no Disagree
4 = Agree
5 = Strongly Agree

Please begin by writing your student ID number on the scanning sheet and fill in the corresponding circles. Please provide a rating of agreement for each of the statements.

1. I think that people who perform well on the selection procedures are more likely to perform well on the job.

2. The people hiring were straightforward and sincere about the job and what it entailed.

3. I am satisfied with the amount of feedback I received during the selection process.

4. The selection process was like an interrogation - the people were cold and rigid.

5. The selection process was standardized and systematically administered.

6. There did not appear to be any bias or discrimination on the basis of sex or anything.

7. The people hiring should have been more honest when telling me about the position and my chances of being hired.

8. I can see a connection between the selection procedures and performance on the job.

9. The selection process did not capture the extent to which I am a hard worker.

10. Instructions for the test were clearly explained to me (either verbally or in writing).

11. I am satisfied with the communication that occurred during the selection process.

12. Lack of interactive or two-way communication was a problem during the selection process.

13. There appeared to be no consistency in the methods used to evaluate me.

1 = Strongly Disagree *2*
2 = Disagree
3 = Neither Agree no Disagree
4 = Agree
5 = Strongly Agree

14. I feel the selection process cut down on favoritism that can sometimes be a problem when people are selected for jobs.

15. I think that my hiring decision was affected by special treatment offered to some people.

16. I think some people would distort their responses on this test to try to make themselves look better.

17. The selection process got right down to what I could and could not do.

18. The questions asked of me during the selection process were neither relevant nor important for the job.

19. The type of questions asked during the selection process were directly related to the job.

20. Some of the questions asked during the selection process were intrusive of my privacy.

21. I did not receive the evaluation I feel I deserved.

22. I was given a reasonable explanation for why the specific selection procedures were used to hire people.

23. I had control over the factors that influenced my performance during the selection process.

24. During the selection process, I feel I was treated more like a number than a human being.

25. Given my past experience looking for a job, I feel I recieved an appropriate evaluation.

26. I think that an effort was made to consider individual needs when making hiring decisions.

27. Everyone was screened fairly and given the same opportunity.

28. I received information on the hiring decision (accept/reject) in a timely manner.

29. I am satisfied with how I was informed of the hiring decision (accept/reject).

30. Given my ability and experience, I was <u>not</u> evaluated correctly by this selection process.

31. I was asked questions that I feel were inappropriate or discriminatory.

1 = Strongly Disagree *3*
2 = Disagree
3 = Neither Agree no Disagree
4 = Agree
5 = Strongly Agree

32. I don't think faking answers is possible during the selection process.

33. The people hiring let me know about the selection process in advance.

34. I feel the people hiring lied about the selection process and the way they chose people for the job.

35. The people hiring did not make enough of an effort to hire disadvantaged people or people that are often discriminated against.

36. The selection process was difficult, much more than I thought it would be.

37. During the selection process, I never got the chance to prove myself.

38. Many of the questions asked of me during the selection process were difficult to answer.

39. I received an adequate explanation of how the selection tests would be scored.

40. I was offered an explanation of the types of factors that affected the hiring decision (accept/reject).

41. I was provided informative feedback on my performance.

42. I was treated honestly and openly during the selection process.

43. I was not offered sufficient opportunity to ask questions.

44. Compared to the ability of others taking these selection procedures, I don't think I received an appropriate evaluation.

45. It would be easy for people to be dishonest when answering questions and make themselves look good.

46. During the selection process, the people hiring asked standard questions that were the same for everyone.

47. During the selection process, the people made the difference - they were friendly and made me feel at ease.

48. In the hiring decisions, the people hiring seemed to favor those individuals who had special economic needs.

49. Overall, the selection process was pretty easy.

50. I thought that the selection process was too difficult to select applicants for this job.

51. The results of the selection process were consistent with how I view myself.

1 = Strongly Disagree *4*
2 = Disagree
3 = Neither Agree no Disagree
4 = Agree
5 = Strongly Agree

52. The outcome of the selection process was not a good reflection of my job capabilities.

53. The selection process was directly relevant to the job because it involved the same things that are required on the job.

54. I was told how test scores would be used to make a hiring decision (accept/reject).

55. I don't think that the selection procedures used can predict whether or not I will be successful on the job.

56. They asked me about their selection process and how it could be improved.

57. Personal motives or biases appeared to influence the selection process.

58. It was obvious how you should respond to some of the questions if you wanted the job.

59. I was treated with warmth, sincerity, and thoughtfulness during the selection process.

60. I thought you could beat the test if you were smart and gave the answers they were looking for.

61. As far as I know, the selection tests were administered the same way to all applicants.

62. I did not know what to expect during the selection process.

63. I was given adequate opportunity to demonstrate my skills and abilities.

64. It was made clear what was expected of me from the onset of the selection process.

65. I did not do as well as I expected to during the selection process.

66. People were candid and frank with me during the selection process.

67. People with greater needs were given special consideration for employment.

68. The types of questions asked during the selection test were the same as would be found in the journal coding task.

69. The test was not directly applicable to the journal coding task.

70. I was told how scores on the selection test would be used to hire people for the journal coding task.

1 = Strongly Disagree *5*
2 = Disagree
3 = Neither Agree no Disagree
4 = Agree
5 = Strongly Agree

71. I was given a reasonable explanation for why the selection test was used to select people for the journal coding task.

72. The selection test asked questions that were specifically related to the journal coding task.

73. The selection test was representative of the journal coding task.

74. I was told how the selection test is related to performance on the journal coding task.

75. The selection test was directly relevant to the journal coding task because it involved the same things that the coding task involves.

76. I received no explanation of why I was given the selection test.

77. The selection test was only indirectly related to the journal coding task.

78. I received information describing how the selection test would result in the selection of the most capable people for the journal coding task.

79. The questions asked during the selection process were not at all similar to the journal coding task.

Please Continue on the Next Page

1 = Strongly Disagree 6
2 = Disagree
3 = Neither Agree nc Disagree
4 = Agree
5 = Strongly Agree

OVERALL SELECTION PROCEDURE FAIRNESS

The following questions refer to your overall evaluation of the fairness of the procedures used to select people for the journal coding task. Without considering whether or not you received the job, we would like your reaction to the selection process. Please use the same five-point scale indicating your agreement or disagreement with each item.

80. Whether or not I got the job, I feel the selection process was fair.

81. Whether or not I got the job, the procedures used to select people for this job are fair.

82. Whether or not I got the job, I am satisfied with the selection process.

83. Overall, I feel dissatisfied with the way people were selected for the journal coding task.

OVERALL HIRING OUTCOME FAIRNESS

Now we would like you to only consider the outcome of the selection process. Without considering the procedures used to select you, please indicate your reaction to the decision to hire or not hire you for the journal coding task.

84. Overall, I feel the results of the selection process were unfair.

85. I feel the hiring decision (accept/reject) was fair.

86. Overall, I am satisfied with the hiring decision.

87. I am dissatisfied with the company's decision about whether or not to hire me.

OVERALL REACTIONS TOWARD THE PROJECT

The following questions refer to your overall reaction toward the project in general. Please answer the following questions with the same five-point scale.

88. If I hear about other projects like this, I would be interested in applying for them.

89. If I knew in advance what this project would entail, I would not have applied for it.

90. I would recommend this project to my friends.

91. I think my friends would be interested in applying for this project.

Satisfaction With The Coding Task

Please indicate the extent to which each of the descriptive terms listed below is representative of your experience with this coding task. Use the following five-point scale and fill in the number on the computer scanning sheet that best represents your personal reaction.

1 = Not at all
2 = A little bit
3 = Somewhat
4 = Quite a bit
5 = Extremely

Please begin by writing your student ID number on the scanning sheet and fill in the corresponding circles.

1. Pleasant

2. Bad

3. Ideal

4. Waste of time

5. Good

6. Undesirable

7. Worthwhile

8. Worse than most

9. Acceptable

10. Superior

11. Better than most

12. Disagreeable

13. Makes me content

14. Inadequate

15. Excellent

16. Rotten

17. Enjoyable

18. Poor

APPENDIX H

Results of Factor Analysis on Perceived Fairness

and Application/Recommendation Intentions Measures

Prerotation Eigenvalues

VARIABLE	COMMUNALITY	*	FACTOR	EIGENVALUE	PCT OF VAR	CUM PCT
		*				
OPF1	.62841	*	1	5.30473	44.2	44.2
OPF2	.58684	*	2	2.32863	19.4	63.6
OPF3	.64364	*	3	.85158	7.1	70.7
OPF4	.33915	*	4	.69603	5.8	76.5
ODF1	.62859	*	5	.58024	4.8	81.3
ODF2	.68973	*	6	.50629	4.2	85.6
ODF3	.61600	*	7	.40869	3.4	89.0
ODF4	.37368	*	8	.32649	2.7	91.7
REC1	.52248	*	9	.29589	2.5	94.2
REC2	.35825	*	10	.27256	2.3	96.4
REC3	.68114	*	11	.23047	1.9	98.3
REC4	.60463	*	12	.19841	1.7	100.0

Rotated Factor Matrix

	FACTOR 1	FACTOR 2	FACTOR 3
OPF2	.75913	.18105	.26587
OPF3	.75500	.16546	.35541
OPF1	.74044	.16721	.34006
OPF4	.47706	.06385	.33692
REC3	.14811	.89139	.01935
REC4	.09458	.77866	.01399
REC1	.04636	.75731	.08764
REC2	.14036	.55015	.20334
ODF3	.32225	.13146	.78269
ODF2	.52348	.03631	.69045
ODF1	.52114	.05321	.63644
ODF4	.25750	.13154	.56890